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A GUIDANCE DOCUMENT FOR KENTUCKY'S OIL AND GAS OPERATORS

Final Report
July 1, 1999-July 30, 1999

By
Rick Bender

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Kentucky Division of Oil and Gas
Frankfort, Kentucky

National Energy Technology Laboratory
National Petroleum Technology Office
U.S. DEPARTMENT OF ENERGY
Tulsa, Oklahoma

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TECHNICAL PROGRESS REPORT
July 30, 1999

This technical report is the final report for contract DE-FG22-94MT94006 and summarizes the accomplishment of work for this quarter. The final contract ending date was July 31, 1999 and all work required under the terms of the contract was completed by this date. During this quarter a contractor was obtained to perform the final editing and desktop publishing work required to complete the documents and file them with the DOE.

A one-year extension of time, from July 31, 1998 to July 31, 1999 was approved by DOE to allow the Guidance Document and UIC addendum section to be submitted to the public at several outreach meetings within the oil and gas producing areas of the state. The meetings were to better explain the intended purpose of the document and facilitate discussions on compliance matters. The Statement of Work was amended to allow for the outreach meetings and to conduct a review of Kentucky Rules and Regulations in comparison with required U. S. EPA, Class II Underground Injection Control (UIC) Rules.

A personal service contract was previously written and submitted to bidders qualified to conduct the Kentucky/U. S. EPA regulation review. During the previous quarter the contractor was chosen and the contract approved to conduct the Kentucky/U. S. EPA regulation review. During this quarter the contractor met with the U. S. EPA and from this review of State/Federal regulations a report was written identifying suggested changes to the Kentucky Program that would provide guidance in filing an application seeking Primacy of the UIC Program currently held by the U. S. EPA.

The following final reports were submitted to the DOE this quarter:

(1.) Commonwealth of Kentucky Oil and Gas Well Operators Manual

(2.) Commonwealth of Kentucky Class II Injection Well Operator's Manual

(3.) Underground Injection Control Primacy Application Guidance Report

UNDERGROUND INJECTION CONTROL PRIMACY APPLICATION GUIDANCE REPORT

PREPARED FOR

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF MINES AND MINERALS
DIVISION OF OIL AND GAS

1025 Capital Center Drive, Suite 201
P.O. Box 2244
Frankfort, Kentucky 40601

July 29, 1999

REPORT SUMMARY

The accompanying report, manual and assimilated data represent the initial preparation for submission of an Application for Primacy under the Class II Underground Injection Control (UIC) program on behalf of the Commonwealth of Kentucky. The purpose of this study is to identify deficiencies in Kentucky law and regulation that would prevent the Kentucky Division of Oil and Gas from receiving approval of primacy of the UIC program, currently under control of the United States Environmental Protection Agency (EPA) in Atlanta, Georgia.

This manual has been prepared not only to identify amendments to Kentucky statutes and regulations that would enhance the Commonwealth's application for primacy, but also to accumulate the necessary data and documentation in one volume to assist in the preparation of Kentucky's application. Accordingly, this manual contains guidance documents, suggestions for application preparation, sample exhibits and forms, and relevant statutes and regulations. It is intended to assist Division staff in the preparation of an Application for Primacy, and facilitate time and cost savings by providing significant documentation in one collective work. Much of the data necessary for a successful application are included in both hard copy and electronic format for ease of editing.

While significant time has been expended reviewing the current language of Kentucky's law and rules, a precise determination of all necessary amendments to Kentucky statutes and regulations to achieve primacy remains difficult. Any State which has Class II wells may, at its option apply for primacy for its Class II UIC program either: (1) under the regulations at 40 CFR Parts 122, 123, 124 and 146; or (2) under Section 1425 of the Safe Drinking Water Act. Under Section 1425, the State is required to demonstrate that the Class II portion of its UIC program meets the requirements of Section 1421(b)(1)(A) through (D) and represents an effective program to prevent underground injection which endangers drinking water sources. While meeting the requirements of Section 1421(b)(1)(A) through (D) may be considered somewhat objective, the "effectiveness test" of the overall UIC program is somewhat subjective in nature, with ultimate approval remaining at the discretion of EPA. The suggestions in this report, and guidance provided herein, are directed solely toward an application under Section 1425.

The original notice to the States of the availability of an alternative application procedure was given in The Federal Register on May 19, 1981, in Volume 46, No. 96, at page 27333. Included at Tab 1 of this manual is the EPA Guidance for State Submissions (Guidance) under Section 1425. The Guidance is basically a restatement of the 1981 Federal Register notice. It should be considered the working document, or roadmap, for application preparation. Suggestions contained in this report will follow the outline of that EPA guidance document.

For purposes of communicating with the EPA Region 4 office during the preparation of the Kentucky application, the following contacts are identified:

Andrew S. Bartlett is the Chief of the Groundwater & Underground Injection Control Section. Mr. Bartlett is available by phone at 404-562-9478, by fax at 404-562-9439, and by email at Bartlett.Andrew@epa.gov. Also assisting with the UIC primacy applications is Nancy Marsh. Ms. Marsh is available by phone at 404-562-9450. Both share the same office mailing address as follows:

United States Environmental Protection Agency
Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, Georgia 30303

As stated in the Guidance document, an Application for Primacy must contain the following elements:

a. a letter from the Governor;
b. a description of the program;
c. a statement of legal authority;
d. copies of the pertinent State forms; and
e. a signed copy of a Memorandum of Agreement.

Letter from the Governor

The Governor's letter should contain a request for approval of Kentucky's program; specify whether approval is sought under Section 1425 of the SDWA or under 40 CFR Parts 122, 123, 124, and 146; and affirm that Kentucky is willing and able to carry out the program. Included at Tab 2 of this report is a proposed draft of a letter for the Governor of Kentucky. While the content of the letter may be modified, it should include the above statements. Also included at Tab 2 of this report is a copy of the letter submitted by the Governor of Florida, provided as an additional sample for staff involved in the preparation of Kentucky's application.

Description of the Program

At the present time, Kentucky has no written program description. While the EPA has indicated that it is willing to conduct an overall review of all documents submitted in a State application to evaluate a program description, less time would be necessary for review and a higher assurance of ultimate approval would be probable if Kentucky submitted a written Program Description with its application. Staff should review Part 3.3 of the Guidance and draft a written description of the Kentucky program.

A review of Kentucky's pertinent oil and gas laws and regulations discloses that the current Kentucky oil and gas regulations codefied in 805 KAR are deficient in several areas to satisfy requirements for primacy approval. The specific reference to Kentucky's

underground injection control regulations are contained in 805 KAR 1:110. A revised version of 805 KAR 1:110 has been reviewed, edited and included at Tab 9 of this report.

The revised version of section 1:110 should be reviewed by staff and necessary steps taken to promulgate the revision. The revised regulation should then be included with the application as discussed below. In this regard, EPA has expressed a willingness to review the revised section 1:110 prior to enactment to determine if it meets the critical elements of a successful application. The ultimate decision of approval however is granted upon the review of the overall program for effectiveness, which includes consideration of supplemental data such as operators manuals, statutory law, legal authority, etc. Therefore, a review of partial data may or may not prove beneficial. In making a decision of whether to submit the proposed revision of section 1:110 to EPA for review prior to enactment, consideration of the extended time for partial review by EPA prior to promulgation of the revised regulation should be measured against the possibility of subsequent reconsideration of another revised version if the regulation requires amendment by EPA pursuant to their review after enactment.

In drafting the written program description, several elements are important to be discussed. A State's enforcement of its program is a crucial consideration in making the judgment of whether the State program is effective. Care should be taken to include a summary of past enforcement practices in the written program description. Additionally, in the case of Kentucky, enforcement remedies are available pursuant to KRS 353.991 and KRS 353.992. The EPA seems to be especially interested in evaluating whether both civil and criminal remedies are available to the State. To be an effective enforcement program under the SDWA, the Department should be able to seek criminal sanctions in addition to civil penalties and should be able to seek imprisonment for any willful violation, not just for the violations contemplated by KRS 353.991. These statutory references should not only be discussed in the written program description, but should also be addressed in the statement of legal authority discussed below.

The written program should also include a staffing chart of the Kentucky Department of Mines and Division of Oil and Gas. The question of staffing and resource availability are of concern to the EPA, and an adequate display of staffing resources provides enhancement for ultimate approval.

The procedures for exempting aquifers and a list of the aquifers or portions of aquifers proposed for exemption at the time of the application should also be obtained for the written program description.

Statement of Legal Authority

A statement of legal authority, intended to assure EPA that the State has adequate authority to carry out the described program, may be submitted by a legal officer of the State, such as the Attorney General, the legal counsel for the Department of Mines Division of Oil and Gas, or any officer who represents the Agency in legal matters.

The statement may be a simple certification or a full analysis of the legal basis for the described program. Because the question of enforcement is crucial to the EPA, it is recommended that an analysis be prepared that addresses this issue, among others. KRS 353.991 and KRS 353.992 should be specifically discussed to emphasize and clarify that Kentucky has available both civil and criminal remedies for enforcement purposes. To assist in this effort, an EPA Guidance for Attorney General Statement of Authority has been included at Tab 3 of the report. This document should be provided to the legal officer who will prepare the statement of authority as guidance.

Copies of Statutes and Regulations

The application for primacy must include copies of all applicable State statutes, rules and regulations. In this regard, copies of KRS 353 and 805 KAR have been prepared and included in this report at Tabs 4 and 5 respectively. EPA will also accept and review other relevant data in making their determination of the overall effectiveness of the State program. To assist staff, a copy of the Kentucky Class II Injection Well Operators Manual has been prepared and included at Tab 6 of this report. That document, along with any others available relating to the Kentucky UIC program, should be included with the application to EPA. Specifically, the Kentucky Well Inspectors Manual should also be included with the application.

Copies of State Forms

It appears that the State forms presently used by Kentucky may not include all information desirable to EPA for a favorable decision of primacy. Accordingly, the forms presently used by EPA have been assembled and included at Tab 7 of this report. In cases where the forms differ, consideration should be given to revising the Kentucky form to mirror the EPA form. EPA will certainly find no fault in forms that are substantially similar to their own current forms. Additional forms used by Kentucky in administering the program, including application forms, permit forms and reporting forms, should be included with the application as well.

Memorandum of Agreement

The final element of the application is a Memorandum of Agreement executed by the head of the State agency and the EPA Regional Administrator. Specific minimum elements of the Memorandum are listed in Part 3.7 of the Guidance document. The Memorandum does not have to be drafted by Kentucky prior to the application, but may be developed by the Commissioner of the Department of Mines and EPA. To assist with the development of the Kentucky MOA, a copy of the Memorandum of Agreement between the State of Mississippi and EPA is included as a sample at Tab 8 of this report.

Public Participation

Another important consideration of EPA is public participation in the application process. While Section 1425 relieves States of the responsibility to hold public hearings

and public comment prior to submitting an application, EPA feels that a public hearing is important prior to decision making. If Kentucky does not hold a public hearing on the application, EPA certainly will. If, on the other hand, Kentucky should hold public hearings prior to application, EPA will not necessarily hold hearings, but retains the option to do so. A decision should be made determining whether Kentucky prefers to conduct the hearings or defer to EPA.

Safe Drinking Water Act

Kentucky's application for primacy will be measured against subparagraphs (A) through (D) of Section 1421 (b)(1) of the Safe Drinking Water Act. To assist staff with the preparation of the written program description, a copy of the Safe Drinking Water Act is included for reference at Tab 10 of this report.

A review and analysis of Kentucky's oil and gas statutes demonstrates that, while subparagraphs (A) through (D) may not be specifically covered by statute, the combination of laws and regulatory provisions satisfy the requirements of Section 1421 (b)(1)(A) through (D).

Compliance with subparagraphs (A) through (D) of Section 1421(b)(1) represent the first of a two-prong test of the approval process. It should be restated that the second prong of the approval process is a determination that the Kentucky program "...represents an effective program to prevent underground injection which endangers drinking water sources." This subjective determination will be made from an overall review and analysis of all materials submitted by Kentucky in the application. Given the modified version of 805 KAR 1:110 proposed herein at Tab 9, an adequate analysis of authority in the Statement of Legal Authority, and inclusion of the State's collective oil and gas statutes and regulations, Kentucky should be successful in its application for primacy with the EPA upon completion and submission of its written program description.

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TAB 1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Washington, DC 20460

GUIDANCE

FOR

STATE SUBMISSIONS

UNDER

SECTION 1425

OF THE

SAFE DRINKING WATER ACT

GROUND WATER PROGRAM GUIDANCE #19

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1.0 Purpose and Scope

The 1980 amendments to the Safe Drinking Water Act (SDWA) added a new Section 1425 which provides an alternative means for States to acquire primary enforcement responsibility for the control of underground injection related to the recovery and production of oil and natural gas. This document contains guidance on: (1) how States may apply for approval under Section 1425; and (2) the criteria EPA will use in approving or disapproving applications under Section 1425.

EPA is mindful of the fact that, in enacting Section 1425, Congress intended that States be offered an alternative to the detailed requirements of the regulations promulgated at 40 CFR 122 [144], 123 [145], 124 and 146, and that State programs to control injections related to oil and gas production be considered on their merits. Nevertheless, Section 1425 does require a State to demonstrate that such portion of its Underground Injection Control (UIC) program: (1) meets the requirements of Section 1421(b)(1)(A) through (D); and (2) represents an effective program to prevent injection which endangers drinking water sources. Further, Section 1425 requires the Administrator of EPA to approve or disapprove such portion of a State's UIC program for primary enforcement responsibility based on his judgment of whether the State has succeeded in making the required demonstrations.

Consequently, EPA believes that States are entitled to guidance on the implementation of Section 1425. The procedures and criteria contained in this document were developed in consultation with interested States. They represent a "model" State application and program which, in EPA's view, meet the requirements of the amended SDWA. A State application which conforms to these procedures and meets the suggested criteria should be approvable under Section 1425.

A State may choose to apply in a different form and make demonstrations different from those suggested in this document. EPA will consider such applications. However, they will have to be reviewed on a case-by-case basis to determine whether they meet the requirements of the Act. Such reviews may involve additional requests for information, more time and less assurance of ultimate approval.

This guidance and the regulations promulgated at 40 CFR 122 [144], 123 [145], 124 and 146 are both aimed at achieving the same fundamental objective: the protection of underground sources of drinking water from endangerment by well injection. There are, however, some significant differences between them.

The most immediate difference is that one is a regulation and the other is guidance. This was a deliberate choice on the part of the Agency because it does not view the new Congressional mandate as requiring another set of detailed regulations for its implementation. In any event, there is insufficient time to develop such regulations in light of the short time remaining before State program submissions are due under Section 1422(b)(1)(A) of the SDWA.

A further difference is that State program submissions under Section 1422(b)(1) of the SDWA are required to meet a different legal standard from State program submissions under Section 1425. Under Section 1422(b)(1)(A), the State is required to make a showing that its UIC program "meets the requirements of regulations in effect under Section 1421; ..." Under Section 1425, the State is required to demonstrate that the Class II portion of its UIC program meets the requirements of Section 1421(b)(1)(A) through (D) and represents an effective program to prevent underground injection which endangers drinking water sources.

As a consequence of these differences, this guidance is much less detailed than the regulations and leaves a great deal more discretion to the State to develop and EPA to approve State UIC programs under Section 1425.

2.0 Applications

2.1 Definition

For the purposes of Section 1425 of the SDWA:

1. the underground injection of brine or other fluids which are brought to the surface in connection with oil or natural gas production; and

2. any underground injection for the secondary or tertiary recovery of oil or natural gas; and

3. any injection for the storage of hydrocarbons which are liquid at standard temperature and pressure;

shall be defined as "class II" injections or wells.

2.2 Need for an Underground Injection Control (UIC) Program

Any State which has Class II wells must have an UIC program to assure that such wells do not endanger underground sources of drinking water (USDWs). A State may submit its Class II program to EPA for approval. If EPA approves the program, the State has primary enforcement responsibility for that portion of its UIC program.

If a State chooses not to apply, or if its program is disapproved, or if subsequent to approval the State loses primary enforcement responsibility because the Administrator determines, under Section 1425(c)(2), that the demonstration is no longer valid, EPA must prescribe and implement a program in that State. When EPA implements a Class II program for a State, it will do so in accordance with the requirements of 40 CFR 122 [144], 124 and 146.

A State which does not have any Class II wells need not develop a Class II control program in order to qualify for primacy under the UIC program. Under the regulations at 40 CFR 123.51 [145.21] (d), such a State only needs to demonstrate that Class II wells cannot legally occur until the State has developed an approved program to regulate such injections.

2.3 Applications under Section 1425

Any State which has Class II wells may, at its option apply for primacy for its Class II UIC program either: (1) under the regulations at 40 CFR 122 [144], 123 [145], 124 and 146; or (2) under Section 1425 of the SDWA.

2.4 When Should Application be Made?

House Report No. 96-1348, accompanying the 1980 amendments, states on page 5 that: "The Committee expects that alternative demonstrations will be submitted on the same schedule. Accordingly, as demonstrations required for state programs meeting Federal regulations promulgated under Section 1421(b)." States have 270 days from July 24, 1980 to submit applications, or until April 20, 1981.

This period may be extended by up to another 170 days by the Regional Administrators for "good cause", or until January 15, 1982.

A State need not wait until it is ready to submit its application for all classes of wells. EPA will entertain partial applications for primacy as long as the program for which approval is sought covers: (1) all elements of a program to regulate a particular class or classes of injection practices even if the class or classes involve the jurisdiction of more than one State agency; or (2) all elements of a program to regulate all the classes or types of wells within the jurisdiction of a single State agency. However, if a State submits a partial application, the alternative demonstration under Section 1425 may be used only for the Class II portion of the application. The portion of the program covering types of practices other than Class II will have to meet the requirements of 40 CFR 122 [144], 123 [145], 124 and 146.

2.5 Effects of a Partial Application

The recent amendments have changed Section 1443 of the SDWA so that a State may receive grant support until July 1982. After that date, it must have achieved full primacy in order for grant eligibility to continue. As a consequence, a State may receive partial primacy for its Class II control program and continue to receive grants: (1) if it has obtained an extension for submitting the remainder of its application; (2) until it declares its intention not to file any further applications; (3) until EPA terminates its grant for cause; or (4) until July 1982, whichever is soonest.

If a State receives full primacy, its eligibility for grants will, of course, continue.

3.0 Elements of an Application for Primacy under Section 1425

3.1 Elements of a State Applcation

A complete State submission should contain the following elements:

a. a letter from the Governor;
b. a description of the program;
C. a statement of legal authority;
d. copies of the pertinent statutes and regulations;
e. copies of the pertinent State forms; and
f. a signed copy of a Memorandum of Agreement.

The nature of these elements is described further below.

3.2 Letter from the Governor

The letter from the Governor should:

a. request approval of the State's program for primacy under the, UIC program;

b. specify whether approval is sought under Section 1425 of the SDWA, or under 40 CFR 122 [144], 123 [145], 124, and 146; and

C. affirm that the State is willing and able to carry out the program described.

3.3 Program Description

A State's application is expected to contain a full description of the program for which approval is sought, in sufficient detail to enable EPA to make the judgments outlined in Section 5 below. Such a description should:

a. specify the structure, coverage and scope of the program
b. specify the State permitting process and address, to the extent applicable, the following elements:

1. who applies for the permit or the authorization by rule;

2. signatories required for permit application and reports;

3. conditions applicable to permits, including: duty to comply with permit conditions, duty to reapply, duty to halt or reduce activity, duty to

mitigate, proper operation and maintenance, permit actions, property rights, inspection and entry, monitoring, record keeping, and reporting requirements;

4. compliance schedules;

5. transfer of permits;

6. termination of permits;

7. whether area permits or project permits are granted;

8. emergency permits;

9. the availability and use of variances and other discretionary exemptions to programmatic requirements; and

10. administrative and judicial procedures for the modification of permits.

c. describe the operation of any rules used by the State to regulate Class II wells;

d. describe the technical requirements applied to operators by the State program,

e. include a description of the State's procedures for monitoring, inspection and requiring reporting from operators;

f. discuss the State's enforcement program, e.g.:

1. administrative procedures for dealing with violations;

2. nature and amounts of penalties, fines and other enforcement tools;

3. criteria for taking enforcement actions; and

4. if the State is seeking approval for an existing program, summary data on:

A. past practice in the use of enforcement tools;

B. current compliance/non-compliance with State requirements;

C. repeat violations at the same well or by the same operator at different wells;

D. well failure rates; and

E. USDW contamination cases based on actual field work and citizen complaints.

g. detail the State's staffing and resources, and demonstrate that these are sufficient to carry out the proposed program;

h. if more than one State agency is involved in the Class II program, describe their relationships with regard to carrying out the Class II program;

1. contain a reasonable schedule for completion of an inventory of Class II wells in the State;

j. include the procedures for exempting aquifers, a list of the aquifers or portions of aquifers proposed for exemption at the time of application, and the reasons for the proposed exemptions, unless these have been described in other partial applications made by the State;

k. contain a plan (including the basis for assigning priorities) for the review of all existing Class II wells in the State within five years of program approval to assure that they meet current non-endangerment requirements of the State (this may include permit modification and reissuance, if appropriate);

1. describe State requirements for ensuring public participation in the process of issuing permits and modifying permits in the case of substantial changes in the project area, injection pressure or the injection horizon; and

m. describe State procedures for responding to complaints by the public.

3.4 Statement of Legal Authority

The statement of legal authority is intended to assure EPA that the State has the legal authority to carry out the program described. It may be signed by a competent legal officer of the State, for example, the Attorney General, the Counsel for the responsible State agency, or any other officer who represents the Agency in legal matters.

The statement may, at the option of the State, consist of a fun analysis of the legal basis for the State program including case law as appropriate. Or the statement may consist of a simple certification by the legal representative that the State has adequate authority to carry out the described program. If the State chooses to submit a certification, the program description should detail the legal authority on which the various elements of the State's program rest.

3.5 Copies of Statutes and Regulations

The application should contain copies of all applicable State statutes, rules and regulations, including those governing State administrative procedures.

3.6 Copies of State Forms

The application should contain examples of all forms used by the State in administering the program, including application forms, permit forms and reporting forms.

3.7 Memorandum of Agreement

The head of the cognizant State agency and the EPA Regional Administrator shall execute a memorandum of agreement which shall set forth the terms under which the State will carry out the described program and EPA will exercise its oversight responsibility. A copy of such an agreement signed by the Director of the State agency, shall be submitted as part of the application.

At a minimum, the memorandum of agreement should:

a. Include a commitment by the State that the program will be carried out as described and be supported by an appropriate level of staff and resources;

b. Recognize EPA's right of access to any pertinent State file;

C. Specify the procedures (e.g., notification to the State and participation by State officials) governing EPA inspections of wells or operator records;

d. Recognize EPA's authority to take Federal enforcement action under Section 1423 of the SDWA in cases where the State fails to take adequate enforcement actions;

e. Agree to provide EPA with an annual report on the operation of the State program the content of which may be negotiated between EPA and primacy States from time to time;

f. Provide that aquifer exemptions for Class II wells be consistent with aquifer exemptions for the rest of the UIC program;

g. When appropriate, may include provisions for joint processing of permits by the State and EPA for facilities or activities which require permits from both EPA and the State under different programs; and

h. Specify that if the State proposes to allow any mechanical integrity tests other than those specified or justified in the program application, the Director will notify the cognizant Regional Administrator and provide enough information about the proposed test that a judgment about its usefulness and reliability may be made.

4.0 Process for Approval or Disapproval of Application

4.1 Public Participation by States

Section 1425 relieves States of the responsibility to hold public hearings or afford an opportunity for pubic comment prior to submitting an application to EPA. Therefore, when application is made by a State under Section 1425, it may, but need not, provide an opportunity for public hearings or comments.

4.2 Complete Applications

Within 10 working days of the receipt of a final application, EPA will determine whether the application is complete or not and so notify the State in writing. If the application is found to be incomplete it will be returned to the State with specific requests for additional material or changes. However, the State may, at its option, insist that EPA complete its review of an application as submitted.

4.3 EPA Review

a. EPA has 90 days to approve or disapprove an application. If EPA finds that the application is complete, the review period will be deemed to have begun on the date the application was received in the cognizant Regional Office. If an application has been found to be incomplete and the State insists that EPA proceed with its review of the application as submitted, the review period will begin on the date that EPA receives the State's request to proceed in writing. The review period may be extended by the mutual consent of EPA and the State.

b. Within the 90-day period, EPA will request public comments and provide an opportunity for public hearing on each application, in the applying State, in accordance with 40 CFR 123.54 [145.311(c) and (d). If the State has not done so, EPA will hold at least one public hearing in the State.

c. If a State's application is approved, the State shall have primary enforcement responsibility for its Class II program.

d. If a State's application is disapproved, EPA intends within 90 days of disapproval or as soon thereafter as feasible, prescribe a Class II program for the State in accordance with Section 1422(c) of the SDWA and 40 CFR 122 [144], 124 and 146.

5.0 Criteria for Approving or Disapproving State Programs

5.1 General

Section 1425 of the SDWA states that: " . . . the State may demonstrate that [the Class II] portion of the State program meets the requirements of subparagraphs (A) through (D) of Section 1421 (b)(1) and represents an effective program (including adequate recordkeeping and reporting) to prevent underground injection which endangers drinking water sources."

Thus Section 1425 requires that a State, in order to receive approval for its Class II program under the optional demonstration, make a successful showing that its program meets five conditions:

a. Section 1421 (b)(1)(A) requires that an approvable State program prohibit any underground injection in such State which is not authorized by permit or rule.

b. Section 1421 (b)(1)(B) requires that an approvable State program shall require that:

   1 . the applicant for a permit must satisfy the State that the underground injection will not endanger drinking water sources; and

   2. no rule may be promulgated which authorizes any underground injection which endangers drinking water sources.

c. Section 1421(b)(1)(C) requires that an approvable State program include inspection, monitoring, recordkeeping, and reporting requirements.

d. Section 1421 (b)(1)(D) requires that an approvable State program apply to: (1) underground injections by Federal agencies; and (2) underground injections by any other person, whether or not occurring on property owned or leased by the United States.

e. Section 1425(a) requires that an approvable State program represent an effective program to prevent underground injection which endangers drinking water sources.

The following sections provide guidance to EPA personnel making the required judgments with respect to these five conditions in the review of an application for approval under Section 1425.

5.2 Section 1421(b)(1)(A)

The question of whether a State program prohibits unauthorized Class II injections is a function of the State's statutory and regulatory authority. A determination of whether the State program meets this condition should be made from a review of the coverage and scope of the program, the statement of legal authority submitted by the State, and of the statutes and regulations themselves. One important consideration is whether the State has an appropriate formal mechanism for modifying permits in cases where the operation has undergone significant change.

5.3 Section 1421(b)(1)(B)

The determination of whether a State program is adequate in requiring that the applicant demonstrate that the proposed injection will not endanger drinking water sources turns on two elements: (1) whether the State program places on the applicant the burden of making the requisite showing; and (2) the extent of the information the applicant is required to provide as a basis for the State agency's decision. Whether the burden of making the requisite showing is on the applicant should be determined from the State's description of its permitting process. If the necessary information is available in State files, the Director need not require it to be submitted again. However, as a matter of principle, the applicant should not escape ultimate responsibility for assuring that the information about his operation is accurate and available. One consideration in this regard is whether the well operator has a responsibility to inform the permitting authority about any material change in his operation, or any pertinent information acquired since the permit application was made.

With regard to the extent of the information to be considered by the Director, the State program should require an application containing sufficiently detailed information to make a knowledgeable decision to grant or deny the permit. Such information should include:

a. A map showing the area of review and identifying all wells of public record penetrating the injection interval;

b. A tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data should include a description of each well's type, construction, date of drilling, location, depth, record of plugging and/or completion, and any additional information the Director may require;

c. Data on the proposed operation, including:

    1. Average and maximum daily rate and volume of fluids to be injected;

    2. Average and maximum injection pressure; and

3. Source, and an appropriate analysis of injection fluid if other than produced water, and compatibility with the receiving formation;

d. Appropriate geological data on the injection zone and confining zones including lithologic description, geological name, thickness, and depth;

e. Geologic name, and depth to bottom of all underground sources of drinking water which may be affected by the injection;

f. Schematic drawings of the surface and subsurface construction details of the system;

g. Proposed stimulation program

h. All available logging and testing data on the well; and

i. The need for corrective action on wells penetrating the injection zone in the area of review.

There are two circumstances under which the Director may require less information from the applicant. First, the Director need not require an applicant to resubmit information which is up-to-date and readily available in State files. Second, a State's application may outline circumstances or conditions where certain items of information may not be required in a specific case. Such circumstances may include situations where, based upon demonstrable knowledge available to the Director about a specific operation, the Director proposes to permit that operation without requiring corrective action or alternatives to it. Examples of such circumstances are gravity or vacuum injections and injections through zones of plastic heaving shales.

Section 1421(b)(1)(B) also requires a State which authorizes Class II injections by rule to show that such rules do not allow any underground injection which endangers drinking water sources. The determination of whether the State program meets this requirement may be made from the program description, statement of legal authority, the text of the rules themselves, and the manner in which the State has administered such rules.

5.4 Section 1421(b)(1)(C)

This section of the SDWA requires that an approvable State program contain elements for inspection, monitoring, recordkeeping and reporting. The adequacy of the State program in these respects may be assessed with the use of the following criteria.

a. Inspection

An approvable State program is expected to have an effective system of field inspection which will provide for:

1. Inspections of injection facilities, wells, and nearby producing wells; and

2. The presence of qualified State inspectors to witness mechanical integrity tests, corrective action operations, and plugging procedures.

An adequate program should insure that, at a minimum, 25% of all mechanical integrity tests performed each year will be witnessed by a qualified State inspector.

b. Monitorinig, Reporting and Recordkeeping

1. The Director should have the authority to sample injected fluids at any time during injection operation.

2. The operator should be required to monitor the injection pressure and injection rate of each injection well at least on a monthly basis with the results reported annually.

3. The Director should require prompt notice of mechanical failure or downhole problems in injection wells.

4. The State should assure retention and availability of a11. monitoring records from one mechanical integrity test to the next (i.e., 5 years).

5.5 Section 1421(b)(1)(D)

An approvable State program must demonstrate the State's authority to regulate injection activities by Federal agencies and by any other person on property owned or leased by the United States. The adequacy of the State's authority in these regards may be assessed on the basis of the program description and statement of legal authority submitted by the State. Such authority and the programs to carry it out must be in place at a time no later than the approval of the program by EPA. EPA will administer the UIC program on Indian lands unless the State has the authority and is willing to assume responsibility.

5.6 Section 1425(a)

In addition to the four demonstrations discussed above, Section 1425 requires a State to demonstrate that the Class II program for which it seeks approval in fact "represents an effective

program to prevent underground injection which endangers drinking water sources." Among the factors that EPA will consider in assessing the effectiveness of a State program are: (1) whether the State has an effective permitting process which results in enforceable permits; (2) whether the State applies certain minimum technical requirements to operators by permit or rule; (3) whether the State has an effective surveillance program to determine compliance with its requirements; (4) whether the State has effective means to enforce against violators; and (5) whether the State assures adequate participation by the public in the permit issuance process.

Evidence of the presence or absence of ground water contamination is important. However, it cannot serve as the sole criterion of effectiveness. Not all States have collected such evidence systematically. More importantly, the absence of evidence of contamination, especially if based on an absence of complaints, is not necessarily proof that ground water contamination has not occurred.

Each of the five factors named above is discussed further in the following subsections. In its review of these factors, EPA is not necessarily looking for a minimum set or even any particular elements. The effectiveness of a State program will be assessed by reviewing the State's entire program. The absence of even an important element in a State program may not by itself mean that the program is ineffective as long as there is a credible program for detecting and eliminating injection practices which allow any migration which endangers drinking water sources.

a . Permitting Process

Section 3.3 b of the Program Description outlines the major elements of the permitting process. The listing of these considerations should not be viewed as Federally imposed minimum policy, but rather as an outline of the information which will be necessary for EPA to evaluate the effectiveness of the State's permitting process.

States may deal with permitting considerations, such as limitations on the transfer of permits, in a variety of ways. There are many permitting approaches which may be equally effective. EPA's review will turn on whether the permitting process, taken as a whole, represents an effective mechanism for applying appropriate and enforceable requirements to operators.

b. Technical Criteria

Any approvable State program should have the authority to apply, by permit or rule, certain technical requirements designed to prevent the migration of injected or formation fluids into USDWs. Any State program adopting the language of 40 CFR 146 should be considered approvable on its face value for that portion of the program to which it applies. State applications not relying on the language of 40 CFR 146 should be reviewed for the presence and adequacy of the following kinds of technical requirements in the State program.

1. Siting

Siting requirements should be considered in the placement and construction of any Class II disposal well. Such requirements should be designed to assure that disposal zones are hydraulically isolated from underground sources of drinking water (USDWs). Such isolation may be shown through information supplied by the applicant, or data, on file with the State, which would be analyzed by qualified State staff.

2. Construction

A. Effective programs should require all newly drilled Class II wells to be cased and cemented to prevent movement of fluids into USDWs. Specific casing and cementing requirements should be based on:

i. the depth to the base of the USDW;

ii the nature of the fluids to be injected; and

iii. the hydrologic relationship between the injection zone and the base of the USDW.

B. All newly converted Class II wells should be required to demonstrate mechanical integrity.

3. Operation

A. Adequate operating requirements should establish a maximum injection pressure for a well which assures that the pressure in the injection zone during injection does not initiate new fractures or propagate existing fractures in the confining zone. Limitations on injection pressure should also preclude the injection from causing the movement of fluids into an underground source of drinking water.

Acceptable methods for establishing limitations on injection pressures include:

i. Calculated fracture gradients;

ii. Injectivity tests to establish fracture pressure; or

iii. Other compelling geologic, hydrologic or engineering data.

B. An effective State program should have the demonstrated ability to detect and remedy system failures discovered during routine operation or monitoring so as to mitigate endangerment to USDWs.

4. Plugging and Abandonment

Plugging and abandonment requirements should be reviewed for the presence of the following elements:

A. That appropriate mechanisms are available in the State program to insure the proper plugging of wells upon abandonment;

B. That all Class II wells are required, upon abandonment, to be plugged in a manner which will not allow the movement of fluids into or between USDWs; and

C. That operators are required to maintain financial responsibility in some form, for the plugging of their injection wells.

5. Area of Review

An effective State program is expected to incorporate the concept of an area of review defined as a radius of not less than ¼ mile from the well, field, or project.

Alternatively, a State program may substitute a concept of a zone of endangering influence in lieu of this fixed radius. The zone of endangering influence should be determined for the estimated life of the well, field, or project through the use of an appropriate calculation, formula, or mathematical model that takes the relevant geologic, hydrologic, engineering and operational features of the injection well, field or project into account.

6. Corrective Action

An approvable State program is expected to include the authority to require the operator to take corrective actions on wells within the area of review or zone of endangering influence.

A. Corrective action may include any of the following types of requirements:

i. recementing;

ii. workover;

iii. reconditioning; or

iv. plugging or replugging.

B. A State program may provide the Director the discretion to specify the following types of requirements in lieu of immediate corrective action:

i. permit conditions which will assure a negative hydraulic gradient at the base of USDW at the well in question;

ii. monitoring program (i.e., monitoring wells completed to the base of USDW within the zone of influence); or

iii. periodic testing to determine fluid movement outside the injection interval at other wells within the area of review.

However, if monitoring or testing indicate the potential endangerment of any USDW, corrective action shall be required.

C. In cases where the Director has demonstrable knowledge of geologic, hydrologic, or engineering conditions, specific to a given operation, which assure that wells within the zone of endangering influence or area of review will not serve as conduits for migration of fluids into an USDW, a State program may provide the Director the discretion to permit a specific operation without requiring corrective actions or any of the alternatives specified in Subsection (8) above. Examples of such circumstances are gravity or vacuum injections and injections through zones of plastic heaving shales. However, under the statute the State program may, in no circumstances, authorize an injection which endangers drinking water sources.

7. Mechanical Integrity

An approvable State program is expected to require the operator to demonstrate the mechanical integrity of a new injection well prior to operation and of all injection wells periodically, at least once every five years. For the purpose of assessing the State's mechanical integrity requirements:

A. An injection well has mechanical integrity if:

i. there is no significant leak in the casing, tubing or packer; and

ii. there is no significant fluid movement into an underground source of drinking water through vertical channels adjacent to the well bore.

B. The following tests are considered to be acceptable tests to demonstrate the absence of significant leaks:

i. a pressure tests with liquid or gas;

ii. the monitoring of annulus pressure in those wells injecting at a positive pressure, following an initial pressure test; or

iii. all other tests or combinations of tests considered effective by the Director.

C. The following are considered to be acceptable tests to demonstrate the absence of significant fluid movement in vertical channels adjacent to the well bore:

i. cementing records (they need not be reviewed every five years);

ii. tracer surveys;

iii. noise logs;

iv. temperature surveys; or

v. any other test or combination of tests considered effective by the Director.

D. If the State program allows or specifies alternative tests under B(iii) or (C)(v) above, the program description should supply sufficient information so that the usefulness and reliability of such tests in the proposed circumstance may be assessed.

c. Surveillance

The demonstration of an effective surveillance program has already been discussed in Section 5.4 above.

d. Enforcement

A State's enforcement of its program is a crucial consideration in making the judgment of whether the State program is effective. States have used a number of enforcement tools to shift the economic incentive of operation more toward compliance with the law. Often State programs have employed civil penalties and, for repeat or willful violators, criminal fines or jail sentences. Other commonly used practices are administrative orders and court injunctions. In the area of oil and gas regulation, many States have found pipeline severance a powerful tool. In assessing a State's enforcement program, EPA will consider not whether a State has all or any particular enforcement tools but whether the State's program, taken as a whole, represents an effective enforcement effort. Certainly, there are many enforcement matrices which create effective programs. In addition, EPA will look at whether the State has exercised its enforcement authorities adequately in the past.

e. Public Participation

One factor to be used by EPA in assessing the "effectiveness" of a State program is the degree to which it assures the public an opportunity to participate in major regulatory decisions. It is assumed that most States already have legislation that governs public participation in State decision-making and defines such processes as appeals, etc. Therefore, the following represents only a minimal list of elements that EPA will consider:

1. Public Notice of permit application:

   A. The State may give such notice or it may require the applicant to give notice.

   B. The method of giving notice should be adequate to bring the matter to the attention of interested parties and, in particular, the public in the area of the proposed injection. This may involve one or more of the following:

      i. posting;

      ii. publication in an official State register;

      iii. publication in a local newspaper;

      iv. mailing to a list of interested persons; or

      v. any other effective method that achieves the objective.

   C. An adequate notice should:

i. provide an adequate description of the proposed action;

ii. identify where an interested party may obtain additional information. This location should be reasonably accessible and convenient for interested persons;

iii. state how a public hearing may be requested; and

iv. allow for a comment period of at least 15 days.

2. The State program should provide opportunity for a public hearing if the Director finds, based upon requests, a significant degree of public interest.

   A. The Director may hold a hearing of his own motion and give notice of such hearing with the notice of the application.

   B. If a public hearing is decided upon during the comment period, notice of public hearing shall be given in a newspaper of general circulation. The hearing should be scheduled no sooner than 15 days after the notice.

3. The final State action on the permit application should contain a "response to comments" which summarizes the substantive comments received and the disposition of the comments.

6.0 Oversight

6.1 General

Once a Class II program is approved under Section 1425, the State has primary enforcement responsibility for such portion of its UIC program. The Class II program is a grant-eligible activity and is subject to the same EPA oversight as other portions of the UIC program (e.g., State/EPA Agreements, Mid-course Reviews, grant conditions, etc.).

6.2 Mid-Course Evaluation

EPA will conduct a mid-course evaluation of Class II programs as envisioned in 40 CFR 122.18 [144.81 (c)(4)(ii) and 146.25. However, in lieu of a special reporting requirement, additional requirements have been added to the State's annual report to EPA. Should this mechanism prove unable to provide the necessary data, a special reporting requirement may be negotiated with the primacy States at a later date.

6.3 Annual Reporting

As part of the Memorandum of Agreement, each State shall agree to submit an annual report on the operation of its Class II program to EPA. At a minimum the annual report shall contain:

a. an updated inventory;

b. a summary of surveillance programs, including the results of monitoring and mechanical integrity testing, the number of inspections, and corrective actions ordered and witnessed;

C. an account of all complaints reviewed by the State and the actions taken;

d. an account of the results of the review of existing wells made during the year; and

e. a summary of enforcement actions taken.

TAB 2

COMMONWEALTH OF KENTUCKY

OFFICE OF THE GOVERNOR

[date]

Mr. Andrew S. Bartlett
Chief, Groundwater & Underground Injection Control Section
U.S. Environmental Protection Agency
61 Forsyth Street, SW
Atlanta, Georgia 30303-8960

Dear Mr. Bartlett:

I am pleased to submit Kentucky's Application for Primacy for Class II wells. Your approval of Kentucky's program for primacy pursuant to the Underground Injection Control program is respectfully requested.

The accompanying Application and supportive documents are being submitted for approval under the provisions of Section 1425 of the Safe Drinking Water Act.

The Commonwealth of Kentucky is fortunate to have experienced, dedicated professionals serving in the Department of Mines and Minerals and the Division of Oil and Gas. I can certainly affirm that Kentucky is willing and able to carry out the program described in the accompanying application.

For the purpose of this application, Mr. Rick Bender, Director of the Division of Oil and Gas, will be acting as liaison with the EPA. Should you have any questions or require additional information, please contact Mr. Bender in the Division offices at 502-573-0147.

I look forward to EPA's favorable decision regarding this application and thank you for your attention, time and effort to this request on Kentucky's behalf.

Sincerely,

Paul E. Patton

LAWTON CHILES
GOVERNOR

STATE OF FLORIDA

Office of the Governor

THE CAPITOL
TALLAHASSEE, FLORIDA 32399-0001

August 12, 1998

Mr. John Hankinson, Jr., Regional Administrator
U. S. Environmental Protection Agency, Region 4
Atlanta Federal Center, 100 Atlanta St., SW
Atlanta, Georgia 30303

Dear Mr. Hankinson:

I am pleased to submit, pursuant to Section 1425 of the Safe Drinking Water Act, Florida's Application for Primacy for Class II wells. I affirm that Florida has tightly controlled underground injection wells since 1945 and is willing and able to carry out the program described in this application.

As you may know, the State of Florida has one of the most rigorous oil and gas regulatory programs in the United States and has continuously controlled all exploration and production operations, including underground injection wells, for more than five decades. Furthermore, we have been pleased to work closely with the USEPA Groundwater Division since the inception of the EPA's UIC program and have been glad to conduct mechanical integrity tests on behalf of the EPA at the same time we conducted our own. We are comfortable with the EPA's high standards and look forward to working with you in the future.

This application is made as a part of my overall program to streamline government and reduce the regulatory burden placed on Florida's businesses and citizens without reducing environmental safeguards. Since we have parallel UIC programs, it makes good sense to combine the two thereby reducing overall costs and simplifying both permitting and field inspection practices.

I have appointed Dr. Walter Schmidt, Chief of the Florida Geological Survey and State Geologist, to act as liaison with the EPA on the Primacy Application. Please contact Dr. Schmidt at the Survey's offices (850-488-4191) if you have any questions or require additional information.

I look forward to EPA's favorable decision on this application and if I can do anything to expedite the process please let me know. Thank you for your time and effort on Florida's behalf.

With kind regards, I am

Sincerely,

Lawton Chiles

LAWTON CHILES

LC/dc

cc: Walter Schmidt

TAB 3

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE: JUL 31 1981

RE: Attorney General's Statement, Underground Injection Control Program (UIC), Ground Water Program Guidance #16

FROM: Alan Levin, Director
State Programs Division

TO: Water Division Directors (Regions I – X)
Water Supply Branch Chiefs
UIC Representatives

PURPOSE

The purpose of this guidance is to provide a listing of all the elements considered necessary to demonstrate that the laws of the State that seeks to administer a UIC program provide adequate authority to carry out the program as described in 40 CFR 123.4. Each listing includes: an explanation of the Federal requirement; a section on the "State Statutory and Regulatory Authority" in which the State should list all relevant statutes and regulations; and a section for "Remarks of the Attorney General" which allows further legal explanation and clarification, including judicial decisions demonstrating adequate authority.

BACKGROUND

40 CFR 123.3 lists the Attorney General's statement as one of the elements necessary for the submission of an acceptable UIC program. This statement is a certification by a qualified representative of the State (or State Agency) stating that the State statutes, administrative regulations, and judicial decisions demonstrate adequate authority to administer a program for the protection of underground sources of drinking water. 40 CFR 123.5 (Attorney General's Statement) requires that the State demonstrate adequate authority to carry out the program submitted under §123.4 and which meets the requirements of 40 CFR Parts 122, 123, 124, and 146.

This guidance is intended to apply to Class I, III, IV, and V wells, and also Class III wells submitted with a program meeting the requirements of 40 CFR Parts 122, 123, 124, and 146. Nevertheless, it may be used as an example for State programs submitted under Section 1425 guidance since the statement of legal authority may consist of a simple certification by the legal representative of that State, or a full analysis of the legal basis for the State program, including case law as appropriate. However, if the State chooses to submit a certification, the program description should detail the legal authority on which the various elements of the State's program is based.

GUIDANCE

The guidance and index for the Attorney General's Statement is attached.

IMPLEMENTATION

The Water Supply Branch (WSB) Chief in coordination with the Regional Counsel shall follow this guidance to develop with the State an acceptable State Attorney General's Statement for the UIC program submission. All State statutes and regulations cited by the Attorney General or independent legal counsel shall be lawfully adopted State statutes and regulations at the time the statement is signed, and shall be fully effective at the time the program is approved. The attorney signing this Statement must have full authority to independently represent the State agency in court on all matters pertaining to the State program.

FILING INSTRUCTIONS

This guidance should be filed as Ground Water Program Guidance No. 16.

ACTION RESPONSIBILITY

For further information on this guidance contact:

A. Roger Anzzolin
Environmental Protection Agency
Office of Drinking Water WH-550
401 M Street, SW
Washington, DC 20460
(202) 426-3934

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17. The State must have authority to make available to EPA upon Request, without restriction, any information obtained or used In the administration of the State program, including information Claimed by permit applicants as confidential (40 CFR §123.10). 34

18. Certification of Status as Independent Legal Counsel 34

(To be used if State agency counsel has prepared the statement.)

19. Signature of the Attorney General or Independent Legal Counsel 35

UNDERGROUND INJECTION CONTROL PROGRAM
ATTORNEY GENERAL'S STATEMENT

I hereby certify, pursuant to the provisions of Part C of the Safe Drinking Water Act (42 U.S.C. 300f et seq., as amended) and 40 CFR 123.5(a), that in my opinion the laws of the State of (Name of State) provide adequate authority to apply for, assume and carry out the program set forth in the Program Description submitted by the (State or State Agencies, if partial). The specific authorities provided, which are contained in lawfully enacted statutes or promulgated regulations which will be in full force and effect on the date of approval of this program include the following:

1. Prohibition of Unauthorized Injection

Federal law prohibits any underground injection unless authorized by permit or rule (Section 1421(b)(1)(A) of the Safe Drinking Water Act (SDWA) and 40 CFR 122.23).

State Statutory and Regulatory Authority

By Permits:
By Rules:
By Class or Type:

Remarks of Attorney General

(Include effective date as applied to the program; must be effective by date of program approval. Explain how the above-cited prohibition applies by class of well and, where applicable, by type of well.)

2. Prohibition of Endangering Drinking Water Sources

a. State authority, which provides authorization of underground injection by permit, shall require that the applicant for a permit to inject must satisfy the State that the underground injection will not endanger drinking water sources (Section 1421(b)(1)(B)(I)).

State Statutory and Regulatory Authority

[Include class of well(s) and show that all waters meeting the Federal definition of drinking water sources will be protected.]

Remarks of Attorney General

b. The SDWA requires that a State program, in the case of a program which provides for authorization by rule, include the prohibition that no rule may be promulgated which authorizes any underground injection which endangers drinking water sources within the meaning of Section 1421(d)(2) (Section 1421(b)(1)(B)(iii)).

State Statutory and Regulatory Authority

Remarks of Attorney General

3. Prohibition of Movement of Fluid into a USDW

a. The Federal program at 40 CFR 122.34(a)(1) requires State programs to prohibit any authorization of an underground injection by permit or rule, that causes or allows movement of fluid into a USDW, for Class I, II or III wells.

State Statutory and Regulatory Authority

Remarks of Attorney General

b. For Class IV or V wells, the Federal program requires State programs to prohibit any authorization by rule or permit that causes or allows movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation or may otherwise adversely affect the health of persons (40 CFR 122.34(a)(2)).

State Statutory and Regulatory Authority

Remarks of Attorney General

c. Corrective action must be imposed if any such movement is occurring from any Class I, II or III well. (40 CFR 122.34(b), and 122.4).

State Statutory and Regulatory Authority

Remarks of Attorney General

d. For Class V wells, the Director must take action in accordance with 40 CFR 122.34(c) and (d).

State Statutory and Regulatory Authority

Remarks of Attorney General

4. Authority to Issue Permits or Rule

The SDWA requires State authority to issue permits or promulgate rules for underground injection not less stringent than regulations of the Environmental Protection Agency [Section 1422(b)(1)(A)(I) and 40 CFR Parts 122, 123, 124, and 146].

State Statutory and Regulatory Authority

(1) By Permits, as applicable, by State Agency (§122.38)

Class I
Class II
Class III
Class IV
Class V

(2) By rule, as applicable, by State Agency (§122.37 as amended)

(3) Area permits (§122.39)

(4) Emergency permits, if applicable (§122.40)

Remarks of Attorney General

[Include reference to other State agencies if not a part of this Statement.]

5. Authority to Condition Authorized Injection Activities

The SDWA requires State authority to condition permits in accordance with conditions applicable to all permits (40 CFR 123.7(a)(1) through (a)(17), §§122.41 and 122.42).

[Include process for establishing permit conditions for transfer, modification, and termination.]

State Statutory and Regulatory Authority

Remarks of Attorney General

6. Authority to Impose Compliance Evaluation Requirements

a. The SDWA requires the State to have authority for entry in or onto a site or facility for the purpose of inspections (Sections 1421(b)(1)(C) and 40 CFR 123.8(c)).

State Statutory and Regulatory Authority

Remarks of Attorney General

[Include comments on other investigations, record copying and procedures for insuring proper chain of custody of any records or samples.]

b. The SDWA requires State authority to conduct inspections of facilities and activities subject to the program, and authority to require permittees and persons subject to authorization by permit or rule to conduct facility monitoring and reporting requirements in the manner prescribed by the Director (Section 1421(b)(1)(C) and 40 CFR 146.13, 146.23, and 146.33).

State Statutory and Regulatory Authority

Remarks of Attorney General

c. The SDWA requires State authority to require permittees and persons subject to the underground injection control regulations to keep all records and make all reports required by the Director (Section 1421(b)(1)(C) and 40 CFR 122.7(j)(2), 122.41(b) and 123.8).

State Statutory and Regulatory Authority

Remarks of Attorney General

[Include record keeping by class of well; all application data, monitoring and other records (3 years); records on nature of fluids injected (5 years) from date of plugging and abandonment.]

7. Authority for Enforcement Requirements

a. The State agency must have authority to immediately restrain any person from engaging in any unauthorized injection that is endangering or causing damage to public health or the environment (40 CFR 123.9(a)(1)).

State Statutory and Regulatory Authority

Remarks of Attorney General

[Include any other emergency response measures available to the State Agency(s).]

b. The State agency must have authority to sue in courts of competent jurisdiction to abate any threatened or continuing violation of any program

requirement or permit condition, without the necessity of prior revocation of a permit (40 CFR 123.9(a)(2)).

State Statutory and Regulatory Authority

Remarks of Attorney General

c. The State agency must have authority to assess or sue to recover civil penalties and to seek criminal remedies (40 CFR 123.9(a)(3)).

(1) Civil penalties shall be recoverable in at least the amount of $2,500 per day. For Class II wells, if applicable, civil penalties shall be recoverable for any program violation in at least the amount of $1,000 per day.

(2) Criminal fines shall be recoverable in at least the amount of $5,000 per day for willful violation. For Class II wells, if applicable, pipeline (production) severance shall be imposable against any person who willfully violates any program requirement.

State Statutory and Regulatory Authority

Remarks of Attorney General

d. The State Agency must have authority to assess or seek civil penalties that are appropriate to the violation (40 CFR 123.9(c)).

State Statutory and Regulatory Authority

Remarks of Attorney General

[Include factors the State agency will consider in any assessment.]

e. The State must provide for public participation in the State enforcement process by providing either (1) authority that allows an interested party to intervene as a matter of right in any civil or administrative action (40 CFR 123.9(d)(1)), or (2) assurance that the State agency will follow the procedures of 40 CFR 123.9(d)(2).

State Statutory and Regulatory Authority

Remarks of Attorney General

8. Authority for Public Participation in Permit Processing

The Federal program requires State authority to allow for adequate public involvement and participation in permit processing, including draft permits (if applicable), public comment, public hearing (if applicable), and response to comments on the final permit (§123.7(a)(18) through (21)).

State Statutory and Regulatory Authority

Remarks of Attorney General

9. Authority to Apply Technical Criteria and Standards for the Control of Underground Injection not less stringent than 40 CFR Part 146 (Section 1421(a)(1) and (b)(1)

State Statutory and Regulatory Authority

Remarks of Attorney General

10. Classification of Injection Wells

a. The State must have the authority to regulate all classes and types of wells as required for an underground injection control program (Section 1421(a)(1) and (b)(1), and 40 CFR 122.32).

State Statutory and Regulatory Authority

Remarks of Attorney General

b. If the State program is not applicable to one or more classes of injection wells because there are no such wells within the State, the State:

(1) must have the authority explicitly banning new injections for that class (classes) not covered by the State program, or certify that such new injections cannot legally occur until the State has developed an approved program for that class (classes) (40 CFR 123.51(d)), and

(2) must demonstrate that there are no underground injections for those one or more classes of wells within the State. Reference should be made here in the Attorney General's Statement to the section in the program description where the State demonstrates that there are no underground injections within the State for the one or more classes of injection wells as discussed in (1) above.

State Statutory and Regulatory Authority

Remarks of Attorney General

NOTE: The State must submit a program to regulate both those classes of wells known to be within the State, and Class IV wells (40 CFR 122.36, 122.45 and 123.51(d)).

11. Elimination of Certain Class IV Wells

a. The State must prohibit the construction of any Class IV well for the injection of hazardous waste directly into an underground source of drinking water (USDW) (40 CFR 122.36(a)(1)).

b. The State must prohibit the injection of a hazardous waste directly into a USDW through a Class IV well that was not in operation prior to July 24, 1980 (effective date of Part 146 pg. 42472) (40 CFR 122.36(a)(2)).

c. The State must prohibit any increase in the amount of hazardous waste or change in the type of hazardous waste injected into a well injecting hazardous waste directly into a USDW (40 CFR 122.36(a)(3)).

d. The State must prohibit the operation of any Class IV well injecting hazardous waste directly into a USDW after sic (6) months following approval of any UIC program for the State (40 CFR 123.7(c)(5), 122.36(a)(4), and 122.45).

e. The State must require the owners or operators of hazardous waste management facilities and all generators of hazardous waste to comply with the requirements of Section 122.45 (40 CFR 122.45).

State Statutory and Regulatory Authority

Remarks of Attorney General

12. Authority to Identify Aquifers that are Underground Sources of Drinking Water (USDW) and to Exempt Certain Aquifers (40 CFR 123.7(c)(4), 122.35, 122.3, and 123.4(g)(8) and (9)).

State Statutory and Regulatory Authority

Remarks of Attorney General

13. Authority Over Federal Agencies and Persons Operating on Federally Owned or Leased Property

The SDWA requires that the State program must apply to underground injection by Federal agencies and to any underground injection by any other person

whether or not occurring on property leased or owned by the United States (Sections 1421(b)(1)(D) and 1447(b)).

State Statutory and Regulatory Authority

Remarks of Attorney General

14. State Authority over Indian Lands

When the State asserts authority over activities on Indian lands, the State authority must demonstrate it is able to regulate those activities within the State, and give an appropriate analysis of the State Authority (§123.5(b)).

State Statutory and Regulatory Authority

Remarks of Attorney General

15. Authority to Revise State Underground Injection Control Programs (Section 1422(b)(1)(B) and 40 CFR 123.13).

State Statutory and Regulatory Authority

Remarks of Attorney General

16. Authority to make and keep Records and make Reports on its Program Activities, all as prescribed by the Environmental Protection Agency Section 1422(b)(1)(A)(ii), 40 CFR 123.6(b)(3), 123.10, and 122.18).

State Statutory and Regulatory Authority

Remarks of Attorney General

17. The State must have authority to make available to EPA upon request, without restriction, any information obtained or used in the administration of the State program, including information claimed by permit applicants as confidential (40 CFR 123.10).

State Statutory and Regulatory Authority

Remarks of Attorney General

18. Certification of Status as Independent Legal Counsel

(To be used if State agency counsel has prepared the statement.)

The undersigned attorney(s) does (do) hereby certify that pursuant to (State law citation) and other laws of the State of (Name State), he/she is counsel for the (State agency(s)), having full legal authority to independently represent said (department, agency, board, etc.) in court in all matters pertaining to the State program described herein within the terms and conditions of 40 CFR 123.5.

19. Signature of the Attorney General or Independent Legal Counsel

TAB 4

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Includes enactments through the 1998 Regular Session
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- .040 When offset wells to be drilled.
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- .070 Index of plats -- Agreement permitting well operator to select location.
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- .170 Putting pressure on strata -- Wells may remain open if conforming to Federal Safe Drinking Water Act.
- .180 Requirements for plugging abandoned well -- Bids -- Remedy for possessor of adjacent land or for department.
- .190 Salt and saltpetre works to be inclosed -- Liability.
- .200 Department of Mines and Minerals to enforce oil and gas law -- Hearings.
- .205 Department to release production data on crude oil and natural gas.

- .210 Agreement consolidating oil and gas leases may be executed by trustee representing contingent future interests.
- .220 Nature of agreement.
- .230 Petition for court approval -- Affidavits -- Guardian ad litem -- Order of approval.
- .240 Agreement consolidating oil and gas leases may be executed by guardian.
- .250 Nature of agreement.
- .260 Petition for court approval -- Affidavits -- Guardian ad litem -- Order of approval.
- .270 Repealed, 1986.
- .280 Repealed, 1986
- .290 Repealed, 1986
- .300 Appointment of trustee to execute mineral lease where contingent future interests are involved.
- .310 Jurisdiction of court.
- .320 Who may institute proceedings.
- .330 Parties -- Representation of minors, mentally disabled, and persons not in being.
- .340 Alignment of parties -- Process.
- .350 Bond of trustee -- Terms of sale of lease.
- .360 Execution of sale of lease -- Report -- Confirmation.
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- .460 Definitions.
- .462 Jurisdiction in Circuit Court.
- .464 When court may declare trust and appoint trustee -- Persons authorized to institute proceedings.
- .466 Persons to be joined as defendants -- Verified petition showing effort to locate owners -- Advertisement and lis pendens notice, contents -- Trustee ad litem.
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- .470 When trustee may convey title in mineral interest to surface owner -- Payment to surface owner -- Final report of trustee -- Termination of trust.
- .472 Payment to surface owner when leased mineral never produced commercially.
- .474 Payment of attorneys' fees, expenses, and court costs.
- .476 When action by unknown or missing owner is barred.

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- .500 Declaration of policy of KRS 353.500 to 353.720.
- .510 Definitions for KRS 353.500 to 353.720.
- .520 Territorial application of KRS 353.500 to 353.720 -- Waste of oil and gas prohibited.
- .530 Director of oil and gas conservation -- Qualifications -- Duties -- Oath.
- .540 Authority of department -- Jurisdiction.
- .550 Specific authority over oil and gas operators.
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- .565 Kentucky Oil and Gas Conservation Commission.
- .570 Permit required -- May authorize operation prior to issuance of permit.
- .575 Duty of applicant to meet and confer with permittee if drilling will disturb permitted area.
- .580 Expiration of permit.
- .590 Application for permit -- Fees -- Plat -- Bond to insure plugging -- Use of forfeited funds -- Wells not included in "water supply well."
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- .640 Pooling order -- Notice -- Provisions -- Surrender of interest -- Limited participation.
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- .652 Unit operation of pool -- Procedure.
- .653 Share of production from drilling unit or unitized pool.
- .654 Drilling without consent of landowner prohibited.
- .655 Use of shackle rods or related cables.
- .656 Display of danger signs on oil storage facilities.
- .660 Report required after termination of operations -- Contents.
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- .990 Penalties.
- .991 Penalties for violation of KRS 353.500 to 353.720.
- .992 Penalties.

353.010 Definitions for chapter.

As used in this chapter, unless the context requires otherwise:

(1) "Barrel" or "barrel of oil" means forty-two (42) standard United States liquid measure gallons of two hundred thirty-one (231) cubic inches per gallon, computed at a temperature of sixty (60) degrees Fahrenheit.

(2) "Casing" means a string or strings of pipe commonly placed in wells drilled for natural gas and petroleum.

(3) "Cement" means hydraulic cement properly mixed with water only.

(4) "Coal operator" means any person who proposes to or does operate a coal mine.

(5) "Cubic feet of gas" means the volume of gas contained in one (1) cubic foot of space at a standard pressure base of fourteen and seventy-three hundredths (14.73) pounds per square inch and a temperature base of sixty (60) degrees Fahrenheit.

(6) "Department" means the Department of Mines and Minerals.

(7) "Gas" means natural gas.

(8) "Gas well" means any well which:

(a) Produces natural gas not associated or blended with crude petroleum oil any time during production; or

(b) Produces more than ten thousand (10,000) cubic feet of natural gas to each barrel of crude petroleum oil from the same producing horizon.

(9) "Oil" means petroleum.

(10) "Oil well" means any well which produces one (1) barrel or more of oil to each ten thousand (10,000) cubic feet of natural gas.

(11) "Plat" means a map, drawing, or print showing the location of a well.

(12) "Unit" means any tract or tracts which the department has determined is underlaid by a pool or pools of oil and associated gas, and is not a "drilling unit" as defined in KRS 353.510(19).

(13) "Well" means a borehole drilled or proposed to be drilled for the purpose of producing natural gas or petroleum, or one through which natural gas or petroleum is being produced.

(14) "Well operator" means any person who proposes to or does locate, drill, operate, or abandon any well.

(15) "Workable bed" means:

(a) A coal bed actually being operated commercially,

(b) A coal bed that the department decides can be operated commercially and the operation of which can reasonably be expected to commence within not more than ten (10) years, or

(c) Any coal bed that, from outcrop indication or other definite evidence, proves to the satisfaction of the department to be workable and, when operated, will require protection if wells are drilled through it.

Effective: July 15, 1994

History: Amended 1994 Ky. Acts ch. 431, sec. 1, effective July 15, 1994.

History through 1968: Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. sec. 3766b-5.

353.020 Oil and gas lease or contract, when lessor may avoid.

If a lease or contract of lands for oil and gas purposes provides in substance that actual drilling or development may be postponed by the payment or tender of the rental on or before a certain day, and the rental is not so paid or tendered, the lessor or landowner may avoid the lease or contract unless before executing a new lease or contract he has accepted payment of the rental.

History through 1968: Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. sec. 3766b-4.

353.030 Nonproductive well, when lease or contract satisfied by.

The drilling of one (1) nonproductive well constitutes compliance, for a period of twelve (12) months after its completion, with any lease or contract requirement that a well be drilled within a certain period. At the expiration of such twelve (12) months' period another well shall be commenced or else rentals shall be renewed according to the terms of the lease or contract, and if the lessee fails to commence a well or pay the rentals the lessor may avoid the lease or contract.

History through 1968: Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. sec. 3766b-4b.

Legislative Research Commission Note . This section has been worded to comply with Lykins v. Oaks, 286 Ky. 332, 150 S.W.2d 231 (1941).

353.040 When offset wells to be drilled.

When oil or gas is discovered in paying quantities on property adjoining a leasehold and the oil or gas from the adjoining property is being taken out of the ground and marketed from one or more wells located on such adjoining property within two hundred (200) feet of the boundary line of the leasehold, and the lessor gives the lessee written notice that oil or gas from such well or wells is being marketed, the lessee shall, within three (3) months after receipt of the notice, begin to drill an offset well to each such well, except that the offset wells need not be less than five hundred (500) feet from each other. If the lessee fails to commence and complete the offset wells with diligence, the lease shall automatically expire and be void. This section does not apply to a lease that is being operated or on which a well is being drilled.

History through 1968: Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. sec. 3766b-4c.

353.050 Plat, showing well, to be filed if well is to extend through coal-bearing strata -- Copies to certain persons.

(1) Before a permit may be issued to drill a well on any tract known to be underlaid with coal-bearing strata the well operator shall have a plat prepared showing the exact location of the proposed well utilizing latitudes and longitudes and the Carter coordinate system.

(2) If the location of any well proposed to be drilled, deepened, or reopened is known to be underlaid by a coal-bearing stratum, which is not in operation, owned by a person other than the oil and gas lessor or lessee then, simultaneously with the filing of an application for a permit, the applicant shall send by registered or certified mail a copy of the required plat to the record coal owner or owners, and record coal lessee.

(3) If the coal-bearing stratum is under operation, a copy of the required plat shall also be sent by the applicant by registered or certified mail to each coal operator operating any stratum as designated on the current license issued by the department and at the address stated thereon.

(4) If the address of any record owner is unknown to the applicant and cannot upon diligent inquiry within the county be ascertained, or if there are more than five (5) record owners then, if the applicant shall file with the department an affidavit that either condition exists, the department may prescribe some different method of notifying the record owner in lieu of sending a copy of the plat as required by this section, or may dispense with the requirements of this section.

(5) The plat shall be filed and become a permanent record, subject to inspection at any time by any interested person. Any agent of the coal operator or any superintendent in actual charge of the mine may be considered as a coal operator, and any process agent or other agent or person in charge of the coal for him may be considered the owner, for the purposes of mailing the required copy of the plat.

Effective: July 14, 1992

History: Amended 1992 Ky. Acts ch. 348, sec. 4.

History through 1968: Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. sec. 3766b-6.

353.060 Objections to location of well -- Hearing.

If the drilling of a well on any tract underlaid with coal-bearing strata will endanger the present or future use or operation of a workable coal bed, the owner or coal operator affected may, within fifteen (15) days from the receipt of the plat by him and by the department, file with the department specific objections in writing to the proposed location, and, if the objections are so filed, the department shall notify the well operator of the character of the objections and shall fix a time and place for a hearing, to be conducted in accordance with KRS Chapter 13B, at which hearing the objections shall be considered. At the hearing, the well operator and the coal operator or owner, in person or by a representative, shall consider the objections and either agree upon the location as proposed or change it so as to satisfy all objections and meet the approval of the department. Any new location thus selected and agreed upon shall be indicated on a plat in accordance with KRS 353.050 and thereupon the department shall issue to the well operator a drilling permit approving the new location and authorizing the well operator to drill at the location. If the coal operator and well operator, or the owner and well operator, are unable to agree, the department shall by final order, in view of the purposes and intent of this chapter and in compliance therewith, fix a location on the tract as near the proposed location as possible and shall issue to the well operator a permit to drill at the new location. If no objections are filed within the fifteen (15) day period, the department shall immediately issue to the well operator a drilling permit approving the location and authorizing the well operator to proceed to drill there.

Effective: July 15, 1996

History: Amended 1996 Ky. Acts ch. 318, sec. 338, effective July 15, 1996. -- Amended 1992 Ky. Acts ch. 348, sec. 5, effective July 14, 1992.

History through 1968: Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. sec. 3766b-7.

353.070 Index of plats -- Agreement permitting well operator to select location.

The department shall keep a proper index of the plats and locations, and shall keep an accurate record of the proceedings in case of any conference or dispute. Where the well operator is working under any agreement with or from the owner or the coal operator operating the workable coal beds under the tract, and the agreement permits the well operator to select his own locations, the location as originally chosen by the well operator shall become the authorized location and the department shall issue the proper permit for the drilling of the well.

History through 1968: Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. sec. 3766b-7.

353.080 Drilling through coal bed.

(1) A well penetrating one (1) or more workable coal beds shall be drilled in such manner as will, if practicable, exclude all oil, gas or gas pressure from the coal bed, except such as is found in the coal bed itself. Each string of casing that is run through a workable coal bed shall be seated at least thirty (30) feet below the coal bed in twenty (20) feet of cement, mud, clay or other nonporous material that will make an effective seal. If a second workable coal bed is found less than thirty (30) feet below the first workable coal bed, the casing shall be seated and mudded off as above provided at least thirty (30) feet below the second bed. If gas is found between the two (2) beds, it shall be treated as prescribed by KRS 353.090. After any such string of casing has been properly seated, drilling may proceed immediately.

(2) When a well is drilled through the horizon of a coal bed where the coal has been removed, the hole shall be drilled at least thirty (30) feet below the coal bed, and shall be of a size sufficient to permit the placing of a liner, which shall start not less than twenty (20) feet beneath the horizon of the coal bed and extend not less than twenty (20) feet above it. Within this liner, which may be welded to the casing to be used, shall be centrally placed the largest size casing to be used in the well, and the space between the liner and the casing shall be filled with cement as the liner and casing are lowered into the hole. Cement shall be placed in the bottom of the hole to a depth of twenty (20) feet to form a sealed seat for both liner and casing. Following the setting of the liner, drilling may proceed. If it is necessary to drill through the horizon of two (2) or more coal beds where the coal has been removed, the liner shall be started not less than twenty (20) feet below the lowest horizon penetrated and shall extend to a point not less than twenty (20) feet above the highest horizon penetrated.

History through 1968: Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. secs. 3766b-8, 3766b-11.

353.090 Gas found beneath or between coal beds.

If gas is found beneath a workable coal bed before the hole has been reduced from the size it had at the coal bed, a packer shall be placed below the coal bed and above the gas horizon, and the gas by this means diverted to the inside of the adjacent string of casing through perforations made in the string of casing, and through it passed to the surface without contact with the coal bed. If gas is found between two (2) workable beds of coal, in a hole of the same diameter from bed to bed, two (2) packers shall be placed with perforations in the casing between them, permitting the gas to pass inside the adjacent casing to the surface. The strings of casing shall in either case extend from their seats to the top of the well.

History through 1968: Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. sec. 3766b-9.

353.100 Casings to remain in place during life of productive well.

If any well becomes productive of oil or gas, all coal protecting strings of casing shall remain in place during the life of the well, and the top ends of all the strings shall be provided with casing heads or other suitable devices that will permit the free passage of gas and prevent filling the annular spaces outside the casing with dirt or debris.

History through 1968: Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. sec. 3766b-12.

353.110 Abandonment of well drilled through coal strata -- Plugging of well.

Prior to the abandonment of a well drilled through a workable coal bed the well operator shall notify, by certified mail, return receipt requested or by registered mail, the operator or owner of the coal bed and the department of the intention to plug and abandon the well. The notice shall give the number of the well and its location, and fix the time at which the work of plugging and filling will be commenced, the time not to be less than five (5) days after the day on which the notice is received, or in due course should be received, by the department. The department shall prescribe the form of notice to be used. A representative or representatives of the coal operator or owner and of the department may be present at the plugging and filling of the well. Whether or not such representatives appear, the well operator may proceed, at the time fixed, to plug and fill the well. When the plugging and filling have been completed, an affidavit setting forth the time and manner in which the well was plugged shall be made in triplicate by two (2) experienced men who participated in the work. The affidavit shall be made on forms furnished by the department. One (1) copy of the affidavit shall be retained by the well operator, one (1) mailed to each coal operator and each owner, and one (1) to the department.

History through 1968: Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. sec. 3766b-12.

353.120 Method of plugging well drilled through coal-bearing strata.

When any well drilled through a workable coal bed is abandoned, it shall at that time be plugged to a point forty (40) feet below the lowest workable coal bed, in the following manner: The hole shall be filled with mud, clay or other nonporous material from the bottom to a point twenty (20) feet above the top of the lowest oil, gas or water-bearing strata, or a permanent bridge shall be anchored thirty (30) feet below its lowest oil, gas or water-bearing strata, and from this bridge it shall be filled with mud, clay or other nonporous material to a point twenty (20) feet above the strata, at which point there shall be placed a plug of cement or other suitable material that will completely seal the hole. Between this sealing plug and a point twenty (20) feet above the next higher oil, gas or water-bearing strata, the hole shall be treated in a like manner and at that point there shall be placed another suitable plug, that will completely seal the hole. In a like manner the hole shall be filled and plugged, or bridged, filled and plugged, with reference to each of its oil, gas or water-bearing strata. Whenever such strata are not widely separated and are free from water, they may be grouped and treated as a single productive stratum. After plugging all strata, a final plug shall be anchored approximately ten (10) feet below the bottom of the largest casing in the well and from that point to the surface the well shall be filled with mud, clay or other nonporous material.

History through 1968: Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. sec. 3766b-13.

353.130 Alternative methods that may be used when strata shot.

If any of the strata in the well have been shot, creating cavities that cannot readily be filled in the manner described in KRS 353.120, the well operator shall follow either of the following methods:

(1) If the stratum that has been shot is the lowest one in the well, there shall be placed, at the nearest suitable point but not less than twenty (20) feet above the stratum, a plug of cement or other suitable material that will completely seal the hole; but if the shooting has been done above one (1) or more oil or gas-bearing strata in the well, plugging in the manner specified shall be done at the nearest suitable point, but not less than twenty (20) feet below and above the stratum shot.

(2) When the cavity is in the lowest oil or gas-bearing stratum in the well, a liner shall be placed which shall extend from below the stratum to a suitable point, but not less than twenty (20) feet above the stratum in which the shooting has been done; but if the shooting has been done above one (1) or more oil or gas-bearing strata in the well, the liner shall be so placed that it will extend not less than twenty (20) feet above or less than twenty (20) feet below the stratum in which shooting has been done. After the liner is placed, it shall be compactly filled with cement, clay or other nonporous sealing material.

History through 1968: Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. sec. 3766b-13.

353.140 Gas escape pipe, when to be used.

When a well has been filled and securely plugged to a point forty (40) feet below the lowest workable coal bed, and in the judgment of the well operator, the coal operator and the department a permanent outlet to the surface is required, the outlet shall be provided in the following manner: A plug of cement or other suitable material shall be placed in the well at a suitable point, not less than ten (10) feet below the lowest workable coal bed. In this plug and passing through the center of it shall be securely fastened an open pipe, not less than two (2) inches in diameter, which shall extend to the surface. At or above the surface the pipe shall be provided with a device that will permit the free passage of gas and prevent obstruction. After the plug and pipe are set, the hole shall be filled with cement to a point ten (10) feet above the lowest workable coal bed. If there are additional overlying workable coal beds, they shall be treated similarly, if in the judgment of the well operator, the coal operator and the department such treatment is necessary. If the parties cannot agree, the decision of the department shall control.

History through 1968: Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. sec. 3766b-13.

353.150 Unused oil, gas or salt water well to be closed to prevent waste.

(1) Any person in possession as owner, lessee, agent or manager of any well in which oil, gas or salt water has been found shall, unless the product is utilized, close the well within a reasonable time not exceeding three (3) months from the completion of the well, in order to prevent the product from wasting by escape, and keep the well closed until the product is utilized. This subsection does not apply to gas escaping from any well while it is being operated as an oil well, or while it is used for fresh or mineral water.

(2) If a person fails to comply with subsection (1), any person lawfully in possession of land adjacent to or in the neighborhood of the well may enter upon the land on which the well is located and tube and pack it, and shut in the oil, gas or salt water. Any person so closing the well may maintain a civil action against the owner, lessee, agent or manager, jointly and severally, to recover the cost.

History through 1968: Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. secs. 3910, 3913.

353.160 Gas waste to be prevented -- Presumption of negligence.

(1) Except as otherwise provided in this section, natural gas shall not be permitted to waste or escape from any well or pipeline, when it is reasonably possible to prevent such waste, after the owner or operator of the gas, or of the well or pipeline, has had a reasonable time to shut the gas in the well, or to make the necessary repairs to the well or pipeline to prevent such waste.

(2) If, in the process of drilling a well for oil or gas, or both, gas is found in the well, and the owner or operator desires to continue to search for oil or gas, or both, by drilling deeper in search of lower oil or gas-bearing strata, or if it becomes necessary to make repairs to any well producing gas, commonly known as "cleaning out," and if in either event it is necessary for the gas in the well to escape during the process of drilling or making repairs, the owner or operator of the well shall prosecute the drilling or repairs with reasonable diligence so that the waste of gas from the well shall not continue longer than reasonably necessary and if, during the progress of such drilling or repairs, any temporary suspension becomes necessary, the owner or operator shall use all reasonable means to shut in the gas and prevent its waste.

(3) Where both oil and gas are found and produced from the same stratum and it is necessary for the gas therefrom to waste in the process of producing the oil, the owner or operator shall use all reasonable diligence to conserve and save from waste so much of the gas as it is reasonably possible to save.

(4) In all cases of waste under this section it may be presumed that the waste was due to the negligence of the operator.

History through 1968: Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. sec. 3766b-21.

353.170 Putting pressure on strata -- Wells may remain open if conforming to Federal Safe Drinking Water Act.

The owner or operator of any well that produces oil or gas may allow the well to remain open for the purpose of introducing air, gas, water, or other liquid pressure into and upon the producing strata for the purpose of recovering the oil, if the introduction of air, gas, water, or other liquid conforms to the requirements of Section 1425 of the Safe Drinking Water Act (Public Law 93-523 as amended) and any regulations associated with it.

Effective: July 14, 1992

History: Amended 1992 Ky. Acts ch. 348, sec. 6, effective July 14, 1992.

History through 1968: Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. sec. 3766b-20a.

353.180 Requirements for plugging abandoned well -- Bids -- Remedy for possessor of adjacent land or for department.

(1) No person shall abandon or remove casings from any oil or gas well, either dry or producing, without first plugging the well in a secure manner approved by the department and consistent with its administrative regulations. Upon the department's plugging of an abandoned well in accordance with the requirements of this subsection, the department may sell, by sealed bid, or include as part of compensation in the contract for the plugging of the well, all equipment removed from that well and deposit the proceeds of the sale into the oil and gas well plugging fund, established in KRS 353.590(9).

(2) Not less than thirty (30) days before advertising for bids for the plugging of wells, the department shall publish, in a newspaper of general circulation, and in locally published newspapers serving the areas in which the wells proposed for plugging are located, notices of all wells on which there is salvageable equipment, described as to farm name and Carter Coordinate location, for which the department intends to seek bids for plugging. If a person other than the operator claims an interest in the equipment of a well proposed for plugging, he shall provide documentation of that interest to the department within thirty (30) days of the date of publication of the notice of the department's intent to plug a well. Prior to the department's advertising of bids for the plugging of a well, the department shall release the well's equipment to the person deemed to have an interest in that equipment and it shall be the duty of the interest holder to remove the equipment before the well is plugged. If documentation as to an asserted interest is not provided to the department in the manner described in this subsection or a person deemed to be an interest holder fails to remove the equipment before a well is plugged, the department may sell or otherwise dispose of the equipment in accordance with this subsection.

(3) If a person fails to comply with subsection (1), any person lawfully in possession of land adjacent to the well or the department may enter on the land upon which the well is located and plug the well in the manner provided in subsection (1), and may maintain a civil action against the owner or person abandoning the well, jointly or severally, to recover the cost of plugging the well. This subsection shall not apply to persons owning the land on which the well is situated, and drilled by other persons.

Effective: July 15, 1996

History: Amended 1996 Ky. Acts ch. 277, sec. 1, effective July 15, 1996. -- Amended 1992 Ky. Acts ch. 348, sec. 7, effective July 14, 1992

History through 1968: Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. secs. 3914, 3914a.

353.190 Salt and saltpetre works to be inclosed -- Liability.

(1) The owner or occupant of any salt works and saltpetre works shall keep those works, and the grounds upon which the brine, bitter water or saltpetre water is drained or deposited inclosed, so as to prevent the stock of other persons from having access thereto.

(2) When a well or pit sunk for salt water, or in connection with a salt works or saltpetre works, is abandoned or not used, it shall be filled up, or inclosed as provided in subsection (1), by the owner or occupant of the grounds or the persons who sank the well or pit.

(3) If subsections (1) and (2) are not complied with, and the stock of another is injured by gaining access to the well or pit, the persons under the duty to comply with those subsections shall be jointly and severally liable for the damages sustained by the injury to or destruction of the stock.

History through 1968: Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. secs. 4358, 4359.

353.200 Department of Mines and Minerals to enforce oil and gas law -- Hearings.

(1) The department shall exercise supervision over the drilling, casing, plugging, and filling of all wells. The department shall exercise supervision over all mining operations in close proximity to any well. The department shall have access to the records and properties of coal and oil and gas operators when necessary.

(2) The department may receive, or may file on its own motion, formal complaints that drilling or mining operations are being conducted contrary to the provisions of KRS 353.010, 353.050 to 353.130, 352.510, or 353.592, or to the order of the department, and shall hold administrative hearings on the complaints, in accordance with KRS Chapter 13B. Following a hearing, the department shall issue a final order necessary to secure the proper administration of KRS 353.010, 353.050 to 353.130, 352.510, or 353.592.

Effective: July 15, 1996

History: Amended 1996 Ky. Acts ch. 318, sec. 339, effective July 15, 1996. -- Amended 1992 Ky. Acts ch. 348, sec. 8, effective July 14, 1992

History through 1968: Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. sec. 3766b-15.

353.205 Department to release production data on crude oil and natural gas.

(1) The Revenue Cabinet shall submit to the department on or before September 1 of each year, beginning in 1995 for 1994 production data, statistics on crude oil as reported to the Revenue Cabinet under the crude oil excise tax requirements of KRS Chapter 137 and statistics on natural gas production as reported to the Revenue Cabinet under the natural resources severance tax requirements of KRS Chapter 143A.

(2) The department shall organize the information it receives from the Revenue Cabinet into a standard format, and shall make it available for public release no earlier than January 1 nor later than March 1 of the following year, with the exception of the first year, when data shall be made available by September 1, 1996. The information shall be open for public inspection and available for sale at the offices of the department. The department may allow the Kentucky Geological Survey to use the production information in ongoing research as soon as it is obtained from the Revenue Cabinet, so long as the information is not released to the public before January 1 of the year after it is reported.

(3) The Revenue Cabinet shall submit to the department the oil and gas production data which was reported in years prior to 1995, and the department shall make this information available for public release when it has been processed.

Effective: July 15, 1994

History: Created 1994 Ky. Acts ch. 326, sec. 2, effective July 15, 1994.

353.210 Agreement consolidating oil and gas leases may be executed by trustee representing contingent future interests.

A trustee appointed by any Circuit Court of this state in cases where contingent future interests in land are involved may enter into a consolidation agreement, as defined in KRS 353.220, subject to approval by the Circuit Judge as provided in KRS 353.230. The detailed provisions of such agreement may be such as the court approves, consistently with the provisions of KRS 353.220.

History through 1968: Created 1944 Ky. Acts ch. 71, sec. 1.

353.220 Nature of agreement.

A consolidation agreement, within the provisions of KRS 353.210 to 353.230, is an agreement which provides for the consolidation of an oil and gas lease, or some portion thereof, with some other oil and gas lease or leases, or portions thereof, so that the oil and gas leases or portions thereof embraced in such agreement shall be operated and developed for oil and gas purposes as one (1) unit lease, and all royalties which may accrue from production on such consolidated area shall be treated as an entirety and shall be divided among and paid to the owners (or their lawful representatives) of the royalties in such area upon an acreage basis, so that each shall receive a share of such royalties calculated upon the basis of the ratio between each owner's interest in royalty and the entire interest in the royalties embraced in the consolidated area.

History through 1968: Created 1944 Ky. Acts ch. 71, sec. 2.

353.230 Petition for court approval -- Affidavits -- Guardian ad litem -- Order of approval.

(1) Upon the execution of such a consolidation agreement, the trustee shall file with the clerk of the Circuit Court in the county in which the land covered by the lease to be consolidated hereunder, or the greater portion thereof, lies a petition for an order approving such consolidation agreement setting forth a copy of the consolidation agreement and a statement of facts constituting the grounds relied upon to secure the approval of such agreement, and shall submit with the petition the affidavits of not less than three (3) disinterested owners of real estate in the county wherein the proceedings hereunder are brought, as to whether such agreement will be advantageous or beneficial to the beneficiaries for whom such trustee is acting, which affidavits shall be filed and preserved as records of the Circuit Court.

(2) No agreement permitted by KRS 353.210 to 353.230 shall be valid or effective until the judge of said court appoints a guardian ad litem to represent the beneficiaries for whom such trustee is acting and whose interests are sought to be consolidated hereunder. The guardian ad litem shall file an answer and the affidavits of at least three (3) witnesses, proving the advantages or disadvantages of such agreement, and shall make such recommendation to the judge relating to the agreement as he believes to be most beneficial to the persons on whose behalf he is acting. He shall receive for his services a reasonable compensation, to be allowed by the judge and taxed as costs.

(3) The judge shall proceed in a summary manner to approve or disapprove the consolidation agreement, and if he approves it he shall endorse his approval thereon. The order of the judge approving such agreement shall be entered on the civil order book of the circuit clerk's office of the county in which the proceedings hereunder are brought.

History through 1968: Created 1944 Ky. Acts ch. 71, sec. 3.

353.240 Agreement consolidating oil and gas leases may be executed by guardian.

A guardian of a minor may enter into a consolidation agreement, as defined in KRS 353.250, subject to approval by the Circuit Judge as provided in KRS 353.260. The detailed provisions of such agreement may be such as the court approves, consistently with the provisions of KRS 353.250.

History through 1968: Created 1944 Ky. Acts ch. 72, sec. 1.

353.250 Nature of agreement.

A consolidation agreement, within the provisions of KRS 353.240 to 353.260, is an agreement which provides for the consolidation of an oil and gas lease, or some portion thereof, with some other oil and gas lease or leases, or portions thereof, so that the oil and gas leases or portions thereof embraced in such agreement shall be operated and developed for oil and gas purposes as one (1) unit lease, and all royalties which may accrue from production on such consolidated area shall be treated as an entirety and shall be divided among and paid to the owners (or their lawful representatives) of the royalties in such area upon an acreage basis, so that each shall receive a share of such royalties calculated upon the basis of the ratio between each owner's interest in royalty and the entire interest in the royalties embraced in the consolidated area.

History through 1968: Created 1944 Ky. Acts ch. 72, sec. 2.

353.260 Petition for court approval -- Affidavits -- Guardian ad litem -- Order of approval.

(1) Upon the execution of such a consolidation agreement, the guardian shall file with the clerk of the Circuit Court in the county in which the land covered by the lease to be consolidated hereunder, or the greater portion thereof, lies a petition for an order approving such consolidation agreement setting forth a copy of the consolidation agreement and a statement of facts constituting the grounds relied upon to secure the approval of such agreement, and shall submit with the petition the affidavits of not less than three (3) disinterested owners of real estate in the county wherein the proceedings hereunder are brought, as to whether such agreement will be advantageous or beneficial to the minor or minors for whom such guardian is acting, which affidavits shall be filed and preserved as records of the Circuit Court.

(2) No agreement permitted by KRS 353.240 to 353.260 shall be valid or effective until the judge of said court appoints a guardian ad litem to represent the minor or minors whose interests are sought to be consolidated hereunder. The guardian ad litem shall file an answer and the affidavits of at least three (3) witnesses, proving the advantages or disadvantages of such agreement, and shall make such recommendation to the judge relating to the agreement as he believes to be most beneficial to the persons on whose behalf he is acting. He shall receive for his services a reasonable compensation, to be allowed by the judge and taxed as costs.

(3) The judge shall proceed in a summary manner to approve or disapprove the consolidation agreement, and if he approves it he shall endorse his approval thereon. The order of the judge approving such agreement shall be entered on the civil order book of the circuit clerk's office of the county in which the proceedings hereunder are brought.

History through 1968: Created 1944 Ky. Acts ch. 72, sec. 3.

353.270 Repealed or renumbered.

History through 1968: Created 1944 Ky. Acts ch. 73, sec. 1.

353.280 Repealed or renumbered.

History through 1968: Created 1944 Ky. Acts ch. 73, sec. 2.

353.290 Repealed or renumbered.

History through 1968: Created 1944 Ky. Acts ch. 73, sec. 3.

353.300 Appointment of trustee to execute mineral lease where contingent future interests are involved.

Where lands, or any estate or interest therein, are subject to any contingent future interest, legal or equitable, by way of remainder, reversion, or possibility of reverter, upon the happening of a condition subsequent, or otherwise, created by deed, will, or otherwise, and whether a trust is involved or not, and it is made to appear that it will be advantageous to the present and ultimate owners of said lands or estate or interest therein, the court shall have the power, pending the happening of any contingency and the vesting of such future interest or interests, to declare a trust in said lands or estate or interest therein, appoint a trustee therefor, and to authorize such trustee to sell, execute and deliver a valid oil, gas, coal or other mineral lease covering said lands or estate or interest therein.

History through 1968: Created 1944 Ky. Acts ch. 76, sec. 1.

353.310 Jurisdiction of court.

The Circuit Court of the county wherein the land sought to be leased, or some portion thereof, is situated shall have jurisdiction of the proceedings authorized under KRS 353.300 to 353.380.

History through 1968: Created 1944 Ky. Acts ch. 76, sec. 2.

353.320 Who may institute proceedings.

The proceedings provided for by KRS 353.300 to 353.380 may be instituted upon the petition of any one (1) or more of the parties who have a present interest or a contingent interest in the land or estate or interest therein.

History through 1968: Created 1944 Ky. Acts ch. 76, sec. 3.

353.330 Parties -- Representation of minors, mentally disabled, and persons not in being.

All of the persons in being who have any present or contingent interest in the lands or estate or interest sought to be leased shall be made parties to the proceedings authorized in KRS 353.300 to 353.380, with any infant or infants being represented either by next friend or statutory guardian or guardian ad litem, or in the case of constructive service of summons by a warning order attorney appointed as in other cases. Any person adjudged mentally disabled shall be represented by his guardian or conservator or by guardian ad litem, or, in the case of constructive service of summons as in civil actions generally, by a warning order attorney appointed as in other cases. If the court specifically finds that the welfare or interest of any person or persons not in being requires special representation, the court may appoint a trustee ad litem to represent such unknown parties not in being or each separate class thereof, and such trustee ad litem shall file such pleadings or answer and take such steps as he deems proper, and such unknown persons will be fully bound by the proceedings hereunder. Otherwise, and in the absence of such finding by the court, it shall not be necessary to make parties any persons not in being, either as "unknown defendants" or otherwise, but the persons in being who are parties shall stand for and represent the full title and whole interest in said lands or estate or interest therein, and all parties not in being who might have some contingent or future interest therein, and all persons, whether in being or not in being, having any interest, present, future or contingent, in the property sought to be leased, will be fully bound by the proceedings hereunder. It shall be permissible, however, to make defendants any unknown persons who might have any interest in the land sought to be leased, under the style of "unknown defendants."

History through 1968: Created 1944 Ky. Acts ch. 76, sec. 4.

353.340 Alignment of parties -- Process.

Parties to the proceedings hereunder may be aligned either as plaintiffs or defendants, but there shall be one (1) or more parties plaintiff and one (1) or more parties defendant. In the proceedings authorized hereunder any defendant who does not enter his appearance may be served with process as provided by law with reference to civil actions generally.

History through 1968: Created 1944 Ky. Acts ch. 76, sec. 5.

353.350 Bond of trustee -- Terms of sale of lease.

Should the court appoint a trustee pursuant to KRS 353.300, the court shall, in its decree, require such trustee to give a bond in favor of the owners of the property which is to be leased and shall fix the amount of such bond. The decree of the court shall further provide for all the terms and provisions of the lease which the trustee is authorized to make. It shall be discretionary with the court as to whether or not the trustee's sale of lease shall be public or private, and the decree shall provide therefor, and if a public sale be authorized the court shall, in its decree, fix and determine the notice to be given. Such sale shall be for cash, payable on confirmation of sale. No appraisement shall be required.

History through 1968: Created 1944 Ky. Acts ch. 76, sec. 6.

353.360 Execution of sale of lease -- Report -- Confirmation.

The trustee shall proceed, conformably to the provisions of such decree, to sell the lease authorized thereby, and after making such sale shall make a report thereof to the court. Upon filing of such report, the court may hear evidence as to whether or not the sale price is reasonable, and, if the court be satisfied with the sale and the amount received therefor, such sale shall be confirmed by the court and the lease executed by the trustee approved by the court on the face thereof.

History through 1968: Created 1944 Ky. Acts ch. 76, sec. 7.

353.370 Separate lease by guardian or conservator unnecessary.

If a trustee's lease is granted hereunder, even though one (1) of the parties who has an interest or possible interest in the property covered by such lease is a minor or a person adjudged mentally disabled, no separate guardian's lease or conservator's lease shall be necessary.

History through 1968: Created 1944 Ky. Acts ch. 76, sec. 8.

353.380 Disposition of proceeds.

All funds received by any trustee appointed under KRS 353.300 to 353.380 shall be held, managed, invested or otherwise dealt with by such trustee under and pursuant to the direction of the court, as the rights and interests of the parties and the equities of the case may require, for the benefit of the persons entitled, or who may become entitled, thereto, according to their respective rights and interests.

History through 1968: Created 1944 Ky. Acts ch. 76, sec. 9.

353.460 Definitions.

As used in KRS 353.462 to 353.476, the following definitions shall apply:

(1) A "severed mineral interest" is any whole or fractional interest in any or all minerals which have been severed from the surface estate by grant, exception, reservation or other means.

(2) An "unknown or missing owner" is any person vested with a severed mineral interest and whose present identity or location cannot be determined from the records of the county in which the land is located or by diligent inquiry in the vicinity of the owner's last known place of residence, and shall include his unknown heirs, successors and assigns.

353.462 Jurisdiction in Circuit Court.

The Circuit Court of the county wherein the severed mineral interests sought to be leased, or the major portion thereof, is situated shall have jurisdiction of the proceedings authorized under KRS 353.464 through 353.476.

353.464 When court may declare trust and appoint trustee -- Persons authorized to institute proceedings.

(1) If the title to any severed mineral interest is vested in an unknown or missing owner and it appears that the development of the minerals will be advantageous to the owner, the Circuit Court of the county in which the minerals or the major portion thereof lies shall have the power to declare a trust therein, appoint a trustee for the unknown or missing owners and authorize the trustee to sell, execute and deliver a valid lease thereon on terms and conditions customary in the area for the minerals covered thereby and similarly situated. The lease shall continue in full force and effect after the termination of the trust unless the lease has previously expired by its own terms.

(2) Proceedings for the appointment of a trustee may be instituted by any person:

(a) Vested in fee simple with the surface estate overlying the particular minerals sought to be developed;

(b) Vested in fee simple with an undivided interest in the particular minerals sought to be developed;

(c) Vested in fee simple with the entire interest in the particular minerals sought to be developed under lands immediately adjacent and contiguous to those lands under which the same minerals are vested in unknown or missing owners; or

(d) Vested with a valid and subsisting mineral lease, the lessor of which is a person defined under either paragraph (b) or (c) of this subsection.

353.466 Persons to be joined as defendants -- Verified petition showing effort to locate owners -- Advertisement and lis pendens notice, contents -- Trustee ad litem.

(1) The person seeking to impress a trust upon a severed mineral interest for the purpose of leasing and developing same shall join as defendants to the action all those persons having record title thereto who are unknown or missing and the unknown heirs, successors and assigns of all such persons. The persons named as defendants and who are the unknown or missing owners as defined herein, shall stand for and represent the full title and the whole interest of the unknown or missing owners in the severed mineral interest or estate or interest therein. All parties not in being who might have some contingent or future interest therein, and all persons whether in being or not in being, having any interest, present, future or contingent, in the severed mineral interests sought to be leased, shall be fully bound by the proceedings hereunder.

(2) There shall be filed a verified petition specifically setting forth the efforts to locate and identify the unknown or missing owners of the interests to be leased and such other information known to the petitioner which might be helpful in identifying or locating the present owners thereof. There shall be attached to the petition as an exhibit thereto a certified copy of the instrument creating the original severance and such additional instruments as are necessary to show the vesting of title to the minerals in the last record owner thereof. The petitioner shall establish to the satisfaction of the court that a diligent effort has been made to identify and locate the present owners of said interests.

(3) Service of process shall be as provided by the Kentucky Rules of Civil Procedure and there shall be filed a lis pendens notice in the county clerk's office of the county wherein the mineral estate or the larger portion thereof lies. Immediately upon the filing of the petition, the petitioner shall advertise as provided in KRS Chapter 424. Both the advertisement and the lis pendens notice shall contain the names of all of the parties and their last known addresses, the date and recording data of the original deed or other conveyance which created the mineral severance, an adequate description of the land as contained therein, the source of title of the last known owners of the severed mineral interests and a statement that the action is brought for the purpose of impressing a trust authorizing the execution and delivery of a valid and present mineral lease for development of the particular minerals described in the petition. The court, in its discretion, may order advertisement elsewhere or by additional means if there is reason to believe that additional advertisement might result in identifying and locating the unknown or missing owners.

(4) The court shall appoint a trustee ad litem, who shall be a licensed, practicing attorney, to represent the unknown or missing owners and their unknown heirs, successors and assigns. The trustee ad litem shall review the petition and file an answer and such other pleadings as are necessary and proper to represent fairly the interest of the unknown or missing owners. It shall be the duty of the trustee ad litem to make an independent inquiry and search for the purpose of

identifying and locating the unknown or missing owners and he shall report to the court the results of the investigation. The court shall allow the trustee ad litem a reasonable fee for his services to be taxed as costs.

353.468 If advantageous to unknown or missing owner, court may declare trust -- Bond of trustee -- Sale of lease -- Trustee's report -- When court not to authorize trustee's lease -- Trustee to use percentage of funds to search for owner -- Period during which unknown or missing owner may establish identity and title.

(1) If, upon presentation to the Circuit Court of the petition, the answer of the trustee ad litem and the proof presented by the petitioner in such case, it appears to the court that development of the severed mineral interests will be advantageous to the unknown or missing owners, the court shall declare a trust in the lands or estate or interest therein, appoint a trustee therefor and authorize the trustee to sell, execute and deliver a valid mineral lease covering the severed mineral interests in and underlying the lands.

(2) Should the court appoint a trustee pursuant to subsection (1) of this section, the court shall, in its decree, require the trustee to give a bond in favor of the owners of the severed mineral interest which is to be leased and shall fix the amount of the bond. The decree of the court shall further provide for all of the terms and provisions of the lease which the trustee is authorized to make. It shall be discretionary with the court as to whether or not the trustee's sale of lease shall be public or private and the decree shall provide therefor, and if a public sale be authorized, the court shall in its decree fix and determine the notice to be given. The sale shall be for cash, payable on confirmation of sale. No appraisal shall be required.

(3) The trustee shall proceed in compliance with the provisions of the decree to sell the lease authorized thereby, and after making the sale shall make a report thereof to the court. Upon filing the report, the court may hear evidence as to whether or not the sale price is reasonable, and if the court is satisfied with the sale and the amount received therefor, the sale shall be confirmed by the court and the lease shall be executed by the trustee with the approval of the court endorsed on the face thereof.

(4) The court shall not authorize a trustee's lease upon the severed mineral interest of any owner whose identity and whereabouts is known, or can be ascertained by diligent inquiry, or is discovered as a result of the action brought hereunder; and any such owner may intervene as a matter of right at any time prior to the entry of judgment approving the trustee's lease, for the purpose of establishing his title to the severed mineral interests, and if the mineral owners claim is established to the satisfaction of the court, the court shall dismiss the action as to the intervenor's interest at plaintiff's cost.

(5) The trustee shall collect the proceeds, if any, from the sale of the lease and hold and invest the same for the use and benefit of the unknown or missing owners. The court upon its own motion or upon motion of the trustee may authorize the trustee to expend an amount not to exceed ten percent (10%) of the funds collected by the trustee for the purpose of instituting a search for the unknown or missing owners.

(6) Within seven (7) years after the date of first commercial production of the severed mineral interests under the trustee's lease, any person being an unknown or missing owner of the severed mineral interest or any undivided portion thereof, may petition the Circuit Court to redocket the action in which the trustee's lease was sought and approved in accordance with subsection (3) of this section and may thereupon present such proof as the court may deem necessary to establish his identity and title to the severed mineral interest or any portion thereof. If the court finds that the unknown or missing owners have established their identity and title, the trustee shall be directed to distribute the funds in his hands attributable to the unknown or missing owners' interest, and shall assign all future proceeds from said lease to the owners as their interests appear and shall deliver to the owners a recordable instrument documenting their title to the severed mineral interest, which instrument shall bear the endorsement and approval of the Circuit Court on the face thereof.

353.470 When trustee may convey title in mineral interest to surface owner -- Payment to surface owner -- Final report of trustee -- Termination of trust.

(1) If the severed mineral interests which are the subject of a trustee's lease executed and delivered in accordance with KRS 353.468(3) are produced commercially, and the owners of the severed mineral interests remain unknown or missing for a period of seven (7) years from the date of first production under the lease, the trustee shall file a motion with the court naming the then present surface owners as additional parties and require the surface owners to appear and present proof to the satisfaction of the court that they are vested with fee simple title to the surface estate. Upon a finding by the court that the surface estate is vested in fee simple in the surface owners, the court shall order the trustee to convey to the surface owners by recordable instrument the unknown or missing owners' interest in the severed mineral interests, which conveyance shall be approved by endorsement by the court on the face thereof.

(2) The trustee shall pay to the surface owners the funds which have accrued to the credit of the severed mineral interests to the date of his final report after payment of all allowable fees, expenses and court costs including a fee to be paid to the trustee in an amount determined by the court.

(3) From and after the date of the conveyance from the trustee to the surface owners executed and delivered in accordance with subsection (1) of this section, the surface owners shall be entitled to receive all proceeds of production attributable to the severed mineral interests.

(4) Upon the delivery of the conveyance directed in subsection (1) of this section, and after the payment as directed in subsection (2) of this section, the trustee shall make his final report to the court, and upon approval thereof, the court shall order the trust terminated and the trustee and his bond discharged.

353.472 Payment to surface owner when leased mineral never produced commercially.

If the leased minerals are never produced commercially during the term of the trustee's lease, the trustee shall pay any proceeds accruing from the lease to the then surface owners upon the termination of the lease in accordance with its terms or upon the expiration of seven (7) years following the date of judgment authorizing the lease, whichever last occurs. The payments shall be made in the same manner and on the same conditions as expressed in KRS 353.470(2).

353.474 Payment of attorneys' fees, expenses, and court costs.

All attorneys' fees, expenses, and court costs incident to the original proceedings authorized hereunder shall be paid by the lessee if a lease is executed pursuant hereto, and by the plaintiff if for any reason no lease is executed. Subsequent to entry of judgment, all allowable fees, expenses, and court costs shall be paid out of funds in the hands of the trustee.

353.476 When action by unknown or missing owner is barred.

After the expiration of seven (7) years from the date of first commercial production of the severed mineral pursuant to the terms of the lease authorized hereunder, or the expiration of seven (7) years from the date of entry of judgment authorizing the lease in the event there is no commercial production, whichever date last occurs, no action may be brought by any unknown or missing owner to recover any past or future proceeds accrued or to be accrued from the lease herein authorized. After the expiration of seven (7) years from the date of first commercial production of the severed mineral pursuant to the terms of the lease authorized hereunder, no action may be instituted by any unknown or missing owner to recover any right, title or interest in and to the severed mineral interest subject to the lease.

353.500 Declaration of policy of KRS 353.500 to 353.720.

It is hereby declared to be the public policy of this Commonwealth to foster conservation of all mineral resources, to encourage exploration for such resources, to protect correlative rights of land and mineral owners, to prohibit waste and unnecessary surface loss and damage and to encourage the maximum recovery of oil and gas from all deposits thereof now known and which may hereafter be discovered; and to promote safety in the operation thereof. To that end, KRS 353.500 to 353.720 is enacted and shall be liberally construed to give effect to such public policy.

History through 1968: Created 1960 Ky. Acts ch. 103, sec. 1, effective June 16, 1960.

Legislative Research Commission Note . The interstate compact to conserve oil and gas was ratified, approved and confirmed by the commonwealth of Kentucky and the Governor directed to sign the compact by joint resolution of the 1942 General Assembly (Acts 1942, ch. 267). Section 1 of the compact was repealed, amended and reenacted by joint resolution of the 1948 general assembly, authorizing the execution of the interstate compact to conserve oil and gas and any renewal thereof within the governor's discretion (Acts 1948, ch. 288).

353.510 Definitions for KRS 353.500 to 353.720.

As used in KRS 353.500 to 353.720, unless the context otherwise requires:

(1) "Department" means the Department of Mines and Minerals as defined in KRS 351.010;

(2) "Commissioner" means the commissioner of the Department of Mines and Minerals as defined in KRS 351.010;

(3) "Director" means the director of oil and gas conservation as provided in KRS 353.530;

(4) "Commission" means the Kentucky Oil and Gas Conservation Commission as provided in KRS 353.565;

(5) "Person" means any natural person, corporation, association, partnership, receiver, governmental agency subject to KRS 353.500 to 353.720, trustee, so-called common-law or statutory trust, guardian, executor, administrator, or fiduciary of any kind, federal agency, state agency, city, commission, political subdivision of the Commonwealth, or any interstate body;

(6) "Correlative rights" means the reasonable opportunity of each person entitled thereto to recover and receive without waste the oil and gas in and under his tract or tracts, or the equivalent thereof;

(7) "Oil" means natural crude oil or petroleum and other hydrocarbons, regardless of gravity, which are produced at the well in liquid form by ordinary production methods and which are not the result of condensation of gas after it leaves the underground reservoir;

(8) "Gas" means all natural gas, including casinghead gas, and all other hydrocarbons not defined in subsection (7) of this section as oil;

(9) "Pool" means an underground reservoir containing a common accumulation of oil or gas or both. Each productive zone of a general structure which is completely separated from any other zone in the structure, or which for the purpose of KRS 353.500 to 353.720 may be so declared by the department, is covered by the word "pool" as used herein;

(10) "Field" means the general area which is underlaid or appears to be underlaid by at least one (1) pool; and "field" includes the underground reservoir containing oil or gas or both. The words "field" and "pool" mean the same thing when only one (1) underground reservoir is involved; however, "field," unlike "pool," may relate to two (2) or more pools;

(11) "Just and equitable share of production" means, as to each person, an amount of oil or gas or both substantially equal to the amount of recoverable oil and gas in that part of a pool underlying his tract or tracts;

(12) "Abandoned," when used in connection with a well or hole, means a well or hole which has never been used, or which, in the opinion of the department, will no longer be used for the production of oil or gas or for the injection or disposal of fluid therein;

(13) "Workable bed" means:

(a) A coal bed actually being operated commercially;

(b) A coal bed that the department decides can be operated commercially and the operation of which can reasonably be expected to commence within not more than ten (10) years; or

(c) A coal bed which, from outcrop indications or other definite evidence, proves to the satisfaction of the commissioner to be workable, and which, when operated, will require protection if wells are drilled through it;

(14) "Well" means a borehole drilled, or proposed to be drilled, for the purpose of producing natural gas or petroleum, or one through which natural gas or petroleum is being produced, or a borehole drilled or proposed to be drilled for the purpose of injecting any water, gas, or other fluid therein or one into which any water, gas, or other fluid is being injected;

(15) "Shallow well" means any well drilled and completed at a depth less than four thousand (4,000) feet except, in the case of any well drilled and completed east of longitude line 84 degrees 30'; shallow well means any well drilled and completed at a depth less than four thousand (4,000) feet or above the base of the lowest member of the Devonian Brown Shale, whichever is the deeper in depth;

(16) "Deep well" means any well drilled and completed below the depth herein provided for a shallow well;

(17) "Operator" means any owner of the right to develop, operate and produce oil and gas from a pool and to appropriate the oil and gas produced therefrom, either for himself or for himself and others; in the event that there is no oil and gas lease in existence with respect to the tract in question, the owner of the oil and gas rights therein shall be considered as "operator" to the extent of seven-eighths (7/8) of the oil and gas in that portion of the pool underlying the tract owned by such owner, and as "royalty owner" as to one-eighth (1/8) interest in such oil and gas; and in the event the oil is owned separately from the gas, the owner of the right to develop, operate, and produce the substance being produced or sought to be produced from the pool shall be considered as "operator" as to such pool;

(18) "Royalty owner" means any owner of oil and gas in place, or oil and gas rights, to the extent that such owner is not an operator as defined in subsection (17) of this section;

(19) "Drilling unit" generally means the maximum area in a pool which may be drained efficiently by one (1) well so as to produce the reasonable maximum recoverable oil or gas in such area. Where the regulatory authority has provided rules for the establishment of a drilling unit and an operator, proceeding within the framework of the rules so prescribed, has taken the action necessary to have a specified area established for production from a well, such area shall be a drilling unit;

(20) "Underground source of drinking water" means those subsurface waters identified as such in regulations promulgated by the department which shall be consistent with the definition of underground source of drinking water in

regulations promulgated by the Environmental Protection Agency pursuant to the Safe Drinking Water Act, 42 U.S.C. Sec. 300(f) et seq.;

(21) "Underground injection" means the subsurface emplacement of fluids by well injection but does not include the underground injection of natural gas for purposes of storage;

(22) "Endangerment of underground sources of drinking water" means underground injection which may result in the presence in underground water, which supplies or can reasonably be expected to supply any public water system, of any contaminant and if the presence of such contaminant may result in such system's not complying with any national primary drinking water regulation or may otherwise adversely affect the health of persons;

(23) "Class II well" means wells which inject fluids:

(a) Which are brought to the surface in connection with conventional oil or natural gas production and may be commingled with waste waters from gas plants which are an integral part of production operations, unless those waters are classified as a hazardous waste at the time of injection;

(b) For enhanced recovery of oil or natural gas; and

(c) For storage of hydrocarbons which are liquid at standard temperature and pressure;

(24) "Fluid" means any material or substance which flows or moves whether in a semisolid, liquid, sludge, gas, or any other form or state.

History through 1968: Amended 1966 Ky. Acts ch. 255, sec. 259. -- Created 1960 Ky. Acts ch. 103, sec. 2.

353.520 Territorial application of KRS 353.500 to 353.720 -- Waste of oil and gas prohibited.

(1) KRS 353.500 to 353.720 shall apply to all lands located in the Commonwealth, however owned, including any lands owned or administered by any government or any agency or political subdivision thereof, over which the Commonwealth has jurisdiction under its police power.

(2) The waste of oil and gas is hereby prohibited. The waste prohibited includes physical waste as that term is generally understood in the oil and gas industry and includes:

(a) The locating, drilling, equipping, operating or producing of any oil or gas well, or wells drilled, deepened, or reopened in a manner that causes, or tends to cause, a reduction in the quantity of oil or gas ultimately recoverable from a pool under prudent and proper operations, or contrary to any provision of, or any order, rule or regulation promulgated or issued under KRS 353.500 to 353.720;

(b) Permitting the migration of oil, gas or water from the stratum in which it is found into other strata, thereby ultimately resulting in the loss of recoverable oil or gas, or both;

(c) The drowning with water of any stratum or part thereof capable of producing oil or gas in paying quantities, except for secondary recovery purposes, or in hydraulic fracturing or other completion practices;

(d) The unreasonable damage to underground, fresh or mineral water supply, workable coal seams, or other mineral deposits in the operations for the discovery, development, production or handling of oil and gas;

(e) The unnecessary or excessive surface loss or destruction of oil or gas or their constituents; and

(f) The drilling of more wells than are reasonably required to recover efficiently the maximum amount of oil and gas from a pool.

(3) The production of oil or gas from any well in any pool unless a permit has been issued as required by KRS 353.500 to 353.720, or in violation of the spacing provisions of KRS 353.500 to 353.720, is prohibited; except that this subsection shall not prohibit the continuation of production of oil or gas from a well producing oil or gas on June 16, 1960.

History through 1968: Created 1960 Ky. Acts ch. 103, sec. 3, effective June 16, 1960.

353.530 Director of oil and gas conservation -- Qualifications -- Duties -- Oath.

(1) The Governor shall appoint, as director of oil and gas conservation in the Department of Mines and Minerals, a person who has, at the time of his appointment, at least five (5) years' experience in the exploration for or the production of oil or gas.

(2) It shall be his duty to administer the provisions of KRS 353.500 to 353.720 subject to the direction and supervision of the commissioner.

(3) Before taking office, the director shall take oath, which shall be certified by the officer administering it. The oath, in writing, and the certificate shall be filed in the office of the Secretary of State.

(4) No director shall, while holding office, acquire any financial interest, directly or indirectly, in any venture or activity for the exploration for or production of oil or gas in this Commonwealth.

History through 1968: Created 1960 Ky. Acts ch. 103, sec. 4, effective June 16, 1960.

353.540 Authority of department -- Jurisdiction.

(1) The department is authorized and it shall be its duty to administer and enforce KRS 353.500 to 353.720, all rules and regulations promulgated and orders issued hereunder, and to conduct such investigations as it deems necessary.

(2) The department is hereby granted authority and jurisdiction over all persons and property necessary for such purposes.

History through 1968: Created 1960 Ky. Acts ch. 103, sec. 6, effective June 16, 1960.

353.550 Specific authority over oil and gas operators.

Without limiting its general authority, the department shall have the specific authority to require of and from all operators of any oil or gas property in this Commonwealth:

(1) Identification of producing leases, submitted on the form on which production is required by the department to be reported;

(2) The making of driller's logs, and filing of all logs and downhole surveys made;

(3) The drilling, casing, operation, and plugging of wells in such manner as to prevent:

   (a) The escape of oil or gas from one pool into another, or into mineral bearing stratum;

   (b) The detrimental intrusion of water into an oil or gas pool or into mineral-bearing stratum that is avoidable by efficient operations; and

   (c) Blowouts, cavings, seepages, and fires;

(4) The filing of the reports and plats with the department for transmittal to the Kentucky Geological Survey as may be prescribed by rules and regulations promulgated hereunder. All such reports and plats shall be transmitted by the department to the Kentucky Geological Survey within thirty (30) days after receipt thereof by the department.

Effective: July 15, 1996

History: Amended 1996 Ky. Acts ch. 276, sec. 1, effective July 15, 1996.

History through 1968: Created 1960 Ky. Acts ch. 103, sec. 7, effective June 16, 1960.

353.560 Further authority.

Without limiting its general authority, the department shall regulate:

(1) The drilling and plugging of all wells;

(2) The spacing or locating of wells;

(3) The use of vacuum; and

(4) Make recommendations to the water pollution control commission as to disposal of salt water and oil field wastes.

History through 1968: Created 1960 Ky. Acts ch. 103, sec. 8, effective June 16, 1960.

353.565 Kentucky Oil and Gas Conservation Commission.

(1) There is hereby created in the Department of Mines and Minerals, the "Kentucky Oil and Gas Conservation Commission" which shall be composed of five (5) members. Four (4) of the members shall be appointed by the Governor and the fifth member, who shall serve as chairman of the commission, shall be the director of oil and gas conservation and who shall serve in an ex officio capacity as a nonvoting member except in the case of a tie. The four (4) members appointed by the Governor shall be residents of this state and not more than one (1) of them may be directly employed in the exploration for or the production of oil or gas, or deriving more than fifty percent (50%) of that person's income from the exploration for or production of oil or gas, or engaged in a business directly servicing or supplying these activities. No member of the commission shall participate in the deliberations of the commission or vote on any matter before the commission in which he, his employer, or any business unit in which he has a financial interest is an interested party, but a member of the commission is not prohibited from deliberating or voting on matters of general interest, such as the fixing of statewide spacing patterns, affecting him, his employer, or a business unit in which he has financial interest as a member of a class of persons to be affected by an administrative regulation or order of the commission. The commission shall not contain more than one (1) representative from any one (1) operator, including subsidiaries or affiliates. Of the four (4) members appointed by the Governor, two (2) shall be residents of eastern Kentucky and two (2) shall be residents of western Kentucky. Longitude 84 deg. 30 min. shall be deemed as the division line between eastern Kentucky and western Kentucky.

(2) The members of the commission, except the chairman, shall be appointed for terms of four (4) years each, except that:

(a) The original appointments shall be for terms of one (1), two (2), three (3), and four (4) years respectively; and

(b) Of the members appointed after July 15, 1998, one (1) member appointed to fill the term expiring June 21, 1999, shall serve until January 21, 2000; one (1) member appointed to fill the term expiring June 21, 2000, shall serve until January 21, 2001; one (1) member appointed to fill one (1) of the two (2) terms expiring June 21, 2001, shall serve until January 21, 2002; and one (1) member appointed to fill the second of the two (2) terms expiring June 21, 2001, shall serve until January 21, 2003; and subsequent appointments shall be for four (4) year terms ending on January 21. Each member appointed by the Governor shall serve until his successor has been appointed and qualified. Members may be reappointed by the Governor to serve successive terms. The members of the commission, before performing any duty hereunder, shall take an oath which shall be certified by the officer administering it. The oath in writing and the certificate shall be filed in the office of the Secretary of State. Vacancies in the membership appointed by the Governor shall be filled by appointment by him and for the unexpired term of the member whose office shall be vacant, and the appointment shall be made by the Governor within sixty (60) days of the occurrence of a vacancy. Any member appointed by the

Governor may be removed by the Governor in case of incompetency, neglect of duty, gross immorality, or malfeasance of office.

(3) The commission shall meet at times and places as shall be designated by the chairman. The chairman may call a meeting of the commission at any time, and he shall call a meeting of the commission upon the written request of two (2) members. Notification of each meeting shall be given in writing to each member by the chairman at least five (5) days in advance of the meeting. Any three (3) members, one (1) of which may be the chairman, shall constitute a quorum for the transaction of any business, including the holding of hearings. A majority of the commission present shall be required to determine any issue brought before it for decision.

(4) Each member of the commission, except the chairman, shall receive fifty dollars ($50) per diem not to exceed one hundred (100) days per calendar year while actually engaged in the performance of his duties as a member of the commission. Each member of the commission, including the chairman, shall also be reimbursed for all reasonable and necessary expenses actually incurred in the performance of his duties as a member of the commission.

(5) The commission shall execute and carry out, administer, and enforce the provisions of KRS 353.651 and 353.652. The commission may make any investigation of records and facilities as it deems proper.

(6) If an emergency is found to exist by the commission which, in its judgment, requires the making, changing, renewal, or extension of an administrative regulation or order without first having a hearing, an emergency regulation may be promulgated in accordance with KRS Chapter 13A and an emergency order may be issued in accordance with KRS 13B.125.

(7) The commission shall have specific authority to:

(a) Promulgate and enforce reasonable administrative regulations and issue orders reasonably necessary to prevent waste, protect correlative rights, govern the practice and procedure before the commission, and otherwise administer the provisions of KRS 353.651 and 353.652; and

(b) Issue subpoenas for the attendance of witnesses and subpoenas duces tecum for the production of any books, records, maps, charts, diagrams, and other pertinent documents, and administer oaths and affirmations to witnesses, whenever, in the judgment of the commission, it is necessary to do so for the effective discharge of its duties under the provisions of KRS 353.651 and 353.652.

(8) Any interested person may have the commission call a hearing for the purpose of taking action in respect to any matter within the jurisdiction of the commission by making a request therefor in writing. Upon the receipt of any request, the commission promptly shall call a hearing thereon, and, after the hearing and with all convenient speed, and in any event within thirty (30) days after the conclusion of the hearing, shall take appropriate action with regard to the subject matter thereof as it may deem appropriate. If the hearing is adjudicatory in nature, it shall be conducted in accordance with KRS Chapter 13B.

(9) Agreements made in the interest of conservation of oil or gas, or both, or for the prevention of waste, between and among owners or operators, or both, owning separate holdings in the same field or pool, or in any area that appears from geologic or other data to be underlaid by a common accumulation of oil or gas, or both, and agreements between and among these owners or operators, or both, and royalty owners therein, for the purpose of bringing about the development and operation of the field, pool, or area, or any part thereof, as a unit, and for establishing and carrying out a plan for the cooperative development and operation thereof, when the agreements are approved by the commission, are hereby authorized and shall not be held or construed to violate any of the laws of this state relating to trusts, monopolies, or contracts and combinations in restraint of trade.

(10) Nothing in this section shall be construed as giving to the commission the right or authority to supersede the authority of the department in the administration of KRS 353.060.

Effective: July 15, 1998

History: Amended 1998 Ky. Acts ch. 194, sec. 11, effective July 15, 1998. -- Amended 1996 Ky. Acts ch. 318, sec. 340, effective July 15, 1996. -- Amended 1984 Ky. Acts ch. 111, sec. 145, effective July 13, 1984. -- Amended 1978 Ky. Acts ch. 154, sec. 39, effective June 17, 1978. -- Created 1974 Ky. Acts ch. 45, sec. 3.

353.570 Permit required -- May authorize operation prior to issuance of permit.

(1) No person shall drill or deepen a well, or reopen a plugged well for the production of oil or gas or for the injection of water, gas or other fluid into any oil or gas producing formation (except seismograph test holes) after June 16, 1960, or drill or deepen a water supply well, and geological or structure test holes after June 16, 1966, until such person shall obtain a permit from the department, except as provided in KRS 353.730.

(2) When any applicant for a permit as required by this section has complied with the provisions of this chapter and all rules and regulations promulgated hereunder, the department shall issue the permit.

(3) The department may authorize the commencement of the drilling, deepening or reopening of any well prior to the issuance of a permit therefor; except if the location of the well is known to be underlaid by a coal-bearing stratum and consent of the owner, operator, and lessee of the coal-bearing stratum has not been granted. Consent shall be implied, when the coal-bearing stratum is owned by the oil and gas lessor or lessee, and the coal is not under lease to any third party.

Effective: July 15, 1998

History: Amended 1998 Ky. Acts ch. 359, sec. 4, effective July 15, 1998. -- Amended 1966 Ky. Acts ch. 147, sec. 1. -- Created 1960 Ky. Acts ch. 103, sec. 9.

353.575 Duty of applicant to meet and confer with permittee if drilling will disturb permitted area.

Prior to the issuance of a permit to drill an oil or gas well on land which is permitted or bonded under the provisions of KRS Chapter 350, the applicant shall certify that he has met and conferred with, or offered to meet and confer with, the permittee as to any activity that will disturb the permitted area.

Effective: July 14, 1992

History: Created 1992 Ky. Acts ch. 348, sec. 2.

353.580 Expiration of permit.

(1) Each permit issued under KRS 353.500 to 353.720 shall expire one (1) year after the date issued, unless the drilling, deepening or reopening of a well is commenced pursuant thereto prior to the expiration of the one (1) year period.

(2) All permits issued by the department under any previous statute shall continue in force as written, only if the drilling of the well has been commenced pursuant thereto on or before sixty (60) days after June 16, 1960.

History through 1968: Created 1960 Ky. Acts ch. 103, sec. 10, effective June 16, 1960.

353.590 Application for permit -- Fees -- Plat -- Bond to insure plugging -- Use of forfeited funds -- Wells not included in "water supply well."

(1) Any person seeking a permit required by KRS 353.570 shall submit to the department a written application in a form prescribed by the department.

(2) Each application shall be accompanied by a specified fee as follows:

(a) The fee shall be three hundred dollars ($300) for each well to be drilled, deepened, or reopened for any purpose relating to the production, repressuring, or storage of oil or gas, and for each water supply well, observation well, and geological or structure test hole.

(b) If the department receives delegation of authority for administration of the underground injection control program under Section 1425 of the Safe Drinking Water Act (Public Law 93-523 as amended), the department may, by administrative regulation, establish a fee or schedule of fees in an amount not to exceed fifty dollars ($50) per well, in addition to the fees imposed by paragraph (a) of this subsection, upon each application to drill, deepen, or reopen a well for any purpose relating to the production, repressuring, or storage of oil or gas, and for each water supply well, observation well, and geological or structure test hole. The fees or schedule of fees to be established by administrative regulation shall not exceed an amount sufficient to recover the costs incurred by the department in administering the Underground Injection Control Program less any other state or federal funds which are made available for this purpose.

(c) All money paid to the State Treasurer for fees required by paragraph (b) of this subsection shall be for the sole use of the department in the administration of the Underground Injection Control Program under Section 1425 of the Safe Drinking Water Act (Public Law 93-523 as amended).

(3) All money paid to the State Treasurer for licenses and fees required by KRS 353.500 to 353.720 shall be for the sole use of the department and shall be in addition to any moneys appropriated by the General Assembly for the use of the department.

(4) Each application shall be accompanied by a plat, which shows the location and elevation of each well, prepared according to the administrative regulations promulgated under KRS 353.500 to 353.720. The plat shall be certified as accurate and correct by a professional land surveyor in accordance with the provisions of KRS Chapter 322.

(5) When any person submits to the Department of Mines and Minerals an application for a permit to drill a well, or to reopen, deepen, or temporarily abandon any well which is not covered by surety bond, the department shall, except as provided in this section, require from the well operator a bond in the sum of five hundred dollars ($500) for a well to be drilled to a depth of five hundred (500) feet or less; one thousand dollars ($1,000) for a well to be drilled to a depth between five hundred and one (501) feet and one thousand (1,000) feet; one thousand five hundred dollars ($1,500) for a well to be drilled to a depth between one thousand and one (1,001) feet and one thousand five hundred (1,500) feet; two thousand dollars ($2,000) for a

well to be drilled to a depth between one thousand five hundred and one (1,501) feet and two thousand (2,000) feet; two thousand five hundred dollars ($2,500) for a well to be drilled to a depth between two thousand and one (2,001) feet and two thousand five hundred (2,500) feet; three thousand dollars ($3,000) for a well to be drilled to a depth between two thousand five hundred and one (2,501) feet and three thousand (3,000) feet; three thousand five hundred dollars ($3,500) for a well to be drilled to a depth between three thousand and one (3,001) feet and three thousand five hundred (3,500) feet; four thousand dollars ($4,000) for a well to be drilled to a depth between three thousand five hundred and one (3,501) feet and four thousand (4,000) feet; and five thousand dollars ($5,000) for a well to be drilled to a depth of more than four thousand (4,000) feet. The bonds shall be made in favor of the Department of Mines and Minerals, conditioned that the wells upon abandonment shall be plugged in accordance with the administrative regulations of the department and that all records required by the department be filed as specified. An operator may petition the department to amend the drilling depth and bond amount applicable to a particular well and shall not proceed to drill to a depth greater than that authorized by the department until the operator is so authorized except pursuant to administrative regulations promulgated by the department. The commission may establish a bond in a sum greater than five thousand dollars ($5,000) for any well to be drilled to a depth of more than four thousand (4,000) feet if the members of the commission determine that the particular circumstances of the drilling of the well warrant an increase in the bond amount established above. All bonds shall remain in effect until the plugging of the well is approved by the department, or the bond is released by the department. Any well operator in lieu of the bond may file with the department a blanket bond in a sum of ten thousand dollars ($10,000), covering all wells drilled or to be drilled in the Commonwealth by the principal in the bond, and the acceptance and approval by the department of the blanket bond shall be in full compliance with the above provision requiring an individual well bond. A deposit in cash or a bank-issued irrevocable letter of credit may serve in lieu of either of the individual well or blanket bonds, and a property bond may be executed by an operator who owns all of the surface and mineral rights of a tract proposed for drilling. A certificate of deposit, the principal of which is pledged in lieu of a bond and whose interest is payable to the party making the pledge, may also be accepted by the department. If an operator is required to post individual well bonds exceeding a total of five thousand dollars ($5,000) or elects to post a blanket bond, the certificate of deposit shall be accepted by the department in lieu of that portion of the amount of the bonds exceeding five thousand dollars ($5,000). The bond or bonds referred to in this section shall be executed by the well operator as principal and, if a surety bond, by a corporate surety authorized to do business in the Commonwealth. A deposit in cash shall serve in lieu of either of the above bonds; all cash bonds accepted by the department shall be deposited into an interest-bearing account, with the interest thereon payable to the special agency account known as the oil and gas well plugging fund, created in subsection (9) of this section, to be used in accordance with the purposes described therein. All cash bonds being held by the department on July 13, 1990, shall likewise be deposited in the interest-bearing

account, with the proceeds to be used for the purposes established for the oil and gas well plugging fund. The bond amounts shall be applicable only to permits issued upon and after July 13, 1990. All bonds posted for permits issued prior to July 13, 1990, shall remain in full force and effect for the duration of the permits.

(6) A successor to the well operator shall post bond and notify the department in writing in advance of commencing use or operation of a well or wells. The successor shall assume the obligations of this chapter as to a particular well or wells and relieve the original permittee of responsibility under this chapter with respect to the well or wells. It shall be the responsibility of the selling operator to require the successor operator to post bond before use or operation is commenced by the successor and relief of responsibility under this chapter is granted to the original permittee.

(7) If the requirements of subsection (5) of this section with respect to proper plugging upon abandonment and submission of all required records on all well or wells have not been complied with within the time limits set by the department, by administrative regulation, or by this chapter, the department shall cause a notice of noncompliance to be served upon the operator by certified mail, addressed to the permanent address shown on the application for a permit. The notice shall specify in what respects the operator has failed to comply with this chapter or the administrative regulations of the department. If the operator has not reached an agreement with the department or has not complied with the requirements set forth by it within forty-five (45) days after mailing of the notice, the bond shall be forfeited to the department.

(8) A bond forfeited pursuant to the provisions of this chapter may be collected by an attorney for the department or by the Attorney General, after notice from the director.

(9) All sums received under subsection (5) of this section or through the forfeiture of bonds shall be placed in the State Treasury and credited to a special agency account to be designated as the oil and gas well plugging fund, which shall be an interest-bearing account with the interest thereon payable to the fund. This fund shall be available to the department and shall be expended for the plugging of any abandoned wells coming within the authority of the department pursuant to this chapter. The plugging of any well pursuant to this subsection shall not be construed to relieve the operator or any other person from civil or criminal liability which would exist except for the plugging. Any unencumbered and any unexpended balance of this fund remaining at the end of any fiscal year shall not lapse but shall be carried forward for the purpose of the fund until expended or until appropriated by subsequent legislative action.

(10) Upon request by any person applying for a permit for a geological or structure test hole, the department shall keep the location and elevation of the hole confidential until the information is allowed to be released by the person obtaining the permit.

(11) For the purpose of this chapter, "water supply well" shall not include:

(a) Any well for a potable water supply for domestic use or for livestock; or

(b) Any water well used primarily for cooling purposes in an industrial process.

Effective: January 1, 1999

History: Amended 1998 Ky. Acts ch. 214, sec. 43, effective January 1, 1999. -- Amended 1994 Ky. Acts ch. 127, sec. 1, effective July 15, 1994. -- Amended 1990 Ky. Acts ch. 12, sec. 1, effective July 13, 1990. -- Amended 1982 Ky. Acts ch. 232, sec. 1, effective July 15, 1982. -- Amended 1966 Ky. Acts ch. 147, sec. 2. -- Created 1960 Ky. Acts ch. 103, sec. 11.

353.5901 Operations and reclamation proposal for land with complete severance -- Contents, distribution, and agreement or mediation -- Mediation report.

(1) In all cases where there has been a complete severance of the ownership of the oil and gas from the ownership of the surface to be disturbed, a well operator shall submit to the department an operations and reclamation proposal at the time of filing an application for permit to drill, deepen, or reopen a well. The proposal shall be filed on forms provided by the department and shall include:

(a) A proposal to prevent erosion of and sedimentation from the well site and all disturbed areas, including roads;

(b) A narrative description of the location of all areas to be disturbed, including the location of roads, gathering lines, the well site, tanks and other storage facilities, and any other information that may be required by the department. Accompanying this narrative description shall be a plat depicting the location on the land of all of these disturbances or facilities;

(c) A signed agreement by the surface owners of all disturbed areas to the operations and reclamation proposal; and

(d) Any additional information that the department may require.

(2) In all cases where there has been a complete severance of the ownership of the oil and gas from the ownership of the surface and the surface owners of all disturbed areas have not signed agreements with the well operator agreeing to the operations and reclamation proposal, at the time of filing the application the well operator shall cause to be delivered to the surface owners of all disturbed areas who have not agreed to the operations and reclamation proposal, by certified mail, return receipt requested:

(a) A copy of the operations and reclamation proposal required by paragraph (a) of subsection (1) of this section, and the narrative description of land disturbances and plat required by paragraph (b) of subsection (1) of this section; and

(b) A notice to read as follows: "If you do not agree with the proposed use of your land by the well operator, the well operator may request mediation of your dispute by the General Counsel's Office of the Department of Mines and Minerals. If mediation is requested, and you decide to participate, each party to the mediation will be charged one hundred dollars ($100) to help cover the cost of mediation. You will be notified of the time and place for mediation, if the well operator chooses mediation, and of your right to participate."

The certified mail receipt, when returned, shall be filed by the well operator with the department and made part of the permit application.

(3) If the well operator has been unable to reach agreement with the surface owners of all areas to be disturbed in all cases where there has been a complete severance of the ownership of the oil and gas from the ownership of the surface to be disturbed, the permit required by this chapter shall not be issued until the

dispute has been referred to mediation by the General Counsel's Office of the Department of Mines and Minerals, and mediation has been concluded either by agreement between the parties or by a report of the mediator, in accordance with subsection (4) of this section.

(4) The well operator may request mediation any time after filing the permit application, and all parties participating in the mediation shall pay a nonrefundable fee of one hundred dollars ($100) to the Kentucky State Treasurer, which shall be for the sole use of the department and shall be in addition to any money appropriated by the General Assembly for the use of the department. The department shall notify the well operator and all surface owners of areas to be disturbed by drilling who have not agreed to the operation and reclamation plan of the date and time mediation shall be conducted by certified mail, return receipt requested. The department shall conduct mediation at the site proposed to be disturbed within fifteen (15) days from the date requested, if practicable. At the mediation, the mediator will attempt to facilitate an agreement between the well operator and the surface owner. If an agreement is not forthcoming after mediation, the mediator shall, within five (5) days after mediation, issue a report to the director recommending that the director:

(a) Accept the proposal as submitted by the well operator; or

(b) Accept the proposal with modifications set forth by the mediator.

(5) If an agreement between the well operator and the surface owners of all disturbed areas is not forthcoming after mediation, the mediator shall consider the following factors as to the reasonable use of the surface by the well operator in issuing a report to the director, which recommendations shall become permit conditions:

(a) The location of roads, gathering lines, and tank batteries;

(b) The timing of the operation, considering seasonal uses of the land by the surface owner and the need of the well operator to drill expeditiously;

(c) The impact on the other uses of the land by the surface owner, including the location of timber, houses, barns, ponds, crops, and other improvements;

(d) Whether the proposal includes a plan for timely, effective reclamation of all disturbed areas; and

(e) Any other information deemed appropriate by the mediator.

(6) The director shall act upon the recommendation of the mediator within five (5) days of the receipt of the mediation report.

Effective: July 15, 1994

History: Created 1994 Ky. Acts ch. 127, sec. 2, effective July 15, 1994.

353.591 Purpose and application of KRS 353.592 and 353.593.

The purpose of KRS 353.592 and 353.593 shall be, upon delegation of authority for administration of the Underground Injection Control Program under Section 1425 of the Safe Drinking Water Act (Public Law 93-523 as amended), to protect underground sources of drinking water and to prevent their endangerment from class II wells. KRS 353.592 and 353.593 shall apply to all persons as defined in KRS 353.510; to all lands including federally-owned lands; and to all class II wells without regard to the time the well was drilled; provided that the department may make reasonable distinctions between existing and new class II wells in the implementation of KRS 353.592 and 353.593. No provision of KRS 353.592 or 353.593 shall apply to crude oil or natural gas production wells that are not class II wells.

353.592 Powers of the department.

In addition to the powers conferred upon the department by KRS 353.500 to 353.720 and notwithstanding any provision of KRS 353.500 to 353.720, the department is authorized but not obligated to develop and promulgate a regulatory program for the purpose of accepting primary responsibility for administration of the Underground Injection Control Program under Section 1425 of the Safe Drinking Water Act (Public Law 93-523 as amended). To that end, the department shall include in any regulatory program developed and promulgated under this provision:

(1) Regulations regarding the drilling, casing, operation, plugging, construction, conversion, maintenance, and abandonment of class II wells to protect underground sources of drinking water and to prevent their endangerment;

(2) Regulations prohibiting underground injection through class II wells except as authorized by such regulations or by a permit issued pursuant thereto;

(3) Regulations requiring owners or operators of class II wells to demonstrate financial responsibility for the costs of closure of all class II wells. Such demonstration of financial responsibility may include but need not be limited to the well plugging bond required by KRS 353.590(5);

(4) Regulations providing for reasonable public notice of applications for permits for class II wells and providing for public participation in the issuance of such permits;

(5) Regulations establishing a schedule of fees for the mechanical integrity testing and periodic registration of class II wells to be paid by the owners or operators thereof. The schedule of fees shall be based upon the reasonable cost to the department of administering the underground injection control program. The regulations may provide for the collection of a fee prior to delegation of authority by the Federal Environmental Protection Agency which shall be refunded by the department if the department does not receive said delegation. No regulation promulgated pursuant to this section shall authorize the endangerment of an underground source of drinking water or be more stringent than regulations promulgated by the Environmental Protection Agency pursuant to the Underground Injection Control Program of the Safe Drinking Water Act, 42 U.S.C. Sec. 300(f) et seq.

353.593 Appeals.

Appeals may be taken from all final orders of the department to issue, deny, modify, or revoke any permit under the Underground Injection Control Program. Appeals shall be taken to the Circuit Court of the county in which the well is located or proposed to be located in accordance with KRS Chapter 13B.

Effective: July 15, 1996

History: Amended 1996 Ky. Acts ch. 318, sec. 341, effective July 15, 1996.

353.595 Notice to surface owner of intent to drill oil or gas well -- Compensation for damage to surface -- Restoration of surface.

(1) As used in this section:

(a) "Person" means any natural person, corporation, firm, partnership, venture, receiver, trustee, executor, administrator, guardian, fiduciary, or other representative of any kind, and includes any government or any political subdivision or agency thereof.

(b) "Drilling operations" means the drilling, deepening, or conversion of a well for oil or gas production, core hole for oil or gas purposes, or drill hole for a stratigraphic test for oil or gas purposes.

(c) "Entry" means the moving upon the surface of land with equipment to commence drilling operations, but shall not include entry for the survey for or ascertaining or identification of a well location.

(d) "Operator" means the person, whether the owner or not, who applies for or holds a permit for drilling operations or who is named as the principal on a bond for a permit for a well that was issued by the department.

(e) "Surface owner" means the person in whose name the surface of the land on which drilling operations are contemplated, and who is assessed for purposes of taxes imposed according to the records of the property valuation administrator of the county where the land is located as certified by the property valuation administrator.

(f) "Production operation" means the operation of a well for the production of oil or gas, including all acts, structures, equipment, and roadways necessary for the operation.

(g) "New well" means a well that is spudded after July 13, 1990, and does not utilize any part of a well bore or drilling location that existed prior to July 13, 1990.

(h) "Completion of the well" means completion of those processes necessary before production occurs, including the laying of flow lines and the construction of the tank battery. If the well is not productive, the date of completion of the well shall be the day it is plugged and abandoned.

(2) This section shall be applicable only for the drilling operations of new wells except as provided in subsection (7) of this section. This section shall not apply for reworking operations on a well. This section shall be applicable only when the surface owner has not consented in writing to the drilling operations and:

(a) There has been a complete severance of the ownership of the oil and gas from the ownership of the surface; or

(b) The surface owner owns an interest in the oil and gas.

(3) (a) Prior to commencement of the drilling of a well, the operator shall give written notice to the surface owner of the operator's intent to commence drilling operations.

(b) The operator shall, for the purpose of giving notice, secure from the property valuation administrator's office, within ninety (90) days prior to the giving of the notice, a certification which shall identify the person in whose name the lands on which drilling operations are to be commenced and who is assessed at the time the certification is made. The written certification made by the property valuation administrator of the surface owner shall be conclusive evidence of the surface ownership.

(c) The notice required to be given by the operator to the surface owner shall identify the following:

1. The location of the proposed entry on the surface for drilling operations and the date on or after which drilling operations shall commence.
2. A photocopy of the drilling application to the department for the well to be drilled.
3. The name, address, and telephone number of the operator.
4. An offer to discuss with the surface owner those matters set forth in subsection (4) of this section prior to commencement of drilling operations.

(d) If the surface owner elects to meet the operator, the surface owner shall request the operator to schedule a meeting at a mutually agreed time and place within the limitations set forth herein. Failure of the surface owner to contact the operator at least five (5) days prior to the proposed commencement of drilling operations shall be conclusively deemed a waiver of the right to meet by the surface owner. The meeting shall be scheduled between the hours of nine o'clock in the morning and the setting of the sun of the same day and shall be at least three (3) days prior to commencement of drilling operations. Unless agreed to otherwise, the place shall be located within the county in which drilling operations are to be commenced where the operator or his agent shall be available to discuss with the surface owner or his agent those matters set forth in subsection (4) of this section.

(e) The notice shall be given to the surface owner by either:

1. Certified mail addressed to the surface owner at the address shown in the certification obtained from the property valuation administrator, which shall be postmarked at least ten (10) days prior to the commencement of drilling operations; or
2. Personal delivery to the surface owner at least eight (8) days prior to the commencement of drilling operations.

(f) Notice to the surface owner as defined in this section shall be deemed conclusive notice to the record owners of all interest in the surface.

(4) The operator, or his agent shall, if the surface owner accepts the offer to discuss, be available at the time agreed, date, and place to discuss with the surface owner the following:

(a) Placement of roads to be constructed by the operator;

(b) Points of entry upon the surface for drilling operations;

(c) Construction and placement of pits used for drilling operations;

(d) Restoration of fences to be cut in order to make entry upon the surface for drilling operations;

(e) Use of water on the surface of the lands;

(f) Removal of trees; and

(g) Surface water drainage changes caused by drilling operations.

(5) The surface owner shall be entitled to reasonable compensation from the operator for damages to growing crops, trees, shrubs, fences, roads, structures, improvements, and livestock thereon caused by the drilling of a new well. The surface owner shall be entitled to reasonable compensation from the operator for subsequent damages to growing crops, trees, shrubs, fences, roads, structures, improvements, and livestock caused by subsequent production operations of the operator thereon. The surface owner shall be entitled to reasonable compensation for all negligent acts of the operator that cause measurable damage to the productive capacity of the soil. In addition, the operator shall not utilize any more of the surface estate than is reasonably necessary for the exploration, production and development of the mineral estate.

(6) The compensation required pursuant to subsection (5) of this section shall be paid in any manner mutually agreed upon by the operator and the surface owner, but the failure to agree upon, or make the compensation required, shall not prevent the operator from commencement of drilling operations. The operator shall tender to the surface owner payment by check or draft in accordance with the provisions of this section no later than ninety (90) days after completion of the well. The surface owner's remedy shall be an action for compensation in the Circuit Court in which the lands, or the greater part thereof, are located on which drilling operations were conducted. If the operator fails to tender payment within the ninety (90) day period or if the tender is not reasonable, the surface owner shall be entitled to reasonable compensation as provided in this section, as well as attorney's fees. If the operator relies on a third-party appraiser's assessment of damages there shall be no award of attorney's fees.

(7) In conjunction with the plugging and abandonment of any well or the reworking of any well, the operator shall restore the surface and any improvements thereon to a condition as near as practicable to their condition prior to commencement of the work. The surface owner and operator may waive this requirement in writing, subject to the approval of the department that the waiver is in accordance with its administrative regulations.

(8) Nothing in this section shall be construed to diminish the rights of the operator or surface owner as they exist by established common law. Any compensation paid and accepted pursuant to the provisions of subsections (5) and (6) of this section shall be a complete bar to the assertion of any other remedy for such damages.

353.597 Replacement of disrupted water supply by well operator.

A well operator shall replace the water supply of any owner of interest in real property who obtains all or part of his supply of water for domestic, agriculture, industrial, or other legitimate use from an underground or surface source where the supply has been substantially disrupted by contamination, diminution, or interruption proximately resulting from the operator's oil or gas operation.

Effective: July 15, 1994

History: Created 1994 Ky. Acts ch. 127, sec. 3, effective July 15, 1994.

353.600 Repealed or renumbered.

History through 1968: 1960 Ky. Acts ch. 103, sec. 12, effective June 16, 1960.

353.610 Conditions under which permits may be issued -- Exceptions.

(1) Except as provided in KRS 353.500 to 353.720, no permits shall be issued for the drilling, deepening, or reopening of any shallow well for the production of oil, unless the proposed location of the well shall be at least three hundred thirty (330) feet from the nearest boundary of the premises upon which the well is to be drilled, deepened or reopened; and, the proposed location must be at least six hundred sixty (660) feet from the nearest oil producing well. This subsection shall not be construed to regulate the distance between wells which do not produce oil from the same pool.

(2) Except as provided in KRS 353.500 to 353.720, no permit shall be issued for the drilling, deepening or reopening of any shallow well for the production of gas unless the proposed location of the well shall be at least five hundred (500) feet from the nearest boundary of the premises upon which such well is to be drilled, deepened or reopened; and, the proposed location must be at least one thousand (1,000) feet from the nearest gas producing well. This subsection shall not be construed to regulate the distance between wells which do not produce gas from the same pool.

(3) This section shall not apply:

(a) To wells drilled, deepened, or reopened for the injection of water, gas or other fluids into an oil or gas producing formation.

(b) To any well drilled, deepened or reopened in a pool or portion thereof, which is included in a secondary recovery program commenced or proposed, if the location or proposed location of the well conforms to a geometric pattern already established on all premises which will be offset and affected by the well.

(c) To wells drilled or deepened as water supply wells and geological or structure test holes; or

(d) To premises within the limits of any incorporated city, town or village which has enacted or enacts hereafter an ordinance regulating the location or spacing of wells for the production of oil and gas at distances of not less than the distances prescribed in this section.

(e) To wells for the production of oil to be drilled, deepened, or reopened and completed at a depth of less than two thousand (2,000) feet where there are no workable beds of coal at lesser depths and the formation from which the oil is expected to be extracted is not appreciably affected by factors, as determined by the commissioner, other than natural drainage. The location of wells for the production of oil coming within this exception shall be at least two hundred (200) feet from the nearest boundary of the premises upon which the well is to be drilled, deepened or reopened; and the proposed location must be at least four hundred (400) feet from the nearest oil producing well. This subsection shall not be construed to regulate the distance between wells which do not produce from the same pool.

History through 1968: Amended 1966 Ky. Acts ch. 147, sec. 3. -- Created 1960 Ky. Acts ch. 103, sec. 13.

353.620 Variance from requirements of KRS 353.610.

(1) Notwithstanding KRS 353.610, if an application is submitted for a permit to drill, deepen or reopen a well closer to a boundary or to another well than prescribed in KRS 353.610 and the application is accompanied by the written consent of all owners of oil and gas interests in any premises which will be offset by the proposed well, the department shall issue a permit for the well.

(2) Notwithstanding KRS 353.610, the department may issue a permit for a well to be drilled, deepened or reopened closer to a boundary or another well than prescribed in KRS 353.610, if the director, after notice and hearing, finds that topographical or other conditions are such as to make compliance with the requirements of KRS 353.610 unduly burdensome or in conflict with reasonably prudent methods and practices for the production of oil or gas.

(3) If a permit is issued to drill, deepen or reopen a well under this section at a location closer to a well or boundary than prescribed in KRS 353.610, the department shall permit a like variance from the requirements of KRS 353.610 on all premises offset and adversely affected by the well.

History through 1968: Created 1960 Ky. Acts ch. 103, sec. 14, effective June 16, 1960.

353.630 Pooling of oil and gas interests -- Conditions.

(1) Whenever any separate tract of land is so situated because of size or other condition that it does not contain a location at which a well for oil or gas may be drilled, deepened or reopened by reason of the spacing provisions of KRS 353.610, the department shall order, after notice and a hearing, the pooling of all oil and gas interests in the separate tract or in a portion thereof with all like interests in a contiguous tract or tracts, or portions thereof, as are necessary to afford the pooled tracts one (1) location for the drilling, deepening or reopening of a well for the production of oil or gas in compliance with the spacing requirements of KRS 353.500 to 353.720. The department shall require the development and operation of all pooled tracts as a single leasehold estate in accordance with regulations and rules promulgated under KRS 353.500 to 353.720.

(2) No pooling as permitted by this section shall be ordered except:

(a) After an application to drill, deepen or reopen a well for the production of oil upon the tract or within four hundred (400) feet of the tract, or after an application for a permit to drill, deepen or reopen a well for the production of gas upon the tract or within one thousand (1,000) feet of the tract has been submitted; and

(b) After a lessee or owner of an oil or gas interest in the tract shall request the pooling.

(3) No pooling as permitted by this section shall be ordered with respect to any tract or portion thereof upon which a well is drilled, deepened or reopened:

(a) Unless the pooling was requested prior to the commencement of the drilling, deepening or reopening of the well by a lessee or owner of an oil and gas interest in a contiguous tract which does not contain a location at which a well for oil or gas may be drilled, deepened or reopened; and

(b) Unless the request, if made by the owner of an operating interest who elects to participate in the risk and cost of the drilling, deepening or reopening of the well, is accompanied by a bond or other security satisfactory to and in an amount set by the director for the payment of such owner's share of the cost of drilling, deepening or reopening the well.

(4) Production from any well which is ordered pooled pursuant to KRS 353.500 to 353.720 shall be deemed for all purposes to have been so produced from each tract or portion thereof included in the pool in proportion to the amounts established in the pooling order.

History through 1968: Created 1960 Ky. Acts ch. 103, sec. 15, effective June 16, 1960.

353.640 Pooling order -- Notice -- Provisions -- Surrender of interest -- Limited participation.

(1) A pooling order shall be made only after notice to all persons owning an oil or gas interest in any tract proposed to be pooled with another tract, and after a hearing.

(2) A pooling order shall authorize the drilling, deepening or reopening, and the operation of a well for the production of oil or gas on the tracts or portions thereof pooled; shall designate the operator to drill and operate the well; shall prescribe the time and manner in which all owners in the pooled tracts or portions thereof may elect to participate therein; shall provide that all reasonable costs and expenses of drilling, deepening or reopening, and the completing, operating, plugging and abandoning the well shall be borne, and all production from the well shall be shared by all owners of operating interests in proportion to the net mineral acres in the pooled tracts owned or under lease to each owner; and shall make provision for the payment of the reasonable actual cost thereof, including a reasonable charge for supervision, by all those who elect to participate therein.

(3) Upon request a pooling order shall provide one (1) or more just and equitable alternatives whereby, an owner of an operating interest, who does not elect to participate in the risk and cost of the drilling, deepening or reopening of a well:

(a) May elect to surrender his interest or a portion thereof to the participating owners on a reasonable basis and for a reasonable consideration which, if not agreed upon, shall be determined by the director; or

(b) May elect to participate in the drilling, deepening or reopening of the well on a limited or carried basis upon terms and conditions determined by the director to be just and reasonable.

(4) A certified copy of any pooling order entered under KRS 353.500 to 353.720 shall be entitled to be recorded in the office of the county clerk of the county or counties in which all or any portion of the pooled tract is located, and the record of the order, from the time of lodging the order for record, shall be notice of the order to all persons.

History through 1968: Created 1960 Ky. Acts ch. 103, sec. 16, effective June 16, 1960.

353.645 Operation and development as a unit of oil and gas interests in a pool or pools -- Application for unit -- Hearing -- Unitization order.

This section applies to any lessee or owner of an oil and gas interest in a proposed unit.

(1) The department, upon its own motion or upon the application of any lessee or owner of an oil and gas interest in a pool or pools of a proposed unit may, after notice to all interested persons, conduct a hearing to consider the need for the operation and development as a unit of any pool or pools, or any portion thereof, for the production of oil and associated gas in order to increase their ultimate recovery by unitized operation and development so that each owner in the pool or pools shall have the opportunity to recover his fair and equitable share of the recoverable oil and gas in the unit.

(a) The hearing shall be conducted in accordance with KRS Chapter 13B. Notice of the hearings prescribed in this subsection shall be given to all persons reasonably known to the department to be a lessee or owner of an oil and gas interest in a pool or pools within a proposed unit.

(b) The department may require a reasonable application fee from a lessee or owner of an oil and gas interest applying for a proposed unit.

(2) The application for a unit shall include the following:

(a) A description of the area to be included in the unit, with a map attached, and a description of the pool or pools, or portions thereof, to be included within the unit;

(b) A statement of the nature of the unit operations contemplated;

(c) A proposed allocation of production and reserves among the separately-owned tracts and interests contributed to the unit. Reserves shall be calculated by industry standard methods supported by geological and engineering data, as determined to be appropriate by the department. The department may require an independent third party to verify the calculations as to proposed allocation of production or reserves;

(d) The procedure upon which wells and equipment of the separately-owned tracts and interests are to be used and compensated for in unit operations; and

(e) Documentation that the application is approved by at least fifty-one percent (51%) ownership in the interests proposed for inclusion in the unit.

(3) After notice and hearing in the manner established in this section, the department shall issue a final order establishing a unit and requiring unit operation and development if it finds that:

(a) 1. The unitized operation and development of a pool or pools, or any portion thereof, for the production of oil and associated gas is reasonably necessary in order to effectively carry on operations for enhanced recovery, including but not limited to, increased density drilling, or secondary recovery operations by pressure-maintenance,

repressuring, cycling, water flooding, tertiary recovery operations, or any combination of these, in order to substantially increase the ultimate recovery of oil and associated gas from the pool or pools within the unit, or to protect the correlative rights of affected mineral owners; and

2. The value of the additional recovery of oil and associated gas exceeds the estimated additional cost incident to conducting the operation; or

(b) The unitized operation of the pool or pools within the unit will prevent waste and protect the correlative rights of the owners in the pool or pools within the unit.

(4) Each well permitted to be drilled, deepened, reopened, or converted to an injection well and operated in a unit shall conform to either the spacing standards established in KRS 353.610, or to other unit spacing that shall be established by the department as a part of the hearing provided for in this section.

(5) All unit operations and production shall be deemed, for all purposes, as the conduct of operations and production upon each of the separately-owned tracts and interests in the unit.

(6) A unitization order issued in accordance with this section shall:

(a) Authorize the unit operation of a pool or pools, including drilling, deepening, reopening, conversion to injection wells, and operation of all wells within the unit for the production of oil and gas from the unit:

(b) Designate the unit operator of the operation;

(c) Approve a unit operating agreement;

(d) Provide for the allocation of production and reserves among all separately-owned tracts and interests in the unit;

(e) Provide for the proportionate allocation of all reasonable costs and expenses of unit operations as these costs and expenses are set out in the approved operating agreement. Costs and expenses shall be allocated among all participating owners of operating interests who elect to participate in the proportion that the separately-owned tracts and interests share in the production of the unit; and

(f) Establish the spacing approved for the unit.

(7) Any unitization order shall provide just and equitable alternatives whereby an owner of an operating interest who does not elect to participate in the risk and cost of developing the unit may elect to surrender his interest, or a portion of it, to the participating owners on a reasonable basis and for a reasonable consideration, which if not agreed upon, shall be determined by the department; or elect to participate in the development of the unit on a carried basis on terms and conditions which, if not agreed upon, shall be determined by the department to be just and reasonable. If a dispute arises as to the costs of operating and developing a unit, then the department shall determine and apportion the costs within ninety (90) days after the date of written notification to the department of the existence of the dispute; however, any person disputing an actual or proposed

expenditure shall file notice of the disputed costs within one (1) year after notice of the actual or proposed expenditure was received by the person filing the dispute.

(8) An order establishing a unit may be modified, altered, extended, vacated, or otherwise amended by the department after notice and hearing as prescribed in this section and a demonstration by affected persons of a significant change of circumstances supporting the amendment.

(a) An amendment to extend or enlarge the unit area shall be agreed upon in writing by documented owners of at least a fifty-one percent (51%) ownership in the interests in the pool or pools in the unit;

(b) An amendment of a unitization order enlarging a unit shall allocate to each tract or interest in the unit, as amended, a portion of the total production of oil or gas, or both, from the unit so enlarged, in proportion to the contribution of the tract or interest to the unit during the remaining course of unit operations, and shall supersede and be in lieu of the allocation of production provided for in any previously-established unit and shall have an effective date provided for in the order.

(9) Wells drilled, deepened, or reopened for the injection of water, gas, or other fluids into any subsurface formation shall be governed by applicable state and federal statutes and regulations.

Effective: July 15, 1996

History: Amended 1996 Ky. Acts ch. 318, sec. 342, effective July 15, 1996. -- Created 1994 Ky. Acts ch. 431, sec. 2, effective July 15, 1994.

353.650 Exclusion of royalty interest in computing share of production -- Limitation.

(1) If one (1) or more of the owners of any operating interest in any portion of the pooled tract shall drill, deepen or reopen and operate, or pay the costs of drilling, deepening or reopening and operating a well for the benefit of another owner of an opening interest, as provided in the pooling order, then such owner or owners shall be entitled to the proceeds from the share of production from the tracts or portions thereof pooled accruing to the interest of such other owner, exclusive of any royalty reserved in any lease or leases of such tracts or portions thereof or exclusive of one-eighth (1/8) of production attributable to all unleased tracts or portions thereof, until such proceeds equal the sums payable by or charged to the interest of the other owner plus a reasonable charge for interest on such sums.

(2) If a dispute shall arise as to the costs of drilling, deepening or reopening, and operating a well, the director shall determine and apportion the costs.

History through 1968: Created 1960 Ky. Acts ch. 103, sec. 17, effective June 16, 1960.

353.651 Deep wells -- Establishment and regulation of drilling units -- Pooling of interests -- Exceptions.

The following provisions of this section shall apply to any deep well:

(1) Drilling units:

(a) The commission shall, after notice and a hearing, to be conducted in accordance with KRS Chapter 13B, regulate the drilling and location of wells in any pool and the production therefrom so as to prevent reasonably avoidable net drainage from each developed unit (that is, drainage which is not equalized by counterdrainage) so that each owner in a pool shall have the right and opportunity to recover his fair and equitable share of the recoverable oil and gas in such pool.

(b) For the prevention of waste, to protect and enforce the correlative rights of the owners in a pool, and to avoid the augmenting and accumulation of risks arising from the drilling of an excessive number of wells, the commission shall, after notice and a hearing, to be conducted in accordance with KRS Chapter 13B, establish drilling units for each pool. The spacing of wells in proved oil and gas fields shall be governed by administrative regulations promulgated for that particular field. Wells drilled in areas not covered by special field administrative regulations shall be governed by statewide administrative regulations promulgated by the commission.

(c) Each well permitted to be drilled upon any drilling unit shall be drilled in accordance with the administrative regulations promulgated by the commission and in accordance with a spacing pattern fixed by the commission for the pool in which the well is located, with any exceptions that may be reasonably necessary where it is shown, in accordance with administrative regulations promulgated by the commission, that the unit is partly outside the pool or for some other reason a well otherwise located on the unit would not be likely to produce in paying quantities, or topographical conditions are such as to make the drilling at the location unduly burdensome. Whenever an exception is granted, the commission shall take action as will offset any advantage which the person securing the exception may have over other owners by reason of the drilling of the well as an exception.

(d) No drilling unit established by the commission shall be smaller than the maximum area which can be drained efficiently by one (1) deep well so as to produce the reasonable maximum recoverable oil or gas in such area, unless an exception is granted in accordance with administrative regulations promulgated by the commission.

(e) An order establishing drilling units may be modified, altered, extended, amended, or vacated by the commission after notice and hearing as prescribed above.

(2) Pooling of interests in drilling units:

(a) When two (2) or more separately owned tracts are embraced within a drilling unit, or when there are separately owned interests in all or a part of a drilling unit, the interested persons may pool their tracts or interests for the development and operation of the drilling unit. In the absence of voluntary pooling and upon application of any operator having an interest in the drilling unit, and after the commission has given notice to all persons reasonably known to own an interest in the oil or gas in the drilling unit, and after a hearing conducted in accordance with KRS Chapter 13B, the commission shall enter an order pooling all tracts or interests in the drilling unit for the development and operation thereof and for the sharing production therefrom. Each pooling order shall be upon terms and conditions which are just and reasonable.

(b) All operations, including, but not limited to, the commencement, drilling, or operation of a deep well, upon any portion of a drilling unit for which a pooling order has been entered, shall be deemed for all purposes the conduct of those operations upon each separately owned tract in the drilling unit by the several owners thereof. That portion of the production allocated to a separately owned tract included in a drilling unit shall, when produced, be deemed for all purposes to have been actually produced from the tract by a deep well drilled thereon.

(c) Any pooling order under the provisions of subsection (2) of this section shall authorize the drilling and operation of a deep well for the production of oil or gas from the pooled acreage; shall designate the operator to drill and operate such deep well; shall prescribe the time and manner in which all owners of operating interests in the pooled tracts or portions of tracts may elect to participate therein; shall provide that all reasonable costs and expenses of drilling, completing, equipping, operating, plugging, and abandoning the deep well shall be borne, and all production therefrom shared, by all owners of operating interests in proportion to the acreage in the pooled tracts owned or under lease to each owner; and shall make provision for payment of all reasonable costs thereof, including reasonable charge for supervision and for interest on past due accounts, by all those who elect to participate therein. Upon the application of any operator having an interest in the drilling unit, the person or persons selected to drill and operate the deep well shall be determined by competitive bids under the procedure set out in KRS 74.260.

(d) Upon request, any pooling order shall provide just and equitable alternatives whereby an owner of an operating interest who does not elect to participate in the risk and cost of the drilling of a deep well may elect to surrender his interest or a portion thereof to the participating owners on a reasonable basis and for a reasonable consideration, which, if not agreed upon, shall be determined by the commission; or to participate in the drilling of the deep well on a limited or carried basis on terms and conditions which, if not agreed upon, shall be determined by the commission to be just and reasonable.

(e) If an operator owning an interest in a pooled drilling unit elects not to participate in the risk and cost of drilling of a deep well thereon, and another operator owning an interest therein, shall drill and operate, or pay the costs of drilling and operating a deep well as provided in the commission's order, then the operating owner shall be entitled to the share of production from the tracts or portions thereof accruing to the interest of the nonparticipating owner, exclusive of any royalty or overriding royalty reserved in any leases, assignments thereof or agreements relating thereto, of the tracts or portions thereof, or exclusive of one-eighth (1/8) of the production attributable to all unleased tracts or portions thereof, until the market value of the nonparticipating owner's share of the production, exclusive of any royalty, overriding royalty or one-eighth (1/8) of production, equals one and one-fourth (1-1/4) times the share of the costs payable by or charged to the interest of the nonparticipating owner.

(f) If a dispute shall arise as to the costs of drilling and operating a deep well, the commission shall determine and apportion the costs, within ninety (90) days from the date of written notification to the commission of the existence of such dispute.

(3) This section shall not apply to wells drilled, deepened, or reopened for the injection of water, gas, or other fluids into any subsurface formation.

Effective: July 15, 1996

History: Amended 1996 Ky. Acts ch. 318, sec. 343, effective July 15, 1996.

353.652 Unit operation of pool -- Procedure.

(1) Upon the application of any operator in a deep well pool productive of oil or gas, or both, and other minerals which may be associated and produced therewith and after notice given by the commission to all persons reasonably known to own an interest in the oil or gas in the pool, and after a hearing conducted in accordance with KRS Chapter 13B, the commission may enter a final order requiring the unit operation of a pool or of any portion or combinations thereof within a field. The unit operation shall be in connection with a program designed to avoid the drilling of unnecessary wells, or otherwise to prevent waste, or to increase the ultimate recovery of the unitized minerals by additional recovery methods. The final order shall provide for the unitization of separately-owned tracts and interests within the pool or pools, but only after finding that:

(a) The order is reasonably necessary for the prevention of waste;

(b) The proposed plan of unitized operation will increase the ultimate recovery of oil or gas, or both, from the pool and will be economically feasible;

(c) The production of oil or gas, or both, from the unitized pool can be allocated in a manner to insure the recovery by all owners of their just and equitable share of the production; and

(d) A contract incorporating the unitization agreement has been signed or in writing ratified or approved by the owners of at least seventy-five percent (75%) in interest as costs are shared under the terms of the order and by seventy-five percent (75%) in interest as production is to be allocated of the royalty in the unit area, and a contract incorporating the required arrangements for operations has been signed or in writing ratified or approved by the owners of at least seventy-five percent (75%) in interest as costs are shared, and the commission has made a finding to that effect either in the final order or a supplemental order.

(2) The final order requiring the unit operation shall designate one (1) operator as unit operator and shall also make provision for the proportionate allocation to all operators of the costs and expenses of the unit operation, including a reasonable charge for supervision, which allocation shall be in the proportion that the separately-owned tracts share in the production from the unit. In the absence of an agreement entered into by the operators and filed with the commission providing for sharing the costs of capital investments in wells and physical equipment, and intangible drilling costs, the commission shall provide by order for the sharing of the costs in the same proportion as the costs and expenses of the unit operation, but any operator who has not consented to the unitization shall not be required to contribute to the costs or expenses of the unit operation, or to the cost of capital investment in wells and physical equipment, and intangible drilling costs, except out of the proceeds from the sale of the production accruing to the interest of the operator exclusive of any royalty or overriding royalty interest.

(3) The commission, after notice and hearing as provided above may from time to time by entry of a new or amending final order enlarge the unit area by

approving agreements adding to the area a pool or any portion or combinations thereof not previously included. Any new or amended final order shall not become effective unless and until:

(a) All of the terms and provisions of the unitization agreement relating to the extension or enlargement of the unit area or to the addition of pools or portions or combinations thereof to unit operations have been fulfilled and satisfied and evidence thereof has been submitted to the commission; and

(b) The extension or addition effected by the order has been agreed to in writing by the owners of at least seventy-five percent (75%) in interest as costs are shared in the pool or pools or portions or combinations thereof to be added to unit operations by the order and by seventy-five percent (75%) in interest as production is to be allocated of the royalty owners in the pool, pools, portions, or combinations and evidence thereof has been submitted to the commission.

(4) Any agreement, in providing for allocation of production from the unit area, shall first allocate to each pool or added portion a portion of the total production of oil and gas, or both, from all pools affected within the area, as enlarged, the allocation to be in proportion to the contribution which added pool or portions or extensions thereof are expected to make, during the remaining course of unit operations, to the total production of oil or gas, or both, of the unit as enlarged. The remaining portion of unit production shall be allocated among the separately-owned tracts within the previously established unit area in the same proportions as those specified prior to the enlargement.

Effective: July 15, 1996

History: Amended 1996 Ky. Acts ch. 318, sec. 344, effective July 15, 1996.

353.653 Share of production from drilling unit or unitized pool.

Each operator shall have the right to take in kind its share of any oil or gas produced from any drilling unit or pool unitized under KRS 353.510, 353.520, 353.565, 353.610, 353.651 to 353.654, 353.700, or 353.991. The operator shall pay the expenses occasioned thereby and pay or account to the unit operator for the oil or gas or the value thereof if he has not paid his share of drilling, completing and operating costs. This section applies to deep well drilling units only.

353.654 Drilling without consent of landowner prohibited.

Nothing contained in KRS 353.510, 353.520, 353.565, 353.610, 353.651 to 353.654, 353.700, 353.991 shall be construed as authorizing any operator, with or without an order of the commission, to drill upon, enter upon, or use in any manner the surface of any land without the consent of the owner thereof as evidenced by an oil or gas lease or otherwise. This section applies to deep well drilling units only.

Legislative Research Commission Note . The original House Bill 64, section 10 (Acts 1974, ch. 45, § 10) was amended by deletion of the words "as evidenced by an oil or gas lease or otherwise" from the end of the section; however, in the engrossed bill as signed by the Governor, the words were not stricken.

353.655 Use of shackle rods or related cables.

(1) No operator shall utilize shackle rods or related cables for the production of oil or gas without the permission of the present owner of the land upon which the wells exist or are drilled unless such rods or cables are placed in conduit and buried at least twenty-four (24) inches below the surface of the land between all wellheads and power stations or are attached to power poles with the rods or cables twenty (20) feet above the surface of the land between all wellheads and power stations.

(2) Nothing in this section shall apply to lands classified by the U.S. Soil Conservation Service as class 5, 6, 7, or 8.

353.656 Display of danger signs on oil storage facilities.

The well operator shall cause signs printed with the word "DANGER" and other information which may be required by the department to be prominently displayed near or on all facilities used for storage of oil whether the facilities are in active production or have been abandoned.

Effective: July 15, 1994

History: Created 1994 Ky. Acts ch. 127, sec. 4, effective July 15, 1994.

353.660 Report required after termination of operations -- Contents.

(1) Any person to whom a permit is issued pursuant to KRS 353.500 to 353.720 shall file, within ninety (90) days after termination of operations conducted under the permit, with the department for transmittal to the Kentucky Geological Survey on forms to be furnished by the department the following information relating to the well:

(a) A copy of the driller's log certified to be true and accurate.

(b) The depth and thickness of all water zones encountered and logged;

(c) The depth of all showings of oil or gas;

(d) The depth and thickness of all coal seams encountered; and

(e) A true copy of all electrical surveys and similar logs and surveys taken.

(2) Upon request by the department any person to whom a permit is issued shall save for the Kentucky Geological Survey samples of all cuttings from the well drilled or deepened pursuant to the permit for a period of ninety (90) days after completion thereof.

(3) Upon request by any person furnishing information under this section, the information shall be kept confidential, for a period of one (1) year after the information is furnished by such person.

(4) This section shall not apply to wells drilled or deepened as geological or structure test holes.

History through 1968: Amended 1966 Ky. Acts ch. 147, sec. 4. -- Created 1960 Ky. Acts ch. 103, sec. 18.

353.670 Promulgation of regulations -- Hearing -- Written record of hearing.

(1) All rules, regulations and amendments promulgated under KRS 353.500 to 353.720 shall be promulgated by the department after notice and a hearing. At all hearings held to consider any rules, regulations or amendments thereto, any interested person shall be entitled to be heard.

(2) All hearings held under this section shall be held at such time and place as is specified by the department, and according to rules and regulations promulgated under KRS 353.500 to 353.720. A written record of each hearing shall be kept, unless the keeping of a record shall be waived by all parties who participate therein. All interested persons shall be entitled to be heard at all hearings conducted under KRS 353.500 to 353.720.

(3) The director, or his representatives, shall attend all hearings under this section conducted by the department.

(4) All rules, regulations and orders promulgated or issued under KRS 353.500 to 353.720 shall be in writing, shall be entered in full and indexed in books to be kept by the department for that purpose, shall be public records open for inspection at all times during office hours, and shall be filed in accordance with the provisions of KRS Chapter 13A. A copy of any rule, regulation or order, certified by the commissioner or director, shall be received in evidence in all courts of this Commonwealth without any further authentication thereof.

History through 1968: Created 1960 Ky. Acts ch. 103, sec. 19, effective June 16, 1960.

353.680 Repealed, 1996.

Catchline at repeal: Notice -- Method of giving -- Proof of service.

History: Repealed 1996 Ky. Acts ch. 318, sec. 357 effective July 15, 1996.

353.690 Production of evidence -- Failure to comply.

(1) The department shall have the power to summon witnesses, to administer oaths, and to require the production of pertinent records, books, and documents for examination at any hearing or investigation conducted under KRS 353.500 to 353.720.

(2) Upon failure or refusal on the part of any person to comply with a subpoena issued under this section, or upon the refusal of a witness to testify as to any matter regarding which he may be interrogated and which is pertinent to the hearing or investigation, any court of record in the Commonwealth upon the application of the commissioner shall have the power to punish for contempt as in the case of disobedience to a like subpoena issued by the court, or for refusal to testify.

History through 1968: Created 1960 Ky. Acts ch. 103, sec. 21, effective June 16, 1960.

353.700 Review of order of department by civil action -- Appeal.

(1) Any person aggrieved by any order issued by the department or by the commission under KRS 353.500 to 353.720 shall have the right to bring a civil action for review of the order by filing a complaint in the Circuit Court of the county in which the premises or any portion thereof affected by the order is located, or in the Franklin Circuit Court.

(2) The suit shall be brought within thirty (30) days after the order is issued, and in event no suit is filed within the thirty (30) day period, the order shall be final.

(3) In the suit the burden of proof shall be upon the party complaining of the order, and the order shall be deemed prima facie valid. Any party to the suit may offer in evidence all or any part of the record of the hearing which resulted in the order, and any other relevant evidence.

(4) On appeal no new evidence may be introduced, except as to fraud or misconduct of some person engaged in the hearing before the commission, unless the court upon motion and for good cause shown determines that the interests of justice will be better served by the introduction of new evidence. The court sitting without a jury shall hear the cause upon the record before it, and dispose of the appeal in a summary manner, being limited to determining: whether or not the commission acted without or in excess of its powers; the order was procured by fraud; the order is not in conformity to the provisions of KRS Chapter 353; the order is clearly erroneous on the basis of reliable, probative and material evidence contained in the whole record; or the order is arbitrary, or capricious or characterized by abuse of discretion or clearly unwarranted exercise of discretion. The court shall enter its findings on the order book as a judgment of the court, and such judgment shall have the same effect and be enforceable as any other judgment of the court in civil causes.

(5) The practice, pleading and proceedings in the suit shall be in accordance with the Rules of Civil Procedure.

(6) In the suit the court may stay the order until the court shall enter its decree. The court shall have jurisdiction to enter a decree affirming or setting aside the order or remanding the cause with directions to modify the order so that it shall conform to the provisions of KRS 353.500 to 353.720. Appeals may be taken by any party to the suit in the same manner and to the same extent as in other civil actions.

History through 1968: Created 1960 Ky. Acts ch. 103, sec. 22, effective June 16, 1960.

353.710 Suit to enjoin violation -- By department, person adversely affected, Attorney General.

(1) Whenever it appears that any person is violating or threatening to violate any provision of KRS 353.500 to 353.720, or any rule, regulation or order promulgated or issued under KRS 353.500 to 353.720, the department may bring suit against the person in the Circuit Court of the county where the violation occurred or is threatened, or in the county in which the defendant resides or in which any defendant resides if there is more than one (1) defendant, to restrain the person from continuing the violation or from carrying out the threatened violation. In such a suit the court shall have jurisdiction to grant without bond or other undertaking the prohibitory or mandatory injunction as the facts may warrant, including a temporary restraining order or injunction.

(2) If the department shall fail to bring suit to enjoin a violation or threatened violation of any provisions of KRS 353.500 to 353.720, or any rule, regulation, or order promulgated or issued under KRS 353.500 to 353.720 within ten (10) days after receipt of a written request to do so by any person who is or will be adversely affected by the violation, the person making the request may bring suit in his own behalf to restrain the violation or threatened violation in any court in which the department might have brought suit. The department shall be made a party defendant in the suit in addition to the person allegedly violating or threatening to violate a provision of KRS 353.500 to 353.720, or any rule, regulation or order promulgated or issued under KRS 353.500 to 353.720.

(3) Whenever it appears that any person is violating any provision of KRS 353.500 to 353.720, or any rule, regulation or order promulgated or issued hereunder, the Attorney General or any person who is adversely affected by the violation may bring suit to restrain the violation in any court in which the department might have brought suit. The department shall be made a party defendant in the suit in addition to the person allegedly violating a provision of or any rule, regulation or order promulgated or issued under KRS 353.500 to 353.720.

History through 1968: Created 1960 Ky. Acts ch. 103, sec. 23, effective June 16, 1960.

353.720 Construction of KRS 353.500 to 353.720.

(1) KRS 353.500 to 353.720 shall not be construed to authorize any limitation of production of oil or gas from any well, lease, pool, field or property to prevent or control economic waste or to limit production to market demand.

(2) Nothing in KRS 353.500 to 353.720 is intended to or shall be construed as superseding, impairing, abridging or affecting any contractual rights or obligations now or hereafter existing between the respective owners of oil, gas, coal, or other minerals, or any interests therein.

History through 1968: Created 1960 Ky. Acts ch. 103, secs. 25 and 26, effective June 16, 1960.

353.730 Investigation of abandoned wells -- Application -- Report -- Bond.

(1) Any person may investigate an abandoned well upon receipt of approval from the department. The person shall submit to the department:

(a) An application requesting approval to investigate and stating the planned methods for the investigation. In all cases where there has been a complete severance of the ownership of the oil and gas from the ownership of the surface to be disturbed, the application shall include a plan to prevent erosion and sedimentation;

(b) A twenty-five dollar ($25) fee; and

(c) A certification by the applicant that he has the authority to enter the property upon which the well is located and to conduct the investigation.

(2) The department shall review all applications for investigation. If the department approves the request for investigation, the applicant shall be allowed to produce the well without a permit as required by KRS 353.570, and the applicant shall submit a report of investigation to the department on forms provided by the department. In order to produce the well for more than sixty (60) days, the applicant must obtain a bond as required by KRS 353.590(5). Notwithstanding the provisions of KRS 353.590(2), no fee shall be required for any such well.

Effective: July 15, 1998

History: Created 1998 Ky. Acts ch. 359, sec. 3, effective July 15, 1998.

353.990 Penalties.

(1) Any person who willfully violates any of the provisions of KRS 353.050 to 353.130 or KRS 353.200 relating to the manner of drilling and casing or plugging and filling any well, or fixing the distance from wells within which mining operations may not be conducted, or any person who willfully violates any of the terms of an order of the department allowing mining operations within a lesser distance of any well than that prescribed by this chapter shall be fined not more than two hundred dollars ($200) or imprisoned in jail for not more than twelve (12) months, or both.

(2) Any person who violates any of the provisions of subsection (1) of KRS 353.150 shall be fined one hundred dollars ($100) for each offense and in addition thereto one hundred dollars ($100) for each thirty (30) days the violation continues. The penalty shall be recovered in a civil action in the name of the Commonwealth for the use of the county in which the well is located.

(3) Any person who violates any of the provisions of KRS 353.160 shall be fined not more than two hundred dollars ($200) and, if the offender is a natural person, imprisoned not less than ten (10) days nor more than six (6) months. Each day that the violation continues shall constitute a separate offense.

(4) Any person who violates any of the provisions of subsection (1) of KRS 353.180 shall be fined not less than one hundred ($100) nor more than one thousand dollars ($1,000).

(5) If any person violates any of the provisions of KRS 353.190 he shall be fined five dollars ($5) for every twenty-four (24) hours that the violation continues.

History through 1968: Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. secs. 3766b-18, 3766b-21, 3912, 3914a, 4358, 4359.

353.991 Penalties for violation of KRS 353.500 to 353.720.

(1) Any person who violates any provision of KRS 353.570 shall be subject to a fine of not more than one thousand dollars ($1,000) or imprisonment for a term not exceeding one hundred and eighty (180) days, or both.

(2) Any person who continues to violate any provision of KRS 353.500 to 353.720, or any regulation or order promulgated or issued under KRS 353.500 to 353.720 after being notified in writing of the violation by the department shall be subject to a fine of not more than one thousand dollars ($1,000) or imprisonment for a term not exceeding one hundred and eighty (180) days, or both.

(3) Any person who does any of the following for the purpose of evading or violating KRS 353.500 to 353.720, or any regulation or order promulgated or issued under KRS 353.500 to 353.720 shall be subject to a fine of not more than one thousand dollars ($1,000) or imprisonment for a term not exceeding one hundred and eighty (180) days, or both:

(a) Makes or causes to be made a false entry or statement in a report, record, account or memorandum, required by KRS 353.500 to 353.720, or by any regulation or order;

(b) Omits or causes to be omitted from a report, record, account or memorandum full, true, and correct entries and information as required by KRS 353.500 to 353.720, or by any regulation or order;

(c) Removes from this Commonwealth or destroys, mutilates, alters or falsifies a report, record, account or memorandum required by KRS 353.500 to 353.720, or by any regulation or order.

(4) Any person who knowingly aids or abets any other person in the violation of any provision of KRS 353.500 to 353.720, or any regulation or order promulgated or issued under KRS 353.500 to 353.720 shall be subject to the same penalty as that prescribed in this section for the violation by the other person.

(5) Any person who violates the provisions of KRS 353.655 shall be notified by the department that he has twenty (20) days in which to remedy the violation. If after the twenty (20) day time period has elapsed he has failed or refused to comply with the provisions of KRS 353.655, he shall be subject to a fine of twenty dollars ($20) a day until the oil or gas well is brought into compliance.

History through 1968: Created 1960 Ky. Acts ch. 103, sec. 24, effective June 16, 1960.

353.992 Penalties.

Any person who violates KRS 353.592 or who fails to perform any duties imposed by KRS 353.592 or who violates any permit, rule or regulation promulgated pursuant thereto shall be subject to a civil penalty of not more than five thousand dollars ($5,000) for each day of such violation or, if such violation is willful, such person may, in lieu of the civil penalty, be fined not more than ten thousand dollars ($10,000) for each day of such violation and may concurrently with such civil penalty or fine be enjoined from any such violation. The civil penalties or fines shall be assessed by the Circuit Court of the county in which the violation occurred.

TAB 5

ADMINISTRATIVE REGULATIONS
KENTUCKY DIVISION OF OIL AND GAS

805 KAR 1:020. Protection of fresh water zones.

RELATES TO: KRS 353.520

STATUTORY AUTHORITY: KRS Chapter 13A, 353.540, 353.550, 353.560

NECESSITY, FUNCTION, AND CONFORMITY: KRS 353.540 authorizes the Department of Mines and Minerals to administer and enforce the provisions of KRS 353.500 to 353.720. The waste of oil and gas is prohibited by KRS 353.520. It is the purpose of this administrative regulation to protect fresh water zones from contamination associated with the production of oil and gas. KRS 353.550 provides that the department shall have the authority to set forth the requirements for casing, operation and plugging of wells to prevent escape of oil or gas, the detrimental intrusion of water, blowouts, cave-ins, seepages and fires.

Section 1. Definitions. The definitions contained in KRS 353.510 and the following additional definitions shall apply to this administrative regulation:

(1) "Abnormal pressure" means a reservoir pressure that exceeds the hydrostatic pressure of fresh water extending from the reservoir to the surface.

(2) "Annulus" means the space between two (2) strings of casing or between a string of casing and the bore hole wall.

(3) "Casing (casing string)" means steel tubes or pipes installed in a well.

(4) "Surface casing" means the first and largest diameter casing installed in a well and its primary uses are to make the bore hole stand up and to protect the fresh water zones.

(5) "Intermediate casing" means one or more strings of pipes installed in a well in addition to the surface casing in which each string is smaller in diameter than the previous.

(6) "Long casing string" means the last casing installed in a well to be used for production or injection purposes.

(7) "Zone" means a layer of strata capable of producing or receiving fluids.

Section 2. Protection of Fresh Water Zones for Drilling and/or Plugging Operations. (1) During drilling operations, one (1) of the following methods shall be used to protect fresh water zones:

(a) Method A. Casing shall be set on a casing shoulder and said casing shall have a shoe installed on the bottom of the bottom joint. Upon the completion of the drilling program, all the recoverable casing must be removed or cemented to the surface.

(b) Method B. Casing shall be set on a shoulder and cemented sufficiently to cover 100 feet including the shoe. Upon completion of the drilling, all of the recoverable casing must be removed or cemented to the surface.

(c) Method C. A top to bottom drilling mud system with a filtrate water loss of less than ten (10) cubic centimeters, as determined by American Petroleum Institute standards, in its publication "Standard Procedures for Field Testing Water Based Drilling Fluids" API RP 13B-1, Sections 1, 2 and 3, June 1, 1990, filed and incorporated herein by reference. Copies may be obtained from the Department of Mines and Minerals, P. O. Box 14090, Lexington, Kentucky 40512-4090. Certification of filtrate water loss must be made by the operator.

(2) In the event a well is to be plugged, then it shall be plugged in the manner prescribed by 805 KAR 1:060 or 805 KAR 1:070.

Section 3. Protection of Fresh Water Zones. Any well drilled in the Commonwealth of Kentucky subject to the jurisdiction of the Department of Mines and Minerals subsequent to the effective date of this administrative regulation shall be equipped with the following fresh water protection prior to production or injection.

(1) A protective string of casing, be it surface, intermediate, or long string, shall extend thirty (30) feet below the deepest known fresh water zone. Such protective string shall have cement circulated in the annular space outside said casing of a sufficient volume of cement, calculated using approved engineering methods, to assure the return of the cement to the surface. In the event cement does not return to the surface, every reasonable attempt will be made to fill the annular spaces by introducing cement from the surface. If the intermediate casing or long casing string is:

(a) Cemented to the surface; or

(b) Cemented thirty (30) feet into the next larger string of cemented casing in conformity with prescribed procedure, the string or combination of strings shall be considered as the fresh water protection.

(2) In areas where abnormal pressures are expected or encountered, the surface and/or intermediate casing string shall be anchored in sufficient cement, at a sufficient depth to contain said pressures, and blowout prevention valves and related equipment shall be installed.

Section 4. Wells Used for Injection of Fluids. (1) The injection of fluids shall be accomplished through a tubing and packer arrangement with the packer set immediately above the injection zone, and the annulus between the tubing and casing shall be monitored by pressure sensitive devices. The injection pressure shall be regulated to minimize the possibility of fracturing the confining strata. Upon application, and after notice and hearing, a variance from this requirement may be granted by the director, upon a showing by an individual operator that alternate prudent engineering practices shall result in fresh water protection. The following are exempted from the requirements of this section:

(a) Injection of fluids for the purpose of well stimulation; and

(b) Injection of gas for the purpose of storage.

(2) Before injecting fluids into a well not previously permitted for injection purposes, the operator shall make application to the department for an injection permit for said well. The application for a permit to drill, deepen or convert a well for the purpose of injection of fluids shall include:

(a) A statement by the operator as to whether the well is to be used for pressure maintenance, secondary recovery, tertiary recovery, gas storage or for disposal purposes;

(b) The approximate depths of the known fresh water zones; and

(c) A plat showing:

1. The names of all lessees and lessors contiguous to the tract on which the injection shall occur;

2. The Carter Coordinate location and the elevation of the well site;

3. The geologic name and depth of the injection zone;

4. At least two (2) surface features, by bearing and distance from the proposed well site, which appear on the U.S.G.S. seven and one-half (7 1/2) minute topographic map of the area;

5. The name of said topographic map and county;

6. The location of all known fresh water wells within a radius of 1,000 feet of the proposed injection well site;

7. The location and completion and/or plugging record of all wells whether producing or plugged, within a radius of 1,000 feet of the proposed injection well site.

(3) Prior to injection into any well, the operator shall furnish the department with a certificate indicating that all requirements of this administrative regulation have been met. The certificate shall include the following:

(a) The identification of said well by permit number, operator's name, lease name, well number, Carter Coordinate location, elevation and county;

(b) The entire casing and cementing record, any packers and other special down hole equipment, and cement bond logs, if run;

(c) The anticipated maximum bottom hole pressure (psi) and volume in barrels or cubic feet, per day;

(d) The identification of the injection zone by geological name and depth (top and bottom of zone), the number of perforations if applicable, or the interval of open hole; and

(e) Certification by the operator that the mechanical integrity of the well has been tested.

Section 5. Exemptions for Preexisting Wells. Any injection well in existence prior to the effective date of this administrative regulation shall be exempt from the requirements of this administrative regulation until such time as in the opinion of the department, said well is leaking fluids to other zones, or to the surface;

provided, however, that this exemption shall not apply unless within one (1) year from the effective date of this administrative regulation, the operator files an area plat, or plats, showing all of such operator's injection and associated production wells.

Section 6. Recordkeeping. The operator of an injection project shall monitor injection pressures and volumes at least monthly, and shall keep said records on file in his place of business for the life of the project; plus five (5) years. The director may require more frequent monitoring, if in his opinion, good reason therefor exists. (4 Ky.R. 632; Am. 5 Ky.R. 112; eff. 8-2-78; 18 Ky.R. 187; 1020; eff. 9-25-91.)

805 KAR 1:030. Well location plat, preparation, form and contents.

RELATES TO: KRS 353.550, 353.590

STATUTORY AUTHORITY: KRS 13A.100, 353.550, 353.560

NECESSITY, FUNCTION, AND CONFORMITY This administrative regulation is intended to assure compliance with KRS 353.550 and 353.560 in establishing requirements for uniformity and clarity in well locations and identity.

Section 1. This administrative regulation applies only to the oil- and gas-producing industry and applies neither to transmission and/or distribution systems nor to product storage facilities.

Section 2. Location plats for wells proposed to be drilled pursuant to the provisions of KRS Chapter 353 shall be prepared and certified as accurate and correct by a licensed Kentucky land surveyor, provided that when the location of the well is known to be underlain by coal bearing stratum, such plat shall be prepared by a licensed land surveyor and certified by an engineer registered in Kentucky. If any plat submitted by an applicant is determined by the department to be materially inaccurate or incomplete, the department may require that a new plat be prepared and submitted.

Section 3. No person shall drill a well for oil or gas within 150 feet of any building, unless a waiver of objection to such drilling is secured in the manner established below, or unless the department, after notice and hearing, determines that the drilling and production of the well is not violative of the public policy set out in KRS 353.500. The surveyor preparing the plat for a permit shall indicate the location of a proposed well site relative to all buildings within 150 feet of said well site. If an owner of a building located within 150 feet of a proposed well site waives objection to a well's being located closer than 150 feet to such building, a copy of the executed agreement of waiver shall accompany the application for permit.

Section 4. A separate location plat shall be submitted with each application to drill, deepen or reopen a well.

Section 5. Location plats for wells proposed to be drilled pursuant to the provisions of KRS Chapter 353 shall be prepared in the following manner:

(1) All plats shall be clearly legible and submitted on a sheet eight and one-half (8 1/2) by fourteen (14) inches. This sheet may be bond paper, tracing cloth, tracing paper or equivalent.

(2) The location of the proposed well shall be shown relative to the two (2) nearest boundaries of oil and gas ownership (including any subdivision of the lease). Such plats shall also indicate all producing wells and permitted well sites within 1,000 feet of the proposed well site. The distances shall be clearly shown in feet.

(3) The location of the proposed well shall be shown on the plat, by bearing and distance, relative to two (2) permanent points/monuments that appear on the applicable U.S.G.S. seven and one-half (7 1/2) minute; topographic quadrangle map, which permanent points/monuments include though are not limited to road intersections, bench marks, and buildings. A photocopy of a portion of such topographic quadrangle map showing the proposed well site shall be acceptable in lieu of identifying such points/monuments on the plat.

(4) The location of the well site shall be prepared with reference to either the Carter coordinate system, latitude and longitude, or the Kentucky coordinate system.

(5) The elevation of the well site shall be determined by instrument and calculation. Estimated topographic elevations shall not be acceptable.

(6) The plat shall be prepared to a scale of one (1) inch equals 100, 200, 300, 400, 500 or 600 feet.

Section 6. In addition to the data required in Section 5 of this administrative regulation, location plats shall include the following information:

(1) Operator.

(2) Farm or lease name.

(3) Well number.

(4) County.

(5) Scale at which the plat is drawn.

(6) North direction.

(7) Legend:

F - proposed well site

M - oil well

< - gas well

š - injection well

9 - plugged well

ø - abandoned well, not plugged

(8) Date of preparation of plat.

(9) Name of the topographic quadrangle map on which the well site may be located.

(10) Owners, lessors and lessees of oil and gas on tracts which are offset by the proposed well.

(11) Certification in the following form: "I hereby certify that the above plat is accurate and correct and satisfies the requirements of 805 KAR 1:030 to the best of my knowledge and belief."

(12) Certification shall be followed by the written signature of the person preparing said plat, his/her mailing address, registration number, and telephone number. (OAG-Rg-1; 1 Ky.R. 89; eff. 11-13-75; Am. 11 Ky.R. 1894; eff. 7-9-85.)

805 KAR 1:040. Vacuums; use of.

RELATES TO: KRS 353.560

STATUTORY AUTHORITY: KRS 13A.100, 353.560

NECESSITY, FUNCTION, AND CONFORMITY: KRS 353.560 requires the Department of Mines and Minerals to regulate the use of vacuums. This administrative regulation is to require identification of vacuum uses to protect correlative rights.

Section 1. The unauthorized use of vacuum pumps or other devices for the purpose of putting a vacuum on any oil-bearing stratum is prohibited; however, the department shall, upon application and for good cause shown, permit the use of vacuum pumps subject to such restrictions or limitations as the department may prescribe.

Section 2. On or before the date of filing written application for the use of vacuum on any property, the applicant shall notify, by registered mail, all operators of producing oil wells on premises within 1,000 feet of the well or wells where the use of vacuum is proposed, and shall set out in the notice the proposed strata or formation to which a vacuum is to be applied and the location of the well or wells on which vacuum pumps are to be installed. The applicant shall submit proof of such notice with the application, giving the names and addresses of all operators of oil interests.

Section 3. Upon receipt of the application and proof of notice the department shall hold the same for ten (10) days pending the filing of objections, and if none is received at the end of such period, the application may be approved by the department. In event objection is made and the department deems a hearing shall be had, notice shall be given to each objector and the applicant of the time and place designated by the department for such hearing.

Section 4. The department shall have authority after notice and hearing as specified in Section 3 of this administrative regulation to prohibit vacuum or to deny or revoke permission for the use of vacuum when, in its judgment, there is danger of underground waste or infringement on correlative rights. The department shall have authority to grant permission when it finds a further recovery of oil can be obtained by use of vacuum without danger of underground waste and without substantial injury to correlative rights. (OAG-Rg-3; 1 Ky.R. 633; eff. 4-9-75.)

805 KAR 1:050. Surety bonds; requirements, cancellation.

RELATES TO: KRS 353.590

STATUTORY AUTHORITY: KRS Chapter 13A, 353.540, 353.550

NECESSITY, FUNCTION, AND CONFORMITY: Provide for methods of giving notice to operators and sureties of noncompliance. Establish requirements of release, cancellation and forfeiture of bonds.

Section 1. At any time the department causes a notice of noncompliance to be served upon an operator (principal) pursuant to KRS 353.590(7), copies of such notice shall be mailed by registered or certified mail to the surety company at the address provided to the Kentucky Department of Insurance for receipt of notices. The surety shall be afforded the opportunity to act in behalf of the operator (principal) within the time set forth in KRS 353.590(7) in regard to the proper plugging of the well or wells and submission of required well log and completion reports, electric logs, if run, and plugging affidavits. Should the operator (principal) and surety fail to comply within the time provided for in KRS 353.590(7) then and in that event only the bond shall be forfeited as provided in that section.

Section 2. An individual well bond shall be released upon the proper plugging of the well and the filing with the department of a plugging affidavit, well log and completion report and electric log, if run. A blanket bond shall be released upon the proper plugging of all wells of the operator (principal) covered by the bond, and the filing with the department of plugging affidavits, well logs and completion reports and electric logs, if run, for such wells.

Section 3. A blanket surety bond filed pursuant to KRS 353.590(5) may be cancelled by the surety by a communication in writing delivered personally or by registered or certified mail to the office of the Division of Oil and Gas, Department of Mines and Minerals, provided such cancellation shall be effective only to relieve the surety from liability under the bond for wells which permits have not been issued at the time of the receipt of the notice by the department. Liability under the bond for wells which permits have been issued prior to the receipt by the department of the notice shall not be affected by the cancellation. (OAG-Rg-6; 1 Ky.R. 633; eff. 4-9-75; Am. 18 Ky.R. 189; eff. 9-25-91.)

805 KAR 1:060. Plugging wells; noncoal-bearing strata.

RELATES TO: KRS 353.550

STATUTORY AUTHORITY: KRS 13A.100, 353.560

NECESSITY, FUNCTION, AND CONFORMITY: KRS 353.560 requires the department to regulate the plugging of all wells. This administrative regulation identifies the minimum acceptable requirements to plug or temporarily abandon wells drilled through noncoal-bearing strata.

Section 1. Unless written permission shall be obtained from the department, no operator or owner shall permit any well drilled for oil, gas, salt water disposal or any other purpose in connection with the production of oil and gas, to remain unplugged after such well is no longer used for the purpose for which it was drilled or converted. However, nothing herein shall prevent the department, upon application and for good cause shown, from issuing a temporary permit, for a period not exceeding two (2) years, to an operator to leave a well unplugged, and nothing herein shall alter the provisions of KRS 353.170 relative to utilizing a well for the purpose of introducing air, gas, water or other liquid pressure into or upon the producing strata for the purpose of recovering oil and gas. The permission for temporary abandonment may be renewed at the end of the two (2) year period by reapplication. All wells on which a temporary abandonment permit has been issued shall be cased and capped in such a manner so as to protect all potential oil and/or gas zones and fresh water.

Section 2. Before any work is commenced to plug and abandon any well the owner or operator thereof shall give notice to the department of his intention to abandon such well. Notice shall be given in the manner specified by the department. A duly authorized representative of the department may be present at the time and place specified to supervise the plugging of such well.

Section 3. Wells not drilled through coal-bearing strata may be plugged as follows:

(1) The bottom of the hole shall be filled to the top of each producing formation, or a bridge shall be placed at the top of each producing formation, and in either event a cement plug not less than fifteen (15) feet in length shall be placed immediately above each producing formation whenever possible.

(2) A cement plug not less than fifteen (15) feet in length shall be placed immediately below all fresh water bearing strata.

(3) A plug shall be placed at the surface of the ground in each hole plugged in such a manner as not to interfere with soil cultivation.

(4) An uncased rotary hole drilled with the aid of liquid shall be plugged with approved heavy mud up to the base of the surface string at which point a plug of not less than fifteen (15) feet of cement shall be placed. The hole shall also be capped similar to other abandoned holes.

(5) Any well in which casing has been cemented from surface to total depth and no casing can be pulled may be plugged as follows: The bottom of the hole shall be filled to the top of the producing formation and a cement plug not less than fifteen (15) feet in length shall be placed above this fill. A surface plug shall be placed as provided in subsection (3) of this section. No intermediate plugs will be required.

(6) The operator shall have the option as to the method of placing cement in the hole by:

(a) Dumb bailer;

(b) Pumping through tubing;

(c) Pump and plug; or

(d) Other method approved by the director.

Section 4. Within thirty (30) days after the plugging of any well has been accomplished, the owner or operator thereof shall file a plugging report with the department setting forth in detail the method used in plugging the well. Such report shall be made on a form provided by the department.

Section 5. When the well to be plugged may safely be used as a fresh water well, and such utilization is desired by the landowner, the well need not be filled above the required sealing plug set below fresh water; provided, that written authority for such use is secured from the landowner and filed with the department.

Section 6. If a person fails to comply with this administrative regulation, any person lawfully in possession of land adjacent to or in the neighborhood of the well may enter on the land upon which the well is located and plug the well in the manner provided in KRS 353.180(1) or this administrative regulation, and may maintain a civil action against the owner or person abandoning the well, jointly or severally, to recover the cost of plugging the well. This section shall not apply to persons owning the land on which the well is situated, and drilled by other persons. (OAG-Rg-4; 1 Ky.R. 1069; eff. 6-11-75.)

805 KAR 1:070. Plugging wells; coal-bearing strata.

RELATES TO: KRS 353.110, 353.120, 353.550

STATUTORY AUTHORITY: KRS 13A.100, 353.560

NECESSITY, FUNCTION, AND CONFORMITY: KRS 353.560 requires the department to regulate the plugging of all wells. This administrative regulation identifies the minimum acceptable requirement to plug, or temporarily abandon wells, drilled through coal-bearing strata.

Section 1. Unless written permission shall be obtained from the department, no operator or owner shall permit any well drilled for oil, gas, salt water disposal or any other purpose in connection with the production of oil and gas, to remain unplugged after such well is no longer used for the purpose for which it was drilled or converted. However, nothing herein shall prevent the department, upon application and for good cause shown, from issuing a temporary permit, for a period not exceeding two (2) years, to an operator to leave a well unplugged, and nothing herein shall alter the provisions of KRS 353.170 relative to utilizing a well for the purpose of introducing air, gas, water or other liquid pressure into or upon the producing strata for the purpose of recovering oil and gas. The permission for temporary abandonment may be renewed at the end of the two (2) year period by reapplication. All wells on which a temporary abandonment permit has been issued shall be cased and capped in such a manner as to protect all potential oil and/or gas zones and coal beds and vented in such a manner so as to prevent the accumulation of gas in the bore hole.

Section 2. Prior to abandonment of a well drilled through a workable coal bed the well operator shall notify, by registered mail, the owner or owners of record and lessee(s) of record and operators of the coal bed(s) and the proper oil and gas inspector of the intention to plug and abandon the well. The notice shall give the permit number of the well and its location, and fix the time at which the work of plugging and filling will be commenced, the time not to be less than five (5) days after the day on which the notice is received, or in due course should be received, by the department. The department shall prescribe the form of notice to be used. A representative or representatives of the coal operator or owner and of the department may be present at the plugging and filling of the well. Whether or not such representatives appear, the well operator may proceed, at the time fixed, to plug and fill the well. When the plugging and filling have been completed, an affidavit setting forth the time and manner in which the well was plugged shall be made in triplicate by two (2) experienced men who participated in the work. The affidavit shall be made on forms furnished by the department. One (1) copy of the affidavit shall be retained by the well operator, one (1) mailed to each coal operator and each owner, and one (1) to the department.

Section 3. When any well drilled through a workable coal bed is abandoned, it shall be at that time plugged to a point forty (40) feet below the lowest workable coal bed, in the following manner: The hole shall be filled with mud, clay or other nonporous material from the bottom to a point twenty (20) feet above the top of the lowest oil, gas, or water-bearing strata, or a permanent bridge shall be anchored thirty (30) feet below its lowest oil, gas, or water-bearing strata, and from this bridge it shall be filled with mud, clay or other nonporous material to a point twenty (20) feet above the strata, at which point there shall be placed a plug of cement or other suitable material that will completely seal the hole. Between this sealing plug and a point twenty (20) feet above the next higher oil, gas, or water-bearing strata, the hole shall be treated in a like manner and at that point there shall be placed another suitable plug, that will completely seal the hole. In a like manner the hole shall be filled and plugged or bridged, filled and plugged, with reference to each of its oil, gas or water-bearing strata. Whenever such strata are not widely separated and are free from water, they may be grouped and treated as a single productive stratum. After plugging all strata, a final plug shall be anchored approximately ten (10) feet below the bottom of the largest casing in the well and from that point to the surface the well shall be filled with mud, clay or other nonporous material.

Section 4. If any of the strata in the well have been shot, creating cavities that cannot readily be filled in the manner described in Section 3 of this administrative regulation, the well operator shall follow either of the following methods:

(1) If the stratum that has been shot is the lowest one in the well there shall be placed, at the nearest suitable point but not less than twenty (20) feet above the stratum, a plug of cement or other suitable material that will completely seal the hole; but if the shooting has been done above one (1) or more oil or gas-bearing strata in the well, plugging in the manner specified shall be done at the nearest suitable point, but not less than twenty (20) feet below and above the stratum shot.

(2) When the cavity is in the lowest oil or gas-bearing stratum in the well, a liner shall be placed which shall extend from below the stratum to a suitable point, but not less than twenty (20) feet above the stratum in which the shooting has been done; but if the shooting has been done above one (1) or more oil or gas-bearing strata in the well, the liner shall be so placed that it will extend not less than twenty (20) feet above or less than twenty (20) feet below the stratum in which shooting has been done. After the liner is placed, it shall be compactly filled with cement, clay or other nonporous sealing material.

Section 5. When a well has been filled and securely plugged to a point forty (40) feet below the lowest workable coal bed, and in the judgment of the well operator, the coal operator and the department a permanent outlet to the surface is required, the outlet shall be provided in the following manner: A plug of cement or other suitable material shall be placed in the well at a suitable point, not less than ten (10) feet below the lowest workable coal bed. In this plug and passing through the center of it shall be securely fastened an open pipe, not less than two (2) inches in diameter, which shall extend to the surface. At or above the surface the pipe shall be provided with a device that will permit the free passage of gas and prevent obstruction. After the plug and pipe are set, the hole shall be filled with cement to a point ten (10) feet above the lowest workable coal bed. If there are additional overlying workable coal beds, they shall be treated similarly, if in the judgment of the well operator, the coal operator and the department such treatment is necessary. If the parties cannot agree, the decision of the department shall control.

Section 6. In this administrative regulation where mention is made of a "cement plug" or "suitable plug" this is defined to mean hydraulic cement properly mixed with water only. Such a plug shall fill not less than fifteen (15) feet of bore hole when placed.

Section 7. In Section 2 of this administrative regulation the word "time" shall be both the hour and the day at which the work of plugging and filling will be commenced.

Section 8. When the well to be plugged may safely be used for a fresh water well, and such utilization is desired by the landowner and is agreeable to the owner or operator of all coal-bearing strata beneath the location of said well, the well need not be filled above the required sealing plug set below fresh water; provided, that written authority for such use is secured from the landowner, and coal owner or operator, and filed with the department.

Section 9. Within thirty (30) days after the plugging of any well has been accomplished, the owner or operator thereof shall file a plugging report with the department setting forth in detail the method used in plugging the well. Such report shall be made on a form provided by the department.

Section 10. The operator shall have the option as to the method of placing cement in the hole by:

(1) Dump bailer;

(2) Pumping through tubing;

(3) Pump and plug; or

(4) Other method approved by the director.

Section 11. Care is to be taken to insure that when the hole is being filled with mud, clay, or other nonporous material that the hole does not bridge and prohibit the filling of the entire hole as required. (OAG-Rg-5; 1 Ky.R. 1070; eff. 6-11-75.)

805 KAR 1:080. Gas storage reservoirs; drilling, plugging in vicinity.

RELATES TO: KRS 353.500, 353.520, 353.540, 353.550, 353.560

STATUTORY AUTHORITY: KRS 13A.100, 353.540, 353.670

NECESSITY, FUNCTION, AND CONFORMITY: Provides for the protection of the integrity of gas storage reservoirs by requiring certain techniques of drilling, casing, operating and plugging be applied when operating in the vicinity of gas storage reservoirs.

Section 1. Purpose. Rules and administrative regulations set out herein are designed for the protection of gas storage reservoirs which are natural resources of the state, and no person, firm or corporation shall cause physical damage to, or create a hazardous condition threatening the existence of such a reservoir in any manner as to make any such reservoir less susceptible for use for gas storage. Any well penetrating, drilled to a geologic stratum overlying, and drilled in the vicinity of an underground gas storage reservoir shall be maintained at all times in such a manner as will both:

(1) Exclude the encroachment of oil, gas or water into such reservoir; and

(2) Protect such reservoir from a blowout or waste of gas during the drilling of and after completion and/or plugging of such well.

In addition, this administrative regulation has as its purpose the equitable adjustment of correlative rights of gas storage owners and oil and gas operators and it shall be liberally construed to give effect to such public policy.

Section 2. Definitions. (1) "Gas storage reservoirs" are special geologic and geometric elements of underground strata which are or can be so arranged and situated as to be recognized as useful for the retention, injection, storage and recovery of gas therefrom on a commercial service level.

(2) "Underground gas storage" is the utilization of subsurface strata and associated facilities for storing and withdrawing gas held in place for the primary purposes of conservation, fuller utilization of pipeline facilities, and more effective and beneficial service of gas to the public.

(3) "Gas storage operator" is any corporation, partnership, or individual who is engaged in the work of preparing to inject, or who injects gas into, or who stores gas in, or removes gas from, a gas storage reservoir, and who owns the right to do so, including but not limited to those engaged in transporting and delivering such gas in public service.

(4) "Well operator" is any person who proposes to or does locate, drill, operate or abandon any well.

(5) "Well" is any borehole drilled or proposed to be drilled, deepened or reopened for which a permit is required by KRS 353.570(1).

Section 3. Establishment of a Gas Storage Reservoir. (1) Before any area may be declared to contain one or more gas storage reservoirs for the purpose of this administrative regulation the gas storage operator shall file with the Director of Oil and Gas Conservation as to each such reservoir, a certificate of convenience, issued by the Federal Power Commission or its successor, if such is issued, a certificate of

convenience issued by the Kentucky Public Service Commission or its successor, if such is issued, or a declaration of intent, found by the department to be bona fide, prepared by the gas storage operator to develop a gas storage facility. The above cited filing shall be accompanied by a map, prepared on the scale of one (1) inch equals 2,000 feet and using the appropriate seven and one-half (7 1/2) minute topographic map as the base, which outlines in detail the properties on which storage rights have been or are being obtained, whether by purchase or condemnation, and an outline of the storage reservoir protection zone as suggested by the storage operator. This protection zone shall be no wider than 2,000 feet from the nearest property on which gas storage rights have been or are being obtained and the width shall be subject to the approval of the department based on the characteristics of the reservoir and the maximum anticipated storage pressure.

(2) The required map shall be refiled at any time that storage rights on additional acreage are acquired or at any time that acreage on which storage rights have been acquired is eliminated.

(3) No gas shall be moved and stored until the above cited filing is made with the director. This does not include moved and stored gas which is to be used to determine whether or not underground gas storage is feasible.

(4) Any operator of an existing gas storage reservoir shall file the above cited certificate or declaration and map with the director within sixty (60) days of the date that this administrative regulation becomes effective.

Section 4. Application for Permit to Drill, Deepen or Reopen a Well on Property Where Gas Storage Rights are Acquired. (1) Before drilling, deepening or reopening a well on any property where gas storage rights have been acquired the well operator shall at the time of filing with the department also forward to the gas storage operator by registered or certified mail, or by personal service a copy of the application and plat.

(2) On any property where there is an outstanding oil and gas lease or on any property on which producing wells are located it shall be the responsibility of the gas storage operator to notify the well operator at the time storage rights are acquired of such acquisition and that a copy of all future applications to drill, deepen, or reopen wells by the well operator shall be furnished to the gas storage operator.

Section 5. Application for Permit to Drill, Deepen, or Reopen a Well on Property Where Gas Storage Rights are Not Acquired but which Lies Within the Storage Reservoir Protection Zone. When any application for permit to drill, deepen, or reopen a well is received by the department where the location of the proposed well will fall within the storage reservoir protection zone, the department shall notify the well operator and the gas storage operator of the receipt of the application by first class mail, postage prepaid.

Section 6. Objection and Hearing. (1) Upon receipt of an application to drill, deepen, or reopen a well on any property on which gas storage rights have been or are being acquired or upon any property which lies within the storage reservoir protection zone, the department shall hold the application for five (5) days. This will enable the gas storage operator to file with the department specific objections to the proposed well; and if the objections are so filed, the gas storage operator shall, at the same time, serve the same upon the well operator by registered or certified mail, or by personal service and the department shall fix a time and a place for a hearing, not more than ten (10) days after the end of the five (5) day period, at

which hearing the objections shall be considered. At the hearing, the well operator and the gas storage operator or such of those as are present or represented, shall consider the objections and either agree upon the drilling of the well as proposed or make such change in the drilling program as to satisfy all objections and meet the approval of the department. All changes agreed upon in the drilling of such well shall be set out on an amended application for permit to drill by the well operator and filed with the department within a reasonable period of time after the hearing. The department, upon receipt of the amended application, shall issue to the well operator a drilling permit approving the drilling of such well. If the gas storage operator and the well operator are unable to agree at the hearing, the department shall, in view of the purpose and intent of KRS Chapter 353, issue to the well operator a permit to drill such well either as originally proposed or with such added or corrective program as the department deems appropriate to protect the underground gas storage reservoir and prevent the loss of gas therefrom without unnecessarily restricting drilling operations.

(2) If the gas storage operator and the well operator cannot agree on the program under which the well is to be drilled, completed and plugged, the department shall in its order specify what costs, if any, in excess of costs normally expended in the drilling, completion, and plugging of the well shall be borne by the gas storage operator and shall specify when and in what manner payment for such costs shall be made.

(3) The gas storage operator may waive objections by letter, telegram, or telephone, provided such telephone notice of waiver is followed by a written waiver, to the department on any one (1) well, group of wells, all wells to be drilled by a well operator, all wells to be drilled in a specific area or on a specific lease. If such waiver or waivers are filed with the department, and the department having determined that the public interest is being served, the department shall issue the permit without delay.

Section 7. Notice to Well Operator. The gas storage operator shall give to the well operator a notice of intention to drill, deepen, or reopen a well in the manner provided for in Section 4 of this administrative regulation. Notice shall be required only to the well operator in possession at the time rights of storage are acquired or his successor in interest if the latter notifies the gas storage operator in writing of his acquisition. The well operator shall have the same rights and obligations as does the gas storage operator with respect to objections and hearing as detailed in Section 6 of this administrative regulation.

Section 8. Notice of Intention to Plug Wells. (1) Prior to the abandonment of a well drilled through or which penetrates an underground gas storage reservoir, or which is drilled through or which penetrates the same stratigraphic horizon as the gas storage reservoir in the storage reservoir protection zone, the well operator shall notify the gas storage operator and the department of their intention to plug and abandon the well. The notice shall be timely and reasonable in order that representatives of the gas storage operator and the department will have the opportunity to be present at the plugging and filling of the well. Whether or not such representatives appear, the well operator may proceed, at the time fixed in his notice, to plug and fill the well.

(2) Upon receipt of notice of intention to plug, the gas storage operator may, at his option, and after determining from the well operator the physical condition of the well, elect to plug the well or bear the entire cost of plugging. The option may be exercised only for the purpose of plugging the well. If the option is exercised, the gas storage operator shall notify in writing both the well operator and the department of his election. The well operator shall then advise in writing both the gas storage operator and the department the condition of the well, any equipment or pipe that may be in the well and the existence and type of any equipment or materials that have been lost in the hole. Upon receipt by the department of the notice required of the gas storage operator and the advice required of the well operator,

the department shall cause the well operator's bond to be released and the well shall be placed under the bond of the gas storage operator.

(3) When the plugging and filling have been completed, an affidavit setting forth the time and manner in which the well was plugged shall be made by two (2) experienced men who participated in the work. The affidavit shall be made on forms furnished by the department. One (1) copy of the affidavit shall be retained by the person that caused the well to be plugged, one (1) mailed to the gas storage operator or the well operator and one (1) to the department.

Section 9. Drilling Against High Reservoir Pressures. Whenever possible, the drilling into or through storage reservoirs will be conducted when the reservoir pressure is equal to or less than the original formation pressure and such original formation pressure shall be provided by the gas storage operator.

Section 10. Nothing in this administrative regulation shall be construed to prohibit a well operator or a gas storage operator from drilling a well that he would otherwise have the right to drill. (O&G-M&M-7; 1 Ky.R. 1071; eff. 6-11-75.)

805 KAR 1:100. Commission's rules of procedure; spacing of deep well drilling; wildcat wells and pooling of interests.

RELATES TO: KRS 353.651, 353.652

STATUTORY AUTHORITY: KRS 13A.100, 353.565

NECESSITY, FUNCTION, AND CONFORMITY: KRS 353.565 requires the Kentucky Oil and Gas Conservation Commission to administer and enforce the provisions of KRS 353.651 and 353.652 by regulating the spacing of deep well drilling, drilling units and pooling of interests.

Section 1. Definitions and Construction. Unless the context otherwise requires, the following words and terms shall have the following meanings when used in these administrative regulations:

(1) "Department" means the Department of Mines and Minerals as defined in KRS 353.010;

(2) "Commissioner" means the Commissioner of the Department of Mines and Minerals as defined in KRS 351.010;

(3) "Director" means the Director of Oil and Gas Conservation as provided in KRS 353.530;

(4) "Commission" means the Kentucky Oil and Gas Conservation Commission as provided in KRS 353.565;

(5) "Person" means any natural person, corporation, association, partnership, receiver, governmental agency subject to KRS 353.500 to 353.720, trustee, so-called common-law or statutory trust, guardian, executor, administrator or fiduciary of any kind;

(6) "Correlative rights" means the reasonable opportunity of each person entitled thereto to recover and receive without waste the oil and gas in and under his tract or tracts, or the equivalent thereof;

(7) "Oil" means natural crude oil or petroleum and other hydrocarbons, regardless of gravity, which are produced at the well in liquid form by ordinary production methods and which are not the result of condensation of gas after it leaves the underground reservoir;

(8) "Gas" means all natural gas, including casinghead gas, and all other hydrocarbons not defined above as oil;

(9) "Pool" means an underground reservoir containing a common accumulation of oil or gas or both. Each productive zone of a general structure which is completely separated from any other zone in the structure, or which for the purpose of KRS 353.500 to 353.720 may be so declared by the department, is covered by the word "pool" as used herein;

(10) "Field" means the general area which is underlaid or appears to be underlaid by at least one (1) pool; and "field" includes the underground reservoir containing oil or gas or both. The words "field" and "pool" mean the same thing when only one (1) underground reservoir is involved; however, "field" unlike "pool" may relate to two (2) or more pools;

(11) "Just and equitable share of production" means, as to each person, an amount of oil or gas or both substantially equal to the amount of recoverable oil or gas in that part of a pool underlying his tract or tracts;

(12) "Well" means a borehole drilled, or proposed to be drilled, for the purpose of producing natural gas or petroleum, or one through which natural gas or petroleum is being produced, or a borehole drilled or proposed to be drilled for the purpose of injecting any water, gas or other fluid therein or one into which any water, gas or other fluid is being injected;

(13) "Deep well" means any well drilled and completed below the depth of 4,000 feet or, in the case of a well located east of longitude line eighty-four (84) degrees thirty (30) minutes, a well drilled and completed at a depth below 4,000 feet or below the base of the lowest member of the Devonian Brown Shale, whichever is deeper;

(14) "Operator" means any owner of the right to develop, operate and produce oil and gas from a pool and to appropriate the oil and gas produced therefrom, either for himself or for himself and others; in the event that there is no oil and gas lease in existence with respect to the tract in question, the owner of the oil and gas rights therein shall be considered as "operator" to the extent of seven-eighths (7/8) of the oil and gas in that portion of the pool underlying the tract owned by such owner, and as "royalty owner" as to one-eighth (1/8) interest in such oil and gas; and in the event the oil is owned separately from the gas, the owner of the right to develop, operate and produce the substance being produced or sought to be produced from the pool shall be considered as "operator" as to such pool;

(15) "Royalty owner" means any owner of oil and gas in place, or oil and gas rights, to the extent that such owner is not an operator as defined in subsection (14) of this section;

(16) "Drilling unit" generally means the maximum area in a pool which may be drained efficiently by one (1) well so as to produce the reasonable maximum recoverable oil or gas in such area. Where the regulatory authority has provided rules for the establishment of a drilling unit and an operator, proceeding within the framework of the rules so prescribed, has taken the action necessary to have a specified area established for production from a well, such area shall be a drilling unit.

(17) The singular shall include the plural, and the masculine gender shall include the feminine and neuter.

Section 2. Rules of Procedure. (1) Rules, administrative regulations, and orders of the commission of general, or statewide, effect shall be submitted, published, and reviewed in accordance with KRS Chapter 13A. Hearings on such rules, administrative regulations, or orders shall be held, in accordance with KRS Chapter 13A.

(2) Rules, administrative regulations, or orders other than those of general, or statewide, effect, including but not limited to orders establishing drilling units, pool or field-wide units, or special field rules, shall be adopted only after notice and hearing in accordance with these rules and consistently with provisions of KRS 353.500 to 353.720.

(3) All hearings before the commission shall be open to the public. Hearings shall be called by the commission for the purpose of taking an action in respect to any matter within its jurisdiction upon its own motion or upon the request or application of any interested party. Applications or requests for hearing (except as otherwise provided herein) shall be written and may be in the form of a letter, shall be brief and concise, shall state in general terms the matter upon which action of the commission is desired, the interest of the applicant, or person making the request, the action sought, and the reasons therefor.

(4) The director shall maintain a docket book, and all applications or requests for hearings and all hearings called on motion of the commission shall be docketed and given a docket number, and a file carrying such number shall be opened by the director. All applications for hearing, a copy of the notice of hearing, together with proof of its publication, the originals of all instruments, documents, plats, and other data filed in connection with the hearing or the subject matter thereof, a transcript of all evidence taken at the hearing, the originals or copies of all correspondence with the commission concerning such hearing or the subject matter thereof shall be stamped with the docket number of the hearing and placed and kept in the file carrying such number. The docket book and all files pertaining to hearings shall be open to the public at all reasonable times but shall not be removed from the custody of the commission or its employees. Copies of all such instruments, documents, plats, other data, and correspondence shall be furnished to any interested party upon payment of the cost of making such copies. All notices of hearing shall refer to the docket number thereof. Copies of applications for hearing shall be furnished by the director to any person upon request.

(5) All hearings shall be held in Lexington, Kentucky, unless otherwise ordered.

(6) Upon receipt of a proper request or application for hearing, the commission shall call a hearing within thirty (30) days, and after such hearing and with all convenient speed, and in any event within thirty (30) days after the conclusion of the hearing, shall take action with regard to the subject matter thereof.

(7) Notice of all hearings shall be given by publication, as authorized by KRS 353.680, in accordance with KRS Chapter 424. When required by KRS 353.651 or 353.652 to give personal notice to all persons reasonably known to own an interest in the oil and gas in an area to be unitized or for which special field rules are proposed, the commission shall give such notice by registered mail unless a person has given a mailing address as provided in subsection (8) of this section.

(8) The director shall maintain a general mailing list and shall place thereon the names and addresses of all persons, firms, or corporations who make request in writing to be included on such list. Each person, firm, and corporation on such mailing list shall be mailed by first class mail at the address listed a copy of all notices and orders issued by the commission. The director shall maintain a mailing list for each field in

the state containing deep wells and shall place on each such list the names and addresses of all persons, firms, or corporations who make request in writing to be included thereon. Each person included on the mailing list of any field shall be mailed by first class mail at the address listed a copy of all notices and orders issued by the commission as to such field. The failure to mail a copy of a notice to any such person, firm, or corporation shall not affect the validity of any hearing held pursuant to the notice published in accordance with subsection (7) of this section or any rule, administrative regulation, or order issued pursuant to such hearing, unless such person is one reasonably known to own an interest in the oil and gas in an area to be unitized and for which special field rules are proposed and is thus entitled to personal notice by KRS 353.651 or 353.652. When a person entitled to personal notice of a hearing has requested to be placed on either the general or a field mailing list, a notice mailed by first class mail to the address given shall constitute compliance with KRS 353.651 or 353.652, as the case may be.

(9) Notices of all hearings shall state the time and place of the hearing, the name of the party requesting the hearing, the nature thereof, the action sought, and the docket number.

(10) No notice by personal service shall be necessary except as required by KRS 353.651 or 353.652 or by special order of the commission entered on its minutes.

(11) After notice of a hearing is once given, the hearing may be continued to another day and from day to day by order of the commission entered on the day fixed for the hearing.

(12) The commission may adopt an emergency rule, administrative regulation, or order of general, or statewide, effect without notice and hearing upon a finding of necessity to prevent waste, prevent irreparable injury, or other cause and issuance by the Governor of an executive order providing that it shall become effective upon submission to the Legislative Research Commission in accordance with KRS Chapter 13A. Such a rule, administrative regulation, or order shall provide that it will remain in force no longer than 120 days from the date of filing. If the commission desires to make such a rule, administrative regulation, or order permanent, it shall proceed as required by KRS Chapter 13A.

(13) The commission may adopt emergency rules, administrative regulations, or orders other than those of general, or statewide, effect without notice and hearing upon a finding of necessity to prevent waste, irreparable injury, or other cause. Any such rule, administrative regulation, or order shall provide that it will remain in force no longer than forty-five (45) days from its effective date. Immediately upon entering such a rule, administrative regulation, or order, the commission shall call a hearing on the subject matter thereof, and such hearing shall be held prior to the expiration of the rule, administrative regulation, or order.

(14) All interested parties shall have the right to be heard at all hearings and to present witnesses and other evidence whether or not represented by legal counsel or technical assistance. The commission may require any protest made to be reduced to writing and filed.

(15) In any proceeding before the commission subpoenas may be issued requiring the attendance of witnesses and the production of books, records, maps, charts, diagrams, and other pertinent documents material to the matters lawfully before the commission at the designated place of hearing.

(16) Hearings shall be opened with the reading of the notice or notices. The request for hearing, the notice or notices thereof, and proof of the due publication of the notice or notices of the hearing shall be made a part of the record of the hearing.

(17) All witnesses shall be required to testify under oath, administered by a member of the commission, to tell the truth, the whole truth, and nothing but the truth, and all witnesses shall be subject, to direct and cross-examination by any member of the commission or by any interested party or by his representative.

(18) In all noncontested matters or in contested matters where those parties who appear in person at the hearing agree thereto, sworn affidavits may be received in evidence. The commission reserves the right to reject any and all such affidavits and to require the affiant to appear in person.

(19) The materiality, relevancy, and competency of any testimony or other evidence shall be subject to challenge by any party to the hearing or by any member of the commission. When so interposed, such objections shall be acted upon by the chairman or by the acting chairman, his ruling thereon being subject to change by a majority vote of the commission members then sitting.

(20) All persons presenting exhibits shall file a total of eight (8) copies with the reporter. All suggested forms of orders shall be presented in quintuplicate. These requirements may be waived by the commission.

(21) The commission shall from time to time by order entered on its minutes appoint a competent shorthand reporter. All hearings shall be recorded by a reporter appointed by the commission and sworn faithfully to discharge his duties in accordance with law and the direction of the commission. The reporter shall transcribe hearings only upon order of the commission. When such an order has been entered, transcripts shall be available for inspection at the office of the commission in Lexington, Kentucky and transcripts shall be available for purchase by interested parties from the reporter at rates prescribed for transcripts of evidence in circuit court proceedings in Kentucky, whether ordered transcribed by the commission or not.

(22) Regular monthly meetings shall be held by the commission on the first Friday of each month. Where circumstances permit, the commission, after sounding the docket, shall first call up and dispose of all noncontested matters and motions for continuance.

Section 3. Permitting and Spacing of Wildcat Wells. (1) "Wildcat well" means either a deep well drilled with the intent of discovering and producing hydrocarbons from a formation or formations not previously productive of oil or gas from a well within 25,000 feet of its location, or a well drilled under such proven geological conditions that, even though located less than 25,000 feet from the nearest deep well previously productive of oil or gas, will not, if completed successfully, produce from a previously productive pool. Proof supporting permitting of a well located less than 25,000 feet from the nearest deep well previously productive of oil or gas should be submitted to the director with the permit application; the director may, however, require additional proof. If a deep well encounters a formation or pool as to which it is not a wildcat well, it may not be produced unless it is otherwise in compliance with the permit requirements and spacing regulations for other wells in that formation or pool. The director may, in his discretion, grant permission to test previously producing formations encountered in the drilling of a wildcat well and may fix such conditions as, in his judgment, will protect the formation or formations tested and the rights of the operator of any well or wells producing therefrom. If the director grants permission for such testing, he shall inform the other members of the commission in writing of his action.

(2) Within ninety (90) days following the completion of testing by surface production test of a well shown to be capable of production of oil or gas, or within ninety (90) days of completion as a producible well, whichever occurs first, the operator thereof shall file with the commission a plat showing a proposed unit for the well conforming to the rules provided in Section 4(1) of this administrative regulation.

(3) No additional permits will be issued for the pool until a proposed unit plat is filed, and when the plat is filed for a wildcat well or any subsequent wells, no permits shall be issued which will violate the integrity of the proposed unit or the spacing regulations established by Section 4(2) to (4) of this administrative regulation.

Section 4. Spacing of Deep Oil and Gas Wells. (1) If a permit is requested for a deep gas well other than a wildcat well or a well drilled on a unit previously formed by the commission, the application shall include a plat showing a proposed unit comprising a square with sides of 3,500 feet if the well is to be drilled to a depth less than 7,000 feet and with sides of 5,000 feet if the well is to be drilled to a depth of 7,000 feet or more. If the permit is for a deep oil well, the proposed unit plat shall comprise a square with sides of 1,750 feet if the well is to be drilled to a depth of less than 7,000 feet and 2,500 feet if the well is to be drilled to a depth of 7,000 feet or more. The first proposed unit for a pool shall be delineated so that the line forming one (1) side of the square is a base line running from south to north parallel to the Kentucky Coordinate System. All other north-south lines for that proposed unit and any additional units for the same pool shall be drawn parallel to the base line.

(2) Except as provided in subsections (4) and (5) of this section no deep gas well drilled to a depth less than 7,000 feet shall be located within 1,072 feet of the boundary of the proposed unit, and no deep gas well drilled to a depth of 7,000 feet or more shall be drilled within 1,532 feet of the boundary of the proposed unit.

(3) Except as provided in subsections (4) and (5) of this section no deep oil well drilled to a depth less than 7,000 feet shall be located within 536 feet of the boundary of the proposed unit, and no deep oil well drilled to a depth of 7,000 feet or more shall be drilled within 766 feet of the boundary of the proposed unit.

(4) (a) Upon receiving evidence showing a necessity therefor, the director may in his discretion grant permits with the following limitation on well location:

1. A deep oil well at a depth less than 7,000 feet may be located no closer than 438 feet to the boundary of the proposed unit.

2. A deep oil well at a depth of 7,000 feet or more may be located no closer than 625 feet to the boundary of the proposed unit.

3. A deep gas well at a depth of less than 7,000 feet may be located no closer than 875 feet to the boundary of the proposed unit.

4. A deep gas well at a depth of 7,000 feet or more may be located no closer than 1,250 feet to the boundary of the proposed unit.

(b) The director shall not grant a permit under the provisions of subsection (4)(a) of this section except in the presence of evidence which reasonably substantiates that the proposed location is justified by either topographical or geological conditions. Upon granting such a permit, the director shall inform the other members of the commission of his action in writing.

(c) Prior to the time a certificate of compliance is granted and a well is produced other than for the purpose of testing, the director shall determine whether a hearing is necessary for the purpose of taking any special action that may be required to offset any advantage resulting from the location of the

well according to the permit and thus protecting correlative rights of others with interests in the pool. If it is determined that special action is necessary, the director shall call a hearing.

(5) (a) Exception locations varying from the limitations provided in subsections (2) to (4) of this section may be granted if the commission determines, after notice and hearing, and the facts clearly support the determination, that a proposed unit or a previously formed unit is partly outside the pool, or, for some other reason, a well located in accordance with the statewide rules could not reasonably be expected to be productive or topographical conditions are such as to make the drilling at such a location unduly burdensome. An application for an exception location shall be accompanied by a plat drawn to the scale of not smaller than 1:12,000 accurately showing to scale the proposed location of the well according to the Carter Coordinate System and all other deep wells within two (2) locations of the proposed location. The application shall be verified by some person acquainted with the facts.

(b) When an exception location is sought on the ground of topographical conditions, it must be shown that the commission can effectively offset any advantage to the applicant accruing from such variation.

(c) Whenever an exception is granted, the commission shall take such concurrent action as may be required to offset any advantage to the applicant and thus to protect the correlative rights of others with interests in the pool. If the proposed unit or already formed unit is of less acreage than that prescribed by the applicable spacing rule for a regular unit, whether proposed or formed according to special field orders for the pool in question, such special unit shall be allowed to produce only in the proportion that the acreage content of such special unit bears to the acreage content of a regular unit.

(6) No portion of a proposed unit, or unit formed by order of the commission upon which a well is located shall be attributed, in whole or in part, to any other drilling or producible well in the same pool.

(7) (a) Unless authorization to intentionally deviate and directionally drill is granted by the commission, every well shall be drilled in such a manner that at any measured depth the actual or apparent location of the well bore shall be within a circle whose center is the surface location and whose radius is equal to the measured depth multiplied by a factor 0.087156. The actual or apparent resultant deviation of the well bore from the vertical shall not be in excess of five (5) degrees at any measured depth. In the event a survey indicates that the well bore is outside the above circle at any measured depth, the deviation must be corrected so that drilling will be restored to the specified limit. Upon completion of a survey showing or in the presence of knowledge giving rise to a reasonable belief that a well may be deviated beyond the above prescribed tolerance, the operator shall inform the director. After an operator has commenced drilling a well and desires to change the bottom hole location by directionally controlling and intentionally deflecting the well from the vertical, whether more or less than five (5) degrees, unless done to straighten the hole or to sidetrack junk in the hole or because of other mechanical difficulties, he shall first make application for an amended location showing by attached plat the amended projected bottom hole objective and secure an amended permit to drill before commencing such operations. The amended bottom hole location or objective shall comply with all minimum distances from unit lines as prescribed by all statewide orders or applicable field orders.

(b) In the event a well is to be drilled at a distance from a unit line where such distance is less than the apparent resultant lateral deviation, as determined by multiplying the proposed total depth of the well by the factor 0.087156, a permit to drill will be issued with the understanding that the operator will be required to furnish the commission with inclination or directional survey data as proof that the well will be completed in compliance with the provisions of this order before a certificate of compliance is issued. An inclination survey shall be made on all wells drilled with the first shot point at a depth not greater than that of the surface casing seat and succeeding shot points not more than 1,000 feet apart.

Inclination surveys conforming to these requirements may be made either during the normal course of drilling or after the well has reached total depth. Such survey data shall be certified by the operator's representative or drilling contractor and shall indicate the resultant lateral deviation as the sum of the calculated lateral displacement determined between each inclination survey point, assuming that all such displacement occurs in the direction of the nearest unit line. If a directional survey determining the bottom of the hole is filed with the commission upon completion of the well, it shall not be necessary to furnish the inclination survey data.

(c) The commission may, at its discretion, require an operator to conduct inclination or directional surveys under conditions other than those above specified.

Section 5. Certificate of Compliance. (1) Prior to production from a deep well, other than test production for a period not in excess of fifteen (15) days, the operator thereof shall apply for and obtain a certificate of compliance from the director. The application, which must be verified, shall disclose information adequate to satisfy the director that:

(a) All working interests in the drilling unit or proposed unit are identically owned, or have been pooled by voluntary agreement or order of the commission, or that the well may be produced without violating the correlative rights of any owner in the unit; and

(b) The operator in the location, drilling, and completion of the well has complied with the conservation laws of the Commonwealth and the rules and administrative regulations established by the Director of the Division of Oil and Gas and the commission applicable thereto.

(2) A certificate of compliance for a well for which a unit has not been established may be conditioned by the director by limiting its duration to a period of not more than 180 days unless a unit has been established and separately owned tracts have been pooled voluntarily or by order of the commission.

Section 6. Application for Special Field Orders. (1) When a new pool is penetrated and a well is proven by surface production test to be capable of producing oil or gas in paying quantities, the operator thereof shall, within 120 days after the test is completed or after the well is completed as a producible well, whichever occurs first, or within sixty (60) days of the completion of a confirmation well in the pool, whether drilled by him or another operator, apply for a hearing to issue special field orders governing the spacing of wells and establishment of units in the pool.

(2) An application for special field orders shall contain a plat showing all wells in the pool affected and the unit or units proposed for the pool.

(3) If upon testing a discovery well an operator believes that the confirmation well should not or cannot reasonably be located in accordance with the statewide spacing rules, he shall proceed by applying for a hearing to obtain an exception location.

Section 7. Pooling of Interests in Units Established by Order of the Commission. (1) An applicant for a hearing to issue special field orders for a new pool or otherwise to establish a drilling unit, or any interested party, may request that the commission pool the interests of the owners and the royalty owners in any unit or units established as a result of the hearing. A request to pool separately owned tracts concurrently with the establishment of a unit or units must be submitted with the application for the hearing, or sufficiently in advance to include notice of the request in the notices of hearing. When in its

judgment it is necessary, the commission may on its own motion include the pooling of separately owned tracts in the notice of a hearing to establish a unit or units.

(2) If separately owned tracts are not pooled as a result of the hearing to establish a unit or units, any interested party may request pooling at any subsequent time; provided, however, that if the owners and royalty owners have not agreed to pool their interests within 120 days of the issuance of a certificate of compliance, the operator of the well shall apply for a hearing to issue a pooling order.

Section 8. Reformation of Drilling Units. (1) Drilling units formed by the commission may be reformed upon notice and hearing as required by KRS 353.651, to exclude previously included acreage or to include new acreage, or both.

(2) A request for a hearing to reform drilling units must specify that there is new geological or geophysical data which will form a basis for the requested reformation and generally describe the source and nature of the data. Units will not be reformed in the absence of such data. Generally, "new data" must be data not in existence at the time of the hearing resulting in the formation of the units proposed for reformation. Reinterpretation of data existing at the time of the prior hearing will not serve as a basis for reformation. (1 Ky.R. 1403; Am. 2 Ky.R. 155; eff. 8-13-75.)

805 KAR 1:110. Underground injection control.

RELATES TO: KRS 353.520

STATUTORY AUTHORITY: KRS 353.540, 353.550, 353.560

NECESSITY, FUNCTION, AND CONFORMITY: KRS 353.540 authorizes the Department of Mines and Minerals to administer and enforce the provisions of KRS 353.500 to 353.720. The waste of oil and gas is prohibited by KRS 353.520, which provides that such prohibited waste includes the unreasonable damage to underground, fresh or mineral water supply, workable coal seams, or other mineral deposits in the operations for the discovery, development, production, or handling of oil and gas, the unnecessary or excessive surface loss or destruction of oil or gas or their constituents and the drowning with water of any stratum or part thereof capable of providing oil or gas in paying quantities, except for secondary recovery purposes, or in hydraulic fracturing or other completion practices. It is the purpose of this administrative regulation to protect fresh water zones from contamination associated with the production of oil and gas.

Section 1. Definitions. The definitions contained in KRS 353.510 and the following additional definitions shall apply to this administrative regulation:

(1) "Underground source of drinking water (USDW)" means an aquifer or its portion:

(a) 1. Which supplies any public water system; or

2. Which contains a sufficient quantity of groundwater to supply a public system; and

a. Currently supplies drinking water for human consumption; or

b. Contains fewer than 10,000 mg/l total dissolved solids; and

(b) Which is not an exempted aquifer.

(2) "Aquifer" means geological formation, group of formations, or part of a formation that is capable of yielding a significant amount of water to a well or spring.

(3) "Public water system" means a system for the provision to the public of piped water for human consumption, if such system has at least fifteen (15) service connections or regularly serves at least twenty-five (25) individuals.

(4) "Class II well" means a well which injects fluids:

(a) Which are brought to the surface in connection with conventional oil or natural gas production and may be commingled with waste waters from gas plants which are an integral part of production operations, unless those waters are classified as a hazardous waste at the time of injection; or

(b) For enhanced recovery of oil or natural gas; or

(c) For storage of hydrocarbons which are liquid at standard temperature and pressure.

(5) "New Class II well" means a Class II well on which drilling or conversion commenced later than thirty (30) days after the date of primacy.

(6) "Existing Class II well" means all Class II wells other than new Class II wells.

(7) "Date of primacy" means the effective date of the Administrator of the Environmental Protection Agency's approval of Kentucky's Underground Injection Control (UIC) Program, made pursuant to section 1425 of the Safe Drinking Water Act.

(8) "Area of review" means that area within not less than a fixed radius of one-fourth (1/4) mile around an injection well; provided, however, that at the option of the permit applicant, the area of review may be deemed to be the zone of endangering influence calculated in accordance with 40 CFR 146.06, which is adopted and incorporated herein by reference.

(9) "Endanger" means that an injection operation may result in the presence in underground water, which supplies or can reasonably be expected to supply any public water system, of any contaminant and that the presence of that contaminant may result in such system not complying with any national primary drinking water regulation or may otherwise adversely affect the health of persons.

(10) "Freshwater" is defined as a USDW.

(11) "Project" means a group of wells in a single operation.

Section 2. General. (1) No person shall drill a Class II well without first obtaining a permit to drill pursuant to KRS 353.570(1) and (2).

(2) No person shall inject fluids to the subsurface through a Class II well without the authorization of the director. Such authorization shall take the form of a permit issued pursuant to Section 8 of this administrative regulation or of a permit by rule conferred in accordance with Section 4 of this administrative regulation.

(3) The owner or operator of a Class II well is required to maintain financial responsibility and resources to close, plug, and abandon the underground injection operation in a manner prescribed by the director.

(4) The fee requirements for an application to drill a new Class II injection well pursuant to KRS 353.590 shall suffice for and be applicable to the permit to inject.

(5) The permit to operate any Class II well may be transferred to a successor only after notice is given to the director. Such notice shall include at least the following:

(a) The original operator's company name and address.

(b) The successor's company name and address.

(c) The permit number of the well.

(d) The Carter Coordinate location.

(e) The farm name and well number.

(f) Signatures of the original operator and the successor, or that of their official representative(s).

(g) A statement that the successor assumes all responsibility for the well.

(6) All Class II wells shall be plugged in the manner established in 805 KAR 1:060 and 805 KAR 1:070.

(7) An applicant for an injection permit shall be required to satisfy the director that the Class II well will not endanger a USDW.

(8) No permit by rule shall be interpreted as authorizing injection through a Class II well which endangers a USDW.

(9) If the director concludes that casing and cementing of a Class II well authorized by rule is inadequate and that movement of fluids endangers USDW. The director shall require an individual permit or notify the owner or operator of such well of necessary corrective action. Any such corrective action must be completed within one (1) year of notification of the owner or operator.

(10) In administering and applying this administrative regulation, the director shall, to the maximum practicable extent, take into account the varying geologic, hydrological and historical conditions in different areas within the state. The director may, where consistent with other provisions of this section, upon application and after notice and hearing, grant a variance from any requirement of this administrative regulation upon a showing that alternate prudent engineering practices will protect a USDW.

Section 3. Exempted Aquifers. An aquifer or a portion thereof which meets the criteria established in this section for a USDW may be determined by the director to be an "exempted aquifer" if it meets the following criteria:

(1) It does not currently serve as a source of drinking water; and

(2) It cannot now and will not in the future serve as a source of drinking water because:

(a) It is mineral, hydrocarbon or geothermal energy producing, or can be demonstrated to contain minerals or hydrocarbons that, considering their quantity and location, are expected to be commercially producible;

(b) It is situated at a depth or location which makes recovery of water for drinking water purposes economically or technologically impractical;

(c) It is so contaminated that it would be economically or technologically impractical to render that water fit for human consumption; or

(d) It is located over a Class III mining area subject to subsidence or catastrophic collapse; or

(3) The total dissolved solids content of the groundwater is more than 3,000 and less than 10,000 mg/l and it is not reasonably expected to supply a public water system.

Section 4. Permit by Rule. (1) All existing Class II wells are granted a permit by rule and authorized to inject fluids to the subsurface provided that the owner or operator:

(a) Maintains compliance with all applicable requirements of Sections 5 and 7 of this administrative regulation; and

(b) Within one (1) year from the effective date of this administrative regulation, files an area plat or plats showing all of the Class II wells subject to the permit by rule. The plat(s) submitted must show the existing Class II wells and all lessors' and lessees' names and boundaries, and shall be prepared and certified as accurate and correct by a licensed Kentucky Land Surveyor.

(2) All new Class II wells, constructed as part of an existing injection project, may be operated by rule after the following information has been submitted to and approved by the director:

(a) The application to operate by rule shall be submitted on forms provided by the director and shall be identical to application forms used for new Class II wells (Section 8 of this administrative regulation).

(b) All the requirements of Section 8 of this administrative regulation shall apply except subsections (1)(c)7 and 8 and (3) of this section.

(c) The plat submitted with said application to inject into a new Class II well in an existing project shall satisfy the applicable requirements of Section 8 of this administrative regulation and shall also show the proposed well location in the existing project, and that its location falls within an area having wells conforming to a geometric pattern already established.

(3) Injection of fluids to the subsurface shall not be made until a permit to inject is issued.

Section 5. Requirements Applicable to All Class II Well Permits. Authorization to inject fluids through all Class II wells (whether by rule or by individual permit) shall be conditioned upon compliance with the following requirements:

(1) The permittee shall promptly notify the director of any modification in the manner in which the injection operation is conducted or of any mechanical failure or downhole problem encountered in the operation of the Class II wells or upon recognition of a failure in an injection system. Said well or wells which appear to be leaking shall be shut down immediately and correction procedures shall be initiated within fifteen (15) days, or the permit to inject may be revoked.

(2) The permittee shall afford the director, or his authorized representative(s) upon proper presentation of credentials, access to Class II wells and related facilities for the purpose of conducting inspections, witnessing mechanical integrity tests, corrective action operations and plugging procedures and testing samples of injected fluids.

(3) The permittee shall regulate the injection pressure in such a manner that the pressure in the injection zone does not initiate new fractures or propagate existing fractures in the confining zone which would cause the movement of injected fluids into a USDW. The director may, when necessary to insure compliance with this requirement, establish limitations on the wellhead pressure at which Class II wells may be operated. Any such limitation shall be included as a permit condition or through an order issued after notice and opportunity for hearing.

(4) The permittee shall provide for the mechanical integrity of the well by operating without significant leaks in the casing, tubing, or packer and without significant fluid movement into a USDW through vertical channels adjacent to the well bore. The permittee shall, upon request of the director, conduct tests of the mechanical integrity of the Class II wells, utilizing a method approved by the director. Otherwise, tests shall, as nearly as practicable, be scheduled at five (5) year intervals and the permittee shall certify the test results to the director in writing within fifteen (15) days subsequent to the test. Each Class II well shall be tested for mechanical integrity at least every five (5) years.

(5) The permittee shall monitor and record injection pressures rates and volumes at least monthly and shall submit on forms provided by the director, an annual report of the results of such monitoring to the director. The permittee shall retain all such records on file for a period of five (5) years. The owner or operator of hydrocarbon storage or enhanced recovery wells may monitor them by manifold monitoring on a field or project basis rather than on an individual well basis if such facilities consist of more than one (1) injection well, operate with a common manifold, and provided the owner or operator demonstrates to the director that manifold monitoring is comparable to individual well monitoring.

(6) For purposes of this section, a permittee shall include the owner or operator of a well authorized by rule under Section 4 of this administrative regulation.

Section 6. Construction Requirements for All New Class II Wells. (1) All new Class II injection wells shall be constructed in accordance with applicable provisions of KRS 353.570(1) and (2) and 805 KAR 1:020 in a manner that will prevent injected fluids from escaping to a USDW. A freshwater string of casing must extend fifty (50) feet below the freshwater depth stated on the permit or the base of the deepest fresh water, whichever is greater. All freshwater casing strings shall have cement circulated to fill the annular space outside said casing. Such casing shall be cemented, using approved engineering methods to assure the return of the cement to the surface. The long string of casing must extend at least from the surface to immediately above the injection interval, and must have a minimum of 300 feet of cement behind the lowermost 300 feet of casing. If the fresh water is not protected by a separate string of casing, then the long string must be cemented from top to bottom.

(2) Any active oil and gas well, or an abandoned or plugged well reopened for the purpose of conversion to a new Class II injection well, shall satisfy the requirements for cementing of new Class II wells. If

perforation of existing casing is required to satisfy the current cementing administrative regulations during the conversion of said well(s) to a new Class II well, a tubing and packer shall be installed in the existing casing to the area immediately above the injection interval, not to exceed 100 feet above said injection interval.

(3) All new Class II disposal wells shall be designed to insure that disposal zones are hydraulically isolated from USDW.

Section 7. Mechanical Integrity Requirements for all Class II Injection Wells. All operators shall demonstrate mechanical integrity of new and existing Class II injection wells. The following methods are considered sufficient to establish mechanical integrity:

(1) All permittees of new or converted Class II injection wells shall perform mechanical integrity test(s) of the installation(s) prior to injection to ensure there are not leaks in the system(s). The test pressure must exceed the maximum anticipated injection pressure by at least 100 psi. Pressure and rate sensitive devices must be used to ensure there are no significant changes in pressure or volume of fluids injected. The test results shall be filed on forms approved by the director.

(2) The permittee of all Class II wells, both new and existing, shall schedule as nearly as practicable at five (5) year intervals mechanical integrity test(s). The following methods may be used:

(a) Subsection (1) of this section shall suffice; or

(b) For existing Class II wells, and new wells at least five (5) years old, the applicant may, subject to approval of the director, in lieu of the test described in subsection (1) of this section file historical injection records only on an individual well basis. Said records must show weekly volume and pressure rates in tabular or graphic form that reflect rate of volume or pressure variation within the injection system for a period of five (5) years or the life of the well, whichever is shorter, and must be certified by the operator as correct and accurate.

Section 8. Requirements for a Permit to Inject into New Class II Wells. (1) No person shall inject fluids to the subsurface through a new Class II well without obtaining a permit to inject. This permit shall be issued under the authorization of the director. Existing wells satisfying the requirements of Section 4 of this administrative regulation shall be permitted by rule. To obtain a permit to inject, an applicant shall submit to and have approved by the director an application. The application shall be submitted on forms provided by the director and shall include such information as the director deems necessary for the issuance of the permit, including all of the following:

(a) A statement by the operator as to whether the well is to be used for enhanced recovery, or for disposal purposes.

(b) The approximate depths of the deepest known freshwater zones.

(c) A location plat for a permit to inject into a Class II injection well shall be prepared and certified as accurate and correct by a registered Kentucky Land Surveyor. Said plat shall include the following information:

1. All plats shall be submitted on a sheet eight and one-half (8 1/2) x fourteen (14) inches. This sheet may be on paper, tracing cloth, training paper or equivalent.

2. The names of all lessees and lessors contiguous to the tract on which the injection shall occur.

3. The Carter Coordinate Location and the elevation of the well site.

4. The geologic name and depth of the injection zone.

5. At least two (2) surface features, by bearing and distance from the proposed well site, which appear on the U.S.G.S. seven and one-half (7 1/2) minute topographic map of the area.

6. The name of said topographic map and county.

7. The location of all known freshwater wells within the area of review.

8. The location and completion and/or plugging record of all wells, whether producing or plugged, within the area of review.

(d) Information showing that injection will not initiate fractures through the overlying strata shall include, but not be limited to the following:

1. A fluid injection rate of 1,000 barrels or less for a period of twenty-four (24) hours, or an equivalent rate for any fraction of twenty-four (24) hours, must maintain a minimum separation thickness of 200 feet between the lowest base of known fresh water, and the top of the proposed injection interval per well.

2. A fluid injection rate of more than 1,000 barrels for a period of twenty-four (24) hours, or an equivalent rate for any fraction of twenty-four (24) hours, must maintain a minimum separation thickness of 500 feet between the lowest base of known fresh water, and the top of the proposed injection interval per well.

3. The director may allow lesser thickness than required in subparagraphs 1 and 2 of this paragraph if the applicant furnishes certified evidence to the director that lesser thickness will not initiate fractures into the USDW.

(e) The Well Log and Completion Report and a copy of all geophysical logs.

(f) A certificate that shall include the following:

1. The identification of the well by permit number, operator's name, lease name, well number, Carter Coordinate Location, elevation and county.

2. The entire casing and cementing record, any packers and other special downhole equipment, and cement bond logs, if run.

3. The anticipated maximum bottom hole pressure (psi) and volume in barrels or cubic feet per day.

4. The identification of the injection zone by geological name and depth (top and bottom of zone), the number of perforations, if applicable, or the interval of open hole.

5. The certification by the operator of mechanical integrity. Each well shall be tested for mechanical integrity using method(s) approved by the director prior to being placed in service and the test results shall be certified to the director in writing. The director may require less information from the applicant where the information is readily available, or from up-to-date instate files, or where, based upon demonstrable knowledge available to the director about the proposed operation, the director proposes to permit the operation without requiring corrective action or alternatives to it.

(2) Applications for permit shall be signed by the owner or operator of the injection well, including corporate officers, general partners, sole proprietors, or other persons authorized to execute such documents on behalf of the applicant.

(3) An applicant for permit under this section shall provide public notice of the permit application by causing a notice of the application to be posted in the county courthouse of the county in which the Class II well is proposed to be located. Such notice shall describe the proposed action, and advise interested parties that additional information may be obtained from the director, that a public hearing may be requested, and that comments on the proposed action and requests for public hearing must be submitted to the director within fifteen (15) days of posting of the notice. The applicant shall provide a copy of the public notice to the director accompanied by an affidavit as to the manner in which public notice of the application was provided. If a significant degree of public interest is indicated, the director shall conduct a public hearing on the application. At the conclusion of the public comment period (including any public hearing) the director shall take final action on the permit application.

(4) The permit to inject shall be issued before injection is allowed.

(5) The permittee shall notify verbally field inspectors five (5) days before all mechanical integrity tests are performed. A written notice shall be given to the director five (5) days before said tests are performed.

(6) The permit to inject into all Class II injection wells shall remain valid for the life of the well or project. However, the permit may be terminated if the well or project is in violation of the law. The well operator must comply with the requirements of all applicable administrative regulations.

(7) The permittee of all Class II injection wells shall notify the director in writing within thirty (30) days of the termination of operations at which time the permit to inject shall expire.

Section 9. Date of Applicability. The provisions of this administrative regulation shall become applicable upon the date of primacy. On and after said date, Class II wells shall be subject to the requirements of this administrative regulation and shall be exempt from Sections 4, 5 and 6 of 805 KAR 1:020. (10 Ky.R. 1109; Am. 11 Ky.R. 406; eff. 9-1-84.)

<u>805 KAR 1:120. Operating or deepening existing wells and drilling deeper than the permitted depth</u>.

RELATES TO: KRS 353.520

STATUTORY AUTHORITY: KRS Chapter 13A, 353.540, 353.550, 353.560, 353.570, 353.590

NECESSITY, FUNCTION, AND CONFORMITY: KRS 353.550 requires the Department of Mines and Minerals to regulate the drilling and operation of all wells, while KRS 353.590 requires it to regulate the

drilling of a well past the permitted depth. This administrative regulation establishes the requirements to operate a well and drill deeper than the permitted depth.

Section 1. Definitions. The definitions contained in KRS 353.510 and the following additional definitions shall apply to this administrative regulation:

(1) "Deepening" means the drilling deeper of any existing well where new drilling is to proceed past the depth at which the initial drilling of the well ceased.

(2) "Operating a well" means to reenter, reopen, deepen, drill, inject into, produce, attempt to produce, or work over, any well.

Section 2. Permit Required. The operator shall obtain a permit to operate any well if the well is in violation of applicable standards and the department has forfeited the bond for noncompliance.

Section 3. Permit Not Required. An operator may operate an existing well if he submits an acceptable well transfer on form ED-13 and bonding as required in KRS 353.590(5) if the conditions in subsections (1) and (2) of this section apply. The well transfer form, ED-13, revised April 4, 1990, is filed and incorporated herein by reference. Copies may be obtained from the Department of Mines and Minerals, P.O. Box 14090, Lexington, Kentucky 40512-4090, Monday through Friday, 8 a.m. to 4:30 p.m.

(1) The well is producing or capable of producing, not abandoned and not in violation of applicable standards; or

(2) The well has been abandoned by the previous operator, but the current operator's sole intent is to reenter the well for the purpose of properly plugging and abandoning it.

Section 4. Permit Required for Deepening. The operator shall obtain a new permit prior to deepening any well if the original permit is more than one (1) year old or the original well was drilled prior to the permitting requirements of the department, and shall not drill until the permit is issued.

Section 5. Permit Not Required for Deepening. The permitted operator may deepen an existing well if the permit is not more than one (1) year old and if the well has not been drilled past the permitted and bonded depth.

Section 6. Drilling Deeper Than the Permitted Depth. An operator may drill deeper than the permitted depth of the well provided that he brings his permit into compliance within the time and conditions set forth below:

(1) The operator shall notify division personnel that he has drilled deeper than the permitted depth the next official work day of the department.

(2) The operator shall, within ten (10) days of drilling deeper than the permitted depth, amend his permit to the depth to which he has drilled.

(3) The operator shall, within ten (10) days of drilling deeper than the permitted depth, submit additional bonding required to satisfy KRS 353.590(5).

(4) The operator shall not drill deeper than the permitted depth if such drilling causes the well to be in noncompliance with the well spacing standards set out in KRS 353.610.

Section 7. A directional or horizontal well or a deep well shall not be deepened without prior approval of the director or a permit therefor being issued.

Section 8. An operator in noncompliance with the requirements of this administrative regulation is subject to penalties pursuant to KRS 353.991. (18 Ky.R. 233; Am. 1021; eff. 9-25-91.)

805 KAR 1:130. Deep well administrative regulation relating to casing, cementing, plugging, gas detection and blow-out prevention.

RELATES TO: KRS 353.520

STATUTORY AUTHORITY: KRS Chapter 13A, 353.540, 353.550, 353.560

NECESSITY, FUNCTION, AND CONFORMITY: KRS 353.550 requires the Department of Mines and Minerals to regulate the drilling and casing of all wells. This administrative regulation establishes the requirements for the drilling and casing of a deep well.

Section 1. Definitions. The definitions in KRS 353.510 and the following additional definitions shall apply to this administrative regulation:

(1) "Abnormal pressure" means a reservoir pressure that exceeds the hydrostatic pressure of fresh water extending from the reservoir to the surface.

(2) "Annulus" means the space between two (2) strings of casing or between a string of casing and the bore hole wall.

(3) "Blow-out preventer (BOP)" means a device installed on the surface or intermediate casing to prevent the escape of pressure either in the annulus between casing and drill pipe or in the open hole without drill pipe and which is used during drilling operations.

(4) "Casing (casing string)" means steel tubes or pipes installed in a well.

(5) "Cement" means hydraulic cement properly mixed with water or with additives approved by the director, and which is used to fill the annulus of casing string(s) or to plug the well.

(6) "Deep well" means any well drilled and completed below the depth of 4,000 feet or, in the case of a well located east of longitude line eighty-four (84) degrees thirty (30) minutes, a well drilled and completed at a depth below 4,000 feet or below the base of the lowest member of the Devonian Brown Shale, whichever is deeper.

(7) "DES" means the state Disaster and Emergency Services Office under authority of the Department of Military Affairs in Frankfort, Kentucky with regional offices throughout the Commonwealth.

(8) "Intermediate casing" means one (1) or more strings of pipes installed in a well in addition to the surface casing in which each string is smaller in diameter than the previous.

(9) "Long casing string" means the last casing installed in a well to be used for production or injection purposes.

(10) "Surface casing" means the first and largest diameter casing installed in a well and its primary uses are to make the bore hole stand up and to protect the fresh water zones.

(11) "Zone" means a layer of strata capable of producing or receiving fluids.

Section 2. When an application for a deep well permit is submitted to the department, the operator shall prepare a detailed drilling and casing plan on Form ED-7 for the review by and approval of the department. This casing and cementing form dated August 1, 1991 is filed and incorporated herein by reference. Copies of this form may be obtained from the Department of Mines and Minerals, P.O. Box 14090, Lexington, Kentucky 40512-4090, Monday through Friday, 8 a.m. to 4:30 p.m. This plan shall include the following:

(1) A drafted schematic showing the hole size and depth of each casing string. The freshwater string shall be set at least thirty (30) feet below the depth recommended by the department; if fresh water is encountered during drilling operations deeper than such recommended depth, the freshwater casing shall be set at least thirty (30) feet below the actual freshwater depth. All freshwater casing strings shall be circulated when they are set before drilling commences.

(2) A description of the type, size and grade of casing to be used and the manner in which the annulus of the casing string and well bore will be cemented to protect all fresh water, coal, mineral, and oil and gas producing formation in the area proposed for drilling. The volume, class, additives and weight of the cement to be used shall also be described.

(3) If drilling fluid is used, it shall comply with 805 KAR 1:020, Section 2(1)(c).

Section 3. The operator shall install a blow-out prevention device capable of withstanding a working pressure of 1500 psi and a test pressure of 3000 psi. A description of this device and its installation shall be included with the drilling and casing plan required in Section 2 of this administrative regulation. The BOP equipment shall be in place at such time as the well is drilled past the depth at which it becomes a deep well. A test shall be performed at regular intervals to ensure the BOP will operate at its rated capacity, and the results of such test(s) shall be kept at the drill site and made available to department personnel upon request.

Section 4. The director may waive the requirements for a BOP established in Section 3 of this administrative regulation if the operator submits a written request for such a waiver that includes:

(1) The geologic formations to be drilled through; and

(2) A history of drilling in the vicinity of the proposed well with pressure measurements that show gas pressures were not encountered at such levels to require the BOP equipment; and

(3) The maximum anticipated gas pressure in the proposed well.

Section 5. The operator shall obtain written instructions from the department prior to plugging the well and the department shall approve the commencement of plugging operations. Upon the department's request, the operator shall submit a well log and completion report and any geophysical logs used for preparing plugging instructions.

Section 6. The department shall be notified verbally within forty-eight (48) hours of any mechanical failure or other difficulty which may jeopardize the plugging operation or mechanical integrity of the well encountered while conducting any operation or production of a deep well; provided, however, DES or the department shall be immediately notified whenever there are any well failures or blow-outs which pose the likelihood of imminent environmental damage or danger to the public. The operator shall correct any and all such difficulties with due diligence.

Section 7. An operator in noncompliance with the requirements of this administrative regulation is subject to penalties pursuant to KRS 353.991. (18 Ky.R. 234; Am. 1022; eff. 9-25-91.)

805 KAR 1:140. Directional and horizontal wells.

RELATES TO: KRS 353.520

STATUTORY AUTHORITY: KRS Chapter 13A, 353.540, 353.550

NECESSITY, FUNCTION, AND CONFORMITY: KRS 353.550 requires the Department of Mines and Minerals to regulate the drilling and casing of all wells and filing of all downhole surveys. This administrative regulation identifies the requirements for permitting directional and horizontal wells.

Section 1. Definitions. The definitions in KRS 353.510 and the following additional definitions shall apply to this administrative regulation:

(1) "Abnormal pressure" means a reservoir pressure that exceeds the hydrostatic pressure of fresh water extending from the reservoir to the surface.

(2) "Annulus" means the space between two (2) strings of casing or between a string of casing and the bore hole wall.

(3) "Blow-out preventer (BOP)" means a device installed on the surface or intermediate casing to prevent the escape of pressure either in the annulus between casing and drill pipe or in the open hole without drill pipe and which is used during drilling operations.

(4) "Casing (casing string)" means steel tubes or pipes installed in a well.

(5) "Cement" means hydraulic cement properly mixed with water or with additives approved by the director, and which is used to fill the annulus of casing string(s) or to plug the well.

(6) "Deep well" means any well drilled and completed below the depth of 4000 feet or, in the case of a well located east of longitude line eighty-four (84) degrees thirty (30) minutes, a well drilled and completed at a depth below 4000 feet or below the base of the lowest member of the Devonian Brown Shale, whichever is deeper.

(7) "DES" means the State Disaster and Emergency Services Office under authority of the Department of Military Affairs in Frankfort, Kentucky, with regional offices throughout the Commonwealth.

(8) "Directional and horizontal drilling" means the science of directing a well bore along a predetermined course to a "target" located a given distance from the vertical.

(9) "Directional survey" means a survey taken while drilling using continuous measuring technology or a survey made through drill tools at such intervals to accurately determine the location of the deviated well bore.

(10) "Intermediate casing" means one (1) or more strings of pipes installed in a well in addition to the surface casing in which each string is smaller in diameter than the previous.

(11) "Intersection length" means the horizontal distance between the point at which the well penetrates the top of the intended formation and the end point within that formation.

(12) "Long casing string" means the last casing installed in a well to be used for production or injection purposes.

(13) "Measured depth" means the total depth measured in the well from the surface.

(14) "Surface casing" means the first and largest diameter casing installed in a well and its primary uses are to make the bore hold stand up and to protect the fresh water zones.

(15) "True vertical depth" means the depth of the well from any point in the well being measured to the surface of the ground above the point being measured.

(16) "Zone" means a layer of strata capable of producing or receiving fluids.

Section 2. Prior to drilling a directional or horizontal well, the operator shall submit the following information:

(1) An application for a permit to drill the well, with a cover letter from the operator making a request for drilling the horizontal or directional well. The application for permit form ED-1 revised March 3, 1990, is filed and incorporated herein by reference. Copies of this form may be obtained from the Department of Mines and Minerals, P.O. Box 14090, Lexington, Kentucky 40512-4090, Monday through Friday, 8 a.m. to 4:30 p.m. A bond as required in KRS 353.590(5) and an application fee of $100 shall be submitted with the application.

(2) Three (3) copies of a location plat satisfying the requirements of 805 KAR 1:030 (plan view), in addition to the following requirements:

(a) The surface location and proposed target formation with their respective "Carter Coordinates".

(b) The proposed course of the well.

(c) The identification of the intersection length of the proposed well and the proposed producing formation(s). To avoid any conflicts with the spacing requirements, a dashed line shall be drawn around the intersection length with regard to the spacing requirements in KRS 353.610 or, for deep wells, 805 KAR 1:100 and KRS 353.651 and 353.652. This distance shall be clearly shown in feet.

(3) In addition to the plan view required in this section, the operator shall submit three (3) copies of a plat which shows a vertical cross-section view of the area to be drilled by the well. This cross-section shall be prepared from the proposed "predrill hole" directional survey compiled by the contractor responsible for the directional control mechanism and certified as required by 805 KAR 1:030, Sections 2 and 6(11). The cross-section shall include the area from the well site to the target made through the proposed course of the well. The surface shall be located as zero in reference to the depth and the lateral distance from the well site and true vertical depths shall be shown for all of the following:

(a) The kick-off point or selected depth at which the deviation is started.

(b) The known coal seams to be intersected.

(c) The producing interval(s).

(d) The proposed producing formation(s).

(e) The proposed target.

(4) When the permit is issued, the operator shall provide verbal or written notice to the department field inspector at least forty-eight (48) hours in advance of the commencement of drilling operations.

(5) Once the well has been drilled and completed, the following shall be submitted within ten (10) days from the date of completion.

(a) Three (3) copies of an amended plan view of the well location plat required in subsection (2)(a), (b), and (c) of this section, with the actual course drilled, the kick-off point and the actual target superimposed on the proposed well location plat. A correction in the target Carter Coordinates, if necessary, shall then be issued by the department; and

(b) Three (3) copies of the side or cross-sectional view plat required in subsection (3)(a) through (e) of this section shall be amended for the actual path of the well, showing the actual formation(s), coal seams, target, kick-off point; and

(c) Copies of all directional surveys certified by the operator and the contractor responsible for the directional survey. This survey shall be submitted for the entire well bore, and the operator shall be able to identify the path or depth of the well bore at any given time during and after the drilling of the directional or horizontal well. The survey points shall be made at each tool joint or at any intervals more frequent; and

(d) On Form ED-8, the operator shall record the lateral offset from the well in feet and the true vertical depth for the producing interval and formation and the coal seam intersections and their true vertical depth. The operator certification of formation offset and vertical depth Form ED-8, dated August

1, 1991, is filed and incorporated herein by reference. Copies of this form may be obtained from the Department of Mines and Minerals, P.O. Box 14090, Lexington, Kentucky 40512-4090, Monday through Friday, 8 a.m. to 4:30 p.m.

(6) The operator shall satisfy spacing requirements of offset mineral boundary lines and between wells for the actual drilled course of the well and its end point and the intersection of the well bore and the producing formations.

(7) All coal operators or owners affected by the drilling of a directional or a horizontal well shall be provided a copy of the predrill plat and cross-section plat described in subsections (2) and (3) of this section as required by KRS 353.050 and 353.060. Within ten (10) days after the well is drilled, the operator shall submit to the coal operator or owner the revised plats and deviation survey log required in subsection (5) of this section.

(8) The requirements for a deep directional or horizontal well shall satisfy those requirements set out in 805 KAR 1:100 and KRS 353.651 and 353.652 regarding the application process and spacing units. Prior to the deep directional or horizontal well being drilled, a hearing shall be held before the Kentucky Oil and Gas Conservation Commission.

Section 3. When an application for a directional or horizontal permit is submitted to the department, the operator shall prepare a detailed drilling and casing plan on Form ED-7 for the review by and the approval of the department. This casing and cementing Form Ed-7 dated August 1, 1991 is filed and incorporated herein by reference. Copies of this form may be obtained from the Department of Mines and Minerals, P.O. Box 14090, Lexington, Kentucky 40512-4090, Monday through Friday, 8 a.m. to 4:30 p.m. The items requested in 805 KAR 1:130, Section 2(1), (2) and (3) shall be submitted with this plan.

Section 4. The operator shall install a blow-out prevention device capable of withstanding a working pressure of 1500 psi and a test pressure of 3000 psi. A description of this device and its installation shall be included with the drilling and casing plan required in Section 3 of this administrative regulation. This BOP equipment shall be tested at intervals necessary to maintain its ability to operate at rated capacity. The results of these tests shall be kept at the drill site and made available to department personnel at their request.

Section 5. The requirements of 805 KAR 1:130, Sections 4, 5 and 6 shall also apply to this administrative regulation.

Section 6. An operator in noncompliance with the requirements of this administrative regulation is subject to penalties pursuant to KRS 353.991. (18 Ky.R. 236; Am. 1023; eff. 9-25-91.)

<u>805 KAR 1:160. Posting of a danger sign on a facility used for the storage of oil</u>.

RELATES TO: KRS 353.500, 353.656

STATUTORY AUTHORITY: KRS 353.540(1)

NECESSITY, FUNCTION, AND CONFORMITY: KRS 353.656 requires a well operator to display a sign printed with the word "Danger" and other information specified by the department near or on a facility used for storage of oil, whether it is in active production or has been abandoned. This administrative regulation specifies the size, wording, coloration, and placement of the sign.

Section 1. Definitions. (1) "NFPA" means the National Fire Protection Association.

(2) "Tank battery" means a single storage tank or group of storage tanks that are interconnected or are less than three (3) feet apart, where oil is collected from a wellhead.

Section 2. (1) An operator shall display a printed sign on each tank battery, whether it is in active production or has been abandoned.

(2) Each sign shall contain the following words and phrases:

(a) "Danger";

(b) "No smoking or open flame";

(c) "Extremely flammable liquid and vapor";

(d) "May cause flash fire";

(e) "No trespassing"; and

(f) "Petroleum crude oil".

(3) Symbol. A no smoking symbol with a cigarette crossed through shall be displayed on each side of the words "no smoking or open flame".

Section 3. (1) The sign shall use the numbering system described in NFPA 704 "Standard System for the Identification of the Fire Hazards of Materials," which provides a classification and marking system for identification of a fire hazard.

(2) A facility used for the storage of oil shall have a "health hazards" ranking of "1" identified by:

(a) A black "1" at the nine (9) o'clock position in a blue square located in a square-on-point field; or

(b) A blue "1" at the nine (9) o'clock position without the colored square.

(3) A facility used for the storage of oil shall have a "flammability hazards" ranking of "3" identified by:

(a) A black "3" at the twelve (12) o'clock position in a red square located in a square-on-point field; or

(b) A red "3" at the twelve (12) o'clock position without the colored square.

(4) A facility used for the storage of oil shall have a "reactivity hazards" ranking of "0" identified by:

(a) A black "0" at the three (3) o'clock position in a yellow square located in a square-on-point field; or

(b) A yellow "0" at the three (3) o'clock position without the colored square.

Section 4. Dimensions and Coloration of the Sign. (1) A sign shall not be smaller than:

(a) Seventeen (17) inches in height; and

(b) Twenty-eight (28) inches in width.

(2) The letter size for the required wording shall be as follows:

(a) The word "danger" shall:

1. Be in uniformly sized letters; and

2. Not be less than three (3) inches in height;

(b) The words "no smoking or open flame" shall:

1. Be in uniformly sized letters; and

2. Not be less than one (1) inch in height; and

(c) The words set out in Section 2(2)(c) through (f) of this administrative regulation shall:

1. Be in uniformly sized letters; and

2. Not be less than one-half (1/2) inch in height.

(3) The "no smoking" symbol with a cigarette crossed through shall not be less than one and one-half (1 1/2) inches in height.

(4) The NFPA numbers shall not be less than one-half (1/2) inch in height.

(5) The background color of the sign shall contrast with the foreground color of the letters and the NFPA numbers to make them clearly visible (e.g., white background with black letters).

Section 5. (1) There shall be one (1) sign per:

(a) Tank battery; or

(b) Tank, if the individual tanks in a battery are controlled by more than one (1) operator.

(2) A sign shall be:

(a) Displayed at:

1. Least five (5) feet from the ground; and

2. The most visible location from the approach;

(b) Properly maintained; and

(c) Replaced if it is:

1. Illegible;

2. Damaged;

3. Vandalized; or

4. Stolen.

Section 6. Signs in Existence Prior to this Administrative Regulation. (1) A danger sign posted on a tank or tank battery prior to promulgation of this administrative regulation may be retained by an operator if:

(a) He files a written petition for a waiver seeking permission to retain the noncomplying sign; and

(b) The prior sign is clearly displayed:

1. On the tank or tank battery; and

2. At the most visible location from approach;

(2) A prior noncomplying danger sign shall be replaced with a sign that complies with this administrative regulation if it is:

(a) Illegible;

(b) Damaged;

(c) Vandalized; or

(d) Stolen.

Section 7. Violations for Failure to Post a Sign. (1) Upon locating a tank or tank battery without a danger sign, the inspector shall issue a notice of noncompliance to the last known operator.

(2) The notice of noncompliance shall be mailed to the operator by certified mail, return-receipt requested. If the violation is not corrected by the posting of a proper sign within forty-five (45) days of his receipt of the notice of noncompliance, the operator shall be subject to the penalties set out in KRS 353.991.

Section 8. Material Incorporated by Reference. (1) The following material is incorporated by reference: NFPA Edition 704, "Standard System for the Identification of Fire Hazards of Materials", 1990 edition, Chapters 1-4 and Figure 6.1.

(2) This material may be examined or copied at the Kentucky Department of Mines and Minerals, 3572 Ironworks Pike, Lexington, Kentucky 40512, Monday through Friday, 8 a.m. to 4:30 p.m. (23 Ky.R. 3653; Am. 4180; 24 Ky.R. 88; eff. 7-9-97.)

805 KAR 1:170. Content of the operations and reclamation proposal; form on which the proposal is filed.

RELATES TO: KRS 353.520, 353.570, 353.590, 353.5901, 353.595, 353.597

STATUTORY AUTHORITY: KRS 353.540, 353.550, 353.5901, 353.670

NECESSITY, FUNCTION, AND CONFORMITY: KRS 353.5901(1) requires a well operator to submit to the Department of Mines and Minerals an operations and reclamation proposal applicable to all tracts on which there has been a complete severance of the ownership of the oil and gas from the ownership of the surface to be disturbed. This administrative regulation specifies the content of the operations and reclamation proposal, creates the form on which that proposal is to be filed, and provides for the form on which well transfers are indicated.

Section 1. Definitions. In addition to those set out in KRS 353.510, the following definitions shall apply to this administrative regulation:

(1) "Cross drain" means an open ditch, constructed across the roadway, to carry off road surface water and which is not intended to replace culverts or prohibit vehicular traffic.

(2) "Diversion ditch" means a channel or ridge constructed across a slope for diverting surface runoff.

(3) "Filter strip" means a natural vegetative strip, left undisturbed, between the disturbed construction area and a water course, and which acts as a buffer area to catch sediment before it enters the water course.

(4) "Final reclamation" means the date on which the operator has completed his drilling operations at the well site, has plugged the well and has performed all obligations described in the operations and reclamation proposal.

Section 2. (1) The operations and reclamation proposal shall be filed on Form ED-10, entitled "Plan to Prevent Erosion of and Sedimentation from a Well Site".

(2) In addition to the requirements set out in KRS 353.5901, the following information shall be set out on Form ED-10:

(a) The operator's and surface owner's names, addresses and telephone numbers, the county in which the well is proposed to be drilled, and the well number;

(b) A listing or description of fertilizers and soil amendments and seed or trees to be planted for each affected area requiring revegetation treatment and the types and amounts per acre of seed and trees to be planted; and

(c) A detailed drawing of the road, well location and proposed area of disturbance, which shall be in sufficient detail to allow ready identification of surface features and which shall satisfy the following requirements:

1. The surface owner's tract(s) shall be identified on the drawing, with the name of the surface owner if not listed on the legend, which drawing shall also indicate the acreage to be disturbed;

2. The drawing may be made over an enlarged section of the United States Geological Survey (USGS) 1:24000 topographic map and may be enlarged to approximately 1"=400' and be submitted on an eight and one-half (8 1/2) inch by fourteen (14) inches sheet, using the symbols set out on Form ED-10.

3. The drawing shall have a legend with the operator's and surface owner's names not listed on the map, the scale of the map, the well name and number, and the lease name.

(3) Signatory sections for the operator and surface owner shall be completed on Form ED-10 in the following manner:

(a) The name and title, if any, of the operator shall be indicated and his signature notarized, which signature shall be either that of an officer of the company or of some other person who holds a duly recorded power of attorney to execute documents, a copy of which power of attorney shall be filed with the division. If the prospective operator is an individual, the signatory shall be in the same name as the applicant's or a power of attorney to execute documents shall be submitted to the division if the signatory is someone other than the applicant;

(b) The surface owner's name shall be indicated and his signature notarized if he approves of the operations and reclamation proposal, together with any attachments submitted with it.

Section 3. Unsigned Reclamation Forms. If the owner of the surface of the severed minerals tract is unwilling or for some other reason has failed to execute Form ED-10, the operator shall file a written petition for mediation, together with the following, at the time the application for permit is filed, in accordance with KRS 353.5901:

(1) A copy of the certified mail receipt verifying that the operations and reclamation proposal, the statement required in KRS 353.5901(2)(b), and the plat were mailed to and received by the surface owner or, if not received, the original or a copy of the unclaimed envelope. A copy of the operations and reclamation proposal and the attachments enclosed in the envelope mailed to the surface owner shall also be included.

(2) If the surface owner cannot be reached at his last known address of record and certified mail is returned as undeliverable or unknown, the operator shall publish a notice of intended activity, together with a request for information on the whereabouts of the surface owner, which publication shall be made two (2) consecutive times in a local newspaper in the county where the proposed well is located and once in a newspaper of general circulation. A copy of the notice of intended activity and request for surface owner information shall be included when the operator files his application for permit and shall include:

(a) The name and address of the operator;

(b) A brief description of the intended activity as set out in the operations and reclamation proposal;

(c) The surface owner must respond to this notice within fifteen (15) days of the second publication in the newspaper; and

(d) A statement of where interested persons may obtain additional information as to the operator's intended activity.

Section 4. Mediation of Dispute. (1) The surface owner may file with the division a request for mediation at any time after he has received from the operator the proposed operations and reclamation proposal, but only after the operator has filed his request for mediation and not later than the time set forth in the Notice of Request for Mediation provided by the department and mailed to the surface owner. The surface owner's request to participate in mediation shall include the mediation fee, in accordance with KRS 353.5901(2)(b).

(2) If the surface owner does not file his mediation fee within the time and in the manner required in the Notice of Request for Mediation, he shall be deemed to have failed to satisfy the statutory requirements applicable to mediation, the mediator shall file a report noting the failure and recommend the acceptance of the operator's operations and reclamation proposal.

(3) The mediator shall not settle damage claims or make any determinations regarding them in his report. However, information presented by the operator or surface owner as to costs incurred by either party as a result of the projected drilling and the loss of minerals or surface damage may be utilized by the mediator in recommending the placement of roads, pits or other construction and reclamation activities in a manner which has the least adverse surface impact.

(4) If the operator withdraws his application for a permit to drill, deepen, or reopen a well after receipt by the division of the surface owner's mediation fee, that fee shall be refunded to the surface owner.

Section 5. (1) The construction of the well site, including roads, pits, tanks, lines and other areas disturbed, shall be performed by the operator in accordance with the operations and reclamation proposal. All cuts and fills shall have side slopes that are stable for the soil or fill material involved. The vertical grades shall be as low as reasonably practicable and compatible with topography.

(2) If the well produces and the site is kept open for long-term use for well servicing and for oil and gas removal, the operator shall:

(a) Maintain access roads in a manner as to allow access by the operator without causing unreasonable settlement of the roadbed or slides of the cut slopes, and provide that maintenance in accordance with the operations and reclamation proposal;

(b) Establish drainage to adequately accept runoff from access roads, the well site and other areas in a manner which prevents unreasonable interference with the surface owner's property, roads, farming operations, and buildings, and establish that drainage in accordance with the operations and reclamation proposal;

(c) Repair access roads, the well site area, and pits damaged by events as floods, landslides, or excessive settlement of the embankment as soon as practicable after the damage has occurred; however, the operator shall not be responsible for damage attributable to another party's use of the access road not relating to the drilling, construction or operation of the well by the operator.

Section 6. (1) The operator shall provide written notice to the division when final reclamation and plugging have been completed.

(2) The bond required in KRS 353.590(5) shall not be released until a division inspector has made an inspection of the well site one (1) year after the date of the letter of notification from the operator of final reclamation and plugging and has filed a report to the director documenting that the following have occurred:

(a) All areas disturbed by the operator have been secured in a manner to prevent runoff, sedimentation, or settlement of the roadway, sliding of cut slopes or any fill material;

(b) A diverse and effective permanent vegetative cover has been established; and

(c) Any matters relating to settlement, inadequate vegetative cover or erosion have been corrected.

Section 7. Transfer of Wells having Existing Reclamation Plans. (1) Prior to transferring a well located on a severed minerals tract and for which an approved operations and reclamation proposal is on file with the division, the operator shall:

(a) Provide the successor operator a copy of the approved reclamation forms and attachments on file with the division before signing Form ED-13, "Well Transfer";

(b) Advise the successor operator of any reclamation responsibility the transferring operator had with regard to the well and related surface disturbance;

(c) Secure from the successor operator a letter indicating he has received from the transferring operator a copy of Form ED-10 and that he is willing to accept responsibility for the reclamation of the well site and other surface disturbances related to the operation of the well;

(d) Submit to the division the executed Form ED-13, applicable fee, and the letter of the successor operator's agreement to accept responsibility for reclamation in the manner set forth on Form ED-10; and

(e) Provide the surface owner of record with a copy of form ED-13 when he submits it to the division.

(2) The division shall not transfer the well until the requirements of this section are satisfied and shall advise the transferring and successor operators in writing when the well is transferred.

Section 8. If a well is to be drilled and completed on federal lands, the director shall accept a copy of a surface use reclamation agreement between the well operator and the federal agency in lieu of the

operations and reclamation proposal. If the operator elects to submit this agreement, it shall be submitted at the time of filing the application for permit to drill a well.

Section 9. (1) If a field inspection indicates there is noncompliance with the approved operations and reclamation proposal or the requirements of Section 6 of this administrative regulation, a written notice of violation describing the noncompliance shall be given to the operator, together with a statement of the action required to correct the noncompliance.

(2) The written notice of violation shall allow the operator up to forty-five (45) days to correct the violation.

(3) An operator may file for an extension of time to correct a violation by submitting a letter to the director describing the need for that extension; if the director concludes that the request is reasonable and that an extension of time will not violate the requirements of this administrative regulation or applicable statutes, he may grant the request for extension of time.

(4) The operator's bond may be forfeited to the department's oil and gas well plugging fund, pursuant to KRS 353.590(7), if he fails to make required corrections.

(5) An operator who, after hearing, is determined by the department to be in noncompliance with any section of this administrative regulation, or who fails to abate any noncompliance of the approved operations and reclamation plan, is subject to the penalties described in KRS 353.991.

Section 10. Material Incorporated by Reference. (1) The following material is incorporated by reference:

(a) Form ED-10, "Plan to Prevent Erosion of and Sedimentation from a Well Site", (February 14, 1997 Edition), Division of Oil and Gas; and

(b) Form ED-13, "Well Transfer", (April 16, 1990 Edition), Division of Oil and Gas.

(2) These forms may be obtained from, examined, or copied at the Kentucky Department of Mines and Minerals, 3572 Ironworks Pike, Lexington, Kentucky 40512, Monday through Friday, 8 a.m. to 4:30 p.m. (23 Ky.R. 3655; Am. 4182; 24 Ky.R. 90; 365; eff. 7-9-97.)

805 KAR 1:180. Production reporting.

RELATES TO: KRS 353.550(1)

STATUTORY AUTHORITY: KRS 353.540, 353.550(4), 353.670(1)

NECESSITY, FUNCTION, AND CONFORMITY: KRS 353.550(1) authorizes the department to promulgate administrative regulations requiring an operator of oil and gas properties in the Commonwealth to identify producing leases. This administrative regulation is necessary to specify the requirement of annual reporting, the content of the report, and the form on which the report shall be made.

Section 1. Definitions. In addition to the definitions set out in KRS 353.510, the following definitions shall apply to this administrative regulation:

(1) "GPS" means a global positioning satellite, which:

(a) Receives radio frequencies from more than one (1) satellite; and

(b) Is able to locate a point on the earth.

(2) "Mcf" means 1,000 cubic feet of natural gas.

(3) "Net gas sales" means the amount of metered or prorated gas sold into the line of first purchase and may be different from produced gas, due to line loss and compressor usage.

(4) "Produced gas" means the amount of produced gas metered or prorated at the well head on a monthly basis.

(5) "Purchaser or lease number" means the number assigned by the purchasing company to the lease or well for accounting and payment purposes.

(6) "Topographic spot" means the act of locating a well on a United States Geological Survey 1:24,000 Topographic Map and scaling that well location on the map to determine its Carter Coordinate location.

Section 2. Annual Report of Monthly Production. (1) An oil or gas operator shall:

(a) Compile and retain records of the monthly production of natural gas and crude oil; and

(b) For the preceding year, file the production information with the Division by April 15.

(2) The information may be submitted to the division:

(a) On Form ED-17, "Annual Report of Monthly Production for Natural Gas and/or Crude Oil"; or

(b) By using:

1. Common personal computer spread sheet or database software;

2. An electronic mail attachment.

(3) An operator shall be permitted to submit the information in accordance with subsection (2)(b) of this section, subject to the division being able to process the production data electronically.

(4) The following shall be included in the information submitted by the operator:

(a) Operator name and address;

(b) Production year;

(c) Permit number issued by the Division of Oil and Gas;

(d) Purchaser number;

(e) Number of wells on the lease for which the report is being filed;

(f) Farm name, complete with the individual well name and well number;

(g) County of production;

(h) Producing formation or, if production is commingled from multiple wells which are not metered separately, the identification of the wells as "commingled" and the pertinent formations from which production was made; and

(i) Well status, identified as producing or shut-in.

(5) Production from a gas well shall be reported in Mcf of net gas sales by well. In addition to reporting net gas sales, produced gas may also be reported at the option of the operator.

(6) Monthly oil production shall be reported in barrels by individual well or by lease; if by lease, the operator shall attach to Form ED-17 a list identifying the purchaser number and division permit number of all wells producing on that lease.

(7) For a well drilled prior to the date upon which a permit for the drilling and production of a well was statutorily required, the operator shall provide a Carter Coordinate location for each well not having a location on file with the division; that location may be estimated by a topographic spot, a GPS locator, or by survey.

(8) Production information reported pursuant to this administrative regulation shall be organized into a standard format and shall be made available for public release no earlier than January 1 nor later than March 1 of the following year.

Section 3. Penalties. If an operator does not file his production data on Form ED-17 by April 15 after each production year, the division shall notify him in writing of his noncompliance. If he does not submit all required production information within forty-five (45) days after being notified of his noncompliance, he shall be subject to denial of permits in accordance with KRS 353.570 and the penalties established in KRS 353.991(2), (3) and (4).

Section 4. Incorporation by Reference. (1) "Annual Report of Monthly Production for Natural Gas and/or Crude Oil", (November 12, 1997 edition), Division of Oil and Gas, is incorporated by reference.

(2) This form may be obtained, examined, or copied at the Kentucky Department of Mines and Minerals, Division of Oil and Gas, 3572 Ironworks Pike, Lexington, Kentucky 40512, Monday through Friday, 8 a.m. to 4:30 p.m. (23 Ky.R. 3658; Am. 24 Ky.R. 92; 1263; eff. 11-12-97.)

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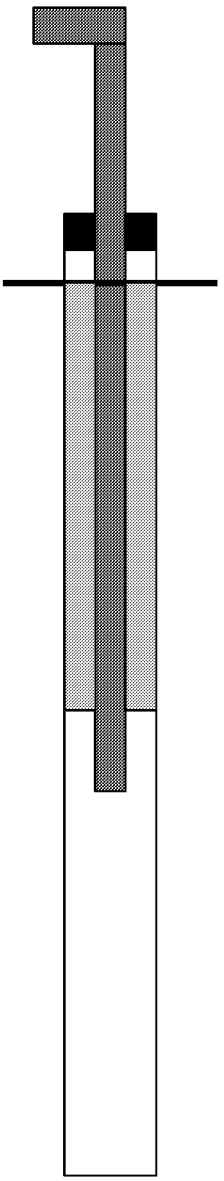
TAB 6

COMMONWEALTH OF KENTUCKY

CLASS II INJECTION WELL OPERATOR'S MANUAL



Prepared by:

Division of Oil and Gas

Division of Water

U.S. Environmental Protection Agency

Representatives of the Oil and Gas Industry

UNDERGROUND INJECTION CONTROL PROGRAM

AS ADMINISTERED BY

EPA United States Environmental Protection Agency

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For information on this and other energy related projects contact:

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FOREWORD

We wish to acknowledge and express our deep appreciation to the following team members who participated in the preparation of this manual. They include the following: Brian Gilpin and Marvin Combs from the Division of Oil and Gas (DOG), Dan Juett from the Division of Water (DOW), and John Gabbard from the Kentucky Oil & Gas Association, Bill Mann, Brian Thames, Ken Harris, Scott Hoskins, and Larry Meyer from the United States Environmental Protection Agency (EPA) Region 4.

We would also like to thank the U.S. Department of Energy for their financial support of this effort. It is our firm belief that the development of this document shall serve as a useful tool for achieving compliance and fostering further exploration efforts in the Commonwealth of Kentucky. The Department of Energy should be commended for their support and encouragement of this and other similar projects.

Rick Bender, Director
Division of Oil and Gas

Mike Sanders, Geologist
Author

INTRODUCTION

This handbook is intended to serve as a guide and reference for oil and gas well operators who wish to operate Class II injection wells in the Commonwealth of Kentucky under the federal Underground Injection Control (UIC) program. The UIC program was mandated by the Safe Drinking Water Act of 1980. A Class II well is any well used for injection or disposal of produced water from oil and gas wells, or for injection of fluids to increase recovery of oil and gas. Kentucky's UIC Class II program is currently being regulated by the United States Environmental Protection Agency (EPA). The EPA has regulated the UIC program in Kentucky since June 25, 1984.

The contents of this manual are presented in the order that a typical oil and gas operator would follow to permit, to operate, and to plug and abandon an injection well. A simplified step-by-step checklist is included which also follows this process from beginning to end.

Several recommendations have been presented in this manual that are not EPA requirements under the law, but have been included to help operators avoid future problems.

The appendices, at the back of this manual, contain a glossary of terms, directories of state and federal agencies involved in the UIC program, copies of the forms you will need to permit and operate a UIC well, and other useful information. EPA has provided some completed permit applications, and samples of their correspondence with operators during the permitting and completion process. These should be helpful guides for you to understand the type of information EPA expects from operators.

This handbook was prepared with the help of representatives from Kentucky regulatory agencies and the United States Environmental Protection Agency Region 4, with a grant from the U.S. Department of Energy.

If you wish to permit a UIC Class II well in Kentucky, or if you have questions about Kentucky's injection well program, contact the EPA Region 4 offices in Atlanta, Georgia. See Appendix A at the back of this manual for the address and phone number.

This manual is presented as a general reference and illustrates those practices conforming to the EPA UIC Class II program. It is beyond the scope of this manual to cite every applicable state and federal regulation and statute, and thus this manual is not intended to take the place of one's responsibility to know and understand all applicable regulations and statutes. Statutes and regulations in this manual are not provided in their complete form. The reader is encouraged to read the full text of each statute and regulation and seek counsel if and when necessary for clarification as to the applicability of each.

SIMPLIFIED STEP-BY-STEP CHECKLIST (☑) PROCEDURE FOR PERMITTING AND OPERATING A CLASS II WELL IN KENTUCKY

Section I. Getting Started & Permitting

Prepare a Game Plan. Permitting of a UIC well takes several months. Other production wells within the ¼ mile area of review (AOR) are involved in the permitting process. It is recommended that the operator prepare an overall game plan that incorporates all wells in the field to determine the most effective secondary recovery pattern or the most effective disposal option. In addition, many old wells that fall within the AOR may need improvements to their casing and cement in order to comply with the EPA requirements.

A proposed injection well should not be located in close proximity to faults or fractures. The presence of these geologic features could be grounds for denial of your permit application.

Obtain a UIC Class II well permit (EPA Form 7520-6) with the EPA for each proposed new injection well or for the conversion of any existing producing well into an injection well along with attachments A, B, C, E, G, H, M, Q, R, and U. Financial resources for plugging the well must be available in the form of an approved financial instrument. **Obtain a well permit** with the Division of Oil & Gas (DOG) for each proposed new injection well. Follow the same permitting and bonding procedures for any production well. If an existing production well is to be converted to an injection well, a new DOG permit is not required if the well is bonded and operated under the existing operators' name.

Section II. New Well Construction and Well Conversion

Notify Division of Oil and Gas inspector (name and phone number is on the DOG permit) 24 hrs. before spudding.

Set casing and cement as specified in Attachment M of the permit application or as specified in EPA permit under "Well Specific Conditions". Casing and cementing must also meet the minimum requirements specified on your permit with the DOG.

Follow all DOG, DOW, and Division of Waste Management (DWM) regulations as required for the drilling or reworking of any production well. See "Oil and Gas Well Operator's Manual".

Set tubing and packer as specified in EPA permit under "Well Specific Conditions".

Keep cement records as invoiced and keep a copy of any geophysical logs run. These records shall be submitted to EPA to document correct well construction.

File Completion Report (EPA Form 7520-10) along with the attachments A, B, C, D, and E described on the back of the form to the EPA upon completion and equipping the injection well. Send by certified mail return receipt requested.

File Certificate of Completion (DOG Form ED-23) with the Division of Oil & Gas for newly drilled injection wells and for well conversions.

File Affidavit of Well Log and Completion Report (DOG Form ED-3) with the Division of Oil & Gas for newly drilled injection wells within 90 days of completion.

Section III. Mechanical Integrity Test (MIT)

A MIT is required for every new injection well or newly converted injection well prior to injection. A MIT is required every 5 years thereafter or if the packer is unseated during a workover or upon accident.

A MIT is required for all "standard injection wells" every 5 years or if the packer is unseated during a workover or upon accident. A "standard injection well" has been cased and cemented and injection takes place through tubing and packer. "Non-standard injection wells" must have a MIT test every 2 years unless specified differently in the permit. A "non-standard" well injects through a single string of casing, and is not equipped with tubing and packer. These non-standard wells were injection wells prior to June 25, 1984.

Notify EPA 30 Days in advance of each proposed mechanical integrity test. The EPA will arrange for a representative to witness the test.

Each MIT will require the packer to be set as specified by EPA. The annular space must be loaded with an approved fluid, and a minimum of 300 pounds of pressure must be applied to the annulus for 30 minutes with less than 3 % loss or gain in pressure. (3% of 300 pounds is 9 pounds) EPA has approved alternative methods of MITs. Contact the EPA for details.

Section IV. Well Operation and Reporting

INJECTION MAY NOT BEGIN until all the conditions of the permit have been satisfied and approved by the EPA.

Corrective actions as specified in the permit for wells within the Area of Review must be completed and approved by the EPA prior to injection.

Only fluids and gasses brought to surface in connection with conventional oil and gas production may be injected. Fresh water and other approved secondary recovery fluids may also be injected as specified by the permit.

- ❒ **Injection must occur through** tubing and packer for all newly drilled or converted wells. Wells that have been in operation before June 1984 may still inject down casing if authorized by EPA to do so.

- ❒ **Injection must cease** if mechanical integrity is lost.

- ❒ **Monitor Enhanced Recovery Wells monthly (or more frequently as required by EPA)** – record the maximum and average injection pressure, annulus pressure, and cumulative volume in barrels. These figures must be submitted on an annual report to the EPA.

- ❒ **Monitor Disposal Wells (Commercial or Non-commercial) weekly** – record the average and maximum injection pressure, annulus pressure, and cumulative volume in barrels. These figures must be submitted on an annual report.

- ❒ **Each year submit to EPA** the "Annual Disposal/Injection Well Monitoring Report" (EPA Form 7520-11). For injection wells in operation before June 25, 1984 the report is due every October. For all other injection wells, the report must be submitted each year on the 28th of the month following the anniversary of the effective date of the permit.

- ❒ **Obtain injection fluid analysis** every 12 months or whenever changes are made to injection fluid or as required by EPA. A copy of the analysis should be sent to EPA on the same date as your annual monitoring report described above.

- ❒ **Retain all injection well monitoring records** for three (3) years. However, it is recommended that all records be maintained for the life of the well.

- ❒ **Alternatives to injection** of produced fluids include surface discharge (KPDES permit from DOW is required) or transport off site to an approved injection well (produced water disposal form submitted to DOW is required).

Section V. Permit Transfers

- ❒ **Application to Transfer Permit** is required by EPA (EPA Form 7520-7). A written agreement between the old and new owner containing a date for transfer of ownership and liability shall be attached along with a submission of financial responsibility for acquiring company. This requirement is the same for "Rule Authorized" wells and permitted wells.

- ❒ **Well Transfer Permit** required by DOG, $25 fee per well. (DOG Form ED-13)

- ❒ **Transfer of Ownership** form required by DOW registered facilities and KPDES permits

- ❒ **Bond releases to the seller** shall occur once the acquiring company's bonds are in place and financial responsibility has been demonstrated.

Section VI. Emergency Notification Procedures

Notify EPA if monitoring indicates a significant change in injection pressure or annulus pressure.

Notify EPA if there is noncompliance with a permit condition or if a malfunction occurs.

Give Oral Report to EPA within 24 hours from time operator is aware of a problem including the loss of mechanical integrity. Call (404)-562-9743.

Give Written Report to EPA within 5 days from time operator is aware of a problem including a plan to fix the problem.

Contain and clean-up oil spills, leaks, discharges or releases of pollutants immediately. For reportable spills notify Environmental Response Team 1-800-928-2380.

Section VII. Abandonment and Closure

Notify EPA within 30 days after injection is terminated. Plugging is to be done within one year of termination of injection.

Plugging and abandonment should follow the plan approved in the permit. If any change to the plan is desired by the operator, a new plan on Form 7520-14 must be submitted to EPA.. Send or fax a letter to EPA requesting that a well be plugged. All P&A plans must be approved prior to plugging.

Notify DOG inspector to be sure that the plan meets DOG requirements.

It is recommended that tubulars be checked for N.O.R.M. (naturally occurring radioactive material). The survey should be done while tubing is still in place. If N.O.R.M is found, the EPA must be notified within 45 days of the planned plugging. Contact EPA for disposal instructions.

File plugging affidavit with the Division of Oil and Gas.

Remove equipment upon closure of lease activities and contact Division of Water for inactivation of registration.

Request release of bond upon completion of site closure, or upon transfer of wells to another operator with DOG and with EPA.

REGULATORY AUTHORITY

EPA Underground Injection Control Program

The U.S. Environmental Protection Agency Underground Injection Control Program is responsible for:

- Preventing contamination of groundwater supplies from underground injection or other activities.
- Regulating Class II wells which are injection and/or disposal wells associated with the production of oil and natural gas.

Federal Regulation-40 CFR 124 and 144 through 148

Division of Oil and Gas

The Department of Mines and Minerals, Division of Oil and Gas is responsible for:

- Regulating the bonding, permitting, drilling, casing, operating and plugging of all wells in Kentucky.
- Protecting the correlative rights of mineral owners.
- Conserving and protecting the crude oil and natural gas reserves of Kentucky.
- Insuring fresh water aquifers and mineable coal seams are protected from unreasonable damage due to production of crude oil and natural gas.

Statute-KRS Chapter 353

Division of Water

The Department for Environmental Protection, Division of Water is responsible for:

- Preserving the water resources of Kentucky.
- Prevention, abatement and control of all water pollution.
- Regulating water pollution from oil and gas facilities.

Statute-KRS Chapters 146, 151 and 224

Division of Waste Management

The Department for Environmental Protection, Division of Waste Management is responsible for:

- Insuring that waste management activities within Kentucky are conducted in a manner to protect human health and the environment.
- Regulating hazardous waste, solid waste, special waste, abandoned sites, underground storage tanks and remediation of chemical and petroleum releases to the environment.

Statute-KRS Chapters 224

SECTION I. GETTING STARTED AND PERMITTING

What is a UIC Class II Well?

All owners and operators of oil and gas facilities in Kentucky who desire to inject produced water or other approved non-hazardous fluids from their production operations into the subsurface are subject to regulation by the EPA under the Federal Safe Drinking Water Act. Injection wells used for this purpose are classified as Class II injection wells by the EPA. All Class II injection wells must be permitted by the EPA prior to spudding any injection well or converting any producing well into an injection well.

Class II wells are used:

1) for the disposal of non-hazardous fluids which are brought to the surface in connection with oil and gas production and treatment

2) to inject fluids for enhanced recovery of oil and natural gas

3) for the storage of hydrocarbons which are liquid at standard temperature and pressure

Class II wells are not used:

1) for the disposal of hazardous fluids

2) for injection and withdrawal of natural gas in storage fields

New Class II Injection Wells and Rule Authorized Wells

The EPA has regulated the UIC program in Kentucky since June 25, 1984. Kentucky had hundreds of injection wells in operation at that time, and the EPA granted a blanket permit for those wells. They became known as "Rule Authorized" wells. Each of these wells did not receive its own individual permit, but each well had to pass a mechanical integrity test. Each well must be re-tested every five years if injection is through tubing and packer, and every two years if injection is down casing.

A new injection well drilled or converted after June 25, 1984 must have its own UIC permit. This manual will focus on permitting and operating these "new" wells. However, those differences for "Rule Authorized" wells will be noted throughout the manual.

Preparing a Class II Permit Application
EPA – REGION 4

All operators must obtain a UIC Class II permit from the EPA for each well that disposes of produced fluids from oil and gas wells, injects fluids (liquids or gasses) to enhance recovery of oil and gas, or disposes non-hazardous fluids generated from oil and gas activities. Before an injection well is drilled or a producing well is converted into an injection well, a UIC permit must be obtained. Multiple injection wells may be permitted at one time through an area permit application. Contact EPA for further details on this procedure.

Some examples of completed permit applications are located in Appendix of this manual. They have been provided by the EPA to guide you in preparing your own UIC Class II permit application.

Remember that a permit will be processed faster if you supply the permit reviewer with an application that is complete.

A typical Kentucky Class II disposal well or enhanced recovery well permit application consists of a completed front page of EPA Form 7520-6 and the attachments described below:

- **Front Page Form 7520-6** – Complete the front page. Under the section of the form titled: "Class and Type of Well", use the code letter "D" for a disposal well application, or "R" for an enhanced recovery application. **No fees are required for this application**.

- **Attachment A** – Area of Review (AOR) – New Wells & Conversions:
The area of review is a circle with a ¼ mile radius around the location of the proposed injection well. A sentence that states "the area of review is a ¼ mile radius around the proposed injection well" will satisfy the requirement for this attachment.

- **Attachment B** – Maps of Wells and Area of Review – New Wells & Conversions:
This attachment should be a photocopy of a USGS 7 ½ quadrangle **topographic map**. The scale of this photocopy shall be a minimum of 1"=2000', however, larger scales are recommended. EPA's instructions for completing Attachment B suggest that the photocopy should cover a large enough area to extend one mile beyond the property boundary on which the proposed injection well is located. The following information should be included with the topographic map:

1) The name and location of the proposed injection well.

2) A circle with a ¼ mile radius drawn around the proposed injection well.

   It is recommended that the entire AOR be located within property under control of the permittee. An injection well permit can be revoked if a third party drills within the AOR and does not properly case and cement the well.

3) The locations of all producing wells, injection wells, and dry holes should be spotted within the AOR. The names of the wells, their permit numbers, and Carter Coordinates should be listed. See Appendix C for an example of this attachment.

4) Drinking water supplies and drinking water wells within ¼ mile (1320') from the lease where the proposed well is located. This would include surface springs and other bodies of water. Only information of public record is required.

5) **A list of all Surface Landowners and their addresses within the AOR**
Each landowner will be notified by the EPA about your pending UIC permit.

6) Location of suspected faults within the AOR (refer to **USGS geologic quadrangle map)**.

7) Location of mines and quarries within the AOR

8) Provide a lease map, if one is available, with well spots. This is very helpful to the permit reviewer and will speed up the permit process.

If operators do not have their own records, then copies of information of public record are acceptable to complete this attachment.

- **Attachment C** – Corrective Action Plan and Well Data

The purpose for this attachment is to provide the permit reviewer with the information available about those wells within the AOR, which penetrate the proposed injection zone. The information will help the reviewer determine what action may be required of the operator to rework those wells to keep fluid from migrating into USDWs.

List each well, producing, injection, or abandoned, which is located within the AOR and penetrates the injection zone. Attach copies of the completion reports and plugging reports, if available, which are on file at the Kentucky Geological Survey, in Lexington or which may be in your possession. Only wells drilled deep enough to reach the injection zone are necessary for this attachment. However, an operator should list every well and its total depth within the AOR to speed up the permit process.

For improperly plugged wells that are located within the AOR and penetrate the injection zone, a corrective action plan must be submitted. The plan must detail the way by which improperly plugged wells will be re-entered and plugged to prevent the movement of fluids from injection operations into the USDWs.

Wells that lack records may need to be logged and/or plugged. Many permit denials are based on bad records.

If you are not sure you need a corrective plan, then submit all available records to the permit reviewer. EPA will then determine what corrective actions will be needed. Those corrective actions required for fixing the defective wells will be described in a section of your permit titled "Special Conditions".

- **Attachment E** – Name and Depth of USDWs

Submit the geologic name and depth of all formations that are underground sources of drinking water (USDWs). If the water in a formation has total dissolved solids of less than 10,000 mg/l, then the formation is a USDW. If USDWs have not been identified for your area, they may be calculated from electric logs. At a minimum, submit logs with your application so the EPA can do the calculation. USGS geologic quadrangles are helpful to identify water resources. EPA can assist you to identify the USDWs.

If your application is for the conversion of a producing well to an injection well, submit geophysical logs from the well if available. If logs are not available, submit logs from a nearby well. If your application is for a well that is to be drilled as an injection well, submit logs from a nearby well. These logs should show the formations that are underground sources for drinking water (USDWs), the proposed injection zone, and the formation that serves as the cap rock (confining zone) above the injection zone.

If geophysical logs are not available, submit drillers' logs.

- **Attachment G** – Geological Data on Injection and Confining Zones

Submit data on the injection and confining zone. The rock formation that will receive the injected fluids is the injection zone. The confining zone is a rock formation above the injection zone that will keep injected fluids from escaping upward into formations capable of supplying drinking water. EPA will accept USGS maps and information from KGS to help supply this information. Previously published field studies are very helpful. Include the lithology of the rock (rock type), geological name, thickness, and fracture pressure (the pressure that will crack open a formation). Include reports from previous fracture treatments in the proposed injection zone from this well or nearby wells if they are available.

- **Attachment H** – Operating Data

Submit a proposed daily injection volume in barrels. Submit the proposed average and maximum injection pressure. Describe the type of annular fluid that will fill up the space between the tubing and casing. Typical annular fluids consist of fresh water or brine water with some chemicals added to slow down corrosion of the casing and stop the formation of bacteria.

Describe the source or sources of your injection fluid. Include a chemical analysis of the injected fluid. Take a sample of your injection fluid and have a water lab analyze it for total dissolved solids (TDS), specific gravity, and pH.

- **Attachment M** – Construction Details

Submit a well diagram of the proposed injection well. The diagram should show the above ground and below ground construction of the well. Include the casing size and depth and cement displaced on each string. An example well diagram is shown in Appendix C.

- **Attachment Q** – Plugging and Abandonment Plan (proposal).

Submit a plan that shows the type and placement of cement plugs in the well, and a cost estimate. Use the EPA cost guidelines as shown below. Use EPA Form 7520-14 for your plan.

EPA would prefer to see a plug from top to bottom, but this proposal can be modified at a later date.

If plugs are to be spotted in the wellbore, be advised that each plug must set up and be tagged before a second plug can be spotted. This procedure could be more expensive due to increased rig time.

EPA Estimated Cost to Depth Guidelines

Well Depth*	Cement Top Behind Casing**		
	At Surface	Below Surface	
< 500'	$2300	$3000	
501'-1000'	$3000	$3900	
1001'-1500'	$3700	$5000	
1500'-2000'	$4800	$6500	*Refers to Plug Back Depth
>2000'	$5800	$7400	**Production Casing String

- **Attachment R** – Necessary Resources – Financial Responsibility Requirements

EPA requires that operators have enough money set aside to plug each injection well. Operators have the option to obtain a minimum of three bids. In lieu of acquiring bids, the amount of money required will be the cost estimate on Attachment Q calculated from the EPA estimated cost guidelines shown above. This money must be pledged to plug the well. Several types of financial instruments and trust agreements are available which are acceptable to the EPA. Since many small operators have limited financial resources, they may not qualify for some of these financial instruments. EPA will work with your bank directly to help you get this attachment satisfied.

EPA has prepared forms for each type of financial instrument and trust agreement. Copies of these forms are provided in Appendix B. Several EPA approved financial instruments are listed below in order from the easiest to the most difficult to obtain and meet EPA approval.

Option 1. Obtain an Irrevocable Letter of Credit from your bank with a Stand By Trust Agreement. Your bank may require some form of financial backing such as a certificate of deposit. With this financial arrangement, the operator will be allowed to use any interest that accumulates. This is the most common financial arrangement used by operators.

Option 2. Set up a fully funded trust with your bank. Your bank may require some form of financial backing such as a certificate of deposit. With this financial arrangement, all interest earned is kept within the trust.

Option 3. Obtain a Surety Performance Bond by an insurance company and execute a Stand By Trust Agreement.

Option 4. Prepare a Financial Statement and Chief Financial Officer's Letter. Include an Independent Auditor's Verification Statement. This option is typically reserved for Fortune 500 companies. The financial statements must be updated each year with the EPA.

EPA has provided sample forms for these financial instruments. **The permitting process will be shortened if these sample forms are used**. Provide photocopies of CD's with application.

- **Attachment U** – Nature of Business

Submit a brief description about your business. Example language is as follows: "XYZ Oil Company is involved in exploration, production, and marketing crude oil and natural gas."

- **Class II Permit Application Exhibits**

The appendix to the application should include copies of the maps, diagrams, and reports described in the attachments.

EPA Permit Review and Response

After the application is received, the EPA will perform a technical review of your permit application. They will check for completeness, so it is highly recommended that your permit application include all of the attachments listed above. Any parts that are missing will cause unnecessary delays. Once the permit has been reviewed and determined to be complete, the EPA will issue a draft permit to the operator and will issue a public notification of the draft permit. The review and drafting of the permit by the EPA will take a minimum of 30 days. There will be a 30-day public comment period. The public notice goes out to all landowners within the AOR, and individuals and organizations on the EPA public notice mailing list. The operator will receive the draft permit, a statement of basis, and a copy of the public notice. The cover letter will advise that the operator will have 25 days to comment on the draft permit. Typing errors and other errors are usually fixed at this time. The operator will be notified of any public comment that might cause a change in the permit requirements. If the draft permit is altered significantly, additional public notice may be necessary. The operator is not responsible to supply this public notification.

Example permits and related correspondence is provided in Appendix C.

Common Reasons Permit Applications are Denied

Permit rejections are often the result of one or more of the following:

1. The permit application is not complete.

2. The proposed well is located in a geologically faulted area.

3. The operator is unable to meet the financial responsibility requirement.

Modifications: Permits will be issued on the basis of submitted data. The permit will specify certain requirements. A permit modification will be needed if the operator must change the original requirements. Examples of such changes include new sources of the injected water and/or increases in injection pressure above the permitted limits.

Permit Application – Kentucky Division of Oil & Gas

If an operator intends to drill an injection well, then a permit must also be obtained from the Division of Oil and Gas prior to the spudding. The DOG permit application requirements for drilling an injection well are the same as for any other oil or gas well. Procedures for obtaining a permit can be found in the Oil and Gas Well Operators Manual. Copies of this manual may be obtained from the Division of Oil and Gas in Lexington, Kentucky.

If an operator intends to convert an existing production well into an injection well, the operator will not need a new permit, however the well must be under the operator's bond, and must be listed with the Division.

SECTION II. NEW WELL CONSTRUCTION AND WELL CONVERSION

Construction Requirements

The EPA classifies a "new" UIC well as any well drilled as an injection well or converted from producing well to an injection well after June 25, 1984. New wells must be constructed in certain ways in order to be permitted as injection wells under the UIC Class II program. These construction requirements are:

- All new wells must have their casing cemented in place to protect drinking water formations and to isolate the injection zone. For newly drilled wells, the casing must be cemented from the surface to below the lowermost drinking water formation. The grade of casing and quality of cement must be sufficient to protect the drinking water formations, isolate the injection zone, and last for the life of the well. The simple rule of thumb is that your casing and cementing must be capable of passing the MIT.

- Casing should be set and cemented in place as close to your injection zone as possible.

- During drilling and completion, the EPA defers to DOG authority for BOP's, sample requirements, etc.

- If cement does not return to surface during the process of cementing well casing, a cement bond log maybe required to be run.

- Copies of geophysical well logs must be submitted to the EPA if they are run. Running geophysical logs is not a requirement of the EPA. However, it is highly recommended that these logs be run. The logs will help the operator complete the well and inject into the proper injection zone.

Tubing and Packer

- All injection for new Class II wells must be through tubing and packer. Good quality tubing and a tension packer must be run in the well. If the injected fluid is corrosive, it is suggested that internally coated or fiberglass tubing be used.

- A tubing head should be placed on top of the casing so the annular space between the tubing and casing can have pressure applied to it for mechanical integrity testing. The tubing head will allow the annular space to be monitored for pressure changes during the life of the well.

- Packers must always be set in casing to within 100° of the injection zone.

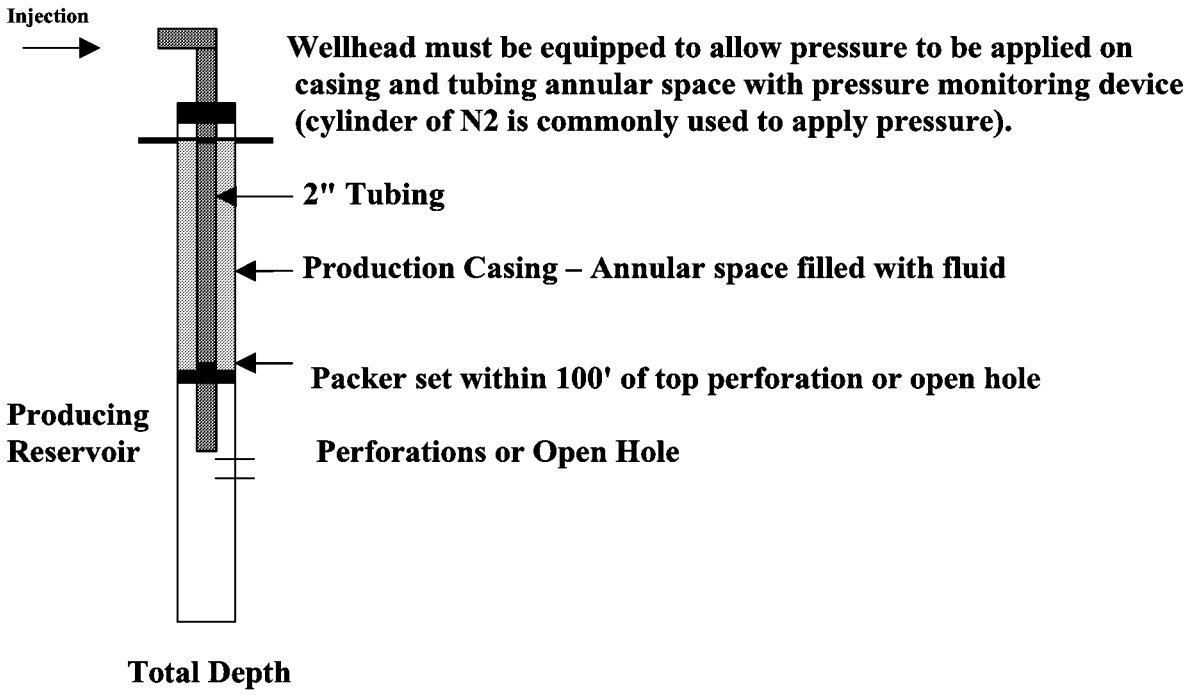
- The annular space between the tubing and casing should be filled with water or other fluid as approved by the EPA. The required pressure on this fluid at the surface should remain at 0 psig. A pressure gauge that reads both positive and negative pressure should be used to monitor this space.

SECTION III. MECHANICAL INTEGRITY TEST (MIT)

What is a Mechanical Integrity Test?

A Mechanical Integrity Test, or MIT, is a pressure test performed on every injection well to determine that no significant fluid is leaking through the well casing, tubing or packer into formations which may be sources of drinking water. The MIT is designed to test the entire system including the tubing, packer, and well head. The test is performed by applying pressure to the space between the casing and the tubing for a period of 30 minutes. If a pressure drop is observed that causes the well to fail the test, then the casing, tubing or packer, or wellhead has developed a leak. The leak must be fixed and the test retaken.

Wellbore Diagram



MIT Test Procedure

1. Give forty-five (45) day advance notice to EPA so an inspector can be scheduled. EPA will send out a certified letter to the operator with the time and date of the test. The letter will have contacts and phone numbers.

2. Insure the packer is properly set in casing at the depth specified in the permit. Fill annular space with fluid. Air should be totally displaced.

3. Check all valves, secure tubing, and insure all leaks are repaired.

4. With inspector on location, apply pressure on tubing annular space (usually with nitrogen-N2). Oxygen should not be used because of safety concerns.

5. Apply a minimum 300-pound pressure on tubing annulus for **30 minutes**. The EPA representative will monitor pressure variations at the time of the test. Pressure changes cannot exceed 3% above or below the applied pressure (9 pounds per 300 pounds of applied pressure).

When Are MITs Required?

MITs are required:

1. Before any new well or newly converted well is placed into service

2. After any workover that resets the packer

3. For any well where the packer becomes unseated

4. Every 5 years for active standard injection wells (injection through tubing and packer)

5. Every 2 years for non-standard wells (old rule authorized wells that inject through production casing)

6. Every 2 years for idle or temporary abandoned wells. These wells have remained fully equipped and could be started back up with the flip of a switch but have been shut-in for 2 years

7. Every 2 years for abandoned wells with tubing and packer removed. A plug may be set and the casing is pressured up to 300 pounds.

8. Prior to a conversion from injection to production, a well must pass an MIT.

SECTION IV. WELL OPERATION AND REPORTING

When Can Injection Begin?

Injection can not begin until the construction of the well has been completed according to Attachment M of the permit application, the MIT has been performed and passed, and the "Completion Report for Brine Disposal, HC Storage, or Enhanced Recovery Wells" has been sent to the EPA. All corrective action within the AOR must also have been performed. Upon review of all of these requirements and approval by EPA, the operator may begin injection.

Preparing a Completion Report for Brine Disposal, HC Storage, or Enhanced Recovery Wells

Upon successful construction and testing of the permitted injection well, the operator must fill out EPA Form 7520-10, the "Completion Report for Brine Disposal, HC Storage, or Enhanced Recovery Wells". Include with this form the following attachments listed on the back of the form:

- **Attachment A** is a drawing of the surface and subsurface construction of the well. The construction should follow the plans presented in "Attachment M" of the permit application.

- **Attachment B** – describe the methods and result of the mechanical integrity test

- **Attachment C** – provide information on any logs, tests, or cores taken on any USDW, confining zone, or injection zone.

- **Attachment D** – provide information on the progress of the corrective action taken on defective wells in the area of review. The "Special Conditions" section of the permit will list the requirements for fixing the defective wells.

- **Attachment E** – provide a copy of the Kentucky Division of Oil & Gas completion report and a copy of all logs run on the well.

The completion report and the attachments should be sent to EPA Region 4 by certified mail, return receipt requested. The EPA will send a notice to the operator within 13 days of the receipt of the completion form, of its review of the report, and whether the operator has satisfied the conditions of the permit. These conditions include passing the MIT and completing all of the necessary corrective action. If the review is favorable, the operator will receive authorization to start injection.

If the MIT has passed and the corrective action completed, but the operator has not received notice or authorization by the EPA within 13 days of its receipt of the completion report, the operator can assume the conditions of the permit have been met, and injection can begin.

Operations

Only fluids brought to the surface in connection with oil and gas production may be injected. Other permitted fluids would include make-up water for secondary recovery, and fluids used in other enhanced recovery operations which inject polymer, CO_2, gas, or air. When in doubt, contact the EPA.

If mechanical integrity is lost, injection must cease, the operator must correct the problem and have a MIT performed on the well before injection may resume.

All records for the well must be kept a minimum of three (3) years.

Sampling Requirements

Operators of Class II injection wells must monitor the amount of fluid injected and the pressure at which the fluid is injected on a regular basis. For enhanced recovery wells, the average and maximum injection pressure, the total volume of fluid in barrels or MCF (thousand cubic feet), and the minimum and maximum casing pressure, should be measured and recorded on a monthly basis. For disposal wells, these measurements need to be taken and recorded on a weekly basis. The measurements can be taken at a common manifold for injection wells in the same field.

An injection fluid analysis should be taken within 12 months from the date the permit was issued, and every 12 months thereafter, or if significant changes in fluid composition occur. Adding water from a new producing formation might constitute a significant change in composition. If there is a significant change, contact EPA. The analysis must measure pH, total dissolved solids, and specific

gravity. The analysis must also include the names and chemical composition of all chemicals used for well stimulation, and any additives or inhibitors used to prevent scaling, corrosion, and bacterial growth. The EPA may require measurements for other chemicals in the injected fluid.

The annular space between the casing and tubing should be monitored for each injection well. If the pressure rises or lowers by 15 psig, the operator shall provide an explanation to the EPA and take steps to correct the problem. If the problem is not corrected in 48 hours, injection must stop unless the EPA allows it to continue.

Reporting Requirements

An "Annual Disposal/Injection Well Monitoring Report", EPA Form 7520-11, must be submitted each year on the 28th of the month following the anniversary of the effective date of the permit. "Rule Authorized" well reports are due every October. The report consists of the pressure and volume measurements taken and recorded by the operator as described in the "Sampling Requirement" section above.

Copies of this and other reports that are required by the EPA should be sent to the following address:

U.S. Environmental Protection Agency – Region 4
Ground Water & UIC Section
Atlanta Federal Center
61 Forsyth Street
Atlanta, Georgia 30303-3104

Workovers

The operator must notify the EPA within 90 days of any well workover, logging, or testing that may reveal downhole conditions. The operator should submit a "Well Rework Record", EPA Form 7520-12 documenting the activity within thirty days following the completion of the rework. If the packer becomes unseated during the workover, a MIT must be conducted. Notify EPA 30 days in advance of the test, and follow the same procedures as described in the Section III on MITs. **Injection must be halted until the well passes the MIT.**

Division of Oil & Gas Requirements

The Kentucky Division of Oil and Gas requires that an "Affidavit of Well Log and Completion Report", form ED-3, be submitted within 90 days from the date a newly drilled injection well is completed. In addition the operator must submit a "Certificate of Completion for an Injection Well" form ED-23. This form will require information on the tubing, packer, setting depth, injection pressure, and monitoring procedure.

If the injection well is converted from an existing production well, only the "Certificate of Completion for an Injection Well" needs to be submitted.

Disposal Alternatives – Division of Water

The Kentucky Natural Resources and Environmental Protection Cabinet and its Division of Water (DOW) regulates the disposal of produced water by methods other than through an operator's permitted UIC Class II well.

Operators have the option of taking their produced water offsite to a disposal facility. DOW has a one page form, titled "Application to Dispose of Produced Water Off-Facility" for this purpose. This is a one time filing for water being transported from a single facility offsite to an approved UIC injection facility. If ownership or conditions change at the receiving facility, the form may need to be resubmitted.

Operators also have the option of disposing produced water by surface discharge. An operator would need to obtain a KPDES permit from DOW to do so.

For additional information on these disposal options, refer to the Oil and Gas Well Operator's Manual.

SECTION V. PERMIT TRANSFERS

Injection wells may be transferred to other operators, however those transfers need to be approved by the EPA, the DOG, and the DOW.

Before any transfer of ownership is allowed, the EPA must be notified, and an "Application to Transfer Permit EPA Form 7520-7" must be completed. A lease assignment and/or sale agreement must also be submitted. The new operator must establish financial responsibility with the EPA before the transfer will be approved. Once the transfer has been approved, the liability will change to the new operator, and the EPA will release the previous owner from financial responsibility. Upon receipt of transfer approval, the new operator may begin to operate the injection well(s). The modified permit that shows the change of ownership will be mailed to the new operator.

The new operator is responsible for maintaining the same MIT and monitoring report schedule that the previous owner followed.

Change of ownership is not complete until the DOG & DOW transfers have taken place. The DOG requires that each well be listed on its "Well Transfer" form #ED-13. A $25 fee for each well must accompany the form. In addition, the new operator must bond each well with the DOG. Once the new owner's bond is in place, the previous owner's bond may be released.

The DOW also requires a "Transfer of Ownership" form to be completed. In addition, each tank battery must be registered in the new owner's name. A registration form must be filled out and signed by the new owner for each facility.

Though not a requirement it is always a good idea for the new operator to get all of the data and records possible from the previous operator.

SECTION VI. EMERGENCY NOTIFICATION PROCEDURES

The EPA must be notified if any malfunction or emergency occurs at a permitted facility. The operator must notify the EPA:

1. If an operator determines a malfunction has occurred
2. When monitoring indicates a contaminant may endanger the USDW
3. When noncompliance with a permit condition occurs

An oral report must be given within 24 hours from the time the operator becomes aware there is a problem. For notification call: 404-562-9743.

A written report must be given within 5 days from the time the owner becomes aware there is a problem.

The operator must contain and clean-up any spills, leaks, discharges, or releases of pollutants immediately. For reportable spills, notify Kentucky's Environmental Response Team at 1-800-928-2380.

SECTION VII. ABANDONMENT AND CLOSURE

The plugging of your Class II well must be coordinated with both DOG and EPA.

Contact the EPA in Atlanta and submit a plugging plan on EPA Form 7520-14 if your plan is different from the original plugging plan on Attachment Q in your permit application. EPA will notify the operator that the plan has been approved and will notify the local EPA inspector.

The most acceptable plan from EPA's standpoint is setting a continuous cement plug from top to bottom. If separate plugs are desired to be set, the plan may be more complicated to coordinate with Division of Oil & Gas inspector. Also, each plug will have to set up and be tagged before the next plug is set.

The EPA inspector and DOG inspector may be on sight during plugging. The DOG inspector must be informed of the plugging date so he may be present.

After the well is plugged, EPA inspector will provide documentation to the Atlanta office. However, the operator is encouraged to send a copy of the plugging report to the EPA permit section to help expedite the bond release. The EPA bond will then be released back to the operator.

Submit a plugging affidavit with the Division of Oil & Gas to receive a bond release.

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MIT Inspector 233

Federal Regulatory Offices 234

Glossary of Terms

Aquifer – a geologic formation capable of yielding a significant amount of water to a well or spring.

Class II Wells – wells which inject fluids

A) which are brought to the surface in connection with conventional oil or natural gas production and may be commingled with waste waters from gas plants which are an integral part of production operations, unless those waters would be classified as hazardous waste at the time of injection.

B) for enhanced recovery of oil or natural gas; and

C) for storage of hydrocarbons which are liquid at standard temperature and pressure.

New Class II Wells – wells constructed or converted after the effective date of the UIC program

Confining bed – impermeable rock adjacent to one or more aquifers

Confining zone – a geologic formation, group of formations, or a part of a formation that is capable of limiting fluid movement above an injection zone.

Contaminant – any physical, chemical, biological, or radiological substance or matter in water.

Disposal well – a well used for the disposal of waste into a subsurface stratum

EPA – the United States Environmental Protection Agency

Fault – a surface or zone of rock fracture along which there has been displacement

Fluid – material or substance which moves or flows whether in a semisolid, liquid, sludge, gas or any other form or state

Formation – a body of rock characterized by a degree of lithologic homogeneity which is prevailing, but not necessarily tabular and is mapable on the earth's surface or in the subsurface

Fresh water – "underground source of drinking water"

Ground Water – water below the land surface in a zone of saturation

Injection well – a well into which fluids are injected

Lithology – the description of rocks on the basis of their physical and chemical characteristics

Make-Up Water – fresh water plus additives added to produced water to increase injection volume for enhanced recovery.

Owner/Operator – the owner or operator of any facility or activity subject to regulation under the UIC program

Packer – a device lowered into a well to produce a fluid-tight seal within the casing or wellbore

Permit – an authorization issued by the EPA to implement UIC program requirements.

Plugging – the act or process of stopping the flow of water, oil or gas into or out of a formation through a borehole or well penetrating that formation

Pressure – the total load or force per unit area acting on a surface

Regional Administrator – the Regional Administrator of Region 4 of the U.S. Environmental Protection Agency

Underground Source of Drinking Water – an aquifer or its portion

a) (1) that supplies any public water system
   (2) that contains a sufficient quantity of ground water to supply a public water system
   (3) is currently supply drinking water for human consumption
   (4) that contains fewer than 10,000 mg/l total dissolved solids; and
b) which is not an exempted aquifer

USDW – underground source of drinking water

Well – a bored, drilled, or driven shaft, or dug hole whose depth is greater than the largest surface dimension

Well Injection – the subsurface emplacement of fluid through a well

Well Workover – any reentry of an injection well; including but not limited to, the pulling of tubular goods, cementing & casing repairs

Kentucky Regulatory Offices

Division of Oil and Gas
1025 Capital Center Drive
PO Box 2244
Frankfort, Kentucky 40601

(502) 573-0147

Division of Water
14 Reilly Road
Frankfort, Kentucky 40601

(502) 546-2225

MIT Inspector:

David Hays
TSA, Inc.
598 College Street
Winchester, Kentucky 40391

(606) 737-3641

Federal Regulatory Offices

U.S. Environmental Protection Agency – Region 4
Ground Water & UIC Section
Atlanta Federal Center
61 Forsyth Street
Atlanta, Georgia 30303-3104

(404) 562-9743

APPENDIX B

Forms

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Financial Responsibility Forms 243

Bank Irrevocable Letter of Credit 245
Standby Trust Agreement 249
Trust Agreement 255
Surety Performance Bond 269
Chief Financial Officer's Letter 273
Auditor's Verification of Chief Financial Officer's Letter 277

Completion Report for Brine Disposal, HC Storage, or Enhanced Recovery Wells
EPA Form 7520-10 279

Certificate of Completion for an Injection Well – DOG Form ED-23 280

Plugging and Abandonment Plan – EPA Form 7520-14 281

Application to Transfer Permit – EPA Form 7520-7 282

Well Rework Record – EPA Form 7520-12 283

Annual Disposal / Injection Well Monitoring Report – EPA Form 7520-11 284

Form Approved. OMB No. 2040-0042. Expires 6-30-98

EPA

United States Environmental Protection Agency

Underground Injection Control Permit Application

(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)

I. EPA ID Number			
		T/A	C
U			

Read Attached Instructions Before Starting

For Official Use Only

Application approved mo	day	year	Date received mo	day	year	Permit Number	Well ID	FINDS Number

II. Owner Name and Address			III. Operator Name and Address		
Owner Name			Operator Name		
Street Address		Phone Number	Street Address		Phone Number
City	State	ZIP CODE	City	State	ZIP CODE

IV. Commercial Facility	V. Ownership	VI. Legal Contact	VII. SIC Codes
☐ Yes ☐ No	☐ Private ☐ Federal ☐ Other	☐ Owner ☐ Operator	

VIII. Well Status *(Mark "x")*

☐ A. Operating	Date Started mo	day	year	☐ B. Modification/Conversion	☐ C. Proposed

IX. Type of Permit Requested *(Mark "x" and specify if required)*

☐ A. Individual ☐ B. Area	Number of Existing Wells	Number of Proposed Wells	Name(s) of field(s) or project(s)

X. Class and Type of Well *(see reverse)*

A. Classes(es) (enter codes(s)	B. Type(s) (enter codes(s)	C. If class is "other" or type is code 'x,' explain	D. Number of wells per type (if area permit)

XI. Location of Well(s) or Approximate Center of Field or Project

Latitude			Longitude			Township and Range									**XII. Indian Lands (Mark 'x')**
Deg	*Min*	*Sec*	*Deg*	*Min*	*Sec*	*Sec*	*Twp*	*Range*	*1/4 Sec*	Feet From	Line	Feet From	Line		☐ Yes ☐ No

XIII. Attachments

(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)
For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A--U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.

XIV. Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

A. Name and Title *(Type or Print)*	B. Phone No. *(Area Code and No.)*
C. Signature	D. Date Signed

EPA Form 7520-6 (Rev. 8-91)

Well Class and Type Codes

Class I	Wells used to inject waste below the deepest underground source of drinking water
Type "I"	Nonhazardous industrial disposal well
"M"	Nonhazardous municipal disposal well
"W"	Hazardous waste disposal well injecting below USDWs
"X"	Other Class I wells (not included in Type "I," "M," or "W")
Class II	Oil and gas production and storage related injection wells.
Type "D"	Produced fluid disposal well
"R"	Enhanced recovery well
"H"	Hydrocarbon storage well (excluding natural gas)
"X"	Other Class II wells (not included in Type "D," "R," or "H")
Class III	Special process injection wells.
Type "G"	Solution mining well
"S"	Sulfur mining well by Frasch process
"U"	Uranium mining well (excluding solution mining of conventional mines)
"X"	Other Class III wells (not included in Type "G," "S," or "U")
Other Classes	Wells not included in classes above.
	Class V wells which may be permitted under §144.12
	Wells not currently classified as Class I, II, III, or V.

Attachments to Permit Application

Class	Attachments
I new well	A, B, C, D, F, H — S, U
existing	A, B, C, D, F, H — U
II new well	A, B, C, E, G, H, M, Q, R; optional — I, J, K, O, P, U
existing	A, E, G, H, M, Q, R — U; optional — J, K, O, P, Q
III new well	A, B, C, D, F, H, I, J, K, M — S, U
existing	A, B, C, D, F, H, J, K, M — U
Other Classes	To be specified by the permitting authority

INSTRUCTIONS - Underground Injection Control (UIC) Permit Application

PAPERWORK REDUCTION ACT NOTICE

Public reporting burden for this collection of information is estimated at an average of 255 hours for Class I wells, 16 hours for Class II wells, and 200 hours for Class III wells per application, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460, and to the Office of Management and Budget, Paperwork Reduction Project, Washington, DC 20503.

This form must be completed by all owners or operators of Class I, II, and III injection wells and others who may be directed to apply for permit by the Director.

I. EPA I.D. NUMBER - Fill in your EPA Identification Number. If you do not have a number, leave blank.

II. OWNER NAME AND ADDRESS - Name of well, well field or company and address.

III. OPERATOR NAME AND ADDRESS - Name and address of operator of well or well field.

IV. COMMERCIAL FACILITY - Mark the appropriate box to indicate the type of facility.

V. OWNERSHIP - Mark the appropriate box to indicate the type of ownership.

VI. LEGAL CONTACT - Mark the appropriate box.

VII. SIC CODES - List at least one and no more than four Standard Industrial Classification (SIC) Codes that best describe the nature of the business in order of priority.

VIII. WELL STATUS - Mark Box A if the well(s) were operating as injection wells on the effective date of the UIC Program for the State. Mark Box B if wells(s) existed on the effective date of the UIC Program for the State but were not utilized for injection. Box C should be marked if the application is for an underground injection project not constructed or not completed by the effective date of the UIC Program for the State.

IX. TYPE OF PERMIT - Mark "Individual" or "Area" to indicate the type of permit desired. Note that area permits are at the discretion of the Director and that wells covered by an area permit must be at one site, under the control of one person and do not inject hazardous waste. If an area permit is requested the number of wells to be included in the permit must be specified and the wells described and identified by location. If the area has a commonly used name, such as the "Jay Field," submit the name in the space provided. In the case of a project or field which crosses State lines, it may be possible to consider an area permit if EPA has jurisdiction in both States. Each such case will be considered individually, if the owner/operator elects to seek an area permit.

X. CLASS AND TYPE OF WELL - Enter in these two positions the Class and type of injection well for which a permit is requested. Use the most pertinent code selected from the list on the reverse side of the application. When selecting type X please explain in the space provided.

XI. LOCATION OF WELL - Enter the latitude and longitude of the existing or proposed well expressed in degrees, minutes, and seconds or the location by township, and range, and section, as required by 40 CFR Part 146. If an area permit is being requested, give the latitude and longitude of the approximate center of the area.

XII. INDIAN LANDS - Place an "X" in the box if any part of the facility is located on Indian lands.

XIII. ATTACHMENTS - Note that information requirements vary depending on the injection well class and status. Attachments for Class I, II, III are described on pages 4 and 5 of this document and listed by Class on page 2. Place EPA ID number in the upper right hand corner of each page of the Attachments.

XIV. CERTIFICATION - All permit applications (except Class II) must be signed by a responsible corporate officer for a corporation, by a general partner for a partnership, by the proprietor of a sole proprietorship, and by a principal executive or ranking elected official for a public agency. For Class II, the person described above should sign, or a representative duly authorized in writing.

INSTRUCTIONS - Attachments

Attachments to be submitted with permit application for Class I, II, III and other wells.

A. AREA OF REVIEW METHODS - Give the methods and, if appropriate, the calculations used to determine the size of the area of review (fixed radius or equation). The area of review shall be a fixed radius of ¼ mile from the well bore unless the use of an equation is approved in advance by the Director.

B. MAPS OF WELL/AREA AND AREA OF REVIEW - Submit a topographic map, extending one mile beyond the property boundaries, showing the injection well(s) or project area for which a permit is sought and the applicable area of review. The map must show all intake and discharge structures and all hazardous waste treatment, storage, or disposal facilities. If the application is for an area permit, the map should show the distribution manifold (if applicable) applying injection fluid to all wells in the area, including all system monitoring points. Within the area of review, the map must show the following:

Class I

The number, or name, and location of all producing wells, injection wells, abandoned wells, dry holes, surface bodies of water, springs, mines (surface and subsurface), quarries, and other pertinent surface features, including residences and roads, and faults, if known or suspected. In addition, the map must identify those wells, springs, other surface water bodies, and drinking water wells located within one quarter mile of the facility property boundary. Only information of public record is required to be included in this map;

Class II

In addition to requirements for Class I, include pertinent information known to the applicant. This requirement does not apply to existing Class II wells;

Class III

In addition to requirements for Class I, include public water systems and pertinent information known to the applicant.

C. CORRECTIVE ACTION PLAN AND WELL DATA - Submit a tabulation of data reasonably available from public records or otherwise known to the applicant on all wells within the area of review, including those on the map required in B, which penetrate the proposed injection zone. Such data shall include the following:

Class I

A description of each well's types, construction, date drilled, location, depth, record or plugging and/or completion, and any additional information the Director may require. In the case of new injection wells, include the corrective action proposed to be taken by the applicant under 40 CFR 144.55.

Class II

In addition to requirement for Class I, in the case of Class II wells operating over the fracture pressure of the injection formation, all known wells within the area of review which penetrate formations affected by the increase in pressure. This requirement does not apply to existing Class II wells.

Class III

In addition to requirements for Class I, the corrective action proposed under 40 CFR 144.55 for all Class III wells.

D. MAPS AND CROSS SECTION OF USDWs - Submit maps and cross sections indicating the vertical limits of all underground sources of drinking water within the area of review (both vertical and lateral limits for Class I), their position relative to the injection formation and the direction of water movement, where known, in every underground source of drinking water which may be affected by the proposed injection. (Does not apply to Class II wells.)

E. NAME AND DEPTH OF USDWs (CLASS II) - For Class II wells, submit geologic name, and depth to bottom of all underground sources of drinking water which may be affected by the injection.

F. MAPS AND CROSS SECTIONS OF GEOLOGIC STRUCTURE OF AREA - Submit maps and cross sections detailing the geologic structure of the local area (including the lithology of injection and confining intervals) and generalized maps and cross sections illustrating the regional geologic setting. (Does not apply to Class II wells.)

G. GEOLOGICAL DATA ON INJECTION AND CONFINING ZONES (Class II) - For Class II wells, submit appropriate geological data on the injection zone and confining zones including lithologic description, geological name, thickness, depth and fracture pressure.

H. OPERATING DATA - Submit the following proposed operating data for each well (including all those to be covered by area permits): (1) average and maximum daily rate and volume of the fluids to be injected; (2) average and maximum injection pressure; (3) nature of annulus fluid; (4) for Class I well, source and analysis of the chemical, physical, radiological and biological characteristics, including density and corrosiveness, of injection fluids; (5) for Class II wells, source and analysis of the physical and chemical characteristics of the injection fluid; (6) for Class III wells, a qualitative analysis and ranges in concentrations of all constituents of injected fluids. If the information is proprietary, maximum concentrations only may be submitted, but all records must be retained.

I. FORMATION TESTING PROGRAM - Describe the proposed formation testing program. For Class I wells the program must be designed to obtain data on fluid pressure, temperature, fracture pressure, other physical, chemical, and radiological characteristics of the injection matrix and physical and chemical characteristics of the formation fluids.

For Class II wells the testing program must be designed to obtain data on fluid pressure, estimated fracture pressure, physical and chemical characteristics of the injection zone. (Does not apply to existing Class II wells or projects.)

For Class III wells the testing must be designed to obtain data on fluid pressure, fracture pressure, and physical and chemical characteristics of the formation fluids if the formation is naturally water bearing. Only fracture pressure is required if the program formation is not water bearing. (Does not apply to existing Class III wells or projects.)

J. STIMULATION PROGRAM - Outline any proposed stimulation program

K. INJECTION PROCEDURES - Describe the proposed injection procedures including pump, surge, tank, etc.

L. CONSTRUCTION PROCEDURES - Discuss the construction procedures (according to §146.12 for Class I, §146.22 for Class II, and §146.32 for Class III) to be utilized. This should included details of the casing and cementing program, logging procedures, deviation checks, and the drilling, testing and coring program, and proposed annulus fluid. (Request and submission of justifying data must be made to use an alternative to packer for Class I.)

M. CONSTRUCTION DETAILS - Submit schematic or other appropriate drawings of the surface and subsurface construction details of the well.

N. CHANGES IN INJECTED FLUID - Discuss expected changes in pressure, native fluid displacement, and direction of movement of injection fluid. (Class III wells only.)

O. PLANS FOR WELL FAILURES - Outline contingency plans (proposed plans, if any, for Class II) to cope with all shut-ins or wells failures, so as to prevent migration of fluids into any USDW.

P. MONITORING PROGRAM - Discuss the planned monitoring program. This should be thorough, including maps showing the number and location of monitoring wells as appropriate and discussion of monitoring devices, sampling frequency, and parameters measured. If a manifold monitoring program is utilized, pursuant to §146.23(b)(5), describe the program and compare it to individual well monitoring.

Q. PLUGGING AND ABANDONMENT PLAN - Submit a plan for plugging and abandonment of the well including: (1) describe the type, number, and placement (including the elevation of the top and bottom) of plugs to be used; (2) describe the type, grade, and quantity of cement to be used; and (3) describe the method to be used to place plugs, including the method used to place the well in a state of static equilibrium prior to placement of the plugs. Also for a Class III well that underlies or is in an exempted aquifer, demonstrate adequate protection of USDWs. Submit this information on EPA Form 7520-14, Plugging and Abandonment Plan.

R NECESSARY RESOURCES - Submit evidence such as a surety bond or financial statement to verify that the resources necessary to close, plug or abandon the well are available.

S. AQUIFER EXEMPTIONS - If an aquifer exemption is requested, submit data necessary to demonstrate that the aquifer meets the following criteria: (1) does not serve as a source of drinking water; (2) cannot now and will not in the future serve as a source of drinking water; and (3) the TDS content of the ground water is more than 3,000 and less than 10,000 mg/l and is not reasonably expected to supply a public water system. Data to demonstrate that the aquifer is expected to be mineral or hydrocarbon production, such as general description of the mining zone, analysis of the amenability of the mining zone to the proposed method, and time table for proposed development must also be included. For additional information on aquifer exemptions, see 40 CFR Sections 144.7 and 146.04.

T. EXISTING EPA PERMITS - List program and permit number of any existing EPA permits, for example, NPDES, PSD, RCRA, etc.

U. DESCRIPTION OF BUSINESS - Give a brief description of the nature of the business.

FINANCIAL RESPONSIBILITY REQUIREMENTS
Plugging and Abandonment Costs

In accordance with 40 CFR Sections 144.52(a) and 146.24(a) for permitted Class II wells or those wells for which a UIC permit is being applied for, and Section 144.28(d), for rule authorized wells, the owner or operator is required to establish and maintain financial resources to plug and abandon the injection facility in a manner prescribed by the Environmental Protection Agency (EPA). The amount of funds required by an owner or operator to satisfy EPA's financial responsibility requirements has been determined as outlined in the following paragraphs and presented in the attached schedule.

For the purpose of establishing the amount of funds necessary to properly plug and abandon an injection facility, the wells are divided into five (5) depth categories depending on whether or not the primary protective string of casing is cemented to surface. Costs developed for each category were determined by breaking operational charges into five (5) phases as follows:

(1) Rig/Pulling Unit - includes hourly rate and associated labor costs.

(2) Cement Services - includes pumping unit, tank truck, and cement costs.

(3) Site Preparation - includes backhoe costs for digging and filling pit, dozer costs for grade work, pit liner, and restoration charges.

(4) Transportation - includes tractor-trailer rates for delivery of tubing/work string to the rig.

(5) Miscellaneous - applies primarily to wells with casing not cemented to surface and includes wire line services, tool rental, bridge plug costs, hydraulic jack costs, etc.

All unit rates and estimated time charges were developed from plugging and abandonment estimates submitted to EPA from operators, job tickets and summaries from plugging and abandonment operations performed by operators to meet UIC requirements, and wells plugged and abandoned by EPA.

The total costs as presented on the attached schedule are based entirely on the premise that EPA will be required to obtain an independent contractor which will be charged with performing all phases of the plugging operation, including subcontracting for services as needed. These costs may from time to time be subject to revision as determined by EPA.

PLUGGING AND ABANDONMENT
COST SCHEDULE

Well Depth*	Cement Top Behind Casing** At Surface	Below Surface
<500'	$2300.00	$3000.00
501' - 1000'	$3000.00	$3900.00
1001' - 1500'	$3700.00	$5000.00
1501' - 2000'	$4800.00	$6500.00
>2000'	$5800.00	$7400.00

* Refers to PBTD

** Primary protective string of casing

I R R E V O C A B L E S T A N D B Y L E T T E R O F C R E D I T

U.S. Environmental Protection Agency
Underground Injection Control
Financial Responsibility Requirement

To: Regional Administrator
Environmental Protection Agency Region _____

_____
(address of EPA Regional Office)

Dear Sir or Madam:

We hereby establish our Irrevocable Standby Letter of Credit No. _____ in your favor, at the request and for the account of

_____
(legal name of owner or operator)

_____
(business address of owner or operator)

up to the aggregate amount of _____
(dollar amount in words)

U.S. dollars ($_____), available upon presentation of:

1. Your sight draft, bearing reference to this letter of credit No. _____, and

2. Your signed statement reading as follows: "I certify that the amount of the draft is payable pursuant to regulations issued under authority of the Safe Drinking Water Act."

This letter of credit is effective as of (date) _____ and shall expire on (date at least 1 year later) _____ but such expiration date shall be automatically extended for a period of (at least one year) _____ on (date) _____ and each successive expiration date, unless, at least 120 days before the current expiration date, we notify both you and (owner's or operator's name)_____ by certified mail that we have

PLEASE PREPARE FINANCIAL FORMS ON FINANCIAL INSTITUTION'S LETTERHEAD AND PROVIDE CONTACT PERSON FOR FINANCIAL INSTITUTION, ADDRESS, AND PHONE NUMBER.

decided not to extend this letter of credit beyond the current expiration date. In the event you are so notified, any unused portion of the credit shall be available upon presentation of your sight draft for 120 days after the date of receipt by both you and (owner's or operator's name)_____, as shown on the signed return receipts.

Whenever this letter of credit is drawn on under and in compliance with the terms of this credit, we shall duly honor such draft upon presentation to us, and we shall deposit the amount of the draft directly into the standby trust fund of (owner's or operator's name) _____ in accordance with your instructions.

_____ _____
(Signature) (Date)

_____ _____
(Name) (Title)

This credit is subject to:

( ) the most recent edition of the Uniform Customs and Practice for Documentary Credits, published by the International Chamber of Commerce,

OR

( ) the Uniform Commercial Code.

AND

( ) the operations of this bank/institution are regulated and examined by a State or Federal Agency.

S T A N D B Y T R U S T A G R E E M E N T

U.S. Environmental Protection Agency
Underground Injection Control
Financial Responsibility Requirement

TRUST AGREEMENT, the "Agreement," entered into as of _____
(date)

by and between _____
(name of owner or operator)

a _____ _____, the
(name of state) (corporation, partnership, association, or proprietorship)

"Grantor," and _____ ( ) incorporated in the State of
(name of corporate trustee)

_____ or ( ) a national bank, the "Trustee."

WHEREAS, the United States Environmental Protection Agency, "EPA," an agency of the United States Government, has established certain regulations applicable to the Grantor, requiring that an owner or operator of an injection well shall provide assurance that funds will be available when needed for plugging and abandonment of the injection well, and

WHEREAS, the Grantor has elected to obtain ( ) a surety bond ( ) a letter of credit and establish a standby trust to provide all or part of such financial assurance for the facility(ies) identified herein, and

WHEREAS, the Grantor, acting through its duly authorized officers, has selected the Trustee to be the trustee under this Agreement, and the Trustee is willing to act as trustee,

NOW, THEREFORE, the Grantor and the Trustee agree as follows:

Section 1. Definitions. As used in this Agreement:

(a) The term "Grantor" means the owner or operator who enters into this Agreement and any successors or assigns of the Grantor.

(b) The term "Trustee" means the Trustee who enters into this Agreement and any successor Trustee.

(c) "Facility" or "activity" means any underground injection well or any other facility or activity that is subject to regulation under the Underground Injection Control Program.

Section 2. Identification of Facilities and Cost Estimates. This Agreement pertains to the facilities and cost estimates identified in Schedule A (attached). (Schedule A lists, for each facility, the EPA identification number, name, address, and the current plugging and abandonment cost estimate, or portions thereof, for which financial assurance is demonstrated.)

Section 3. Establishment of Fund. The Grantor and the Trustee hereby establish a trust fund, the "Fund," for the benefit of EPA. The Grantor and the Trustee intend that no third party have access to the Fund except as herein provided. The Fund is established initially as consisting of the property, which is acceptable to the Trustee, described in Schedule B attached hereto. Such property and any other property subsequently transferred to the Trustee is referred to as the Fund, together with all earnings and profits thereon, less any payments or distributions made by the Trustee pursuant to this Agreement. The Fund shall be held by the Trustee, IN TRUST, as hereinafter provided. The Trustee shall not be responsible nor shall it undertake any responsibility for the amount or adequacy of, nor any duty to collect from the Grantor, any payments necessary to discharge any liabilities of the Grantor established by EPA.

Section 4. Payment for Plugging and Abandonment. The Trustee shall make payments from the Fund as the EPA Regional Administrator shall direct, in writing, to provide for the payment of the costs of plugging and abandonment of the injection wells covered by this Agreement. The Trustee shall reimburse the Grantor or other persons as specified by the EPA Regional Administrator from the Fund for plugging and abandonment expenditures in such amounts as the EPA Regional Administrator shall direct in writing. In addition, the Trustee shall refund to the Grantor such amounts as the EPA Regional Administrator specifies in writing. Upon refund, such funds shall no longer constitute part of the Fund as defined herein.

Section 5. Payments Comprising the Fund. Payments made to the Trustee for the Fund shall consist of cash or securities acceptable to the Trustee.

Section 6. Trustee Management. The Trustee shall invest and reinvest the principal and income of the Fund and keep the Fund invested as a single fund, without distinction between principal and income, in accordance with general investment policies and guidelines which the Grantor may communicate in writing to the Trustee from time to time, subject, however, to the provisions of this Section. In investing, reinvesting, exchanging, selling, and managing the Fund, the Trustee shall discharge his duties with respect to the trust fund solely in the interest of the beneficiary and with the care, skill, prudence, and diligence under the circumstances then prevailing, which persons of prudence, acting in a like capacity and familiar with such matters, would use in the conduct of an enterprise of a like character and with like aims, except that:

(a) Securities or other obligations of the Grantor, or any other owner or operator of the facilities, or any of their affiliates as defined in the Investment Company Act of 1940, as amended, 15 USC 80a-2.(a), shall not be acquired or held, unless they are securities or other obligations of the Federal or a State government;

(b) The Trustee is authorized to invest the Fund in time or demand deposits of the Trustee, to the extent insured by an agency of the Federal or State government; and

(c) The Trustee is authorized to hold cash awaiting investment or distribution uninvested for a reasonable time and without liability for the payment of interest thereon.

Section 7. Commingling and Investment. The Trustee is expressly authorized in its discretion:

(a) To transfer from time to time any or all of the assets of the Fund to any common, commingled, or collective trust fund created by the Trustee in which the Fund is eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other trusts participating therein; and

(b) To purchase shares in any investment company registered under the Investment Company Act of 1940, 15 U.S.C. 80a-1 et seq., including one which may be created, managed, underwritten, or to which investment advice is rendered or the shares of which are sold by the Trustee. The Trustee may vote such shares in its discretion.

Section 8. Express Powers of Trustee. Without in any way limiting the powers and discretions conferred upon the Trustee by the other provisions of this Agreement or by law, the Trustee is expressly authorized and empowered:

(a) To sell, exchange, convey, transfer, or otherwise dispose of any property held by it, by public or private sale. No person dealing with the Trustee shall be bound to see to the application of the purchase money or to inquire into the validity or expediency of any such sale or other disposition;

(b) To make, execute, acknowledge, and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;

(c) To register any securities held in the Fund in its own name or in the name of a nominee and to hold any security in bearer form or in book entry, or to combine certificates representing such securities with certificates of the same issue held by the Trustee in other fiduciary capacities, or to deposit or arrange for the deposit of any securities issued by the United States Government, or any agency or instrumentality thereof, with a Federal Reserve bank, but the books and records of the Trustee shall at all times show that all such securities are part of the Fund;

(d) To deposit any cash in the Fund in interest-bearing accounts maintained or savings certificates issued by the Trustee, in its separate corporate capacity, or in any other banking institution affiliated with the Trustee, to the extent insured by an agency of the Federal or State government; and

(e) To compromise or otherwise adjust all claims in favor of or against the Fund.

Section 9. Taxes and Expenses. All taxes of any kind that may be assessed or levied against or in respect of the Fund and all brokerage commissions incurred by the Fund shall be paid from the Fund. All other expenses incurred by the Trustee in connection with the administration of this Trust, including fees for legal services rendered to the Trustee, the compensation of the Trustee to the extent not paid directly by the Grantor, and all other proper charges and disbursements of the Trustee, shall be paid from the Fund.

Section 10. Annual Valuation. Commencing after initial funding of the trust, the Trustee shall annually, at least 30 days prior to the anniversary date of establishment of the Fund, furnish to the Grantor and to the appropriate EPA Regional Administrator a statement confirming the value of the Trust. Any securities in the Fund shall be valued at the market value as of no more than 60 days prior to the anniversary date of establishment of the Fund. The failure of the Grantor to object in writing to the Trustee within 90 days after the statement has been furnished to the Grantor and the EPA Regional Administrator shall constitute a conclusively binding assent by the Grantor, barring the Grantor from asserting any claim or liability against the Trustee with respect to matters disclosed in the statement.

Section 11. Advice of Counsel. The Trustee may from time to time consult with counsel, who may be counsel to the Grantor, with respect to any question arising as to the construction of this Agreement or any action to be taken hereunder. The Trustee shall be fully protected, to the extent permitted by law, in acting upon the advice of counsel.

Section 12. Trustee Compensation. The Trustee shall be entitled to reasonable compensation for its services as agreed upon in writing from time to time with the Grantor.

Section 13. Successor Trustee. The Trustee may resign or the Grantor may replace the Trustee, but such resignation or replacement shall not be effective until the Grantor has appointed a successor trustee and this successor accepts the appointment. The successor trustee shall have the same powers and duties as those conferred upon the Trustee hereunder. Upon the successor trustee's acceptance of the appointment, the Trustee shall assign, transfer, and pay over to the successor trustee the funds and properties then constituting the Fund. If for any reason the Grantor cannot or does not act in the event of the resignation of the Trustee, the Trustee may apply to a court of competent jurisdiction for the appointment of a successor trustee or for instructions. The successor trustee shall specify the date on which it assumes administration of the trust in a writing sent to the Grantor, the EPA Regional Administrator, and the present Trustee by certified mail 10 days before such change becomes effective. Any expenses incurred by the Trustee as a result of any of the acts contemplated by this Section shall be paid as provided in Section 9.

Section 14. Instructions to the Trustee. All orders, requests, and instruction by the Grantor to the Trustee shall be in writing, signed by such persons as are designated in the attached Exhibit A, or such other designees as the Grantor may designate by amendment to Exhibit A. The Trustee shall be fully protected in acting without inquiry in accordance with the Grantor's orders, requests, and instructions. All orders, requests, and instructions by the EPA Regional Administrator to the Trustee shall be in writing, signed by the EPA Regional Administrators of the Regions in which the facilities are located, or their designees, and the Trustee shall act and shall be fully protected in acting in accordance with such orders, requests, and instructions. The Trustee shall have the right to assume, in the absence of written notice to the contrary, that no event constituting a change or a termination of the authority of any person to act on behalf of the Grantor or EPA hereunder has occurred. The Trustee shall have no duty to act in the absence of such orders, requests, and instructions from the Grantor and/or EPA, except as provided for herein.

Section 15. Amendment of Agreement. This Agreement may be amended by an instrument in writing executed by the Grantor, the Trustee, and the appropriate EPA Regional Administrator, or by the Trustee and the appropriate EPA Regional Administrator if the Grantor ceases to exist.

Section 16. Irrevocability and Termination. Subject to the right of the parties to amend this Agreement as provided in Section 15, this Trust shall be irrevocable and shall continue until terminated at the written agreement of the Grantor, the Trustee, and the EPA Regional Administrator, or by the Trustee and the EPA Regional Administrator if the Grantor ceases to exist. Upon termination of the Trust, all remaining trust property, less final trust administration expenses, shall be delivered to the Grantor.

Section 17. Immunity and Indemnification. The Trustee shall not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of this Trust, or in carrying out any directions by the Grantor or the EPA Regional Administrator issued in accordance with this Agreement. The Trustee shall be indemnified and saved harmless by the Grantor or by the Trust Fund, or both, from and against any personal liability to which the Trustee may be subjected by reason of any act or conduct in its official capacity, including all expenses reasonably incurred in its defense in the event the Grantor fails to provide such defense.

Section 18. Choice of Law. This Agreement shall be administered, construed, and enforced according to the laws of the State of _____.
(name of state)

Section 19. Interpretation. As used in this Agreement, words in singular include the plural and words in the plural include the singular. The descriptive headings for each Section of this Agreement shall not affect interpretation or the legal efficacy of this Agreement.

IN WITNESS WHEREOF, the parties below have caused this Agreement to be executed by their respective officers duly authorized and the corporate seals to be hereunto affixed and attested as of the date first above written.

By: _____
(Signature of Grantor)

_____
(Title)

Attest: _____

_____
(Title)

(SEAL)

By: _____
(Signature of Grantor)

_____
(Title)

Attest: _____

_____
(Title)

(SEAL)

( ) This bank/institution has the authority to act as a trust and its trust activities are examined and regulated by a State or Federal agency.

CERTIFICATE OF ACKNOWLEDGMENT
FOR
STANDBY TRUST FUND AGREEMENT

STATE OF _____

COUNTY OF _____

On this _____ day of _____ , 19___ , before me

personally came _____ to me known, who,
(owner or operator)

being by me duly sworn, did depose and say that she/he resides at

_____
(address)

that she/he is _____ of _____
(title) (corporation)

the corporation described in and which executed the above instrument; that she/he knows the seal of said corporation; that the seal affixed to such instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation, and that she/he signed her/his name thereto by like order.

_____
(Notary Public)

(Seal)

S C H E D U L E A

Identification of Facilities and Cost Estimates

Schedule A is referenced in the trust agreement dated _____

by and between _____, the "Grantor," and
(name of owner or operator)

_____ the "Trustee."
(name of trustee)

EPA identification number _____

Name of facility _____

Address of facility _____

_____

Current plugging and
abandonment cost estimate _____

Date of estimate _____

EPA identification number _____

Name of facility _____

Address of facility _____

_____

Current plugging and
abandonment cost estimate _____

Date of estimate _____

SCHEDULE B

IDENTIFICATION OF FUND

Schedule B is referenced in the Standby Trust Agreement dated _____

by and between _____
(name of owner or operator)

the "Grantor" and _____
(name of trustee)

the "Trustee."

The Fund consists of: (check one and provide identification number)

( ) Irrevocable Letter of Credit No. _____

( ) Surety Performance Bond No. _____

( ) Other (describe)

T R U S T A G R E E M E N T

U.S. Environmental Protection Agency
Underground Injection Control
Financial Responsibility Requirement

TRUST AGREEMENT, the "Agreement," entered into as of _____
(date)
by and between _____,
(name of owner or operator)

a _____ _____,the "Grantor"
(name of state) (corporation, partnership association, or proprietorship)

and _____, ( ) incorporated in the
(name of corporate trustee)

State of _____ or ( ) a national bank, the "Trustee."

WHEREAS, the United States Environmental Protection Agency, "EPA" an agency of the United States Government, has established certain regulations applicable to the Grantor, requiring that an owner or operator of an injection well shall provide assurance that funds will be available when needed for plugging and abandonment of the injection well,

WHEREAS, the Grantor has elected to establish a trust to provide all or part of such financial assurance for the facility(ies) identified herein, and

WHEREAS, the Grantor, acting through its duly authorized officers, has selected the Trustee to be the trustee under this Agreement, and the Trustee is willing to act as trustee,

NOW, THEREFORE, the Grantor and the Trustee agree as follows:

Section 1. Definitions. As used in this Agreement:

(a) The term "Grantor" means the owner or operator who enters into this Agreement and any successors or assigns of the Grantor.

(b) The term "Trustee" means the Trustee who enters into this Agreement and any successor Trustee.

(c) "Facility" or "activity" means any underground injection well or any facility or activity that is subject to regulation under the Underground Injection Control Program.

Section 2. Identification of Facilities and Cost Estimates. This Agreement pertains to the facilities and cost estimates identified in Schedule A (attached). (Schedule A lists, for each facility, the EPA identification number, name, address, and the current plugging and abandonment cost estimate, or portions thereof, for which financial assurance is demonstrated.)

Section 3. Establishment of Fund. The Grantor and the Trustee hereby establish a trust fund, the "Fund" for the benefit of EPA. The Grantor and the Trustee intend that no third party have access to the Fund except as herein provided. The fund is established initially as consisting of the property, which is acceptable to the Trustee, described in Schedule B attached hereto. Such property and any other property subsequently transferred to the Trustee is referred to as the Fund, together with all earnings and profits thereon, less any payments or distributions made by the Trustee pursuant to this Agreement. The Fund shall be held by the Trustee, IN TRUST, as hereinafter provided. The Trustee shall not be responsible nor shall it undertake any responsibility for the amount or adequacy of, nor any duty to collect from the Grantor, any payments necessary to discharge any liabilities of the Grantor established by EPA.

Section 4. Payment for Plugging and Abandonment. The Trustee shall make payments from the Fund as the EPA Regional Administrator shall direct, in writing, to provide for the payment of the costs of plugging and abandonment of the injection wells covered by this Agreement. The Trustee shall reimburse the Grantor or other persons as specified by the EPA Regional Administrator from the Fund for plugging and abandonment expenditures in such amounts as the EPA Regional Administrator shall direct in writing. In addition, the Trustee shall refund to the Grantor such amounts as the EPA Regional Administrator specifies in writing. Upon refund, such funds shall no longer constitute part of the Fund as defined herein.

Section 5. Payments Comprising the Fund. Payments made to the Trustee for the Fund shall consist of cash or securities acceptable to the Trustee.

Section 6. Trustee Management. The Trustee shall invest and reinvest the principal and income of the Fund and keep the Fund invested as a single fund, without distinction between principal and income, in accordance with general investment policies and guidelines which the Grantor may communicate in writing to the Trustee from time to time,, subject, however, to the provisions of this Section. In investing, reinvesting, exchanging, selling, and managing the Fund, the Trustee shall discharge his duties with respect to the trust fund solely in the interest of the beneficiary and with the care, skill, prudence, and diligence under the circumstances then prevailing, which persons

of prudence, acting in a like capacity and familiar with such matters, would use in the conduct of an enterprise of a like character and with like aims, except that:

(i) Securities or other obligations of the Grantor, or any other owner or operator of the facilities, or any of their affiliates as defined in the Investment Company Act of 1940, as amended, 15 USC 80a-2.(a), shall not be acquired or held, unless they are securities or other obligations of the Federal or a State government;

(ii) The Trustee is authorized to invest the Fund in time or demand deposits of the Trustee, to the extent insured by an agency of the Federal or State government; and

(iii) The Trustee is authorized to hold cash awaiting investment or distribution uninvested for a reasonable time and without liability for the payment of interest thereon.

Section 7. Commingling and Investment. The Trustee is expressly authorized in its discretion:

(a) To transfer from time to time any or all of the assets of the Fund to any common, commingled, or collective trust fund created by the Trustee in which the Fund is eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other trusts participating therein; and

(b) To purchase shares in any investment company registered under the Investment Company Act of 1940, 15 U.S.C. 80a-1 et seq., including one which may be created, managed, underwritten, or to which investment advice is rendered or the shares of which are sold by the Trustee. The Trustee may vote such shares in its discretion.

Section 8. Express Powers of Trustees. Without in any way limiting the powers and discretions conferred upon the Trustee by the other provisions of this Agreement or by law, the Trustee is expressly authorized and empowered:

(a) To sell, exchange, convey, transfer, or otherwise dispose of any property held by it, by public or private sale. No person dealing with the Trustee shall be bound to see to the application of the purchase money or to inquire into the validity or expediency of any such sale or other disposition;

(b) To make, execute, acknowledge, and deliver any and all documents of transfer and conveyance and any all other instruments that may be necessary or appropriate to carry out the powers herein granted;

(c) To register any securities held in the Fund in its own name or in the name of a nominee and to hold any security in bearer form or in book entry,

or to combine certificates representing such securities with certificates of the same issue held by the Trustee in other fiduciary capacities, or to deposit or arrange for the deposit of any securities issued by the United States Government, or any agency or instrumentality thereof, with a Federal Reserve bank, but the books and records of the Trustee shall at all times show that all such securities are part of the Fund;

(d) To deposit any cash in the Fund in interest-bearing accounts maintained or savings certificates issued by the Trustee, in its separate corporate capacity, or in any other banking institution affiliated with the Trustee, to the extent insured by an agency of the Federal or State government; and

(e) To compromise or otherwise adjust all claims in favor of or against the Fund.

Section 9. Taxes and Expenses. All taxes of any kind that may be assessed or levied against or in respect of the Fund and all brokerage commissions incurred by the Fund shall be paid from the Fund. All other expenses incurred by the Trustee in connection with the administration of this Trust, including fees for legal services rendered to the Trustee, the compensation of the Trustee to the extent not paid directly by the Grantor, and all other proper charges and disbursements of the Trustee, shall be paid from the Fund.

Section 10. Annual Valuation. The Trustee shall annually, at least 30 days prior to the anniversary date of establishment of the Fund, furnish to the Grantor and to the appropriate EPA Regional Administrator a statement confirming the value of the Trust. Any securities in the Fund shall be valued at the market value as of no more than 60 days prior to the anniversary date of establishment of the Fund. The failure of the Grantor to object in writing to the Trustee within 90 days after the statement has been furnished to the Grantor and the EPA Regional Administrator shall constitute a conclusively binding assent by the Grantor, barring the Grantor from asserting any claim or liability against the Trustee with respect to matters disclosed in the statement.

Section 11. Advice of Counsel. The Trustee may from time to time consult with counsel, who may be counsel to the Grantor, with respect to any questions arising as to the construction of this Agreement or any action to be taken hereunder. The Trustee shall be fully protected, to the extent permitted by law, in acting upon the advice of counsel.

Section 12. Trustee Compensation. The Trustee shall be entitled to reasonable compensation for its services as agreed upon in writing from time to time with the Grantor.

Section 13. Successor Trustee. The Trustee may resign or the Grantor may replace the Trustee, but such resignation or replacement shall not be effective until the Grantor has appointed a successor trustee and this successor accepts the appointment. The successor trustee shall have the same powers and duties as those conferred upon the Trustee hereunder. Upon the successor trustee's acceptance of the appointment, the Trustee shall assign, transfer, and pay over to the successor trustee the funds and properties then constituting the Fund. If for any reason the Grantor cannot or does not act in the event of the resignation of the Trustee, the Trustee may apply to a court of competent jurisdiction for the appointment of a successor trustee or for instructions. The successor trustee shall specify the date on which it assumes administration of the trust in a writing sent to the Grantor, the EPA Regional Administrator, and the present Trustee by certified mail 10 days before such change becomes effective. Any expenses incurred by the Trustee as a result of any of the acts contemplated by this Section shall be paid as provided in Section 9.

Section 14. Instructions to the Trustee. All orders, requests, and instruction by the Grantor to the Trustee shall be in writing, signed by such persons as are designated in the attached Exhibit A, or such other designees as the Grantor may designate by amendment to Exhibit A. The Trustee shall be fully protected in acting without inquiry in accordance with the Grantor's orders, requests, and instructions. All orders, requests, and instructions by the EPA Regional Administrator to the Trustee shall be in writing, signed by the EPA Regional Administrators of the Regions in which the facilities are located, or their designees, and the Trustee shall act and shall be fully protected in acting in accordance with such orders, requests, and instructions. The Trustee shall have the right to assume, in the absence of written notice to the contrary, that no event constituting a change or a termination of the authority of any person to act on behalf of the Grantor or EPA hereunder has occurred. The Trustee shall have no duty to act in the absence of such orders, requests, and instructions from the Grantor and/or EPA, except as provided for herein.

Section 15. Notice of Nonpayment. The Trustee shall notify the Grantor and the appropriate EPA Regional Administrator, by certified mail within 10 days following the expiration of the 30-day period after the anniversary of the establishment of the Trust, if no payment is received from the Grantor during that period. After the pay-in period is completed, the Trustee shall not be required to send a notice of nonpayment.

Section 16. Amendment of Agreement. This Agreement may be amended by an instrument in writing executed by the Grantor, the Trustee, and the appropriate EPA Regional Administrator, or by the Trustee and the appropriate EPA Regional Administrator if the Grantor ceases to exist.

Section 17. Irrevocability and Termination. Subject to the right of the parties to amend this Agreement as provided in Section 16, this Trust shall be irrevocable and shall continue until terminated at the written agreement of the Grantor, the Trustee, and the EPA Regional Administrator, or by the Trustee and the EPA Regional Administrator if the Grantor ceases to exist. Upon termination of the Trust, all remaining trust property, less final trust administration expenses, shall be delivered to the Grantor.

Section 18. Immunity and Indemnification. The Trustee shall not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of this Trust, or in carrying out any directions by the Grantor or the EPA Regional Administrator issued in accordance with this Agreement. The Trustee shall be indemnified and saved harmless by the Grantor or by the Trust Fund, or both, from and against any personal liability to which the Trustee may be subjected by reason of any act or conduct in its official capacity, including all expenses reasonably incurred in its defense in the event the Grantor fails to provide such defense.

Section 19. Choice of Law. This Agreement shall be administered, construed, and enforced according to the laws of the State of _____.
(name of state)

Section 20. Interpretation. As used in this Agreement, words in the singular include the plural and words in the plural include the singular. The descriptive headings for each Section of this Agreement shall not affect the interpretation or the legal efficacy of this Agreement.

CERTIFICATE OF ACKNOWLEDGMENT
FOR
TRUST FUND AGREEMENT

STATE OF _____

COUNTY OF_____

On this _____ day of _____, 19___, before me

personally came _____ to me known, who,
(owner or operator)

being by me duly sworn, did depose and say that she/he resides

at _____,
(address)

that she/he is _____ of
(title)

_____, the corporation
(corporation)

described in and which executed the above instrument; that she/he knows the seal of said corporation; that the seal affixed to such instrument in such corporate seal; that it was so affixed by order of the Board of Directors of said corporation, and that she/he signed her/his name thereto by like order.

_____
(Notary Public)

(Seal)

IN WITNESS WHEREOF, the parties below have caused this Agreement to be executed by their respective officers duly authorized and the corporate seals to be hereunto affixed and attested as of the date first above written.

By: _____
(Signature of Grantor)

_____
(Title)

Attest: _____

_____
(Title)

(SEAL)

By: _____
(Signature of Trustee)

_____
(Title)

Attest: _____

_____
(Title)

(SEAL)

( ) This bank/institution has the authority to act as a trustee and its trust activities are examined and regulated by a State or Federal agency.

S C H E D U L E A

Identification of Facilities and Cost Estimates

Schedule A is referenced in the trust agreement dated _____

by and between _____,
(name of owner or operator)

the "Grantor" and _____
(name of trustee)

the "Trustee."

EPA identification number _____

Name of facility _____

Address of facility _____

_____

Current plugging and
abandonment cost estimate _____

Date of estimate _____

EPA identification number _____

Name of facility _____

Address of facility _____

_____

Current plugging and
abandonment cost estimate _____

Date of estimate _____

SCHEDULE B

IDENTIFICATION OF FUND

Schedule B is referenced in the Trust Agreement dated _____

by and between _____
(name of owner or operator)

the "Grantor" and _____
(name of trustee)

the "Trustee."

The Fund consists of: (check one and provide identification number)

( ) Irrevocable Letter of Credit No. _____

( ) Surety Performance Bond No._____

( ) Other (describe)_____

S U R E T Y P E R F O R M A N C E B O N D

U.S. Environmental Protection Agency
Underground Injection Control
Financial Responsibility Requirement

BOND COVERS THE PLUGGING OF INJECTION WELLS

Date bond executed: _____

Effective date: _____

Principal: _____
(Legal name of owner or operator)

_____
(Business address of owner or operator)

Type of organization: _____
(Individual, joint venture, partnership, or corporation)

State of incorporation: _____

Surety(ies): _____
(Name)

_____
(Business Address)

EPA identification number, name, address, and plugging and abandonment amount(s) for each injection well guaranteed by this bond. (Indicate plugging and abandonment amounts for each well. Attach separate list if necessary.)

Injection Well Information	Plugging & Abandonment Amount

Total penal sum of bond: $_____

Surety's bond number: _____

KNOW ALL PERSONS BY THESE PRESENTS, That we, the Principal and Surety(ies) hereto are firmly bound to the U.S. Environmental Protection Agency (hereinafter called EPA), in the above penal sum for the payment of which we bind ourselves, our heirs, executors, administrators, successors, and assigns jointly and severally; provided that, where the Surety(ies) are corporations acting as co-sureties, we, the Sureties, bind ourselves in such sum "jointly and severally" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, for the payment of such sum only as is set forth opposite the name of such Surety, but if no limit of liability is indicated, the limit of liability shall be the full amount of the penal sum.

WHEREAS said Principal is required, under the Underground Injection Control Regulations, as amended, to have a permit or comply with provisions to operate under rule for each injection well identified above, and

WHEREAS said Principal is required to provide financial assurance for plugging and abandonment as a condition of the permit or approval to operate under rule, and

WHEREAS said Principal shall establish a standby trust fund as is required when a surety bond is used to provide such financial assurance;

NOW, THEREFORE, the conditions of this obligation are such that if the Principal shall faithfully perform plugging and abandonment, whenever required to do so, of each injection well for which this bond guarantees plugging and abandonment, in accordance with the plugging and abandonment plan and other requirements of the permit or provisions for operating under rule and other requirements of the permit or provisions for operating under rule as may be amended, pursuant to all applicable laws, statutes, rules and regulations, as such laws, statutes, rules, and regulations may be amended,

Or, if the Principal shall provide alternate financial assurance as specified in Subpart F of 40 CFR 144, and obtain the EPA Regional Administrator's written approval of such assurance, within 90 days after the date of notice of cancellation is received by both the Principal and the EPA Regional Administrator(s) from the Surety(ies), then this obligation shall be null and void. Otherwise it is to remain in full force and effect.

The Surety(ies) shall become liable on this bond obligation only when the Principal has failed to fulfill the conditions described above.

Upon notification by an EPA Regional Administrator that the Principal has been found in violation of the plugging and abandonment requirements of 40 CFR 144, for an injection well which this bond guarantees performances of plugging and abandonment, the Surety(ies) shall either perform plugging and abandonment in accordance with the plugging and abandonment plan and other permit requirements or provisions for operating under rule and other requirements or place the amount for plugging and abandonment into standby trust fund as directed by the EPA Regional Administrator.

Upon notification by an EPA Regional Administrator that the Principal has failed to provide alternate financial assurance as specified in Subpart F of 40 CFR 144, and obtain written approval of such assurance from the EPA Regional Administrator(s) during the 90 days following receipt by both the Principal and the EPA Regional Administrator(s) of a notice of cancellation of the bond, the Surety(ies) shall place funds in the amount guaranteed for the injection well(s) into the standby trust fund as directed by the EPA Regional Administrator.

The Surety(ies) hereby waive(s) notification of amendments to plugging and abandonment plans, permits, applicable laws, statutes, rules, and regulations and agrees that no such amendment shall in any way alleviate its (their) obligation on this bond.

The liability of the Surety(ies) shall not be discharged by any payment or succession of payments hereunder, unless and until such payment or payments shall amount in the aggregate to the penal sum of the bond, but in no event shall the obligation of the Surety(ies) here under exceed the amount of said penal sum.

The Surety(ies) may cancel the bond by sending notice by certified mail to the owner or operator and to the EPA Regional Administrator(s) for the Region(s) in which the injection well(s) is (are) located, provided, however, that cancellation shall not occur during the 120 days beginning on the date of receipt of the notice of cancellation by both the Principal and the EPA Regional Administrator(s), as evidenced by the return receipts.

The Principal may terminate this bond by sending written notice to the Surety(ies); provided, however, that no such notice shall become effective until the Surety(ies) receive(s) written authorization for termination of the bond by the EPA Regional Administrator(s) of the EPA Region(s) in which the bonded injection well(s) is (are) located.

(The following paragraph is an optional rider that may be included but is not required.)

Principal and Surety(ies) hereby agree to adjust the penal sum of the bond yearly so that it guarantees a new plugging and abandonment amount, provided that the penal sum does not increase by more than 20% in any one year, and no decrease in the penal sum takes place without the written permission of the EPA Regional Administrator(s).

In WITNESS WHEREOF, The Principal and Surety(ies) have executed this Performance Bond and have affixed their seals on the date set forth above.

The persons whose signature appear below hereby certify that they are authorized to execute this surety bond on behalf of the Principal and Surety(ies) and that the wording on this surety bond is identical to the wording specified in 40 CFR 144.70(c) as such regulation was constituted on the date this bond was executed.

PRINCIPAL:	CORPORATE SURETY(IES):
_____ (Name)	_____ (Name)
_____ (Address)	_____ (Address)
_____ (Signature(s))	_____ (Signature(s))
_____ (Name(s))	_____ (Name(s))
_____ (Title(s))	_____ (Title(s))
Corporate Seal	Corporate Seal
_____ State of Incorporation	_____ State of Incorporation
$_____ Bond Premium	$ _____ Liability Limit

(For every co-surety, provide signature(s), corporate seal, and other information in the same manner as for Surety above.)

C H I E F F I N A N C I A L O F F I C E R ' S L E T T E R

U.S. Environmental Protection Agency
Underground Injection Control
Class II Injection Well Operators

This letter contains information submitted as evidence of financial responsibility for the Environmental Protection Agency's underground injection control requirements.

Submitted to: Regional Administrator
Environmental Protection Agency, Region _____

_____
(Address of EPA Regional Office)

Submitted for: _____
(Legal name of owner or operator company)

_____
(Business address of owner or operator)

Type of organization: _____
(Individual, joint venture, partnership, or corporation)

Date of incorporation: _____

State of incorporation: _____

Submitted by: _____
(Name of Chief Financial Officer)

_____
(Name of Firm)

_____
(Business Address)

I hereby certify that the financial information contained on the following pages is correct and derived from this firm's independently audited, year-end financial statements for the latest completed fiscal year ended _____.

_____ _____
(Signature of Financial Officer) (Date)

I. (Firm name) _____ is the owner or operator of Class II injection wells in the following states within EPA Region _____:

State names:_____

_____

_____

_____

_____

II. This firm guarantees the plugging and abandonment of injection wells owned or operated by the following subsidiaries:

Subsidiary name:	Subsidiary address:
_____	_____
_____	_____
_____	_____
_____	_____

III. This firm is ( ) required ( ) not required to file a Form 10-K with the Securities and Exchange Commission (SEC) for the latest fiscal year.

IV. The fiscal year of this firm ends on (month/day)_____.The financial information contained in this letter is derived from this firm's independently audited, year-end financial statements prepared in the normal course of business for the latest completed fiscal year ended (date)_____.

The name and address of the accounting firm auditing these financial statements:

_____	_____
(Name of auditing firm)	(Address of auditing firm)

V. The dollar amounts below are stated in ( ) actual ( ) thousands of dollars.

Financial Information

Balance Sheet Information:

1. Current Assets _____

2. Total Assets _____

3. Current Liabilities _____

4. Total Liabilities _____

5. Net Worth or Stockholder's Equity _____

Income Statement Information

6. Depreciation, Depletion, and Amortization _____

7. Net Income _____

Calculations

8. Total Liabilities less Current Liabilities _____
(Item 4 - Item 3)

9. Depreciation, Depletion, and Amortization plus _____
Net Income (Item 6 + Item 7)

10. Current Assets less Current Liabilities _____
(Item 1 - Item 3;
indicate negative numbers with parentheses

11. Current Liabilities divided by Net Worth _____
(Item 3 / Item 5;
round to two decimal places)

12. Total Liabilities less Current Liabilities, all _____
divided by Net Worth
(Item 8 / Item 5;
round to two decimal places)

13. Depreciation, Depletion, and Amortization plus _____
Net income, all divided by Total Liabilities
(Item 9 / Item 4; round to three decimal places)

14. Current Assets less Current Liabilities, all _____
divided by Total Assets (Item 10 / Item 2;
round to two decimal places, indicate negative
numbers with parentheses)

VI. Based on the information in Part V, the company meets or does not meet the financial ratio requirements, as indicated.

	Yes	No
1. Current Liabilities / Net Worth less than 1.0 (Item V-11 less than 1.0)	_____	_____
2. Long-Term Liabilities / Net Worth less than 2.0 (Item V-12 less than 2.0)	_____	_____
3. Net Income greater than zero. (Item V-7 greater than 0)	_____	_____
4. Net Income + depreciation, depletion and amortization total / total liabilities greater than 0.10 (Item V-13 is greater than 0.10)	_____	_____
5. Working Capital / Total Assets greater than -0.10 (Item 14 greater than -0.10)	_____	_____

VII. This firm ( ) has ( ) has not received a rating by either Standard and Poor's or Moody's.

The current bond rating of most recent issuance of this firm _____

The name of the rating service _____

The date of issuance of bond _____

The name of maturity of bond _____

	Yes	No	Not Available
VIII. This firm's bond rating by Standard and Poor's is AAA, AA, A or BBB	_____	_____	_____
This firm's bond rating by Moody's is Aaa, A, or Baa	_____	_____	_____

A U D I T O R ' S V E R I F I C A T I O N O F
C H I E F F I N A N C I A L O F F I C E R ' S L E T T E R

This letter is verification of the financial information and calculations in the chief financial officer's letter submitted to the Environmental Protection Agency.

Submitted to: The Regional Administrator
Environmental Protection Agency, Region _____

_____
(Address of EPA Regional Office)

We have examined the financial officer's letter submitted by

_____ to the
(legal name of owner or operating company)

Environmental Protection Agency, dated _____.

The financial information corresponds to the data contained in the firm's audited financial statements for the fiscal year ending _____. As a result of our examination, we verify that the financial information and calculations contained in this letter are correct and accurate.

_____
(Name of accounting firm)

_____
(Business address)

_____ _____
(Signature) (Date)

_____ _____
(Name) (Title)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

EPA

COMPLETION REPORT FOR BRINE DISPOSAL, HYDROCARBON STORAGE, OR ENHANCED RECOVERY WELL

Form Approved
OMB No. 2040-0042
Approval Expires 6-30-98

NAME AND ADDRESS OF EXISTING PERMITTEE

NAME AND ADDRESS OF SURFACE OWNER

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES

N
W E
S

STATE | COUNTY | PERMIT NUMBER

SURFACE LOCATION DESCRIPTION
___ 1/4 of ___ 1/4 of ___ 1/4 of ___ 1/4 of Section___ Township___ Range___

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface Location ____ ft. from (N/S) ____ Line of quarter section

and ____ ft. from (E/W) ____ Line of quarter section

WELL ACTIVITY
- ☐ Brine Disposal
- ☐ Enhanced Recovery
- ☐ Hydrocarbon Storage

TYPE OF PERMIT
- ☐ Individual
- ☐ Area
- Number of Wells ____

Estimated Fracture Pressure of Injection Zone

Anticipated Daily Injection Volume (Bbls)		Injection Interval	
Average	Maximum	Feet	to Feet
Anticipated Daily Injection Pressure (PSI)		Depth to Bottom of Lowermost Freshwater Formation (Feet)	
Average	Maximum		

Type of Injection Fluid *(Check the appropriate block(s))*
- ☐ Salt Water
- ☐ Brackish Water
- ☐ Fresh Water
- ☐ Liquid Hydrocarbon
- ☐ Other

Lease Name | Well Number

Name of Injection Zone

Date Drilling Began | Date Well Completed

Permeability of Injection Zone

Date Drilling Completed

Porosity of Injection Zone

CASING AND TUBING			CEMENT		HOLE	
OD Size	Wt/Ft — Grade — New or Used	Depth	Sacks	Class	Depth	Bit Diameter

INJECTION ZONE STIMULATION		WIRE LINE LOGS, LIST EACH TYPE	
Interval Treated	Materials and Amount Used	Log Types	Logged Intervals

Complete Attachments A — E listed on the reverse.

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE *(Please type or print)* | | DATE SIGNED

EPA Form 7520-10

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF MINES AND MINERALS
DIVISION OF OIL AND GAS
PO BOX 2244
FRANKFORT, KY 40601
PHONE 502 573-0147

CERTIFICATE OF COMPLETION FOR AN INJECTION WELL

1) Permit No. _____(A copy of well location plat must be attached)
2) Operator (name and address) _____
3) Lease Name _____ Well No. _____
4) Carter Coordinate _____fnl/fsl _____fwl/fel sec_____ letter _____ no. _____
5) County _____ Elevation _____ Total Depth _____
6) The casing program for the above identified well is as follows:

Casing Size	New or Used	No. Sacks Cement	Cement Column - Top to Bottom
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

7) Injection shall be accomplished through tubing and packer as described below.

Size of Tubing	Type of Packer	Packer Depth
_____	_____	_____
_____	_____	_____
_____	_____	_____

8) Was cement bond log run? YES / NO If yes, attach one copy.
9) Maximum anticipated injection pressure at well head _____ psi.
10) Maximum anticipated injection volume _____(bbls) (cu.ft.) per day.
11) The injection zone is known as the (geological name) _____, and this formation occurs in this well from _____ to _____.
12) a. The _____ size casing has been cemented to a depth of _____ and the perforated interval is from _____ to _____ with _____ number of perforations.
    b. The injection interval is through an open hole and porous strata below the injection interval has not been drilled or is plugged back with a column of cement from _____ to _____.
13) Describe in detail the monitoring method for the annulus between the injection tubing and the next string of casing. Identify the type of instrument to be used and the time interval between observations by a responsible party. Records of monitoring must be kept on file by the operator and available to the Division of Oil and Gas Conservation upon request. (Use additional pages if needed.)

14) I, the operator of the above identified well, certify that the above information is accurate and correct and I further certify that I have run the following mechanical integrity test(s) of the installation to insure there are no leaks in the system. (Describe each test fully) (Use additional pages if needed) (Test Pressures must exceed the maximum anticipated injection pressure listed on line 9 by at least 100 psi)

Certified by _____ (operator's signature only)
date _____ name of signee _____

FORM ED-23

Form Approved. OMB No 2040-0042 Approval Expires 6-30-98

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

EPA

PLUGGING AND ABANDONMENT PLAN

NAME AND ADDRESS OF FACILITY	NAME AND ADDRESS OF OWNER/OPERATOR

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES

N
W E
S

STATE	COUNTY	PERMIT NUMBER

SURFACE LOCATION DESCRIPTION
___ 1/4 of ___ 1/4 of ___ 1/4 of ___ 1/4 of Section___ Township___ Range___

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface Location _____ ft. from (N/S) _____ Line of quarter section

and _____ ft. from (E/W) _____ Line of quarter section

TYPE OF AUTHORIZATION

- ☐ Individual Permit
- ☐ Area Permit
- ☐ Rule

Number of Wells _____

Lease Name

WELL ACTIVITY

- ☐ CLASS I
- ☐ CLASS II
  - ☐ Brine Disposal
  - ☐ Enhanced Recovery
  - ☐ Hydrocarbon Storage
- ☐ CLASS III

Well Number

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT(LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE

METHOD OF EMPLACEMENT OF CEMENT PLUGS

- ☐ The Balance Method
- ☐ The Dump Bailer Method
- ☐ The Two-Plug Method
- ☐ Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inches)							
Depth to Bottom of Tubing or Drill Pipe (ft.)							
Sacks of Cement To Be Used (each plug)							
Slurry Volume To Be Pumped (cu. ft.)							
Calculated Top of Plug (ft.)							
Measured Top of Plug (if tagged ft.)							
Slurry Wt. (Lb./Gal.)							
Type Cement or Other Material (Class III)							

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED *(If any)*

From	To	From	To

Estimated Cost to Plug Wells

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

NAME AND OFFICIAL TITLE *(Please type or print)*	SIGNATURE	DATE SIGNED

EPA Form 7520-14

Form Approved OMB No. 2040-0042 Expires 6-30-98

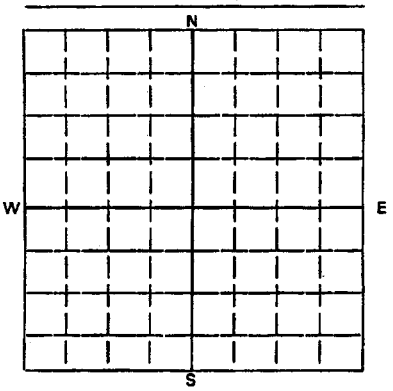
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

EPA

APPLICATION TO TRANSFER PERMIT

NAME AND ADDRESS OF EXISTING PERMITTEE	NAME AND ADDRESS OF SURFACE OWNER

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES



STATE	COUNTY	PERMIT NUMBER

SURFACE LOCATION DESCRIPTION

¼ OF ¼ OF ¼ SECTION TOWNSHIP RANGE

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface Location _____ ft. from (N/S) _____ Line of quarter section

and _____ ft. from (E/W) _____ Line of quarter section

WELL ACTIVITY	WELL STATUS	TYPE OF PERMIT
☐ Class I	☐ Operating	☐ Individual
☐ Class II	☐ Modification/Conversion	☐ Area
☐ Brine Disposal	☐ Proposed	Number of Wells _____
☐ Enhanced Recovery		
☐ Hydrocarbon Storage		
☐ Class III		
☐ Other		

Lease Number Well Number

NAME(S) AND ADDRESS(ES) OF NEW OWNER(S)	NAME AND ADDRESS OF NEW OPERATOR

Attach to this application a written agreement between the existing and new permittee containing a specific date for transfer of permit responsibility, coverage, and liability between them.

The new permittee must show evidence of financial responsibility by the submission of surety bond, or other adequate assurance, such as financial statements or other materials acceptable to the director.

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

NAME AND OFFICIAL TITLE *(Please type or print)*	SIGNATURE	DATE SIGNED

EPA Form 7520-7 (Rev. 8-91)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

EPA

WELL REWORK RECORD

NAME AND ADDRESS OF PERMITTEE	NAME AND ADDRESS OF CONTRACTOR

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES

N

W E

S

STATE	COUNTY	PERMIT NUMBER

SURFACE LOCATION DESCRIPTION

____ ¼ OF ____ ¼ OF ____ ¼ OF SECTION ____ TOWNSHIP ____ RANGE ____

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface Location ____ ft. from (N/S) ____ Line of quarter section

and ____ ft. from (E/W) ____ Line of quarter section

WELL ACTIVITY		TYPE OF PERMIT
☐ Brine Disposal ☐ Enhanced Recovery ☐ Hydrocarbon Storage	Total Depth Before Rework	☐ Individual ☐ Area Number of Wells ____
	Total Depth After Rework	
Lease Name	Date Rework Commenced	Well Number
	Date Rework Completed	

WELL CASING RECORD — BEFORE REWORK

Casing		Cement		Perforations		Acid or Fracture
Size	Depth	Sacks	Type	From	To	Treatment Record

WELL CASING RECORD — AFTER REWORK *(Indicate Additions and Changes Only)*

Casing		Cement		Perforations		Acid or Fracture
Size	Depth	Sacks	Type	From	To	Treatment Record

DESCRIBE REWORK OPERATIONS IN DETAIL USE ADDITIONAL SHEETS IF NECESSARY	WIRE LINE LOGS, LIST EACH TYPE	
	Log Types	Logged Intervals

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE *(Please type or print)*	SIGNATURE	DATE SIGNED

EPA Form 7520-12

Form Approved OMB 2040-0042 Expires 6-30-98

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

EPA

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

NAME AND ADDRESS OF EXISTING PERMITTEE	NAME AND ADDRESS OF SURFACE OWNER

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES

N
W E
S

STATE	COUNTY	PERMIT NUMBER

SURFACE LOCATION DESCRIPTION
_____ ¼ OF _____ ¼ OF _____ 1/4 OF SECTION _____ TOWNSHIP _____ RANGE _____

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface Location _____ ft. from (N/S) _____ Line of quarter section

and _____ ft. from (E/W) _____ Line of quarter section

WELL ACTIVITY
- ☐ Brine Disposal
- ☐ Enhanced Recovery
- ☐ Hydrocarbon Storage

TYPE OF PERMIT
- ☐ Individual
- ☐ Area

Number of Wells _____

Lease Name Well Number

	INJECTION PRESSURE		TOTAL VOLUME INJECTED		TUBING — CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE *(Please type or print)*	SIGNATURE	DATE SIGNED

EPA Form 7520-11

APPENDIX C

Examples of UIC Class II Well Applications 287

Example of a Draft Permit Cover Letter 317

Example of a Permit for a New Well – Part I & Part III (Special Conditions) 319

Example of a Public Notice to Issue a Permit 329

Example of a Statement of Basis 331

Form Approved. OMB No. 2040-0042 Expires 9-30-88

4 UIC	EPA	UNITED STATES ENVIRONMENTAL PROTECTION AGENCY UNDERGROUND INJECTION CONTROL PERMIT APPLICATION *(Collected under the authority of the Safe Drinking Water Act, Sections 1421, 1422, 40 CFR 144)*	I. EPA ID NUMBER U

READ ATTACHED INSTRUCTIONS BEFORE STARTING
FOR OFFICIAL USE ONLY

Application approved mo day year	Date Received mo day year	Permit/Well Number	Comments

II. FACILITY NAME AND ADDRESS

Facility Name: J. Barth #1

Street Address: Well Address

City | State | ZIP Code

III. OWNER/OPERATOR AND ADDRESS

Owner/Operator Name: D. Oil Company

Street Address: Company

City | State | ZIP Code

IV. OWNERSHIP STATUS *(Mark 'x')*

☐ A. Federal ☐ B. State ☒ C. Private
☐ D. Public ☐ E. Other *(Explain)*

V. SIC CODES

1300

VI. WELL STATUS *(Mark 'x')*

☐ A. Operating — Date Started mo day year
☒ B. Modification/Conversion ☐ C. Proposed

VII. TYPE OF PERMIT REQUESTED *(Mark 'x' and specify if required)*

☒ A. Individual ☐ B. Area

Number of Existing wells | Number of Proposed wells | Name(s) of field(s) or project(s)

VIII. CLASS AND TYPE OF WELL *(see reverse)*

A. Class(es) *(enter code(s))*	B. Type(s) *(enter code(s))*	C. If class is "other" or type is code 'x,' explain	D. Number of wells per type (if area permit)
II	R		

IX. LOCATION OF WELL(S) OR APPROXIMATE CENTER OF FIELD OR PROJECT

C I	A. Latitude Deg	Min	Sec	B. Longitude Deg	Min	Sec	Township and Range Twsp	Range	Sec	¼ Sec	Feet from	Line	Feet from	Line

X. INDIAN LANDS *(Mark 'x')*

☐ Yes ☒ No

XI. ATTACHMENTS

(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)

FOR CLASSES I, II, III (and other classes) complete and submit on separate sheet(s) Attachments A — U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application:

XII. CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Title *(Type or Print)* Must be a responsible corporate officer or a presentative (authorized by that person in writing) who has responsibility for the overall operation of the facility.	B. Phone No. *(Area Code and No.)*
C. Signature	D. Date Signed

EPA Form 7520-6 (2-84)

Attachment A: Area of Review

The area of review shall be of a fixed radius of no less than 1/4 mile from the well bore.

Attachment B: Maps of wells in Area of Review
See following page.

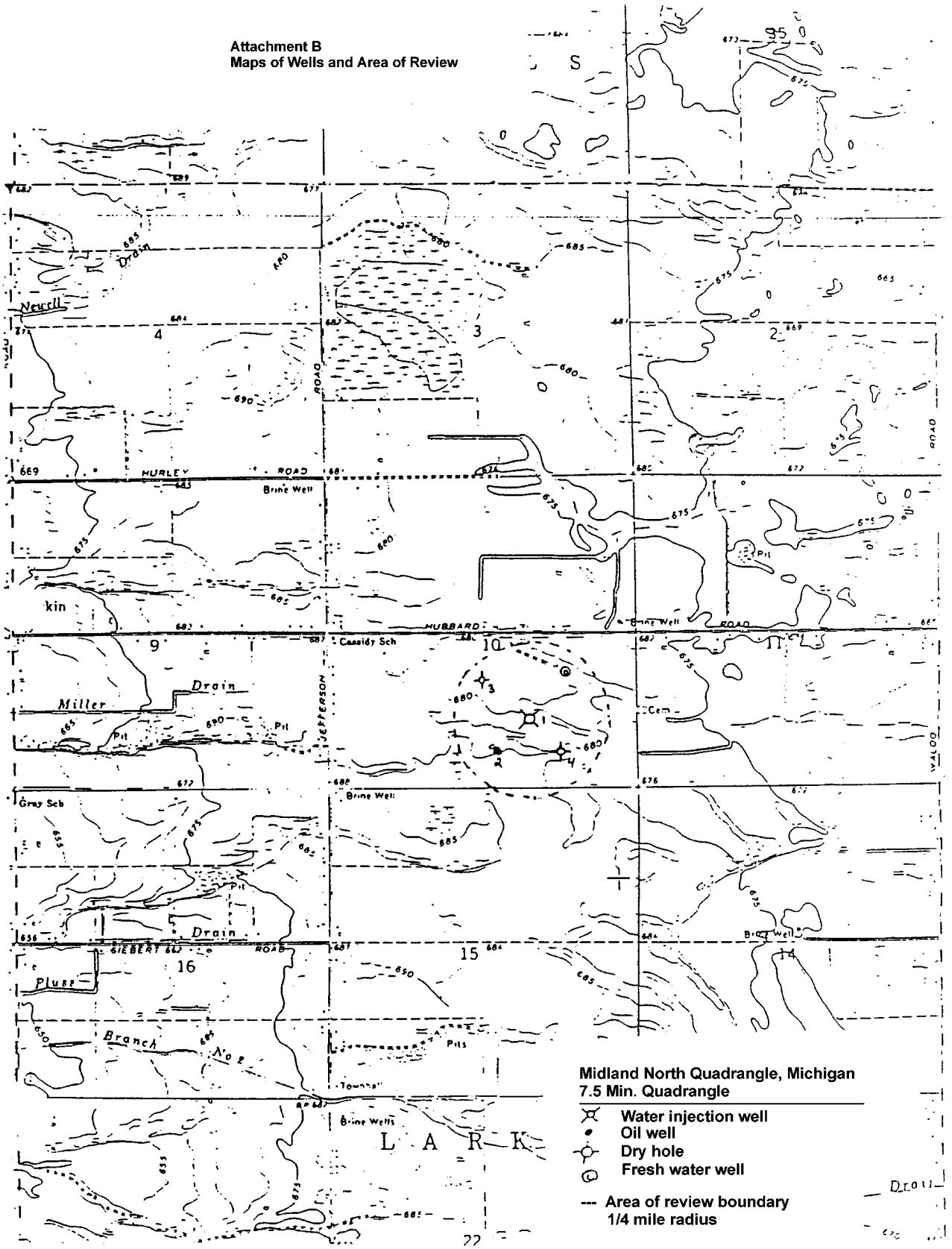
Attachment C: Corrective Action Plan

Should upward fluid migration occur through the well bore of any previously unknown, improperly plugged or unplugged well due to injection of permitted fluids, injection will be shut-in until proper plugging can be accomplished. Should any problem develop in the casing of the injection well, injection will be shut-in until such repairs can be made as to remedy the situation.

Tabulation of wells penetrating the injection zone:

	Well Name	Well Type	Operator	Date Drilled	Total Depth
1.	J. Barth #1	Conversion to injection	D. Oil Co.	12/9/81	3670'
	(Construction details are in Attachment L.)				
2.	F. Miller #1	Oil Well	D. Oil Co.	1/13/82	3600'
	8 5/8" 240, K-55 casing-set at 670' cemented with 450 Sx Class A 5 112" 14#, K-55 casing set at 3600', cemented with 450 Sx Class A Perfs 3613-59' 3544-92', Stim. 3600g 20% NEHC1				
	(Well Completion report is in appendix)				
3.	E. Brent #1	Dry hole	No Name Oil Co.	5/15/38	3559'
	(Well Completion report and plugging affidavit are in appendix)				
4.	F. Miller #2	Dry hole	D. Oil Co.	6/10/55	3600'
	(Well Completion report and plugging affidavit are in appendix)				

Attachment B
Maps of Wells and Area of Review



Attachment E: Name and Depth of USDWs

The majority of the underground sources of drinking water (USDWs) in the area occur in the glacial drift. In this area, the drift ranges in thickness from 280' to 350'. The aquifers occur as lenses of sand and gravel interbedded with the abundant clay of the drift. These lenses are generally thin (10' to 40' thick) and are more abundant in the upper 200' of the drift. Within the area, domestic water wells are generally less than 100' deep.

Immediately below the drift occurs the Grand River Formation of the Pennsylvanian Conemaugh Series. This formation is characterized by coarse sandstones including some shales, sandy shales and occasional gypsum and limestone beds. The main aquifer of the Grand River formation is limited to the lower ±110' of sand development, with the base being ±520'. The water quality for this aquifer is marginal and any aquifer below ±520' would be considered unsuitable for drinking water.

Strata below the Pennsylvanian contain greater than 10,000 ppm total dissolved solids and therefore do not qualify as USDWs. (Reference: Hydrogeologic Atlas of Michigan, Western Michigan University, 1981).

Attachment G: Geological Data on Injection and Confining Zones

Within the No Name field, the Dundee is overlain by the Bell Shale and underlain by anhydrite of the Detroit River Group. The top of the Dundee occurs at a depth of ±3550' and has an average thickness of 240'. The Dundee is composed dark gray to light brown limestones, ranging from grainstones to packstones. With the fracture gradient for the area being 1 psi/ft, (See Attachment I) the fracture pressure for the Dundee would be approximately 3550 psig.

The porosity interval, in which water will be injected, occurs +30' from the top of the Dundee and ranges in thickness from 101 to 90'. This zone is confined at the top by the 30' of tight, dark gray limestone of the Dundee and the ±60' of Bell Shale. The base of the zone is defined by the loss of porosity by the infilling of vugs with calcite and dolomite cement and is ultimately confined by the anhydrite of the Detroit River Group.

The Traverse occurs between the top of the Bell Shale and the first clean limestone below the base of the Antrim Shale. The Traverse occurs at a depth of ±2930' and has an average thickness of 550'. Lithologically, the Traverse consists of limestone and shale with minor amounts of dolomite. Two shale intervals, 30' and 4' thick, consistently occur in the upper 100' of the Traverse, while the lower 200' becomes increasingly shaly as the Traverse grades into the Bell Shale.

Attachment H: Operating Data

Injection Rates and Volumes

The proposed average injection rate is to be 100 BBLS of water per day. The maximum anticipated rate should be no greater than 500 BBLS of water per day.

Injection Pressures

Injection pressures are anticipated to be low, primarily in the 100 psig to 200 psig range. This pressure will be due primarily to friction pressure in the piping system. It is anticipated that the bottom hole pressure would never increase beyond 800 - 900 psig. This is anticipated relative to the data known on the Dundee interval. The maximum well head pressure calculated using the formula published in 40CFR §147.1153 would be (1 - .433 X 1.08) 3580' = 1983 psia. This is based on a fracture gradient of 1.0. However, it is not anticipated that this pressure will ever be reached based on core data, operating history, and experience in the field.

Nature of the Annulus Fluid

The annulus fluid which will be used is Tretolite's XC-320. This fluid is a liquid polyamine and works as a biocide and corrosion inhibitor. The anticipated ratio will be 5 gal. of XC-320 to 4200 gals of fresh water. Documents which list the general description and common treatments utilized are in the appendix. The compound is listed under E.P.A. registration number 5009-4. A positive pressure will be maintained on the annulus for purpose of monitoring mechanical integrity.

Source and Analysis of Injection Fluid

Please see attached sheet.

There are no significant problems relative to the fluids to be used for the injection stream. The fresh water makeup water will be utilized and blended with produced water for reinjection. An analysis of the produced water is provided in the appendix. The injection fluid will ultimately be composed of 7:3, fresh: produced water.

Attachment I: Formation Testing Program

1) Fluid Pressure

Bottom hole pressures have been determined from at least 5 wells in the Dundee in the No Name Field. Pressure build-ups were recorded either by Amerada Hess pressure recorders or by acoustic well sounders that determine fluid levels in wells. Reservoir pressure ranges from a high of 747 psig at the edge of the field to a low of 138 psig in the center of the east half of the field. Average reservoir pressure in the west half of the field is approximately 300 psig and average reservoir pressure in the east half of the field is approximately 200 psig. The results of Drill-Stem testing are in the appendix.

2) Fracture Pressure

The fracture gradient in the Dundee is 1 psig/ft calculated from a step-rate injectivity test. Test results and calculations are in the appendix. A fracture gradient of 1 psig/ft gives a reservoir fracture pressure of 3550 psig for the Dundee. This gives a surface injection pressure of 2013 psig for the Dundee (assuming a fresh water column of fluid).

3) Physical Characteristics

The Dundee has been cored in 3 wells in the No Name Field and porosities and permeabilities have been measured in the lab (results are in the appendix). Average porosity is 7.27% and geometric average permeability is 15.6 md. Arithmetic average permeability is 184 md. The Dundee can be described as highly vugular with a low matrix porosity. A combination of fenestral vugs, root casts, and moldic porosity as well as a small amount of porosity from fractures associated with the numerous stylolites makes up the vugular porosity while the low matrix porosity is mostly intercrystalline. A water/oil contact exists in the Dundee at -2930' (subsea). No original gas cap existed in the Dundee.

Formation Testing Program

4) Chemical Characteristics

The Dundee is a limestone. A mineralogical analysis of the Dundee in several wells was performed. The samples were ground whole and mounted for x-ray diffraction. The mineral contents were calculated as percentages of the whole sample and are shown below:

Sample	Calcite	Dolomite	Quartz	Pyrite
1	96	--	2	2
2	97	--	1	2
3	95	--	2	3
4	96	--	2	2
5	95	2	2	1

5) A copy of a water analysis report of formation fluid from the Dundee is in the appendix.

Attachment J: Stimulation Program

Stimulation Procedure
Well Converted from Producer to Injector
No Change in Open Section:

1. Run tubing and packer below open interval.

2. Spot sufficient 15% non emulsifying, iron-stabilized HCL acid mixed in suitable solvent to cover perforated interval.

3. Raise tubing and packer to a point 100' above the top perforation.

4. Reverse circulate with 1.25 times tubing volume or until all acid has been displaced from annulus and from tubing.

5. Pump 50 gallons per foot of open interval acid-solvent as in Step 2 down tubing to within 250 feet of the packer; set packer.

6. Displace 50 gal./ft. of acid-solvent as in Steps 2 and 5 to perforations.

Attachment L: Construction Details

WELL NAME: J. Barth #1

LOCATION: NE 1/4 SW 1/4 SE 1/4
Sec 10 T15N R2E

DEPARTMENT OF NATURAL RESOURCES PERMIT NUMBER:

DATE DRILLING BEGAN: 12/9/81

DATE COMPLETED: 12/17/81

DRILLING TECHNIQUE: CABLE ROTARY

TOTAL DEPTH: 3670'

COMPLETION INFORMATION: Perforations: 3566-73' 2SPF
1/13/82 Acidized 3566-73' W/ 1500 Gal 20% NEHCL
IP 16BO/1BW

CASING RECORD:	8 5/8"	24#	K-55	@656'	W/400 SX
	5 1/2"	14#	J-55	@3670'	14/500 SX

OPEN HOLE INTERVAL:

CASED HOLE PERFS: 3580-3590 2SPF

PRESENT STATUS: Pumping Electric - Producing
(will be converted to injector)

OTHER DATA:

ATTACHMENTS: See Well Sketch

7. If diverters are necessary use 8# of graded rock salt (NaC1) per perforation in as many stages as are deemed necessary. Rock salt to be mixed with gelled saturated salt (NaC1) water. If open hole in interval is to be temporarily blocked use 16# per foot of graded rock salt (NaC1).

8. Allow 30 minutes for acid to spend and swab back load and acid water.

9. Prepare well for injection.

Attachment K: Injection Procedures

1. A 1", 2-cartridge Nowata Waterfilter is located between the injection pump and the well head. The manufacturer's literature is in the appendix.

2. The selected injection pump is a Cat 318 with an injection capacity of 4 gal/minute maximum. The manufacturer's literature is in the appendix.

3. The water supply storage tank is located next to the injection well and is a 100 bbl. fiberglass tank manufactured by Biguard. Produced water and extraneous makeup water will be mixed in this tank prior to injection.

Attachment L: Construction Procedures

1) The #1 J. Barth was drilled to a depth of 3670'.

2) The well was completed as an oil well and perforated at 2 shots per foot thru casing from 3580-3590.

3) 8-5/8" inch surface casing (K-55; 24 lb. weight) was set at 656' in a 12/4" hole. No centralizers or scratchers were used.

4) No intermediate casing is run in this location.

5) The long string casing is 5 1/2" J-55 type; 14 lbs weight and was set at 3670' in a 7 7/8" hole. Eleven centralizers were used and were located at 167, 587, 1000, 1841, 2264, 2553, 2811, 2898, 3107, 3274 and 3500'.

6) No liner or "other" casing was run in this location.

7) No logs were run on the (open) surface hole before or after surface casing installation since the lithology is well known in this area.

Attachment M
Well Completion Sketch

Well	Field	Date
J.Barth #1	No - Name	7/25/84

Present Completion	Suggested Completion

16" Drive pipe @ 40'

8 5/8" 24# CSG @ 656'
CMT'D w/400 sacks
Class A CMT

2 3/8", 4.7#, 8RD EUE
Tubing @ 3500'

TOC @ 1900' CALC.

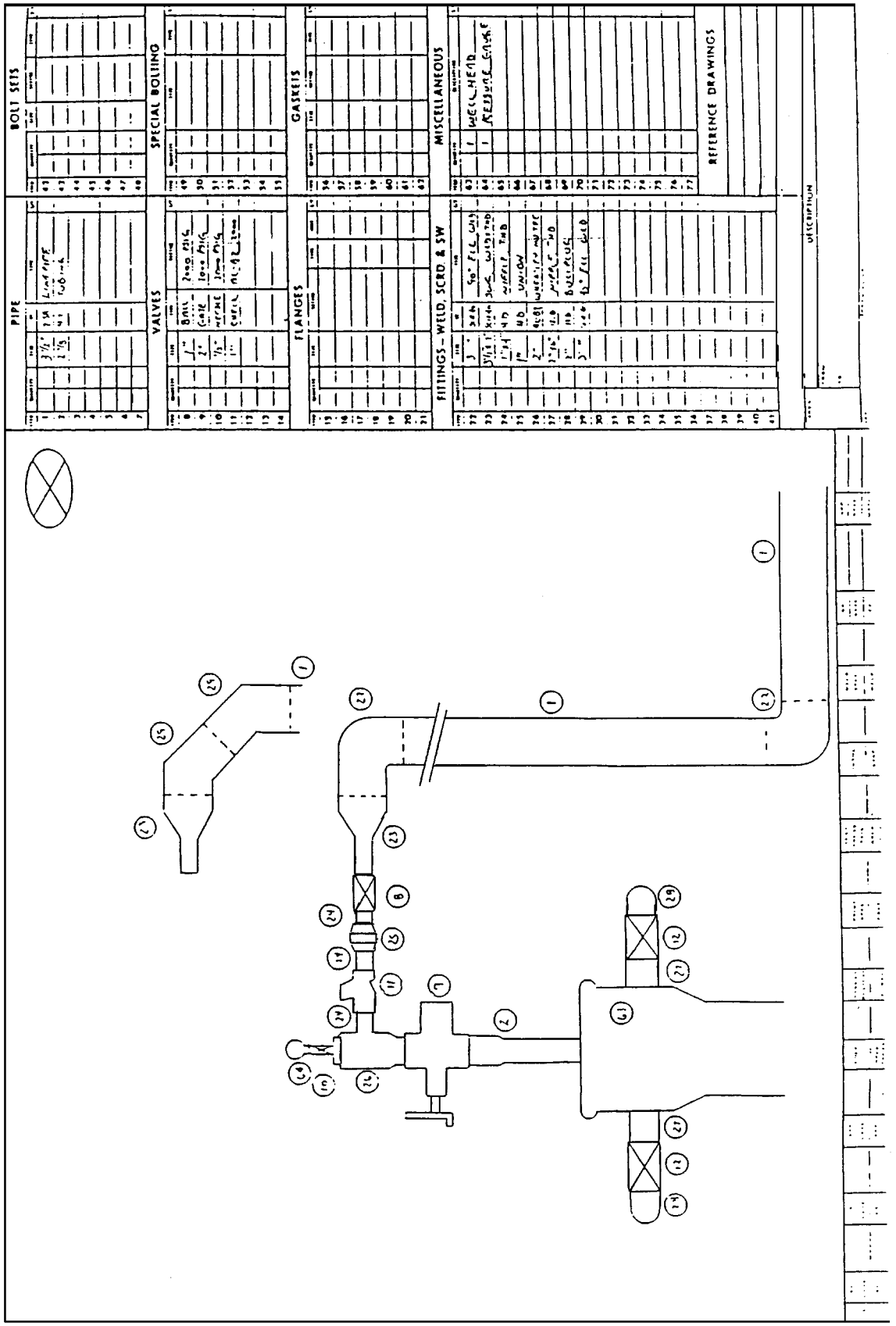
Baker MOD. AD-1 Packer
@ 3500'

PERFS: 3580' - 90'
2 SPF

5 1/2", 14# @ 3670'
CMT'D w/500 Sacks
Class A CMT

PBTD - 3668'
TD - 3670

Attachment M
Well Head Sketch



A Dual Induction - Laterolog including spontaneous potential, resistivity, and gamma ray traces was run and is included in the appendix, with formation tops marked.

No porosity log; no directional or inclination survey; and no fracture finder log were run.

A gamma ray - collar locator log was run after casing was installed. A cement bond log was run and is included with interpretation in the appendix.

8) Surface casing was cemented in place at 656' using 400 sacks of Class A cement. A copy of the service invoice is included in the appendix. Cement was circulated to completely fill the annulus behind the pipe.

The long string was cemented in place at 3670 feet using 500 sacks of Class A cement. The cement was circulated to surface and had sufficient overfill to insure a good bond. Copies of the job log and summary, etc. are in the appendix.

An annulus pressure test has been run where 500 psi was build up and held for 24 hours. The mechanical integrity of the well was maintained through the test. A copy of the strip chart run during the test is in the appendix.

9) The 2-3/8 inch tubing used (EUE and J-55 type) is 3500' in length.

10) A Baker type AD-1 Packer was set at 3500'. Manufacturer's information is available in the appendix.

Attachment M: Construction Details

An illustration of the well construction and well head equipment follows.

Attachment 0: Plans for Well failures

If a well failure is detected, the well will be shut-in until the faulty equipment is replaced and the well returned to a safe operating condition. If the failure and operation pose no environmental hazard, then nothing further will be done.

In the case of casing leaks or some other major failure, the well will be shut-in and the Department of Natural Resources and EPA will be contacted. The well will remain shut-in until the condition is corrected. This correction will involve squeezing off the leak with cement or replacing the bad casing. The well will not be returned to active status until its integrity has been determined. Any fluid produced during injection well shut-in will either be stored on site or removed by a commercial disposer depending on the amount produced.

Attachment P: Monitoring Program

This project shall be monitored throughout its entire life. All EPA monitoring guidelines and minimum reporting requirements shall be complied with.

a) a quarterly analysis and report by an independent laboratory shall be completed on the injected fluids. The sampling location shall be at the 1/2 inch needle valve at the well head.

b) the injection pressure and annulus pressure will be monitored weekly and reported monthly.

c) the flow rate will be monitored weekly and reported monthly

d) the cumulative volume shall be monitored weekly and reported monthly.

Monthly reports shall be given over to the EPA at the end of each monthly period as soon as data is received (no later than the 10th day of the following month).

Attachment Q: Plugging and Abandonment Procedure

1. Move in and rig up workover rig. Kill well as necessary with lease water.

2. Nipple up blowout preventer and test pipe rams to 1000 psi.

3. Pull out of hole with 2-3/8" tubing and packer.

4. Run in hole with cement retainer on 2-3/8" tubing. Set cement retainer ±50' above top perforation in Dundee. Establish injection rate into perforations with fresh water and squeeze perforations with 40 sacks Class "A" cement (wt 15.7 ppg; yield 1.18 cf/sk) through retainer.

5. Stab out of retainer and leave 10 sx cement on top of retainer (±86 linear feet).

6. Pull up to 750' (100' below surface casing shoe depth). Spot 25 sacks of same cement from 750-535'.

7. Pull up to 50'. Spot 10 sacks cement to surface. Pull out of hole with tubing.

8. Cut off 8-5/8" & 5-1/2" casing 4' below ground level. Weld 1/2" steel plate on 5-1/2" casing stub.

9. Backfill and clean up location.

PLUGGING AND ABANDONMENT COSTS

	$
Workover Rig (including rig move) ($120/hr)	$3600
Cementing & Service	$2200
Rentals (BOP & FW tank)	$ 650
Water Transportation	$ 350
Welder	$ 250
Supervision	$ 900
Cement Retainer	$1250
Surface Restoration	$ 500
TOTAL P&A COSTS	$9700

A signed copy of the EPA Plugging and Abandonment Plan is attached.

Attachment R:

Attached is a Surety Performance bond in the amount of estimated plugging costs, with the U.S. EPA as beneficiary. Also attached is the Standby Trust Agreement required to accompany bonds to EPA.

Attachment U: Description of Business

J.D. Oil Company is involved in the exploration, production, and marketing of crude oil and natural gas.

A list of names and addresses of all owners of record of land within 1/4 mile of the facility boundary is in the appendix.

The appendix would include:

1. Well completion reports and plugging affidavits for wells in the area of review.

2. Documents describing the annulus fluid.

3. Injection fluid analysis

4. Drill - Stem test results

5. Step-rate injectivity test results and calculations of fracture gradient.

6. Core data.

7. Formation fluid analysis

8. Manufacturer's literature on filter and pump.

9. Dual-Induction-Laterolog and cement bond log, with interpretations.

10. Cementing invoices and job log.

11. Pressure test results.

12. Manufacturer's specifications for tubing and packer.

13. Names and addresses of owners of record.

Form Approved OMB No 2040-0042 Approval expires 9-30-86

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

EPA

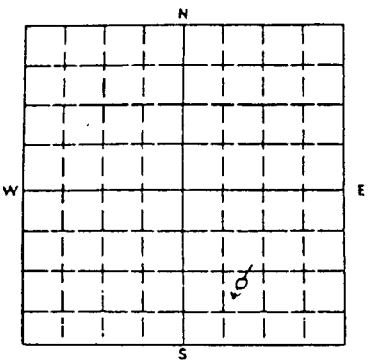
PLUGGING AND ABANDONMENT PLAN

NAME AND ADDRESS OF FACILITY
J. Barth #1
Facility Address

NAME AND ADDRESS OF OWNER/OPERATOR
D. Oil Company
Company Address

STATE	COUNTY	PERMIT NUMBER
MI	Midland	

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES



SURFACE LOCATION DESCRIPTION
NE ¼ OF SW ¼ OF SE ¼ SECTION 10 TOWNSHIP 15N RANGE 2-E

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT
Surface Location 300 ft. from (N/S) N Line of quarter section
and 300 ft. from (E/W) E Line of quarter section

TYPE OF AUTHORIZATION
- ☒ Individual Permit
- ☐ Area Permit
- ☐ Rule

Number of Wells 1

Lease Name J. Barth

WELL ACTIVITY
- ☐ CLASS I
- ☒ CLASS II
  - ☐ Brine Disposal
  - ☒ Enhanced Recovery
  - ☐ Hydrocarbon Storage
- ☐ CLASS III

Well Number #1

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT(LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
8-5/8	24#	656'	656'	12-1/4"
5-1/2	14#	3670'	3670'	7-7/8"

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- ☒ The Balance Method
- ☐ The Dump Bailer Method
- ☐ The Two-Plug Method
- ☐ Other

CEMENTING TO PLUG AND ABANDON DATA	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inches)	5-1/2"	5-1/2"	5-1/2"	5-1/2"			
Depth to Bottom of Tubing or Drill Pipe (ft.)	±3500	±3500	±750'	±50'			
Sacks of Cement To Be Used (each plug)	40	10	25	10			
Slurry Volume To Be Pumped (cu. ft.)	47	12	30	12			
Calculated Top of Plug (ft.)	±3500	±3414'	±535	Surface			
Measured Top of Plug (if tagged ft.)	N/A	N/A	N/A	Surface			
Slurry Wt. (Lb./Gal.)	15.6	15.6	15.6	15.6			
Type Cement or Other Material (Class III)	Class A	Class A	Class A	Class A			

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (If any)

From	To	From	To

Estimated Cost to Plug Wells
$9,700

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

NAME AND OFFICIAL TITLE (Please type or print)	SIGNATURE	DATE SIGNED
Same Signatory as for Permit Application		Date

EPA Form 7520-14 (3-84)

Water Injection Permit Application

TABLE OF CONTENTS

I. PERMIT APPLICATION

II. ATTACHMENTS A THROUGH U

III. APPENDICES

A. Topographic Map

B. Well Location Map

C. Well Logs

D. Water Analyses

E. Well Construction Sketch

F. Plugging and Abandonment Plans

G. Necessary Resources

Water Injection Permit Application

ATTACHMENT A: AREA OF REVIEW

Attached is a topographic map with a fixed radius of a 1/4 mile from the Class II-R water injection well. (See Appendix A)

ATTACHMENT B: MAPS OF WELLS AND AREA OF REVIEW

Please refer to the topographic map in Appendix A for the Area and Area of Review. A map showing the surrounding wells (all outside the area of review) can be found in Appendix B.

The following DO NOT fall within the Area of Review:
1) Hazardous waste, treatment or disposal facilities
2) Rivers
3) Quarries
4) Faults
5) Domestic Water Wells
6) Permanent Residences

A drainage ditch, which dries up in the summer months, passes through the Area of Review. There are no wells within the Area of Review.

ATTACHMENT C: CORRECTIVE ACTION PLAN

Should upward fluid migration occur through the well bore of any previously known or unknown, improperly plugged or unplugged wells due to injection of permitted fluids, injection will be shut-in and proper authorities notified, until proper plugging can be accomplished. Should any migration problems develop inside the casing of the injection well, injection will be shut-in immediately until repairs can be made to correct the problem. The proper authorities will also be timely notified of any such conditions.

ATTACHMENT D: MAPS AND CROSS SECTIONS OF USDW's

This application requirement does not apply to Class II wells.

ATTACHMENT E: NAME AND DEPTH OF USDW's

The lowest known USDW is XXX Sandstone the bottom of which is at a depth of 100'.

ATTACHMENT F: MAPS AND CROSS SECTIONS OF GEOLOGIC STRUCTURE OF AREA

Not required for Class II wells.

ATTACHMENT G: GEOLOGIC DATA ON INJECTION AND CONFINING ZONES

Lower Confining Zone - Not required due to no USDW's below injection zone.

Injection Zones

Cypress sandstone (Approx. 2,373'-2,463' measured depth, 2,009.5'-2,099.5' sub-sea), Borehole Compensated Density Porosity of 12-18%.

Rosiclare limestone (2,660'-2,670' & 2,678'-2,682' measured depth, 2,296.5'-2,306.5' & 2,314.5'-2,318.5' sub-sea), with Borehole Compensated Density Porosity of 10-15%.

Upper Confining Zone

Above Cypress (Approx. 2,276'-2,373' measured depth & 1,912.5'-2,009.5 sub-sea). The confining zone is the Barlow Lime through the Upper Cypress, with impermeable lime (Barlow) on top of shale, sandy shale, and shaley sand (Cypress). (See the marked Log in Appendix C)

ATTACHMENT H: OPERATING DATA

Injection Rates and Volumes
Average Expected Volume - 2,000 barrels (84,000 gallons) per day
Maximum Expected Volume - 15,000 barrels (630,000 gallons) per day

Injection Pressures

Initial injection pressure is expected to be approx. 400 psi. The maximum pressure for this well will be 806 psi from the data presented in Attachment I. Should a higher injection pressure be required or desired, a preapproved step-rate-test will be run or acidization or fracture treatment tickets will be provided to determine the formation parting pressure for establishing a higher allowable injection pressure.

Annulus Fluid
The fluid between the tubing and the casing will be a combination of 3 gallons of corrosion inhibitor and 25 bbls. of salt and/or fresh water.

Source and Analysis of Injection Fluid
A commingled water consisting of produced water from the Cypress and Rosiclare reservoirs will be injected into the Cypress and Rosiclare reservoirs. (Water Analyses are in Appendix. D.)

ATTACHMENNT I: FORMATION TESTING PROGRAM

Formation Fluid Pressure
Current formation fluid pressure in the Cypress is 816 psi.
Current formation fluid pressure in the Rosiclare is 1,738 psi.

Formation Fracture Pressure
The formation fracture pressure is 806 psi. well head calculate as follows:
(0.8-Fluid S.G.) x Depth
(0.8-0.46) x 2,373' = 806.82 psi.

Formation Water Quality
The produced water analyses can be found in Appendix D.

Porosity and Permeability
See values in Attachment G.

ATTACHMENT J: STIMULATION PROGRAM

XXXXX will be perforated and the perforations will be cleaned up with acid. If necessary, the Cypress sand may be fracture stimulated

ATTACHMENT K: INJECTION PROCEDURE

Produced water will be stored in tanks prior to its flow to a triplex pump, for pressurization, controlled by minimum and maximum fluid level and pressure switches. Following pressurization, the fluid will be transported by high pressure lines to the injection point where the volume and pressure will be monitored along with control valves to adjust the injection rate and pressure.

ATTACHMENT L: CONSTRUCTION PROCEDURE

The tubing and packer will be removed from the XXXXX. The well will be cleaned out with cable tools or a power swivel to below the existing Rosiclare perforations. The Cypress will be perforated and evaluated to determine if additional stimulation will be necessary. The Cypress will be stimulated as required. A 4 1/2" tension packer will be run on plastic lined 2" EUE and/or fiberglass tubing to within 50' of the injection zone. The annulus will be protected by corrosion inhibitors in water. An MIT will then be run in the presence of a qualified inspector followed by the well being prepared for injection.

ATTACHMENT M: CONSTRUCTION DETAILS

A. through G. in the schematic drawing in Appendix E.

H. Listed below are the specifications for the casing and tubing:

	4 1/2" Casing	2 3/8" Tubing
Collapse (psi)	4,010	8,100
Internal Yield (psi)	4,790	7,700
Axial Load (lbs.)	132,000	72,000

I. Tubing pull force will be the weight specified by the packer manufacturer above the tubing weight. (Construction details in schematic in Appendix E)

ATTACHMENT N: CHANGES IN INJECTION FLUID

Not required for Class II wells.

ATTACHMENT O: PLANS FOR WELL FAILURES

If a well failure, packer or tubing leak is detected, the well will be shut in until faulty equipment can be repaired or replaced and the well returned to a safe operating condition and an MIT run to insure mechanical integrity prior to restarting. If the failure and operation pose no environmental hazard to USDW's or ground surface then nothing further will be done. In the case of a major failure such as a casing leak, the well will be shut in and the Department of Natural Resources and US EPA will be contacted. This correction could involve squeezing off the leak with cement or running of an additional casing string. The well will not be operated until it has been determined that the problem has been corrected. Any fluids produced during shut-in will be stored in the salt water handling system or injected into other wells until they have reached their capacity at which time the water will be disposed of by a commercial disposer.

ATTACHMENT P: MONITORING PROGRAM

The well will be monitored throughout its entire life. All EPA monitoring guidelines and reporting requirements will be complied with. The monitoring point will be at the wellsite for rate and pressure observation.

1) An analysis and report by an independent laboratory shall be completed on the injection fluids whenever major changes are made to the fluid.

2) The injection pressure will be acquired by a pressure gauge, monitored weekly and reported annually.

3) The flow rate will be read from a meter, monitored weekly and reported annually.

4) The cumulative volumes will be monitored monthly and reported annually.

5) Monitoring records will be kept to show the relationship between injection rates and pressures in order to recognize a failure in the mechanical integrity of the well.

ATTACHMENT Q: PLUGGING AND ABANDONMENT PROCEDURE

1) Move in and rig up workover rig.

2) Lay down tubing and packer.

3) Run tubing to bottom and fill the well with Class A cement from bottom to surface in two or more stages*.

4) Cut 4 1/2" and 8 5/8" casing off at 3' below ground level and weld 1/2" steel plate. On top of 8 5/8" casing.

5) Backfill and clean up location.

* If the well is flowing to surface at the time of abandonment, a cast iron bridge plug(s) will be used above the flowing zone(s) so the cement can be placed as described above.

(EPA Plugging and Abandonment Form 7520-14 in Appendix F)

ATTACHMENT Q: PLUGGING AND ABANDONMENT PROCEDURE (Continued)

	Plugging and Abandonment Costs
Rig on Pulling Unit	$ 1,400.00
Pump Truck and Cement	2,000.00
Water Hauling	200.00
Trucking	150.00
Labor and Miscellaneous	2,050.00
Total P&A Costs	$ 5,800.00

ATTACHMENT R: NECESSARY RESOURCES

Necessary resources can be found in Appendix G.

ATTACHMENT S: AQUIFER EXEMPTIONS

The Cypress Sandstone and Rosiclare formations have not and will not serve as sources of drinking water in this area due to their nature as per the enclosed fluid analysis in Appendix D. The waters are of such salinity that it makes treating the waters for human consumption uneconomic and impractical at this time or in the future.

ATTACHMENT T: EXISTING PERMITS

This well has an EPA UIC ID Number of KYS XXXXX. There are no other known injection wells in the Area of Review.

ATTACHMENT U: NATURE OF BUSINESS

XXXXX Company is an oil exploration and producing company engaged in development of oil and gas reserves and operating the same as energy sources.

NOTES:
Name and address of land owner within the 1/4 mile of Area of Review:

Name	Address
Kentucky Department of Fish & Wildlife	#1 Game Farm Road Frankfort, Kentucky 40601

PIPE

1) 2" Injection Line
2) 2 3/8" Tubing
3) 1" High Pressure Hose

VALVES

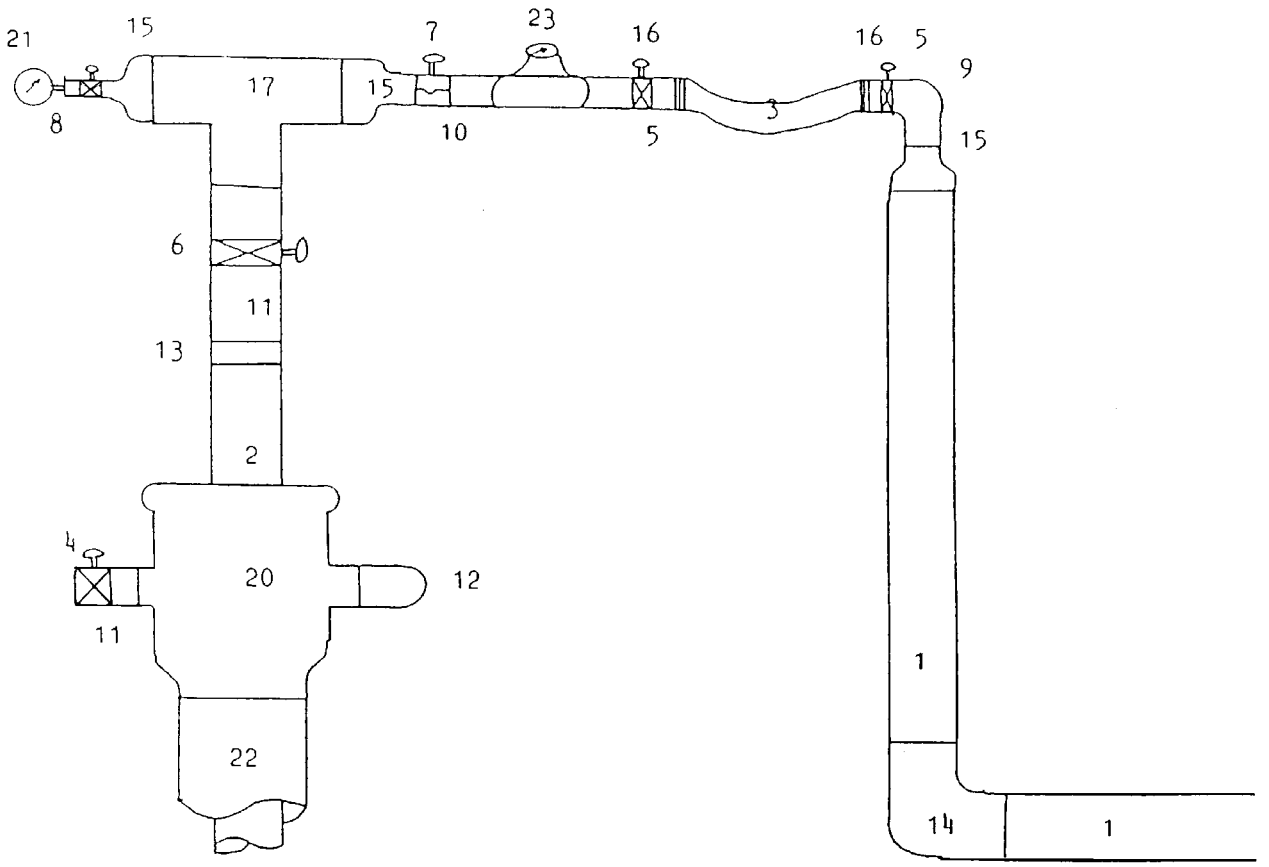
4) 2" Valve
5) 1" Valve
6) 2" Master Valve
7) Throttle Valve
8) 1/4" Valve

FITTINGS

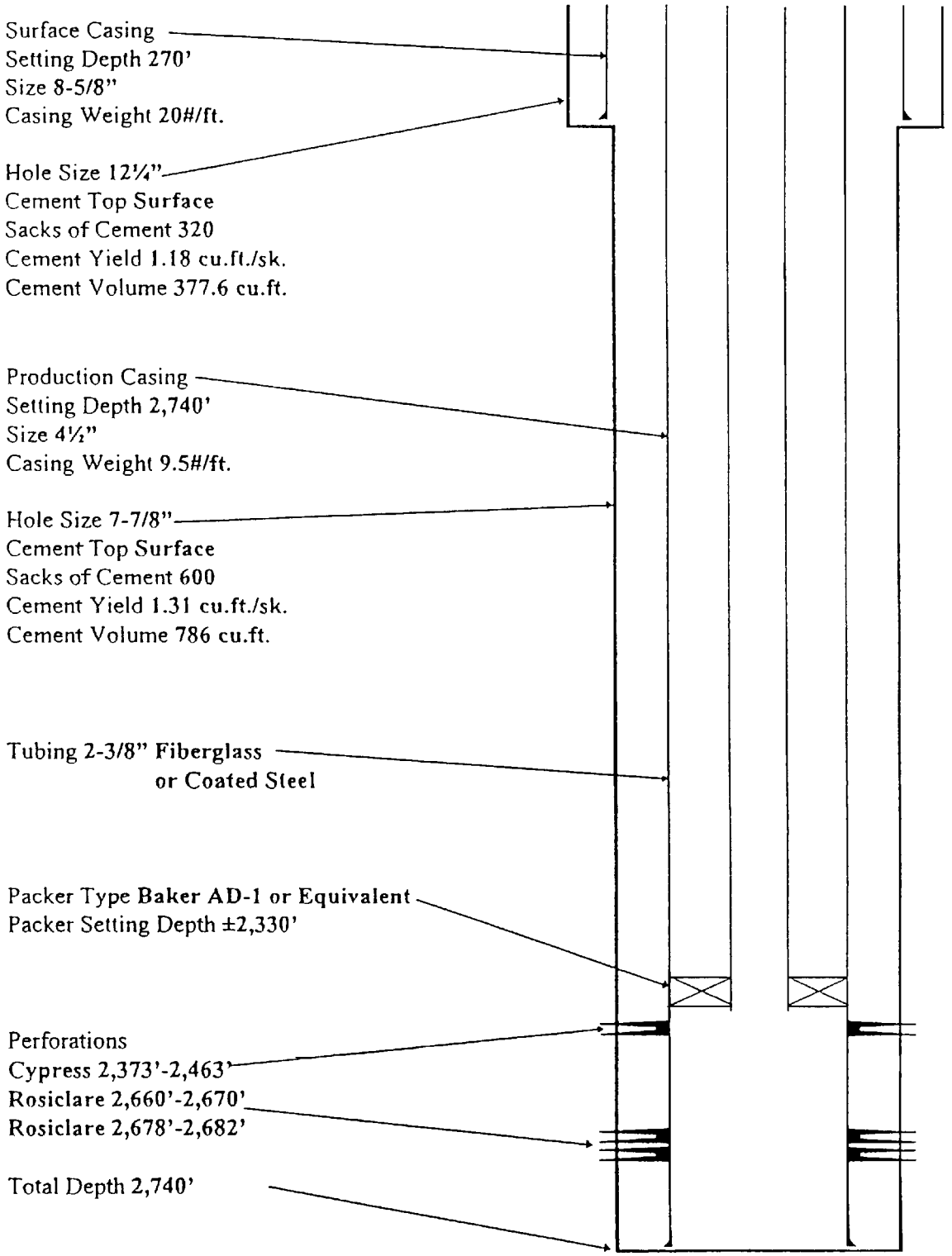
9) 1" 90° Ell
10) 1" Nipple
11) 2" Nipple
12) 2" Bull Plug
13) 2" Tubing Collar
14) 2" 90° Ell
15) 2" to 1" Swedge
16) 1" Union
17) 2" Tee

MISCELLANEOUS

20) Well Head
21) Pressure Gauge Access
22) 4½" Casing
23) Meter Run



Appendix E
Wellbore Schematic



WATER ANALYSIS REPORT

COMPANY: _____ ANALYSIS NO: 96-333

LEASE: _____ TYPE WATER: Produced

STATE: KY SOURCE: Seperator

COUNTY: Henderson WELL NAME & NO. _____

DATE SAMPLED: 09/23/96 ANAL. BY: DM DATE: 9/23/96

MIDWEST CUSTOM CHEMICALS INC., 111 Main Street Suite 203 • P.O. Box 119 • Evansville, IN 47701

ANALYSIS

				mg/l		meq/l	
1. pH	5.8						
2. H_2S	5						
3. Specific Gravity	1.061						
4. Dissolved solids	80,069						
5. Suspended solids	-						
6. Phenol Alkalinity	-	as $CaCo_3$					
7. M.O. Alkalinity	580	as $CaCo_3$					
8. Bicarbonate (HCO_3)				719	/ 61	12	HCO_3
9. Total Hardness as $CaCo_3$	13,000						
10. Calcium (Ca) as $CaCo_3$	8,600	× 0.4	=	3440	/ 20	172	Ca
11. Magnesium (Mg) as $CaCo_3$	4,400	× 0.24	=	1056	/ 12.2	87	Mg
12. Chlorides (Cl)				47,100	/ 35.5	1326	Cl
13. Sulphates (SO_4)				2,000	/ 48	42	SO_4
14 Iron total (Fe)				6			
15. Barium/Strontium				-			
16. Oxygen				2.0			
17. Carbon Dioxide							

Compound	Equiv. Wt.	× meq/l	= mg/l
$Ca(HCO_3)_2$	81.04	12	972
$CaSO_4$	68.07	42	2859
$CaCl_2$	55.50	118	6549
$Mg(HCO_3)_4$	73.17	-	-
$MgSO_4$	60.19	-	-
$MgCl_2$	47.62	87	4143
$NaHCO_3$	84.00	-	-
Na_2SO_4	71.03	-	-
NaCl	58.46	1121	65533

Ca	172		12	HCO_3
Mg	87		42	SO_4
Na	1121		1326	Cl

Meq/l

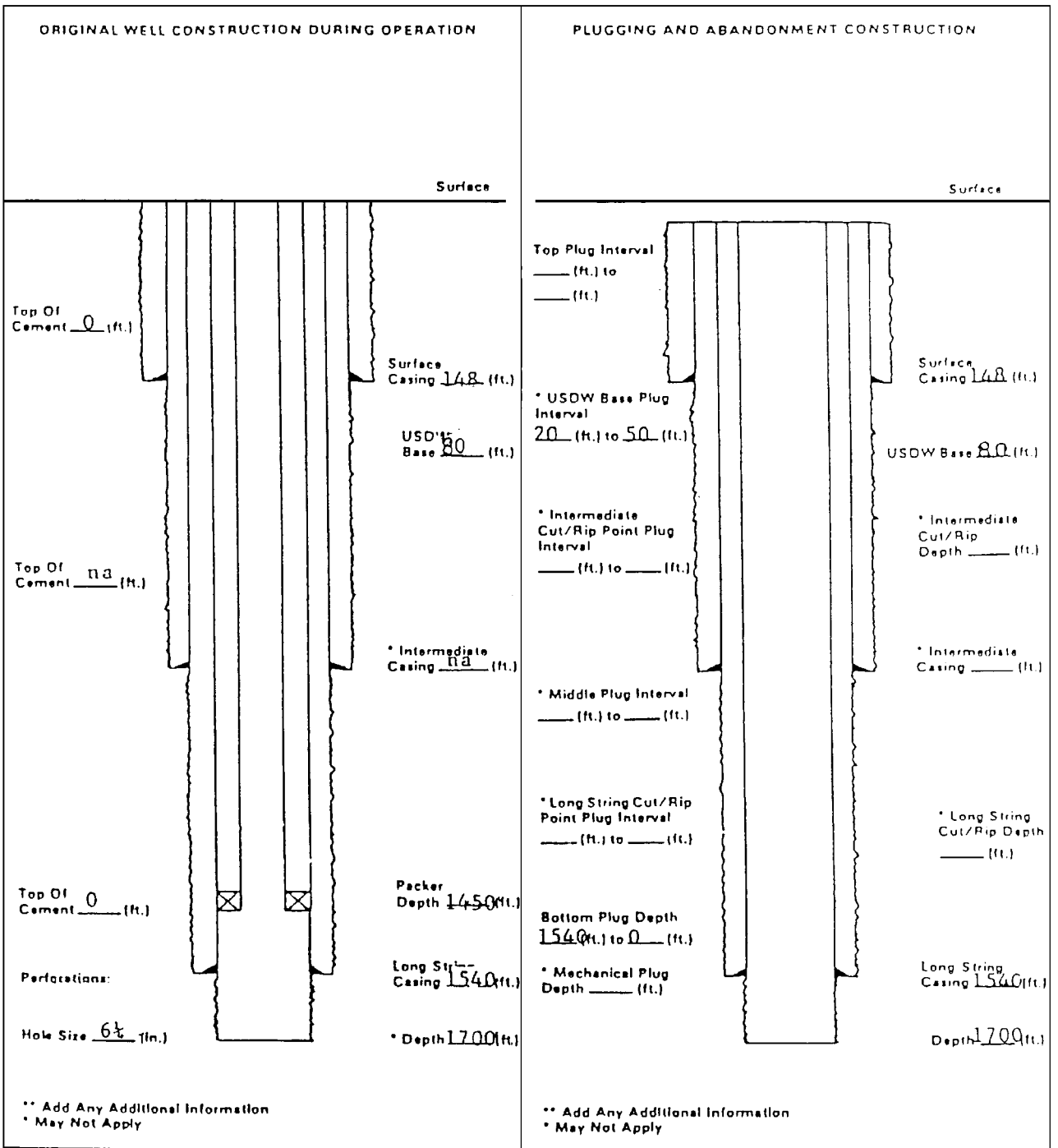
× 0.393 = Na 25754 mg/l

Ion	mg/l	factor	Ionic strength
Na	25754	$2.2E^{-5}$	.56660
Ca	3440	$5.0E^{-5}$	.17200
Mg	1056	$8.2E^{-5}$	.08659
Cl	47100	$1.4E^{-5}$	.65940
HCO_3	719	$0.8E^{-5}$	.00575
SO_4	2000	$2.1E^{-5}$	.04200
		Total Ionic Strength	1.53234

SI = pH − P Ca − pAlk − k

Stability Index _____

Appendix M



LIST OF ALL OPEN AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED

Specify Open Hole/Perforations/Varied Casing	From	To	Formation Name
Perforations	1470	1476	Knox Dolomite
	1490	1506	Knox Dolomite
Open Hole	1540	1700	Knox Dolomite

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW
ATLANTA, GEORGIA 30303-8909

Example of a Draft Permit Cover Letter

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

REF: 4WM-GWDW

Mr. John Smith
Wilcox Oil Company
120 Oil Field Road
Columbia, KY -12000

SUBJ: UIC Permit Application Number KYIOOXX
Permit Writer: XXXXX XXXXX

Dear Mr. Smith:

The U. S. Environmental Protection Agency, Region 4, intends to issue the attached Underground Injection Control (UIC) permit for your facility in accordance with the Safe Drinking Water Act. The enclosed public notice, draft permit and statement of basis show the proposed conditions to be incorporated and the rationale for their inclusion. In order that you understand your responsibilities under the provisions of the attached UIC permit, particular attention should be given to the following sections:

1. Part I. This section contains a listing of operating, monitoring, reporting, and plugging and abandonment requirements specific to your well;

2. Part II. This section contains permit conditions which describe regulatory responsibilities for all Class II injection wells under the UIC permit program;

3. Part III. This section, if included, contains any special conditions not covered in Parts I or II.

If you wish to comment on the draft permit, please submit the comments so that they are received in this office within twenty-five (25) days after receipt of this letter in order for us to accommodate any necessary revisions before the end of the public comment period or before the public hearing, if one is

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scheduled. If you have any questions concerning the enclosed conditions or the procedures associated with the permit program, please contact us at the above address or by calling (404) 562-XXXX.

Sincerely,

XXXX XXXXX, Chief
Ground Water & UIC Section
Ground Water/Drinking Water Branch

Enclosures

Example of a Permit for a New Well

U. S. ENVIRONMENTAL PROTECTION AGENCY
UNDERGROUND INJECTION CONTROL PERMIT
AUTHORIZATION TO OPERATE A CLASS II INJECTION WELL
EPA UIC PERMIT NUMBER KYI00XX

Pursuant to the Underground Injection Control regulations of the U.S. Environmental Protection Agency codified at Title 40 of the Code of Federal Regulations, Parts 124, 144, 146 and 147,

Wilcox Oil Company
120 Oil Field Road
Columbia, KY 42000

is hereby authorized to construct, operate, and plug and abandon the following Class II enhanced recovery injection well:

William Jones #1
Western Oil Field
Adair County, Kentucky
Carter Coordinate 14-G-50
330' FSL x 330' FWL

This authorization is in accordance with the limitations, monitoring requirements and other conditions set forth herein. This permit consists of this cover sheet; Part I, 7 pages; Part II, 13 pages; and Part III, 1 page.

All references to Title 40 of the Code of Federal Regulations are to regulations that are in effect on the date that this permit becomes effective.

This permit shall become effective on XXXX.

This permit and the authorization to inject shall remain in full force and effect during the operating life of the well, unless this permit is otherwise modified, revoked and reissued, terminated, or a minor modification is made as provided at 40 C.F.R. §§144.39, 144.40 and 144.41. This permit shall be reviewed at least once every five years from the effective date.

_____	XXX
Date	Robert F. McGhee, Director Water Management Division U.S. Environmental Protection Agency Region 4

PART I

WELL SPECIFIC CONDITIONS

SECTION A. CONSTRUCTION REQUIREMENTS

1. Casing and Cementing

The permittee shall case and cement the well and maintain all casing and cement so as to prevent the movement of fluids into or between underground sources of drinking water. The casing and cement used in the construction of the well shall be designed for the life expectancy of the well. Construction of this well shall be performed as specified in Attachments L & M of the permit application.

2. Tubing and Packer

Injection may only take place through tubing with a packer set within the casing no higher than 1500 feet below land surface. The tubing and packer shall be maintained in a manner which is compatible with the injection operation specified in Part I, Section B, and which prevents the movement of fluids into or between underground sources of drinking water.

3. Logs, Tests and Reports

The following tests and reports shall be prepared and submitted to EPA to demonstrate mechanical integrity:

(a) A copy of all logs run in the well.

(b) Cement tickets and invoice from the contracted cementing service company indicating cement volume, type, additives, and a job description summary.

(c) A demonstration of the mechanical integrity of the well is required before injection can be authorized. The demonstration will consist of a pressure test on the, tubing/casing annulus to at least 300 psig with less than 3% pressure loss in 30 minutes. The permittee shall contact EPA to arrange a date to conduct this test. A representative of EPA will be present to witness this test. If the well fails the test, the permittee shall cease injection operations until the problem is corrected and mechanical integrity can be demonstrated.

(d) The permittee shall prepare a report, including procedures and results, of the logging and testing programs. Each log shall include a written interpretation prepared by a knowledgeable log analyst. The report must be submitted in accordance with Part I, Section A, item 4, and shall be signed in accordance with Part II, Section E, item 11, of this permit.

4. Commencing injection

The well authorized by this permit may not commence injection until:

(a) Construction is complete, and the permitee has submitted to the Director, by certified mail with return receipt requested, a notice of completion using EPA Form 7520-10, and either:

(i) The Director has inspected or otherwise reviewed the new injection well and finds it is in compliance with the conditions of the permit; or

(ii) The permittee has not received, within thirteen (13) days of the date of the Director's receipt of the notice required above, notice from the Director of his or her intent to inspect or otherwise review the new injection well, in which case prior inspection or review is waived and the permittee may commence injection.

(b) The permittee has demonstrated to EPA that the injection well has mechanical integrity, and has submitted the reports as specified in Part I, Section A, item 3.

(c) Corrective action as specified in Part III is completed, and a report, signed in accordance with Part II, Section E, item 11, has been submitted to and approved by the Director.

SECTION B. OPERATING REQUIREMENTS

1. Injection Operation

Beginning on the date that Part I, Section A, item 4, is completed and lasting through the term of this permit, the permittee is authorized to inject only fluids brought to the surface in connection with conventional

oil and natural gas production from the operations in the Western Oil Field for enhanced recovery operations under the following conditions:

(a) Injection zone

Injection shall be limited to the Knox Formation in the open hole interval between 1550 and 1600 feet below land surface.

(b) Injection Pressure Limitation

(i) Injection pressure shall not initiate fractures or propagate existing fractures in the injection zone. The maximum allowable wellhead injection pressure for the injection well will initially be established at 900 psig. If the permittee wishes to inject above 900 psig, it shall be proven through the use of a step-rate injectivity test, that such additional pressure will not fracture the injection zone. Upon approval by the Director, the permittee may inject at the maximum pressure attained during any step-rate test conducted on the injection well authorized by this permit provided the test proves such pressure will not fracture or extend fractures in the injection zone. Step-rate injectivity test procedures must be approved by the Director prior to conducting the test and the test may be witnessed by EPA or an agent designated by EPA.

(ii) Injection at a pressure which initiates or propagates fractures in the confining zone or causes the movement of injection or formation fluids into an underground source of drinking water is prohibited.

(iii) Injection between the outermost casing protecting underground sources of drinking water and the well bore is prohibited.

2. Annulus Operation

The annulus between the tubing and the long-string casing shall be filled with brine or other fluid as approved by the Director. The annulus pressure shall be maintained at 0 psig.

The annulus shall be monitored with a gauge designed to indicate both a vacuum (below atmospheric) and positive pressure (above atmospheric). The

permittee shall comply with Part I, Section B, item 3, when a change in the annulus pressure of 15 psig occurs. The permittee shall provide an explanation to the Director for the change in pressure and measures that will be taken to restore annulus pressure to achieve compliance with this Section. If the cause of annulus pressure change is not corrected within 48 hours, the permittee shall cease injection unless such order to cease operation is waived by the Director.

3. Loss of Mechanical Integrity During Operation

The permittee shall cease injection if a loss of mechanical integrity as defined at 40 C.F.R. §146.8 becomes evident during operation. Operation shall not be resumed until the permittee has complied with the provisions of Part II, Section G, of this permit regarding mechanical integrity demonstration and testing.

The permittee shall notify the Director of the loss of mechanical integrity in accordance with the reporting procedures in Part II, Section E, item 12(d).

SECTION C. MONITORING REQUIREMENTS

1. Sampling and Analysis Methods

Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. Grab samples shall be used for the laboratory analysis of the physical and chemical characteristics as specified in Part I, Section C, item 3(a). Test methods and procedures shall be as specified at 40 C.F.R. §136.3 or 40 C.F.R. Part 261, Appendix III. When the analytical method for a particular parameter is not specified at either 40 C.F.R. §136.3 or 40 C.F.R. Part 261, Appendix III, the permittee must obtain the Director's approval of the method used. The permittee shall identify the types of tests and methods used to generate all monitoring data. Reports to be generated from monitoring data are specified in Part I, Section D.

2. Injection Operation Monitoring

The permittee shall monitor the operation of the injection well as follows:

Parameter	Monitoring Frequency
Injection Pressure (psig) at Wellhead	Weekly
Annulus Pressure (psig) at Wellhead	Weekly
Flow Rate (barrels/day) of Injected Fluid	Weekly
Cumulative volume (barrels) of Injected Fluid	Weekly

Observation and recording of injection pressure, annulus pressure, flow rate and cumulative volume shall be made over equal time intervals beginning on the date on which the well commences operation. Recordings shall be of representative values.

3. Injection Fluid Analysis

The permittee shall conduct an injection fluid analysis at least once every twelve (12) months and whenever changes are made to the injection fluid. Analyses shall be made beginning within twelve (12) months from the effective date of this permit, or twelve (12) months from the most recent analysis, whichever is later. An analysis must include:

(a) pH, total dissolved solids, and specific gravity; and

(b) a list of all chemicals and their composition used for any well stimulation and fracturing during that sampling year; and a list of any additives used and, their chemical composition, including any inhibitors used to prevent scaling, corrosion, or bacterial growth. These lists should indicate the brand name of the product and the manufacturer.

On the written request of EPA, an injection fluid analysis shall include the following additional constituents: barium, calcium, total

iron, magnesium, sodium, bicarbonate, carbonate, chloride, sulfate, carbon dioxide, dissolved oxygen, hydrogen sulfide, and purgeable aromatic hydrocarbons.

SECTION D. REPORTING REQUIREMENTS

1. Reports on Well Tests and Workovers

Within ninety (90) days after the completion of the activity, the permittee shall report to the Director the results of the following:

(a) Mechanical integrity tests, other than those specified in Part I, Section A, item 3; and

(b) Any well workover, logging or other test data, other than those specified in Part I, Section A, item 3, revealing downhole conditions.

2. Reporting of Monitoring Results

Monitoring results, as specified in Part I, Section C, shall be reported each year on EPA Form 7520-11 and must be postmarked by the 28th day of the month following the first full year after the effective date of this permit.

Copies of the monitoring results required by Part I and all other reports required by Part II shall be submitted to the Director at the following address:

U. S. Environmental Protection Agency
Region 4, Water Management Division
Ground Water/Drinking Water Branch
Ground Water & UIC Section
61 Forsyth Street, SW
Atlanta, Georgia 30303-8909

3. Reporting of New Wells Drilled Within the Area of Review (AOR)

Within ten (10) days after spud date, the permittee shall report to the Director by certified mail, return receipt requested, the construction plans for any new well within the AOR of the permitted facility that will penetrate the confining zone or injection zone. The permittee shall provide information on proposed construction (including location and quantities of cement), location and depth. This requirement applies to any construction activity regardless of ownership of the well.

If the construction of the new well will not protect USDWs from contamination, the Director may terminate the permit under 40 C.F.R. §144-40(a)(3), if he or she determines that continued injection may endanger human health or the environment.

SECTION E. PLUGGING AND ABANDONMENT PLAN

Plugging and abandonment (P&A) of the permitted injection well shall be in accordance with Part II, Section F, of this permit and 40 C.F.R. §146.10.

During the operating life of the permitted well, this injection facility may be screened for technologically enhanced naturally occurring radioactive material (NORM) by EPA or another party. If the permittee is notified by a party other than EPA, or becomes aware at any time that elevated levels of NORM have been detected at this injection facility, the permittee must notify EPA in writing of that fact no later than 45 days prior to the permittee's intent to P&A the well. EPA may require the permittee to revise the P&A plan to insure the safe disposal and proper management of elevated levels of NORM waste.

The plugging of this injection well shall be performed in the manner described in Attachment Q of the permit application.

PART III

SPECIAL CONDITIONS

CORRECTIVE ACTION AND/OR WELL DATA

1. There is no documentation for the cementing of one well within the area of review (AOR) of the William Jones 41 well. Consequently, that well here identified as the William Jones #3 will require the following:

   (a) The permittee shall submit cement documentation for this well indicating a sufficient volume to yield a top of cement (TOC) within the confining zone overlying the Knox Formation, or

   (b) The permittee shall submit a cement bond log (CBL) indicating that this well is cemented within the confining zone.

   (c) In the absence of a sufficient volume of cement as indicated by (a) or (b) above, the permittee shall submit a plan for performing remedial cementing on this well or submit a plan for plugging this well. On approval by the director, the permittee shall conduct remedial cementing or plugging according to the approved plan.

2. Cement documentation for the William Jones #7 well yields a calculated TOC below the Knox formation. Therefore, this well will require the following:

   (a) The permittee shall submit a cement bond log (CBL) indicating that this well is cemented within the confining zone.

   (b) In the absence of a sufficient volume of cement as indicated by (a) above, the permittee shall submit a plan for performing remedial cementing on this well or submit a plan for plugging the well. On approval by the Director, the permittee shall conduct remedial cementing or plugging according to the approved plan.

Example of a Public Notice to Issue a Permit

PUBLIC NOTICE

U. S. Environmental Protection Agency

Region 4

Water Management Division - Ground Water/Drinking Water Br Branch

61 Forsyth Street, SW

Atlanta, Georgia 30303-8909

(404) 562-9424

Public Notice No. KY98UICOOXX April 3, 1998

NOTICE OF PROPOSED ISSUANCE OF
UNDERGROUND INJECTION CONTROL-PERMIT

The U. S. Environmental Protection Agency (EPA), Region 4, intends to issue an Underground Injection Control (UIC) permit under the authority of the Federal Regulations at 40 C.F.R. Parts 124, 144, 146, and 147 to

Wilcox Oil Company
120 Oil Field Road
Columbia, KY 42000

UIC Permit Application Number KYIOOXXX

The proposed Class 2 permit will authorize the construction, operation, and plugging and abandonment of the William Jones #1 enhanced recovery well in the Western Oil Field located in Adair County, Kentucky, Carter Coordinate 14-G-50, 3301 FSL x 3301 FWL.

The permitted well will be used to inject produced brine brought to the surface in connection with conventional oil and natural gas production from the operations in the Western Oil Field for enhanced recovery into the Knox Formation in the open hole interval from 1550 to 1600 feet below the surface.

The proposed UIC permit was drafted in accordance with the provisions of the Safe Drinking Water Act, as amended (42 U.S.C. 300f et seq., commonly known as SDWA) and other lawful standards and regulations. The permit limitations and conditions are tentative and open to comment from the public. Persons wishing to comment upon or object to any aspects of the permit issuance are invited to submit same in writing within thirty (30) days of this notice to the U. S. Environmental Protection Agency, Water Management Division, Ground Water/Drinking Water Branch, Ground Water & UIC Section, 61 Forsyth Street, S.W., Atlanta, Georgia 30303-8909, ATTENTION: XXXXX XXXXX. The public notice number and the UIC permit number should be included in the first page of comments. All comments received during the

public notice period will be made a part of the administrative record of this permit and will be available for public review.

All comments received within the thirty-day period will be considered in the formulation of the final determination regarding the permit issuance. Any interested person may, within the thirty-day period, request a public hearing, as provided by 40 C.F.R. §124.12. where there is a significant degree of public interest in the proposed permit issuance, the EPA Regional Administrator will hold a public hearing. Any request for a hearing must be in writing to the address given above and must state the nature of the issues proposed to be raised in the hearing.

After consideration of all timely written comments, the requirements and policies in the Safe Drinking Water Act and appropriate regulations, and, if a hearing is held, after consideration of all comments, statements and data presented at the hearing, the EPA Regional Administrator or his designee will make final determinations regarding the permit issuance. If the final determinations are substantially unchanged from the tentative determinations outlined above, the EPA Regional Administrator or his designee will so notify all persons who submitted written comments or participated in the hearing, if any was held. If the final determinations are substantially changed, the EPA Regional Administrator or his designee will issue a public notice indicating the revised determinations.

Within thirty (30) days after the Regional Administrator serves notice of the above final permit decision, any person who filed comments or participated in the public hearing, if any, may petition the Administrator to review the permit decision or any condition therein. Any person who failed to file comments or failed to participate in the public hearing, if any, may petition for administrative review only to the extent of the changes from the draft to the final permit decision. Additional information regarding administrative review is available in 40 C.F.R. §124.19 or by contacting the Legal Support Branch of the Environmental Accountability Division at the above address or at telephone number (404) 562-9488. A petition to the Administrator under 40 C.F.R. §124.19 is a prerequisite to the seeking of judicial review of the final permit decision.

The administrative record, including application, statement of basis, draft permit, comments received, and additional information on hearing procedures is available by writing to EPA at the above address, or for review and copying at 61 Forsyth Street, 9th Floor, Atlanta, Georgia, 30303-8909, between the hours of 8:15 a.m. and 4:30 p.m., Monday through Friday. Copies will be provided at a cost of 20 cents per page.

Please bring the foregoing to the attention of anyone who may be interested in this matter.

Example of a Statement of Basis

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4

Statement of Basis

for

U. S. EPA Underground Injection Control (UIC) Draft Permit Number KYIOOXX

for

Wilcox Oil Company
120 Oil Field Road
Columbia, KY 42000

for

The construction, operation, and plugging and abandonment of the William Jones #1 located in:

Western Oil Field
Adair County, KY
Carter Coordinate 14-G-50
330' FSL x 330' FWL

On March 16, 1998, Wilcox Oil Company submitted a UIC permit application and requested a permit for the construction, operation, and plugging and abandonment of the above mentioned well. This application and its subsequent amendments have been reviewed by EPA Region 4 staff and were deemed complete on April 14, 1998.

Under the authority of 40 C.F.R. Parts 144 and 146, EPA permits must specify conditions for construction, operation, monitoring, reporting, and plugging and abandonment of injection wells so as to prevent the movement of fluids into any underground source of drinking water (USDW). General provisions for EPA UIC permit requirements are found at 40 C.F.R. Parts 144 and 146, while regulations specific to Kentucky injection operations are found at 40 C.F.R. Part 147, Subpart S. In addition, permit conditions specific to this well are as follows.

Area of Review (AOR) and Corrective Action: In accordance with 40 C.F.R. §§144.55, 146.6 and 146.7, this is the area surrounding the well or project which

the applicant must research, examine and develop a program to address, with a corrective action plan, wells which penetrate the injection zones that are improperly sealed, completed or abandoned and may therefore provide a conduit for fluid migration. Except for the William Jones #3 and the William Jones #7, the applicant has provided documentation on the well population within one-quarter mile of the injection well (i.e., AOR) indicating that all the wells are properly constructed and corrective action will not be required.

Underground Sources of Drinking Water: USDWs are defined by the UIC regulations as aquifers or portions thereof which contain less than 10,000 parts per million of total dissolved solids and which are being or could be used as a source of drinking water. The lower-most possible USDW has been identified at approximately 150 feet below ground surface. The geologic name of this fresh water bearing formation is the Ft. Payne Formation.

Injection and Confining Zones: Injection of fluids for enhanced recovery is limited by the permit to the Knox Formation in the open hole interval between 1550 and 1600 feet below ground surface.This injection zone is separated from the lower-most USDW by a confining zone comprised of Devonian Age shale, Silurian Age limestones and Ordovician Age limestones with a thickness of approximately 1400 feet.

Construction Requirements: The construction of the injection well meets the regulatory criteria of 40 C.F.R. §146.22 which requires that all new Class II wells be sited so that they inject into a formation which is separated from any USDW by a confining zone free of known open faults or fractures within the AOR; and that all Class II wells be cased and cemented to prevent the movement of fluids into or between USDWs.

Injection Fluid: The injected fluid is limited to fluids brought to the surface in connection with conventional oil and natural gas production from the operations in the Western Oil Field. The expected maximum daily volume of fluid to be injected is 200 barrels.

Maximum Injection Pressure: The maximum allowable wellhead injection pressure for the proposed operation will be 900 psig. This limitation will ensure that the pressure during injection does not initiate new fractures or propagate existing fractures in the confining zones adjacent to the lowermost USDW. This in turn ensures that the injection pressure will not cause the movement of injection or formation fluids into a USDW, as required at 40 C.F.R. §146.23.

Monitoring and Reporting Requirements: In accordance with 40 C.F.R. §§144.54 and 146.23, the applicant will be responsible for monitoring injection pressure,

annulus pressure, flow rate, and cumulative volume on a weekly basis and reporting monitoring results to EPA on an annual basis. The applicant is also required to conduct and pass a two-part mechanical integrity test (MIT), in accordance with 40 C.F.R. §146.8, once after the well is complete and once every five years thereafter. These tests will provide EPA with an evaluation of the integrity of the tubular goods (casing, tubing, and packer) as well as documentation as to the absence of fluid movement behind the cemented casing.

Plugging and Abandonment: In accordance with 40 C.F.R. §§146.10 and 146. 24 (d) , the permit includes a plugging and abandonment plan that will result in environmentally protective well closure at the time of cessation of operations. The applicant has also made a demonstration of financial responsibility, in accordance with 40 C.F.R. §§144.52(a) and 146.24(a), which indicates that adequate resources will be available for well closure and will preclude the possibility of abandonment without proper plugging.

Expiration Date: In accordance with 40 C.F.R. §144.36, the permit will be in effect for the life of the well or project, unless it is otherwise modified, revoked and reissued, or terminated as provided at 40 C.F.R. §§144.39, 144.40 and 144.41. The permit will be reviewed by EPA at least once every five (5) years from the effective date for consistency with federal regulations.

Additional Information: Questions, comments and requests for additional information or for a public hearing may be directed to the contact person listed below. The public comment period on this permitting action will close thirty (30) days after the date of the public notice. If EPA receives written comments of substantial public interest concerning a hearing on this action, a public notice of this hearing will be published locally and mailed to interested parties.

XXXX XXXX
U. S. EPA, Region 4
Water Management Division
Ground Water/Drinking Water Branch
Ground Water & UIC Section
61 Forsyth Street, SW
Atlanta, Georgia 30303-8909

TAB 7

Please type or print all information. Please read instructions on reverse.

Form Approved OMB No. 2040-0042 Expires 6-30-98

United States Environmental Protection Agency
Office of Drinking Water
Washington, DC 20460

EPA

UIC Federal Reporting System
Part I: Permit Review and Issuance/ Wells in Area of Review

(This information is solicited under the authority of the Safe Drinking Water Act)

I. Name and Address of Reporting Agency

II. Date Prepared *(month, day, year)*

III. State Contact *(name, telephone no.)*

IV. Reporting Period *(month, year)*

From October 1, 19

To

Item					Class and Type of Injection Wells: I	II: SWD 2D	II: ER 2R	II: HC 2H	III	IV	V
V. Permit Application	Number of Permit Applications Received										
VI. Permit Determination	Permit Issued	A	Number of Individual Permits Issued *(One well)*	New Wells							
				Existing Wells							
		B	Number of Area Permits* Issued *(Multiple wells)* *(*See instructions on back)*	New Well Field							
				Existing Well Field							
		C	Number of Wells in Area Permits *(See B above)*	New Wells							
				Existing Wells							
	Permit Not Issued	D	Number of Permits Denied/Withdrawn *(after complete technical review)*								
	Modification Issued	E	Number of Major Permit Modifications Approved								
VII. Permit File Review	Number of Rule-Authorized Class II Wells Reviewed			Wells Reviewed							
				Wells Deficient							
VIII. Area of Review (AOR)	Wells Reviewed	A	Number of Wells in Area of Review	Abandoned Wells							
				Other Wells							
	Wells Identified for C/A	B	Number of Wells Identified for Corrective Action	Abandoned Wells							
				Other Wells							
	Wells with C/A	C	1. Number of Wells in AOR with Casing Repaired/Recemented C/A								
			2. Number of Active Wells in AOR Plugged/Abandoned								
			3. Number of Abandoned Wells in AOR Replugged								
			4. Number of Wells in AOR with "Other" Corrective Action								

IX. Remarks/Ad Hoc Report *(Attach additional sheets if necessary)*

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate, and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

Signature and Typed or Printed Name and Title of Person Completing Form	Date	Telephone No.

EPA Form 7520-1 (Rev. 1-88) Previous edition is obsolete.

Instructions and Definitions

All reporting is cumulative, year to date, and begins with October 1.

Section V. Permit Application

Enter under each well class the total number of permit applications that have been received this year to date. Include all applications: complete and incomplete; individual and multiple well (Area Permit); and applications for "New" and "Existing" wells.

A "New Well" is any well other than an existing well or a plugged/abandoned well that became operable after the effective date of the State (or EPA) Underground Injection Control program.

An "Existing Well" is any operable (i.e. active, under construction, shut in, or temporarily abandoned) injection well or a properly plugged and abandoned injection well that was in existence on the effective date of the State (or EPA) UIC Program.

Section VI. Permit Determination

Permit Determinations include the approval or denial of UIC permit requests/actions such as: applications for permits, major modifications to issued permits, revocation and reissuance of permits, or termination of permits for cause. A complete permit determination includes a thorough technical evaluation of the request, public notification or review before issuance, and a final decision document signed by the regulatory authority.

Item A: Enter under each well class the number of individual permits issued for "New" or "Existing" wells this year to date.

Item B: Enter under each well class the number of area permits that have been issued for "New" or "Existing" well fields this year to date. ("New," in this case, describes a nonhazardous injection well field having only new wells or a mixture of new and existing wells. "Existing" describes a nonhazardous well field having only existing wells.)

Item C: Enter under each well class the number of "New" and "Existing" wells covered by the Area Permits entered at Item B.

Item D: Enter under each well class the number of permits or major modifications denied by the State (or EPA) UIC program and/or permits withdrawn by applicants this year to date. The denial of a permit or major modification should be included as a permit determination only after there has been a complete technical review.

Item E: Enter under each well class the number of major modifications approved this year to date. An approved major modification requires a complete technical review, public notification or review, and a final decision document signed by the regulatory authority.

Section VII. Permit File Review

A complete technical review of an existing (rule authorized) Class II well record may be conducted by the authorized regulating authority in lieu of a permit determination in accordance with the UIC 1425 Guidance to determine whether the well is in compliance with UIC regulatory requirements. The well record (or file) review may include an evaluation of siting reports, wells in the area of review, construction, operating, monitoring or other State reports. Existing Class II wells should be routinely reviewed at least once every five years during the life of the well.

Wells Reviewed: Enter under the appropriate category of injection wells the number of rule authorized (existing) Class II wells with permit files reviewed and compliance status determined this year to date.

Wells Deficient: Enter under the Class II well class the number of reviewed rule authorized Class II wells found deficient (not in compliance) that received corrective or enforcement action as appropriate followup response.

Section VIII. Area of Review (AOR)

All wells that penetrate the injection zone in the AOR of an injection well/field are reviewed during permit determination or during any AOR analysis of a rule authorized well file.

Item A: Enter under the well class of each permit application or file that has been reviewed this year to date, the number of "Abandoned" and "Other" wells, reviewed in the AOR.

"Abandoned" includes any well penetrating the injection zone in the AOR that has been properly or improperly plugged and/or abandoned. "Other" includes any producing well, operable injection well, dry hole, exploratory well, etc., that penetrates the injection zone in the AOR.

Corrective Action is required for those wells that penetrate the injection zone in the AOR that are improperly sealed, completed, or abandoned.

Item B: Enter under the well class of each permit application or file reviewed this year to date, all "Abandoned" and "Other" wells in the AOR that have required corrective action.

Item C: Enter under the well class of all permit applications or files that have been reviewed, the number of wells in the AOR which have received corrective action (be specific) this year to date.

See attached Notice on the Paperwork Reduction Act.

Part I: Permit Review and Issuance/ Wells in Area of Review Amendment

PAPERWORK REDUCTION ACT

Public reporting burden for this collection of information is estimated at an average of 10 hours per quarter, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden, estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SV, Washington, DC 20460, and to the Office of Management and Budget, Paperwork Reduction Project, Washington, DC 20503.

EPA Form 7520-1 (Rev. 1-88)
Previous edition is obsolete.

Please type or print all information. Please read instructions on reverse

Form Approved OMB No. 2040-0042 Expires 6-30-98

United States Environmental Protection Agency
Office of Drinking Water
Washington, DC 20460

EPA

UIC Federal Reporting System
Part II: Compliance Evaluation

(This information is solicited under the authority of the Safe Drinking Water Act)

I. Name and Address of Reporting Agency

II. Date Prepared *(month, day, year)*

III. State Contact *(name, telephone no.)*

IV. Reporting Period *(month, year)* From October 1, 19 To

Item				Class and Type of Injection Wells: I	II: SWD 2D	II: ER 2R	II: HC 2H	III	IV	V
Summary of Violations	Total Wells	A	Number of Wells with Violations							
	Total Violations	B	1. Number of Unauthorized Injection Violations							
			2. Number of Mechanical Integrity Violations							
			3. Number of Operation and Maintenance Violations							
			4. Number of Plugging and Abandonment Violations							
			5. Number of Monitoring and Reporting Violations							
			6. Number of Other Violations *(Specify)*							
VI. Summary of Enforcement	Total Wells	A	Number of Wells with Enforcement Actions							
	Total Enforcement Actions	B	1. Number of Notices of Violation							
			2. Number of Consent Agreements							
			3. Number of Administrative Orders							
			4. Number of Civil Referrals							
			5. Number of Criminal Referrals							
			6. Number of Well Shut-ins							
			7. Number of Pipeline Severances							
			8. Number of Other Enforcement Actions *(Specify)*							
VII. Summary of Compliance	Number of Wells Returned to Compliance		A. This Quarter							
			B. This Year							
VIII. Contamination	Number of Cases of Alleged Contamination of a USDW									
IX. MIT Resolved	Percent of MIT Violations Resolved in 90 Days									

X. Remarks/Ad Hoc Report *(Attach additional sheets)*

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate, and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

Signature and Typed or Printed Name and Title of Person Completing Form	Date	Telephone No.

EPA Form 7520-2A (1-88) Replaces EPA Form 7520-2, which is obsolete.

Definitions and Instructions

All reporting is cumulative, year to date, and begins with October 1.

A Class II, III or V injection well with a violation of a permit or rule requirement is said to be in noncompliance. A Class I or IV well with any violation is said to be in significant noncompliance (SNC). Note: A Class II, III, or V well with certain types of violations may also be in significant noncompliance. See Form 7520-2B (Reverse) for definitions of SNC violations.

Section V. Summary of Violations

(Includes all noncompliance, significant and non-significant)

Note. Also Report Significant Noncompliance Information on Form 7520-2B.

A. Total Wells: Enter under each well class the number of wells with a violation(s) identified this year to date, whether or not the well has been returned to compliance. These totals track the percentage of the injection well universe in noncompliance each year. Enter a well only once each year.

B. Total Violations:

Item 1-6: Enter under each well class the number of times each violation (be specific) has been identified this year to date.

Section VI. Summary of Enforcement

A. Total Wells: Enter under each well class the number of wells with violations that have received an enforcement action(s) this year to date. These totals track the percentage of the injection well universe that receives an enforcement action each year. Enter a well only once each year.

B. Total Enforcement Actions:

Item 1-8: Enter under each well class the number of times wells with violations have received an enforcement action(s) (be specific) this year to date.

Section VII. Number of Wells Returned to Compliance

A "Well Returned to Compliance" is a well in violation program requirements that has had the violation(s) corrected and the resolution of the violation(s) has been verified by the regulating authority. Note: An enforcement action alone (e.g., well shut-in) does not constitute a "return to compliance."

A. Enter under each well class the number of wells returned to compliance in the current quarter only.

B. Enter under each well class the number of wells returned to compliance (as a result of an enforcement action against a violation) this year to date. These totals track the percentage of the injection well universe that returned to compliance through an enforcement action(s) each year. Enter a well only once each year.

Section VIII. USDW Contaminations

Enter under each well class the number of times a well in noncompliance has allegedly contaminated an underground source of drinking water (USDW) this year to date.

Section IX. % MIT Violations Resolved in 90 Days

Enter under each well class the percentage of MIT violations (identified in Section V., under "Mechanical Integrity") resolved within 90 days.

In order to calculate the percentage:

1. Add up the total number MIT violations to date whether or not they were identified in this reporting period, e.g., 10.
2. Add up the number of these violations to date that were resolved in 90 days or less, e.g., 5.
3. Calculate the percentage of total MIT violations to date that have been resolved in 90 days or less, e.g., 50%.

PAPERWORK REDUCTION ACT

Public reporting burden for this collection of information is estimated at an average of 10 hours per quarter, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden, estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SV, Washington, DC 20460, and to the Office of Management and Budget, Paperwork Reduction Project, Washington, DC 20503.

Please type or print all information. Please read instructions on reverse. Form Approved. OMB No. 2040-0042. Expires 6-30-98

EPA

United States Environmental Protection Agency
Office of Ground Water Drinking Water
Washington, D.C. 20460
UIC Federal Reporting System

Part II: Compliance Evaluation Significant Noncompliance

This information is collected under the authority of the Safe Drinking Water Act

I. Name and Address of Reporting Agency

II. Date Prepared (month, day, year)	III. State Contact (name, telephone no.)	IV. Reporting Period (month, year)	From October 1, 199	To

Item				Class and Type of Injection Wells: I	II: SWD 2D	II: ER 2R	II: HC 2H	III	IV	V
V. Summary of Significant Non-Compliance (SNC)	Total Wells	A	Number of Wells with SNC Violations							
	Total Violations	B	1. Number of Unauthorized Injection SNC Violations							
			2. Number of Mechanical Integrity SNC Violations							
			3. Number of Injection Pressure SNC Violations							
			4. Number of Plugging and Abandonment SNC Violations							
			5. Number of SNC Violations of Formal Orders							
			6. Number of Falsification SNC Violations							
			7. Number of Other SNC Violations (Specify)							
VI. Summary of Enforcement Against SNC	Total Wells	A	Number of Wells with Enforcement Actions Against SNC							
	Total Enforcement Actions	B	1. Number of Notices of Violation							
			2. Number of Consent Agreements/Orders							
			3. Number of Administrative Orders							
			4. Number of Civil Referrals							
			5. Number of Criminal Referrals							
			6. Number of Well Shut-ins							
			7. Number of Pipeline Severences							
			8. Number of Other Enforcement Actions Against SNC Violations (Specify)							
VII. Summary of Compliance	Number of Wells in SNC Returned to Compliance		A. This Quarter							
			B. This Year							
VIII. Contamination	Number of Cases of Alleged Contamination of a USDW									
IX. Well Closure	Class IV/Endangering Class V Well Closures		Involuntary Well Closure							
			Voluntary Well Closure							

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate, and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

Signature and Typed or Printed Name and Title of Person Completing Form	Date	Telephone No.

EPA Form 7520-2B (1-88) Replaces EPA Form 7520-2 which is obsolete

INSTRUCTIONS AND DEFINITIONS
EPA Form 7520-2B

Section IV. Reporting Period: All reporting is cumulative, year to date, beginning with October 1.

Definitions of SNC Violations:

1. Violations of any kind pertaining to a Class I or IV well.

2. The following violations by the owner/operator of a Class II, III or V well:

a. Unauthorized Injection -- Any unauthorized emplacement of fluids (where formal authorization is required);

b. Mechanical Integrity -- Well operation without mechanical integrity which causes the movement of fluid outside the authorized zone -- if injection of such fluid may have the potential for endangering a USDW;

c. Injection Pressure -- Well operation at an injection pressure that exceeds the permitted or authorized injection pressure and causes the movement of fluid outside the authorized zone of injection -- if such movement may have the potential for endangering a USDW;

d. Plugging and Abandonment -- The plugging and abandonment of an injection well in an unauthorized manner. This definition includes the "walking away from" a responsibility to plug and abandon a well. These wells are in SNC only when there is endangerment of a USDW and there is an identifiable owner/operator.

e. Violation of a Formal Order -- Any violation of a formal enforcement action, including an administrative or judicial order, consent agreement, judgment, or equivalent State action;

f. Falsification -- The knowing submission or use of any false information in a permit application, periodic report or special request for information about a well.

Section V. Total No. of Wells with SNC Violations: *Significant Noncompliance information is also to be reported on EPA Form 7520-2A.* Under each well class and type, enter the total number of SNC violations which have been identified in the year to date, whether or not the violation(s) have been corrected and the well(s) returned to compliance. *These totals track the percentage of the injection well universe in SNC each year. Enter a well only once each year.*

For subsections 1 through 7 enter under each well class the total number of times, by specific violation, an SNC has been identified this year to date.

See the attached Notice on the Paperwork Reduction Act.

Section VI. Total SNC Enforcem Act s: *Significant Noncompliance information is also e r ted on EPA Form 7520-2A.* Under each well c anc e, enter the total number of wells with SNC violati nat e received an enforcement action(s) this year tc wh r or not the wells have been returned to compliance. *hese tc ils track the percentage of the injection well verse that receives an SNC enforcement action each year. ter a well only once each year.*

For subsections 1 through 8 enter under each well class the total number of times wells with SNC violations have received the specified enforcement action this year to date.

Section VII. No. of Wells Returned to Compliance: *A "Well Returned to Compliance" is a well in violation of UIC program requirements which has had the violation(s) corrected and has had the resolution of the violation(s) verified by the regulating authority. An enforcement action alone (e.g., well shut-in) does not constitute a "Return to Compliance".*

Under subsection A. enter under each well class the total number of wells returned to compliance (as a result of an enforcement action against an SNC violation) in the current quarter only. Under subsection B, enter under each well class the total number of wells returned to compliance (as a result of an enforcement action against an SNC violation) this year to date. *These totals track the percentage of the injection well universe that returned to compliance through an SNC enforcement action(s) each year. Enter a well only once each year.*

Section VIII. USDW Contaminations

Enter under each well class the number of times a well in SNC has allegedly contaminated an underground source of drinking water (USDW) this year to date.

Section IX. Number of Class IV/V Endangering Class V Well Closures: Enter the number of Class IV and Class V we closures either as a voluntary or involuntary action. Involuntary well closure means wells closed as a result of enforcemen actions or permit call-ins. Voluntary well closure means wells closed as a direct result of outreach activities. Well closure describes a process to permanently discontinue injection of an unauthorized and endangering fluid contaminant which is in violation of RCRA or SDWA or applicable regulations. At th time, closure must include immediate cessation of injection of unauthorized waste stream to satisfy SDWA requirements. To satisfy both SDWA and RCRA, well closure may require addi tional actions: remove injection fluids deposited in well, sludge and any visibly contaminated soil; segregate hazardou waste streams from sanitary waste streams (septic system) and redirect HW to holding tank; restrict injection to authorized waste stream; seal floor drain; obtain authorized sewer hook-up; remove well, injectate and contaminated soil and dispose in authorized facility. Imminent threat to USDW may require monitoring and ground-water remediation.

Part II: Compliance Evaluation Significant Noncompliance Amendment

PAPERWORK REDUCTION ACT NOTICE

Public reporting burden for this collection of information is estimated at an average of 10 hours per quarter, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden, estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SV, Washington, DC 20460, and to the Office of Management and Budget, Paperwork Reduction Project, Washington, DC 20503.

EPA Form 7520-2B (Rev. 1-88)
Replaces EPA Form 7520-2, which is obsolete.

Please type or print all information. Please read instructions on reverse. Form Approved. OMB No. 2040-0042. Expires 6-30-98

United States Environmental Protection Agency
Office of Drinking Water
Washington, DC 20460

UIC Federal Reporting System
Part III: Inspections
Mechanical Integrity Testing

(This information is solicited under the authority of the Safe Drinking Water Act)

I. Name and Address of Reporting Agency

II. Date Prepared (month, day, year)

III. State Contact (name, telephone no.)

IV. Reporting Period (month, year) From October 1, 19 To

Item				Class and Type of Injection Wells: I	II: SWD 2D	II: ER 2R	II: HC 2H	III	IV	V
V. Summary of Inspections	Total Wells	A	Number of Wells Inspected							
	Total Inspections	B	1. Number of Mechanical Integrity Tests (MIT) Witnessed							
			2. Number of Emergency Response or Complaint Response Inspections							
			3. Number of Well Constructions Witnessed							
			4. Number of Well Pluggings Witnessed							
			5. Number of Routine/Periodic Inspections							
VI. Summary of Mechanical Integrity (MI)	Total Wells	A	Number of Wells Tested or Evaluated for Mechanical Integrity (MI)							
		B	No. of Rule-Authorized Wells Tested/Evaluated for MI — Passed 2-part test							
			Failed 2-part test							
	For Significant Leak	C	1. Number of Annulus Pressure Monitoring Record Evaluations — Well Passed							
			Well Failed							
			2. No. of Casing/Tubing Pressure Tests — Well Passed							
			Well Failed							
			3. Number of Monitoring Record Evaluations — Well Passed							
			Well Failed							
			4. No. of Other Significant Leak Tests/Evaluations (Specify) — Well Passed							
			Well Failed							
	For Fluid Migration	D	1. Number of Cement Record Evaluations — Well Passed							
			Well Failed							
			2. Number of Temperature/Noise Log Tests — Well Passed							
			Well Failed							
			3. No. of Radioactive Tracer/Cement Bond Tests — Well Passed							
			Well Failed							
			4. No. of Other Fluid Migration Tests/Evaluations (Specify) — Well Passed							
			Well Failed							
VII. Summary of Remedial Action	Total Wells	A	Number of Wells with Remedial Action							
	Total Remedial Actions	B	1. Number of Casing Repaired/Squeeze Cement Remedial Actions							
			2. Number of Tubing/Packer Remedial Actions							
			3. Number of Plugging/Abandonment Remedial Actions							
			4. Number of Other Remedial Actions (Specify)							

VIII. Remarks/Ad Hoc Reports (Attach additional sheets)

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate, and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

Signature and Typed or Printed Name and Title of Person Completing Form	Date	Telephone No.

EPA Form 7520-3 (Rev. 1-88) Previous edition is obsolete.

Instructions and Definitions

(All reporting is cumulative, year to date, and begins with October 1.)

Section V. Summary of Inspections

A complete inspection should include an assessment of: the well head, pressure and flow meters, pipeline connections, and any other equipment associated with the injection system; an inspection is complete only when a report has been filed with the regulating authority.

Item A: Enter under each well class the number of wells that have been inspected this year to date. These totals track the percentage of the injection well universe inspected each year. Enter a well only once each year.

Total Inspections: (This year to date)

Item 1: Enter under each well class the number of inspections to witness field Mechanical Integrity Tests. (At least 25% of MITs performed by operators each year should be witnessed.)

Item 2: Enter under each well class the number of inspections that have been in response to a problem reported to the regulating authority.

Item 3: Enter under each well class the number of inspections of well constructions or any preoperational activities.

Item 4: Enter under each well class the number of inspections of well pluggings or pluggings and abandonment.

Item 5: Enter under each well class the number of inspections that have been routine/periodic.

Section VI. Summary of Mechanical Integrity

A complete MIT is composed of a test for significant leaks in the casing, tubing or packer and a test for significant fluid migration into a USDW through vertical channels adjacent to the well bore. An MIT consists of a field test on a well or an evaluation of a well's monitoring records (i.e., annulus pressure, etc.) or cement records. At a minimum, the mechanical integrity of a Class I, II, or III (solution mining of salt) well should be demonstrated at least once every five years during the life of the well.

Item A: Enter under each well class the number of wells that have had a complete MIT this year to date. These totals track the percentage of the injection well universe tested for MI each year. Enter a well as only once each year.

Item B: Enter under the appropriate well class the number of rule authorized wells that have passed a complete MIT and the number that have failed a complete MIT this year to date.

Item C. Significant Leak Tests: (This year to date)

Item 1-4: Enter under e[illegible] well clas[illegible] the number of times wells have passed or faii[illegible] a field t[illegible]/record evaluation for significant leaks (be s[illegible]ific).

Item D. Fluid Migratior[illegible]sts: (T[illegible]ear to date)

Items 1-4: Enter und[illegible] each [illegible] class the number of times wells have pass[illegible]or faile[illegible] field test/record evaluation for fluid migratic[illegible] (be specific).

Section VII. Summary of Remedial Action

A failure of mechanical integrity (MI) may occur at any time during the life of an injection well until it is plugged and abandoned in accordance with a preapproved plan. Failure may be identified during an inspection a field test, an evaluation of well records, or during routine operation of a well. Remedial actions include additional permit conditions, monitoring or testing, or one of the actions specified below.

Item A: Enter under each well class the number of wells that have received remedial actions this year to date. This total tracks the percentage of the injection well universe that have received remedial action each year. Enter a well only once each year.

Total Remedial Actions: (This year to date)

Item 1-4: Enter under each well class the number of times that wells have received remedial action (be specific).

Paperwork Reduction Act Notice

Public reporting burden for this collection of information is estimated at an average of 10 hours per quarter, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460, and to the Office of Management and Budget, Paperwork Reduction Project, Washington, DC 20503.

United States Environmental Protection Agency
Office of Drinking Water
Washington, DC 20460

EPA

UIC Federal Reporting System

Part IV: Quarterly Exceptions List

(This information is collected under the authority of the Safe Drinking Water Act.)

Form Approved
OMB No. 2040-0042
Approval expires Expires 6-30-98

I. Reporting Period

From	To

II. Well Class and Type	III. Name and Address of Owner/Operator	IV. Well ID No. (Permit No.)	V. Summary of Violations								VI. Summary of Enforcement									VII. Date Compliance Achieved
			Date of Violation	Mark ('X') Violation Type							Date of Enforcement	Mark ('X') Enforcement Type								
				Unauthorized Injection	Well Mechanical Integrity	Injection Pressure	Plugging and Abandonment	Formal Order	Falsification	Other (Specify)		Notice of Violation	Consent Agreement	Administrative Order	Civil Referral	Criminal Referral	Well Shut-in	Pipeline Severance	Other (Specify)	

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate, and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

Signature of Person Completing Form	Typed or Printed Name and Title	Date	Telephone Number

EPA Form 7520-4 (Rev. 3-88) Previous edition is obsolete.

Definitions and Instructions

The quarterly Exceptions list is used to track wells reported in significant noncompliance (SNC) on EPA Form 7520-2B for two or more consecutive quarters without being addressed with a formal enforcement action or returned to compliance. Any SNC reported on Form 7520-4 shall be reported until the SNC is resolved. Once a SNC is reported as resolved, it need not appear in subsequent reports.

Section I - Reporting period

All reporting is cumulative, year to date, beginning with October 1.

Section II - Well Class and Type

Enter the well class and type of each well in SNC for two or more consecutive quarters. For Class I wells, specify IH for hazardous waste, IM for municipal waste, Ii for industrial waste. For Class II wells, specify IID for saltwater disposal, IIR for enhanced recovery, IIH for liquid hydrocarbon storage.

Section III - Name and Address of Owner/Operator

Enter the name and address of the owner/operator of the injection well. Use multiple lines of the form if needed. (You may use one form for each owner/operator.)

Section IV - Well ID No. (Permit No.)

Enter the I.D. number of the injection well in SNC. If the well has a UIC permit number, enter this as the I.D. number.

Section V - Summary of Violations

Enter the date the SNC violation was first identified and place an "X" in the appropriate column. In the event that there were multiple SNC violations for a single well, enter each violation and the date it was identified on a separate line.

Section VI - Summary of Enforcement

Enter the date an enforcement action was taken against the SNC violation and place an "X" in the appropriate column. In the event that there were multiple enforcement actions, enter each enforcement action and the date it was taken on a separate line.

PAPERWORK REDUCTION ACT NOTICE

Public reporting burden for this collection of information is estimated at an average of 10 hours per quarter, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden, estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SV, Washington, DC 20460, and to the Office of Management and Budget, Paperwork Reduction Project, Washington, DC 20503.

Please type or print all information. Please read instructions on reverse. Form Approved OMB No. 2040-0042 Expires 6-30-98

United States Environmental Protection Agency
Office of Drinking Water
Washington, DC 20460

EPA

UIC Federal Reporting System
Part V
Summary of UIC Grant Utilization

(This information is solicited under the authority of the Safe Drinking Water Act)

I. Name and Address of Reporting Agency

II. Date Prepared *(month, day, year)*

III. State Contact *(name, telephone no.)*

IV. Reporting Period *(month, year)*

From October 1, 19

To

Item		Federal Funds ($)	State Funds ($)
V. Expenditure by Object Class	A. Personnel		
	B. Fringe Benefits		
	C. Travel		
	D. Equipment		
	E. Supplies		
	F. Contractual		
	G. Other Direct Charges		
	H. Indirect Charges		
	I. Total		
VI. Expenditure by Program Element	A. Administration		
	B. Permitting		
	C. Surveillance, Inspection, and Quality Assurance		
	D. Enforcement		
	E. Aquifer Identification and Exemption		
	F. Class V Assessment		
	G. Data Management		
	H. Public Information, Training, and Technical Assistance		
	I. Other		
	J. Total		

VII. Remarks *(Attach additional sheets if necessary)*

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate, and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

Signature and Typed or Printed Name and Title of Person Completing Form	Date	Telephone No.

EPA Form 7520-5 (1-88)

PAPERWORK REDUCTION ACT NOTICE

Public reporting burden for this collection of information is estimated at an average of 10 hours per quarter, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden, estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SV, Washington, DC 20460, and to the Office of Management and Budget, Paperwork Reduction Project, Washington, DC 20503.

Form Approved. OMB No. 2040-0042. Expires 6-30-98

EPA

United States Environmental Protection Agency

Underground Injection Control Permit Application

(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)

I. EPA ID Number			
		T/A	C
U			

Read Attached Instructions Before Starting

For Official Use Only

Application approved mo	day	year	Date received mo	day	year	Permit Number	Well ID	FINDS Number

II. Owner Name and Address			III. Operator Name and Address		
Owner Name			Operator Name		
Street Address		Phone Number	Street Address		Phone Number
City	State	ZIP CODE	City	State	ZIP CODE

IV. Commercial Facility	V. Ownership	VI. Legal Contact	VII. SIC Codes
☐ Yes ☐ No	☐ Private ☐ Federal ☐ Other	☐ Owner ☐ Operator	

VIII. Well Status *(Mark "x")*

☐ A. Operating	Date Started mo	day	year	☐ B. Modification/Conversion	☐ C. Proposed

IX. Type of Permit Requested *(Mark "x" and specify if required)*

☐ A. Individual ☐ B. Area	Number of Existing Wells	Number of Proposed Wells	Name(s) of field(s) or project(s)

X. Class and Type of Well *(see reverse)*

A. Classes(es) (enter codes(s)	B. Type(s) (enter codes(s)	C. If class is "other" or type is code 'x,' explain	D. Number of wells per type (if area permit)

XI. Location of Well(s) or Approximate Center of Field or Project

Latitude			Longitude			Township and Range							
Deg	*Min*	*Sec*	*Deg*	*Min*	*Sec*	*Sec*	*Twp*	*Range*	*1/4 Sec*	Feet From	Line	Feet From	Line

XII. Indian Lands (Mark 'x')

☐ Yes
☐ No

XIII. Attachments

(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)
For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A--U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.

XIV. Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

A. Name and Title *(Type or Print)*	B. Phone No. *(Area Code and No.)*
C. Signature	D. Date Signed

EPA Form 7520-6 (Rev. 8-91)

Well Class and Type Codes

Class I	Wells used to inject waste below the deepest underground source of drinking water
Type "I"	Nonhazardous industrial disposal well
"M"	Nonhazardous municipal disposal well
"W"	Hazardous waste disposal well injecting below USDWs
"X"	Other Class I wells (not included in Type "I," "M," or "W")
Class II	Oil and gas production and storage related injection wells.
Type "D"	Produced fluid disposal well
"R"	Enhanced recovery well
"H"	Hydrocarbon storage well (excluding natural gas)
"X"	Other Class II wells (not included in Type "D," "R," or "H")
Class III	Special process injection wells.
Type "G"	Solution mining well
"S"	Sulfur mining well by Frasch process
"U"	Uranium mining well (excluding solution mining of conventional mines)
"X"	Other Class III wells (not included in Type "G," "S," or "U")
Other Classes	Wells not included in classes above.
	Class V wells which may be permitted under §144.12
	Wells not currently classified as Class I, II, III, or V.

Attachments to Permit Application

Class	Attachments
I new well	A, B, C, D, F, H — S, U
existing	A, B, C, D, F, H — U
II new well	A, B, C, E, G, H, M, Q, R; optional — I, J, K, O, P, U
existing	A, E, G, H, M, Q, R — U; optional — J, K, O, P, Q
III new well	A, B, C, D, F, H, I, J, K, M — S, U
existing	A, B, C, D, F, H, J, K, M — U
Other Classes	To be specified by the permitting authority

INSTRUCTIONS - Underground Injection Control (UIC) Permit Application

PAPERWORK REDUCTION ACT NOTICE

Public reporting burden for this collection of information is estimated at an average of 255 hours for Class I wells, 16 hours for Class II wells, and 200 hours for Class III wells per application, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460, and to the Office of Management and Budget, Paperwork Reduction Project, Washington, DC 20503.

This form must be completed by all owners or operators of Class I, II, and III injection wells and others who may be directed to apply for permit by the Director.

I. EPA I.D. NUMBER - Fill in your EPA Identification Number. If you do not have a number, leave blank.

II. OWNER NAME AND ADDRESS - Name of well, well field or company and address.

III. OPERATOR NAME AND ADDRESS - Name and address of operator of well or well field.

IV. COMMERCIAL FACILITY - Mark the appropriate box to indicate the type of facility.

V. OWNERSHIP - Mark the appropriate box to indicate the type of ownership.

VI. LEGAL CONTACT - Mark the appropriate box.

VII. SIC CODES - List at least one and no more than four Standard Industrial Classification (SIC) Codes that best describe the nature of the business in order of priority.

VIII. WELL STATUS - Mark Box A if the well(s) were operating as injection wells on the effective date of the UIC Program for the State. Mark Box B if wells(s) existed on the effective date of the UIC Program for the State but were not utilized for injection. Box C should be marked if the application is for an underground injection project not constructed or not completed by the effective date of the UIC Program for the State.

IX. TYPE OF PERMIT - Mark "Individual" or "Area" to indicate the type of permit desired. Note that area permits are at the discretion of the Director and that wells covered by an area permit must be at one site, under the control of one person and do not inject hazardous waste. If an area permit is requested the number of wells to be included in the permit must be specified and the wells described and identified by location. If the area has a commonly used name, such as the "Jay Field," submit the name in the space provided. In the case of a project or field which crosses State lines, it may be possible to consider an area permit if EPA has jurisdiction in both States. Each such case will be considered individually, if the owner/operator elects to seek an area permit.

X. CLASS AND TYPE OF WELL - Enter in these two positions the Class and type of injection well for which a permit is requested. Use the most pertinent code selected from the list on the reverse side of the application. When selecting type X please explain in the space provided.

XI. LOCATION OF WELL - Enter the latitude and longitude of the existing or proposed well expressed in degrees, minutes, and seconds or the location by township, and range, and section, as required by 40 CFR Part 146. If an area permit is being requested, give the latitude and longitude of the approximate center of the area.

XII. INDIAN LANDS - Place an "X" in the box if any part of the facility is located on Indian lands.

XIII. ATTACHMENTS - Note that information requirements vary depending on the injection well class and status. Attachments for Class I, II, III are described on pages 4 and 5 of this document and listed by Class on page 2. Place EPA ID number in the upper right hand corner of each page of the Attachments.

XIV. CERTIFICATION - All permit applications (except Class II) must be signed by a responsible corporate officer for a corporation, by a general partner for a partnership, by the proprietor of a sole proprietorship, and by a principal executive or ranking elected official for a public agency. For Class II, the person described above should sign, or a representative duly authorized in writing.

INSTRUCTIONS - Attachments

Attachments to be submitted with permit application for Class I, II, III and other wells.

A. AREA OF REVIEW METHODS - Give the methods and, if appropriate, the calculations used to determine the size of the area of review (fixed radius or equation). The area of review shall be a fixed radius of ¼ mile from the well bore unless the use of an equation is approved in advance by the Director.

B. MAPS OF WELL/AREA AND AREA OF REVIEW - Submit a topographic map, extending one mile beyond the property boundaries, showing the injection well(s) or project area for which a permit is sought and the applicable area of review. The map must show all intake and discharge structures and all hazardous waste treatment, storage, or disposal facilities. If the application is for an area permit, the map should show the distribution manifold (if applicable) applying injection fluid to all wells in the area, including all system monitoring points. Within the area of review, the map must show the following:

Class I

The number, or name, and location of all producing wells, injection wells, abandoned wells, dry holes, surface bodies of water, springs, mines (surface and subsurface), quarries, and other pertinent surface features, including residences and roads, and faults, if known or suspected. In addition, the map must identify those wells, springs, other surface water bodies, and drinking water wells located within one quarter mile of the facility property boundary. Only information of public record is required to be included in this map;

Class II

In addition to requirements for Class I, include pertinent information known to the applicant. This requirement does not apply to existing Class II wells;

Class III

In addition to requirements for Class I, include public water systems and pertinent information known to the applicant.

C. CORRECTIVE ACTION PLAN AND WELL DATA - Submit a tabulation of data reasonably available from public records or otherwise known to the applicant on all wells within the area of review, including those on the map required in B, which penetrate the proposed injection zone. Such data shall include the following:

Class I

A description of each well's types, construction, date drilled, location, depth, record or plugging and/or completion, and any additional information the Director may require. In the case of new injection wells, include the corrective action proposed to be taken by the applicant under 40 CFR 144.55.

Class II

In addition to requirement for Class I, in the case of Class II wells operating over the fracture pressure of the injection formation, all known wells within the area of review which penetrate formations affected by the increase in pressure. This requirement does not apply to existing Class II wells.

Class III

In addition to requirements for Class I, the corrective action proposed under 40 CFR 144.55 for all Class III wells.

D. MAPS AND CROSS SECTION OF USDWs - Submit maps and cross sections indicating the vertical limits of all underground sources of drinking water within the area of review (both vertical and lateral limits for Class I), their position relative to the injection formation and the direction of water movement, where known, in every underground source of drinking water which may be affected by the proposed injection. (Does not apply to Class II wells.)

E. NAME AND DEPTH OF USDWs (CLASS II) - For Class II wells, submit geologic name, and depth to bottom of all underground sources of drinking water which may be affected by the injection.

F. MAPS AND CROSS SECTIONS OF GEOLOGIC STRUCTURE OF AREA - Submit maps and cross sections detailing the geologic structure of the local area (including the lithology of injection and confining intervals) and generalized maps and cross sections illustrating the regional geologic setting. (Does not apply to Class II wells.)

G. GEOLOGICAL DATA ON INJECTION AND CONFINING ZONES (Class II) - For Class II wells, submit appropriate geological data on the injection zone and confining zones including lithologic description, geological name, thickness, depth and fracture pressure.

H. OPERATING DATA - Submit the following proposed operating data for each well (including all those to be covered by area permits): (1) average and maximum daily rate and volume of the fluids to be injected; (2) average and maximum injection pressure; (3) nature of annulus fluid; (4) for Class I well, source and analysis of the chemical, physical, radiological and biological characteristics, including density and corrosiveness, of injection fluids; (5) for Class II wells, source and analysis of the physical and chemical characteristics of the injection fluid; (6) for Class III wells, a qualitative analysis and ranges in concentrations of all constituents of injected fluids. If the information is proprietary, maximum concentrations only may be submitted, but all records must be retained.

I. FORMATION TESTING PROGRAM - Describe the proposed formation testing program. For Class I wells the program must be designed to obtain data on fluid pressure, temperature, fracture pressure, other physical, chemical, and radiological characteristics of the injection matrix and physical and chemical characteristics of the formation fluids.

For Class II wells the testing program must be designed to obtain data on fluid pressure, estimated fracture pressure, physical and chemical characteristics of the injection zone. (Does not apply to existing Class II wells or projects.)

For Class III wells the testing must be designed to obtain data on fluid pressure, fracture pressure, and physical and chemical characteristics of the formation fluids if the formation is naturally water bearing. Only fracture pressure is required if the program formation is not water bearing. (Does not apply to existing Class III wells or projects.)

J. STIMULATION PROGRAM - Outline any proposed stimulation program

K. INJECTION PROCEDURES - Describe the proposed injection procedures including pump, surge, tank, etc.

L. CONSTRUCTION PROCEDURES - Discuss the construction procedures (according to §146.12 for Class I, §146.22 for Class II, and §146.32 for Class III) to be utilized. This should included details of the casing and cementing program, logging procedures, deviation checks, and the drilling, testing and coring program, and proposed annulus fluid. (Request and submission of justifying data must be made to use an alternative to packer for Class I.)

M. CONSTRUCTION DETAILS - Submit schematic or other appropriate drawings of the surface and subsurface construction details of the well.

N. CHANGES IN INJECTED FLUID - Discuss expected changes in pressure, native fluid displacement, and direction of movement of injection fluid. (Class III wells only.)

O. PLANS FOR WELL FAILURES - Outline contingency plans (proposed plans, if any, for Class II) to cope with all shut-ins or wells failures, so as to prevent migration of fluids into any USDW.

P. MONITORING PROGRAM - Discuss the planned monitoring program. This should be thorough, including maps showing the number and location of monitoring wells as appropriate and discussion of monitoring devices, sampling frequency, and parameters measured. If a manifold monitoring program is utilized, pursuant to §146.23(b)(5), describe the program and compare it to individual well monitoring.

Q. PLUGGING AND ABANDONMENT PLAN - Submit a plan for plugging and abandonment of the well including: (1) describe the type, number, and placement (including the elevation of the top and bottom) of plugs to be used; (2) describe the type, grade, and quantity of cement to be used; and (3) describe the method to be used to place plugs, including the method used to place the well in a state of static equilibrium prior to placement of the plugs. Also for a Class III well that underlies or is in an exempted aquifer, demonstrate adequate protection of USDWs. Submit this information on EPA Form 7520-14, Plugging and Abandonment Plan.

R NECESSARY RESOURCES - Submit evidence such as a surety bond or financial statement to verify that the resources necessary to close, plug or abandon the well are available.

S. AQUIFER EXEMPTIONS - If an aquifer exemption is requested, submit data necessary to demonstrate that the aquifer meets the following criteria: (1) does not serve as a source of drinking water; (2) cannot now and will not in the future serve as a source of drinking water; and (3) the TDS content of the ground water is more than 3,000 and less than 10,000 mg/l and is not reasonably expected to supply a public water system. Data to demonstrate that the aquifer is expected to be mineral or hydrocarbon production, such as general description of the mining zone, analysis of the amenability of the mining zone to the proposed method, and time table for proposed development must also be included. For additional information on aquifer exemptions, see 40 CFR Sections 144.7 and 146.04.

T. EXISTING EPA PERMITS - List program and permit number of any existing EPA permits, for example, NPDES, PSD, RCRA, etc.

U. DESCRIPTION OF BUSINESS - Give a brief description of the nature of the business.

Form Approved OMB No. 2040-0042 Expires 6-30-98

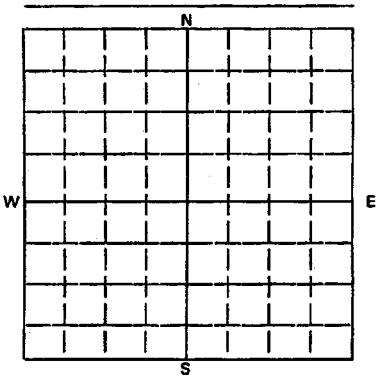
EPA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

APPLICATION TO TRANSFER PERMIT

NAME AND ADDRESS OF EXISTING PERMITTEE	NAME AND ADDRESS OF SURFACE OWNER

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES



STATE	COUNTY	PERMIT NUMBER

SURFACE LOCATION DESCRIPTION

¼ OF ¼ OF ¼ SECTION TOWNSHIP RANGE

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface Location _____ ft. from (N/S) _____ Line of quarter section

and _____ ft. from (E/W) _____ Line of quarter section

WELL ACTIVITY	WELL STATUS	TYPE OF PERMIT
☐ Class I	☐ Operating	☐ Individual
☐ Class II	☐ Modification/Conversion	☐ Area
☐ Brine Disposal	☐ Proposed	Number of Wells _____
☐ Enhanced Recovery		
☐ Hydrocarbon Storage		
☐ Class III		
☐ Other		

Lease Number Well Number

NAME(S) AND ADDRESS(ES) OF NEW OWNER(S)	NAME AND ADDRESS OF NEW OPERATOR

Attach to this application a written agreement between the existing and new permittee containing a specific date for transfer of permit responsibility, coverage, and liability between them.

The new permittee must show evidence of financial responsibility by the submission of surety bond, or other adequate assurance, such as financial statements or other materials acceptable to the director.

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

NAME AND OFFICIAL TITLE *(Please type or print)*	SIGNATURE	DATE SIGNED

EPA Form 7520-7 (Rev. 8-91)

PAPERWORK REDUCTION ACT NOTICE

Public reporting burden for this collection of information is estimated at an average of 2 hours per transfer, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden, estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SV, Washington, DC 20460, and to the Office of Management and Budget, Paperwork Reduction Project, Washington, DC 20503.

Well Class and Type Codes

Class I	Wells used to inject waste below the deepest underground source of drinking water
Type "I"	Nonhazardous industrial disposal well
"M"	Nonhazardous municipal disposal well
"W"	Hazardous waste disposal well injecting below USDWs
"X"	Other Class I wells (not included in Type "I," "M," or "W")
Class II	Oil and gas production and storage related injection wells.
Type "D"	Produced fluid disposal well
"R"	Enhanced recovery well
"H"	Hydrocarbon storage well (excluding natural gas)
"X"	Other Class II wells (not included in Type "D," "R," or "H")
Class III	Special process injection wells.
Type "G"	Solution mining well
"S"	Sulfur mining well by Frasch process
"U"	Uranium mining well (excluding solution mining of conventional mines)
"X"	Other Class III wells (not included in Type "G," "S," or "U")
Other Classes	Wells not included in classes above.
	Class V wells which may be permitted under §144.12
	Wells not currently classified as Class I, II, III, or V.

EPA Form 7520-7 ( ) Reverse

OMB No. 2040-0042
Form Approved. Approval Expires 6-30-98

EPA

United States Environmental Protection Agency
Washington, DC 20460

Injection Well Monitoring Report

Year	Month	Month	Month
Injection Pressure (PSI)			
1. Minimum			
2. Average			
3. Maximum			
Injection Rate (Gal/Min)			
1. Minimum			
2. Average			
3. Maximum			
Annular Pressure (PSI)			
1. Minimum			
2. Average			
3. Maximum			
Injection Volume (Gal)			
1. Monthly Total			
Yearly Cumulative			
Temperature (F°)			
1. Minimum			
2. Average			
3. Maximum			
pH			
1. Minimum			
2. Average			
3. Maximum			
Other			

Name and Address of Permittee		Permit Number
Name and Official Title *(Please type or print)*	Signature	Date Signed

EPA Form 7520-8 (Rev. 9-91)

PAPERWORK REDUCTION ACT NOTICE

Public reporting burden for this collection of information is estimated at an average of 50 hours for Class I wells, 16 hours for Class II wells, and 40 hours for Class II wells annually, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden, estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SV, Washington, DC 20460, and to the Office of Management and Budget, Paperwork Reduction Project, Washington, DC 20503.

Form Approved. OMB No. 2040-0042. Expires 6-30-98

EPA

United States Environmental Protection Agency
Washington, DC 20460

Completion Form For Injection Wells

Administrative Information

1. Permittee

Address *(Permanent Mailing Address) (Street, City, and ZIP Code)*

2. Operator

Address *(Street, City, State and ZIP Code)*

3. Facility Name | Telephone Number

Address *(Street, City,State and ZIP Code)*

4. Surface Location Description of Injection Well (s)

State | County

Surface Location Description

___1/4 of ___1/4 of ___1/4 of ___1/4 of Section ___Township ___Range ___

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface
Location_____ft. from (N/S)_____Line of quarter section
and_____ft. from E/W _____Line of Quarter section.

Well Activity	Well Status	Type of Permit
____Class I	_____Operating	_____Individual
____Class II	_____Modification/Conversion	_____Area : Number of Wells _____
____Brine Disposal	_____Proposed	
____Enhances Recovery		
____Hydrocarbon Storage		
____Class III		
____Other		
Lease Number_____	Well Number_____	

Submit with this Completion Form the attachments listed in Attachments for Completion Form.

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

Name and Official Title *(Please type or print)*	Signature	Date Signed

EPA Form 7520-9 (Rev. 9-91)

PAPERWORK REDUCTION ACT NOTICE

Public reporting burden for this collection of information is estimated at an average of 4 hours per well, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden, estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SV, Washington, DC 20460, and to the Office of Management and Budget, Paperwork Reduction Project, Washington, DC 20503.

Attachments to be submitted with the Completion report:

I. Geologic Information

1. Lithology and Stratigraphy

A. Provide a geologic description of the rock units penetrated by name, age, depth, thickness, and lithology of each rock unit penetrated.

B. Provide a description of the injection unit.

(1) Name
(2) Depth (drilled)
(3) Thickness
(4) Formation fluid pressure
(5) Age of unit
(6) Porosity (avg.)
(7) Permeability
(8) Bottom hole temperature
(9) Lithology
(10) Bottom hole pressure
(11) Fracture pressure

C. Provide chemical characteristics of formation fluid (attach chemical analysis).

D. Provide a description of freshwater aquifers.

(1) Depth to base of fresh water (less than 10,000 mg/1 TDS).

(2) Provide a geologic description of aquifer units with name, age, depth, thickness, lithology, and average total dissolved solids.

II. Well Design and Construction

1. Provide data on surface, intermediate, and long string casing and tubing. Data must include material, size, weight, grade, and depth set.

2. Provide data on the well cement, such as type/class, additives, amount, and method of emplacement.

3. Provide packer data on the packer (if used) such as type, name and model, setting depth, and type of annular fluid used.

4. Provide data on centralizers to include number, type and depths.

5. Provide data on bottom hole completions.

6. Provide data on well stimulation used.

III. Description of Surface Equipment

1. Provide data and a sketch of holding tanks, flow lines, filters, and injection pump

IV. Monitoring Systems

1. Provide data on recording and nonrecording injection pressure gauges, casing-tubing annulus pressure gauges, injection rate meters, temperature meters, and other meters or gauges.

2. Provide data on constructed monitor wells such as location, depth, casing diameter, method of cementing, etc.

V. Logging and Testing Results

Provide a descriptive report interpreting the results of geophysical logs and other tests. Include a description and data on deviation checks run during drilling.

VI. Provide an as-built diagrammatic sketch of the injection well(s) showing casing, cement, tubing, packer, etc., with proper setting depths. The sketch should include well head and gauges.

VII. Provide data demonstrating mechanical integrity pursuant to 40 CFR 146.08.

VIII. Report on the compatibility of injected wastes with fluids and minerals in both the injection zone and the confining zone.

IX. Report the status of corrective action on defective wells in the area of review

X. Include the anticipated maximum pressure and flow rate at which injection will operate.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

EPA

COMPLETION REPORT FOR BRINE DISPOSAL, HYDROCARBON STORAGE, OR ENHANCED RECOVERY WELL

Form Approved
OMB No. 2040-0042
Approval Expires 6-30-98

NAME AND ADDRESS OF EXISTING PERMITTEE

NAME AND ADDRESS OF SURFACE OWNER

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES

N
W
E
S

STATE | COUNTY | PERMIT NUMBER

SURFACE LOCATION DESCRIPTION
___ 1/4 of ___ 1/4 of ___ 1/4 of ___ 1/4 of Section___ Township___ Range___

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface Location ____ ft. from (N/S) ____ Line of quarter section

and ____ ft. from (E/W) ____ Line of quarter section

WELL ACTIVITY
- ☐ Brine Disposal
- ☐ Enhanced Recovery
- ☐ Hydrocarbon Storage

TYPE OF PERMIT
- ☐ Individual
- ☐ Area

Number of Wells ____

Estimated Fracture Pressure of Injection Zone

Anticipated Daily Injection Volume (Bbls)		Injection Interval	
Average	Maximum	Feet	to Feet
Anticipated Daily Injection Pressure (PSI)		**Depth to Bottom of Lowermost Freshwater Formation (Feet)**	
Average	Maximum		

Type of Injection Fluid *(Check the appropriate block(s))*
- ☐ Salt Water
- ☐ Brackish Water
- ☐ Fresh Water
- ☐ Liquid Hydrocarbon
- ☐ Other

Lease Name | Well Number

Name of Injection Zone

Date Drilling Began | Date Well Completed

Permeability of Injection Zone

Date Drilling Completed

Porosity of Injection Zone

CASING AND TUBING			CEMENT		HOLE	
OD Size	Wt/Ft — Grade — New or Used	Depth	Sacks	Class	Depth	Bit Diameter

INJECTION ZONE STIMULATION		WIRE LINE LOGS, LIST EACH TYPE	
Interval Treated	Materials and Amount Used	Log Types	Logged Intervals

Complete Attachments A — E listed on the reverse.

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE *(Please type or print)* | | DATE SIGNED

EPA Form 7520-10

ATTACHMENTS

A. Present a schematic or other appropriate drawings of the surface and subsurface construction details of the well as built.

B. Describe the method and results of mechanical integrity testing.

C. Present the results of that portion of those logs, tests, and cores which specifically relate to (1) underground sources of drinking water and the confining zone(s) and (2) the injection and adjacent formations.

D. Present the status of corrective action on defective wells in the area of review.

E. Provide to EPA, with the completion report, one final print of all geophysical logs run.

PAPERWORK REDUCTION ACT NOTICE

Public reporting burden for this collection of information is estimated at an average of 4 hours per well, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden, estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SV, Washington, DC 20460, and to the Office of Management and Budget, Paperwork Reduction Project, Washington, DC 20503.

Form Approved OMB 2040-0042 Expires 6-30-98

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

EPA

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

NAME AND ADDRESS OF EXISTING PERMITTEE	NAME AND ADDRESS OF SURFACE OWNER

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES

N
W E
S

STATE	COUNTY	PERMIT NUMBER

SURFACE LOCATION DESCRIPTION

_____ ¼ OF _____ ¼ OF _____ 1/4 OF SECTION _____ TOWNSHIP _____ RANGE _____

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface Location _____ ft. from (N/S) _____ Line of quarter section

and _____ ft. from (E/W) _____ Line of quarter section

WELL ACTIVITY

☐ Brine Disposal
☐ Enhanced Recovery
☐ Hydrocarbon Storage

TYPE OF PERMIT

☐ Individual
☐ Area
Number of Wells _____

Lease Name Well Number

	INJECTION PRESSURE		TOTAL VOLUME INJECTED		TUBING — CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE *(Please type or print)*	SIGNATURE	DATE SIGNED

EPA Form 7520-11

PAPERWORK REDUCTION ACT NOTICE

Public reporting burden for this collection of information is estimated at an average of 16 hours per operator, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden, estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SV, Washington, DC 20460, and to the Office of Management and Budget, Paperwork Reduction Project, Washington, DC 20503.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

EPA

WELL REWORK RECORD

NAME AND ADDRESS OF PERMITTEE	NAME AND ADDRESS OF CONTRACTOR

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES

N
W E
S

STATE	COUNTY	PERMIT NUMBER

SURFACE LOCATION DESCRIPTION

____ ¼ OF ____ ¼ OF ____ ¼ OF SECTION ____ TOWNSHIP ____ RANGE ____

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface Location ____ ft. from (N/S) ____ Line of quarter section

and ____ ft. from (E/W) ____ Line of quarter section

WELL ACTIVITY		TYPE OF PERMIT
☐ Brine Disposal ☐ Enhanced Recovery ☐ Hydrocarbon Storage	Total Depth Before Rework	☐ Individual ☐ Area Number of Wells ____
	Total Depth After Rework	
Lease Name	Date Rework Commenced	Well Number
	Date Rework Completed	

WELL CASING RECORD — BEFORE REWORK

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

WELL CASING RECORD — AFTER REWORK *(Indicate Additions and Changes Only)*

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

DESCRIBE REWORK OPERATIONS IN DETAIL USE ADDITIONAL SHEETS IF NECESSARY	WIRE LINE LOGS, LIST EACH TYPE	
	Log Types	Logged Intervals

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE *(Please type or print)*	SIGNATURE	DATE SIGNED

EPA Form 7520-12

PAPERWORK REDUCTION ACT NOTICE

Public reporting burden for this collection of information is estimated at an average of 4 hours per well, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden, estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SV, Washington, DC 20460, and to the Office of Management and Budget, Paperwork Reduction Project, Washington, DC 20503.

Form Approved. OMB No 2040-0042 Approval Expires 6-30-98

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

EPA

PLUGGING AND ABANDONMENT PLAN

NAME AND ADDRESS OF FACILITY	NAME AND ADDRESS OF OWNER/OPERATOR

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES

N

W E

S

STATE	COUNTY	PERMIT NUMBER

SURFACE LOCATION DESCRIPTION
___ 1/4 of ___ 1/4 of ___ 1/4 of ___ 1/4 of Section___ Township___ Range___

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface Location _____ ft. from (N/S) _____ Line of quarter section

and _____ ft. from (E/W) _____ Line of quarter section

TYPE OF AUTHORIZATION

- ☐ Individual Permit
- ☐ Area Permit
- ☐ Rule

Number of Wells _____

Lease Name

WELL ACTIVITY

- ☐ CLASS I
- ☐ CLASS II
  - ☐ Brine Disposal
  - ☐ Enhanced Recovery
  - ☐ Hydrocarbon Storage
- ☐ CLASS III

Well Number

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT(LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE

METHOD OF EMPLACEMENT OF CEMENT PLUGS

- ☐ The Balance Method
- ☐ The Dump Bailer Method
- ☐ The Two-Plug Method
- ☐ Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inches)							
Depth to Bottom of Tubing or Drill Pipe (ft.)							
Sacks of Cement To Be Used (each plug)							
Slurry Volume To Be Pumped (cu. ft.)							
Calculated Top of Plug (ft.)							
Measured Top of Plug (if tagged ft.)							
Slurry Wt. (Lb./Gal.)							
Type Cement or Other Material (Class III)							

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED *(If any)*

From	To	From	To

Estimated Cost to Plug Wells

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

NAME AND OFFICIAL TITLE *(Please type or print)*	SIGNATURE	DATE SIGNED

EPA Form 7520-14

PAPERWORK REDUCTION ACT NOTICE

Public reporting burden for this collection of information is estimated at an average of 4 hours per well, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden, estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SV, Washington, DC 20460, and to the Office of Management and Budget, Paperwork Reduction Project, Washington, DC 20503.

Type or print all information. See reverse for instructions.

Form Approved. OMB No. 2040-0042 expires 6-30-98

INVENTORY OF INJECTION WELLS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF GROUND WATER AND DRINKING WATER

(This information is collected under the authority of the Safe Drinking Water Act.)

1. DATE PREPARED *(Year, Month, Day)*

YR	MO	DY

2. FACILITY ID NUMBER

PAPERWORK REDUCTION ACT NOTICE

The public reporting burden for this collection of information is estimated at about 1 hour per year, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to Chief, Information Policy Branch, 2136, U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, DC 20460, and to the Office of Management and Budget, Paperwork Reduction Project, Washington, DC 20503.

3. TRANSACTION TYPE *(Please mark one of the following)*

- ☐ Deletion
- ☐ First Time Entry
- ☐ Entry Change
- ☐ Replacement

4. FACILITY NAME AND LOCATION:

A. NAME *(last, first, & middle initial)*

B. STREET ADDRESS/ROUTE NUMBER

C. LATITUDE — DEG | MIN | SEC

D. LONGITUDE — DEG | MIN | SEC

E. TOWNSHIP/RANGE — TOWNSHIP | RANGE | SECT | 1/4 SECT

F. CITY/TOWN

G. STATE

H. ZIP CODE

I. NUMERIC COUNTY CODE

J. INDIAN LAND *(mark "x")* ☐ Yes ☐ No

5. LEGAL CONTACT:

A. TYPE *(mark "x")* ☐ OWNER ☐ OPERATOR

B. NAME *(last, first, & middle initial)*

C. PHONE *(area code & number)*

D. ORGANIZATION

E. STREET/P.O. BOX

F. CITY/TOWN

G. STATE

H. ZIP CODE

I. OWNERSHIP *(mark "x")*

- ☐ PRIVATE
- ☐ PUBLIC
- ☐ SPECIFY OTHER _____
- ☐ STATE
- ☐ FEDERAL

6. WELL INFORMATION:

A. CLASS AND TYPE	B. NUMBER OF WELLS		C. TOTAL NUMBER OF WELLS	D. WELL OPERATION STATUS				
	COMM	NON-COMM		UC	AC	TA	PA	AN

COMMENTS *(Optional)*:

KEY:

DEG = Degree
MIN = Minute
SEC = Second

SECT = Section
1/4 SECT = Quarter Section

COMM = Commercial
NON-COMM = Non-Commercial

AC = Active
UC = Under Construction
TA = Temporarily Abandoned
PA = Permanently Abandoned and Approved by State
AN = Permanently Abandoned and not Approved by State

EPA Form 7520-16

INSTRUCTIONS AND DEFINITIONS

SECTION 1. DATE PREPARED: Enter date in order of year, month, and day.

SECTION 2. FACILITY ID NUMBER: In the first two spaces, insert the appropriate U.S. Postal Service State Code. In the third space, insert one of the following one letter alphabetic identifiers:

D - DUNS Number,
G - GSA Number, or
S - State Facility Number.

In the remaining spaces, insert the appropriate nine digit DUNS, GSA, or State Facility Number. For example, A Federal facility (GSA - 123456789) located in Virginia would be entered as: VAG123456789.

SECTION 3. TRANSACTION TYPE: Place an "x" in the applicable box. See below for further directions.

Deletion. Fill in the Facility ID Number.
First Time Entry. Fill in all the appropriate information.
Entry Change. Fill in the Facility ID Number and the information that has changed.
Replacement.

SECTION 4. FACILITY NAME AND LOCATION:

A. **Name.** Fill in the facility's official or legal name.
B. **Street Address.** Self Explanatory.
C. **Latitude.** Enter the facility's latitude (all latitudes assume North except for American Samoa).
D. **Longitude.** Enter the facility's longitude (all longitudes assume West except for Guam).
E. **Township/Range.** Fill in the complete township and range. The first 3 spaces are numerical and the fourth is a letter (N,S,E,W) specifying a compass direction. A township is North or South of the baseline, and a range is East or West of the principal meridian (e.g., 132N, 343W).
F. **City/Town.** Self Explanatory.
G. **State.** Insert the U.S. Postal Service State abbreviation.
H. **Zip Code.** Insert the five digit zip code plus any extension.

SECTION 4. FACILITY NAME & LOCATION (CONT'D.)

I. **Numeric County Code.** Insert the numeric county code from the Federal Information Processing Standards Publication (FIPS) Pub 6-1) June 15, 1970, U.S. Department of Commerce, National Bureau of Standards. For Alaska, use the Census Division Code developed by the U.S. Census Bureau.
J. **Indian Land.** Mark an "x" in the appropriate box (Yes or No) to indicate if the facility is located on Indian land.

SECTION 5. LEGAL CONTACT:

A. **Type.** Mark an "x" in the appropriate box to indicate the type of legal contact (Owner or Operator). For wells operated by lease, the operator is the legal contact.
B. **Name.** Self Explanatory.
C. **Phone.** Self Explanatory.
D. **Organization.** If the legal contact is an individual, give the name of the business organization to expedite mail distribution.
E. **Street/P.O. Box.** Self Explanatory.
F. **City/Town.** Self Explanatory.
G. **State.** Insert the U.S. Postal Service State abbreviation.
H. **Zip Code.** Insert the five digit zip code plus any extension.
I. **Ownership.** Place an "x" in the appropriate box to indicate ownership status.

SECTION 6. WELL INFORMATION:

A. **Class and Type.** Fill in the Class and Type of injection wells located at the listed facility. Use the most pertinent code (specified below) to accurately describe each type of injection well. For example, 2R for a Class II Enhanced Recovery Well, or 3M for a Class III Solution Mining Well, etc.
B. **Number of Commercial and Non-Commercial Wells.** Enter the total number of commercial and non-commercial wells for each Class/Type, as applicable.
C. **Total Number of Wells.** Enter the total number of injection wells for each specified Class/Type.
D. **Well Operation Status.** Enter the number of wells for each Class/Type under each operation status (see key on other side).

INJECTION WELL CLASS AND TYPE CODES

CLASS I Industrial, Municipal, and Radioactive Waste Disposal Wells used to inject waste below the lowermost Underground Source of Drinking Water (USDW).

TYPE 1I	Non-Hazardous Industrial Disposal Well.
1M	Non-Hazardous Municipal Disposal Well.
1H	Hazardous Waste Disposal Well injecting below the lowermost USDW.
1R	Radioactive Waste Disposal Well.
1X	Other Class I Wells.

CLASS II Oil and Gas Production and Storage Related Injection Wells.

TYPE 2A	Annular Disposal Well.
2D	Produced Fluid Disposal Well.
2H	Hydrocarbon Storage Well.
2R	Enhanced Recovery Well.
2X	Other Class II Wells.

CLASS III Special Process Injection Wells.

TYPE 3G	*In Situ* Gassification Well.
3M	Solution Mining Well.

CLASS III (CONT'D.)

TYPE 3S	Sulfur Mining Well by Frasch Process.
3T	Geothermal Well.
3U	Uranium Mining Well.
3X	Other Class III Wells.

CLASS IV Wells that inject hazardous waste into/above USDWs.

TYPE 4H	Hazardous Facility Injection Well.
4R	Remediation Well at RCRA or CERCLA site.

CLASS V Any Underground Injection Well not included in Classes I through IV.

TYPE 5A	Industrial Well.
5B	Beneficial Use Well.
5C	Fluid Return Well.
5D	Sewage Treatment Effluent Well.
5E	Cesspools (non-domestic).
5F	Septic Systems (non-domestic).
5G	Experimental Technology Well.
5H	Drainage Well.
5I	Mine Backfill Well.
5J	Waste Discharge Well.

TAB 8

UNDERGROUND INJECTION CONTROL PROGRAM

MEMORANDUM OF AGREEMENT

BETWEEN THE STATE OF MISSISSIPPI

AND

THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

I. GENERAL

This Memorandum of Agreement establishes policies, responsibilities and procedures for the State of Mississippi's Underground Injection Control (UIC) Program for Class II injection wells (State Program) as authorized by Section 1425 of Part C of the Safe Drinking Water Act, Pub. L. 93-523, as amended ("SDWA" or "the Act").

This Agreement is entered into by the State Oil and Gas Board of Mississippi and signed by A. Richard Henderson, Supervisor of the State Oil and Gas Board of Mississippi (hereafter, "the State" or "Director"), with the United States Environmental Protection Agency, Region IV and signed by Mr. Greer C. Tidwell, Regional Administrator (hereafter "EPA" or "Regional Administrator"). This Agreement shall become effective on the date the notice of State Program approval is published by EPA in the Federal Register.

This Agreement may be modified upon the initiative of the State or EPA. Modifications must be in writing and must be signed by the Director and Regional Administrator. Modifications may be made by revision prior to the effective date of this Agreement, or after the effective date by consecutively numbered and dated addenda attached to this Agreement.

The State shall administer the UIC program consistent with the State's submission for program approval[1], the SDWA, current Federal policies and regulations which are applicable to §1425, and any separate working agreements which shall be entered into between the State and the Regional Administrator as necessary for the full administration of the UIC program.

For purposes of the State Program the terms "underground source of drinking water" (USDW) and "fresh water" may be used interchangeably. USDW shall be defined as an aquifer or its portion:

[1] The State Program submission for primary enforcement responsibility includes: (1) a letter from the Governor requesting program approval; (2) a complete program description; (3) a statement of legal authority; (4) this Memorandum of Agreement; and (5) copies of all applicable State statutes, regulations and forms.

(1) (i) which supplies any public water system; or
(ii) which contains a sufficient quantity of groundwater to supply a public water system; and
a. Currently supplies drinking water for human consumption; or
b. Contains fewer than 10,000 mg/1 total dissolved solids, and
(2) Which is not an exempted aquifer.

Subsequent to program approval an aquifer or portion thereof, which would otherwise meet the definition of a USDW, may be exempted from protection under this program by the Director provided that: (1) the exemption is made in accordance with Sections 144.7 and 146.04 of the Federal UIC regulations, and (2) EPA, the Mississippi Department of Natural Resources, Bureau of Pollution Control, and the Mississippi State Department of Health approves same.

The Mississippi State Oil and Gas Board will not knowingly grant an exception to any Rule or Order of the Board that will in any way endanger any USDW.

This Agreement will remain in effect until such time as State primary enforcement responsibility is withdrawn by EPA, according to the provisions of 40 CFR Part 145.34.

If the Administrator revises or amends any requirement of a regulation under Section 1421, the State may demonstrate that the State program meets the requirements of Section 1421(b), and represents an effective program under Section 1425 (b). The State may make this alternative showing under Section 1425, but still must do this within 270 days after such revision or amendment.

Nothing in this Agreement shall be construed to limit the authority of the EPA to take action pursuant to the SDWA.

II. SHARING OF INFORMATION

EPA shall promptly inform the State of the issuance, content and meaning of Federal statutes, regulations, guidelines, technical standards, policy decisions, directives, judicial decisions and any other factors which might affect the State program. The State shall promptly inform EPA of any proposed or pending modifications to any regulations or guidelines, any judicial decisions or administrative actions and known proposed or pending modifications to laws which might affect the State Program and the State's authority to administer the program. The State shall submit copies of such revisions to EPA and shall promptly inform EPA of any resource allocation changes (for example, personnel, budget, equipment, etc.) which might affect the State's ability to administer the program.

All information obtained or used in the administration of the State Program, including all UIC permit files, shall be available to EPA upon request without restriction.

Whenever either party requests information concerning a specific injection operation and the requested information is available from the files that information will be provided within a reasonable time specified in the request. If the requested information is not available, the party to whom the request was directed shall promptly notify the requestor. The State shall allow EPA to routinely review State records, reports and files relevant to the administration and enforcement of the approved program.

If information has been submitted to the State under a claim of confidentiality, the State must submit that claim to EPA when providing EPA such information. Any information obtained from the State and subject to a claim of confidentiality will be treated in accordance with 40 CFR Part 2. If EPA obtains information from the State that is not claimed to be confidential, EPA may make that information available to the public without further notice.

III. RESPONSIBILITIES

A. Program Operation

To assure protection of underground sources of drinking water, the Board agrees to take the following actions on new or newly converted injection wells if corrective action is needed on wells in the area of review but cannot be accomplished by the operator due to different ownership of the wells involved:

1. Deny the permit, permit modification or other such authorization which may be requested of the Board; or,

2. Limit injection pressure(s) so as to prevent the movement of fluid into underground sources of drinking water and require monitoring of USDWs in the disposal area.

The State will exercise its broad authority under Rule 63 Part 1:B to accomplish the following:

1. Require corrective action in any case where corrective action is needed to assure protection of an underground source of drinking water.

2. Limit the injection pressure of all wells to a pressure that will not exceed the calculated fracture pressure of the confining zone adjacent to the lowermost underground source of drinking water.

Mechanical integrity tests for all Class II wells will be required as specifically described in Rule 63 Part 7.

In accordance with Rule 63 Part 3:C(2) the State may modify, revoke and reissue, or terminate a permit after notice and hearing, if information as to the permitted operation indicates that the cumulative effects on the environment are

unacceptable, such as pollution of USDWs. For purposes of the UIC program, fluid migration into a USDW will be interpreted as having an unacceptable cumulative effect on the environment which shall result in modification, revocation and reissuance, or termination of permits.

The comment period for a public notice on a permit application shall be at least 15 calendar days.

The State shall examine each permit file at least once every five years. Such examination shall review the adequacy of financial responsibility, any new wells in the area of review, and the applicability of any new policies, rules, regulations or statutes. The numbers of examinations completed shall be reported to EPA quarterly, and the date and results of an examination shall be retained in the file. Such examinations are not new permits, but are intended to ensure continuing protection for underground sources of drinking water.

When the supervisor has information that a well may be causing fluid movement into or between underground sources of drinking water, he will cause the well to be shut-in and/or take other action as necessary to prevent contamination of USDWs.

The amount of financial instruments established to assure the availability of funds to plug and abandon injection wells shall be based on estimates secured by the wells' owner/operator and confirmed by the State. The estimates shall be based on plugging and abandonment plans approved by the State. Unless otherwise appropriated by the State legislature, funds received by the State pursuant to the financial responsibility requirements of Rule 63 shall be used for the express purpose of plugging and abandoning the specific injection wells for which the funds were received.

In the event the State determines that it will accept financial statements as evidence of financial responsibility, the State will first develop criteria for analysis of financial statements acceptable to EPA and will follow such criteria.

By January 1, 1990, the State shall amend its Rule 63 as prescribed in Attachment A. The State shall amend Rule 63(1)(E)(2) upon receipt of primacy to insert the date 90 days after the effective date of delegation.

B. Compliance Monitoring

The Director shall conduct periodic inspections of the facilities and activities subject to regulatory requirements. The compliance monitoring inspections shall be performed to assess compliance with all UIC permit conditions or UIC program requirements and include selecting and evaluating a facility's monitoring and reporting program. These inspections shall be conducted to determine the compliance or noncompliance with the issued permits, to verify the accuracy of

the information submitted by the permittees in reporting forms and monitoring date, and to verify the adequacy of sampling, monitoring and other methods of providing the information.

By July 1, 1991, the State shall conduct a file review of each Class II injection well that has not been previously reviewed by EPA. The review shall determine compliance with current State policies, regulations and statutes. The file review shall include, nut not be limited to, determining: the adequacy of injection and confining zones, compliance with casing and cementing, financial responsibility, plugging and abandonment, and injection pressure requirements. When deficiencies are noted during a file review, the State shall take timely and appropriate enforcement action. Wells will be reviewed in accordance with the schedule established in the program description and/or annual work plan, if applicable. The first fifty(50) reviews will be selected by EPA and will be conducted by both the State and EPA. Twenty-five (25) of these reviews will be conducted in the offices of the Oil and Gas Board jointly with the EPA staff and Oil and Gas Board staff. The Board will provide EPA copies of the information to be reviewed for the other twenty-five (25). Thereafter the results of the State's reviews will be submitted to EPA on a quarterly basis as outlined in Section D of this Agreement. EPA will select for overview up to ten (10) percent of the injection well files completed by the State during the year. This percentage will change based on the State's performance.

Upon delegation, the Regional Administrator will provide the State a listing of all wells which have been issued an EPA Class II permit. If the State certifies that the State permit has been reviewed and is in compliance with current State rules, regulations, and statutes, the Regional Administrator will review the EPA permit for compliance. If the operator is in compliance with the EPA permit, the Regional Administrator will terminate the EPA permit and so notify the State. File reviews of wells that have not been permitted by EPA will receive priority over wells with EPA issued permits except where the EPA permits require a major modification or have been in effect for more than four and one-half years.

Note, EPA permits containing a compliance schedule will not be revoked until the compliance schedule has been completed unless the State permit includes an equivalent schedule.

Each existing injection well shall be required to have demonstrated mechanical integrity between December 30, 1984 and December 30, 1989. The State agrees to witness each year at least 75% of the mechanical integrity tests conducted on Class II wells.

The State shall retain records used in the administration of the program for three (3) years (40 CFR Parts 30 and 35) and all mechanical integrity records for five years. In the event that an enforcement action is pending, all records pertaining to

such action shall be retained until such action is resolved and three years thereafter.

C. Enforcement for Class II Operation

The State shall enforce the UIC Program in accordance with the enforcement procedures outlined in the program submission and any subsequent enforcement agreements. The State shall take timely and appropriate enforcement actions against any persons in violation of any UIC Program requirement. Situations which may endanger human health will receive immediate and paramount attention.

Inspectors shall report all UIC violations with their recommendations in writing to their immediate supervisor, who shall review the proposed recommendations for consistency and assure that appropriate follow-up enforcement actions are taken.

Upon approval of the State application for primary enforcement responsibility under Section 1425 of the SDWA, EPA will not take new enforcement actions without providing prior notice to the State and otherwise complying with Section 1423 of the SDWA.

In the event the State decides not to pursue enforcement of a UIC violation, the State shall, upon request, furnish EPA with all information, including but not limited to documents, associated with such violation, and the State shall cooperate fully with any EPA investigation or enforcement of such violation.

The State shall diligently pursue statutory changes to obtain express authority to assess penalties for nonwillful UIC violations. Until such authority is obtained, the State shall adhere to the interpretation of Mississippi Code Ann. §53-1-47 that any person violating any provision of any statute, rule, regulation or order of the Board related to UIC with actual or constructive knowledge of such statute, rule, regulation or order, shall be deemed to have knowingly and willfully violated such provision. The State shall also adhere to the interpretation that §53-1-47 authorizes assessment of penalties through civil as well as criminal enforcement.

The State shall diligently pursue statutory changes to Mississippi Code Ann. §53-1-3(q) to clarify that the UIC Program is authorized to regulate all underground injection of relevant fluids. Until such change is obtained, the State shall interpret such provision to provide such authority.

In the event the State does not pursue enforcement of a UIC violation or impose any penalty or forfeiture related to a UIC violation because of operation of Mississippi Code Ann. §53-1-35, the State shall promptly notify EPA of such fact. In such event, the State shall provide EPA with all available information, including but not limited to documents, associated with such violation and shall cooperate fully with any EPA investigation or enforcement of such violation. In

such event, the State shall waive EPA's required notification to the State of its intention to take federal enforcement action.

EPA shall continue to handle the enforcement actions on all wells, permitted or otherwise, which were under an active EPA enforcement action as of the date of this Agreement. Wells for which a Notice of Violation has been issued will be considered to be under an active enforcement action. A list of these wells will be provided to the State within two weeks after this Agreement is signed. EPA shall continue with the enforcement actions on these wells until final resolution or until EPA determines that adequate State enforcement action is being taken.

Permit actions currently being appealed will be retained by the EPA until the final permitting action is completed.

It is the Environmental Protection Agency's policy to maintain detailed State/EPA enforcement agreements relative to delegated programs. The State agrees to enter into independently negotiated enforcement agreements.

D. State Reports

The State shall submit a quarterly report on the operation of its Class II program to EPA. The report shall contain the following forms or their contemporary equivalents:

1. EPA Form 7520-1, Part I: Permit Review and Issuance/Wells in Area of Review;

2. EPA Form 7520-2A, Part II: Compliance Evaluation;

3. EPA Form 7520-2B, SNC, Part II: Compliance Evaluation (The State will track and document SNC per Underground Injection Control Guidance #53);

4. EPA Form 7520-3, Part II: Inspection/Mechanical Integrity Testing;

5. EPA Form 7520-4, Part IV: Quarterly Exceptions List Report;

6. An updated FURS inventory of active injection facilities;

7. An account of all complaints received by the State and action taken;

8. An account of the results of the review of existing wells made during the quarter; and

9. A brief narrative summary of enforcement actions taken.

If EPA and the State can develop an electronic data transfer system acceptable to both, this may be used instead of the Forms 7520-1 through 7520-3.

The reports will be prepared by the State on a quarterly basis and will be submitted to the Regional Office within forty-five (45) days of the close of each quarter of the Federal fiscal year.

In addition to the quarterly reports the State shall submit each year a narrative report consisting of a detailed description of the State's implementation of the State program. The annual report shall be submitted with the fourth quarterly report.

E. EPA Oversight

1. General

EPA shall oversee the State's administration of the UIC program on a continuing basis to assure that such administration is consistent with the UIC program submission and all applicable requirements embodied in current regulations, policies and Federal law. EPA will conduct at least two on-site visits to the State's office annually to discuss program implementation with the Director and his staff.

EPA shall conduct an annual performance evaluation of the State Program using the State reports and other acquired information to determine State Program consistency with the program submission, SDWA, and applicable regulations, guidance and policies. The evaluation will include a review of resource allocations.

During the annual program evaluation, EPA staff may choose a small number of permit and compliance files for review. In addition, permits for facilities with unusual complexity or problems will be intentionally selected.

EPA shall submit a summary of the evaluation findings to the State outlining the strengths and deficiencies in program performance, and recommendations for improving State operations. The State shall have thirty (30) days from the date of receipt to concur with or comment on the findings and recommendations.

In addition to the specific oversight activities listed in this section, EPA may, from time to time request and the State shall submit specific information and provide access to files necessary for evaluating the State's administration of the UIC program. The State reserves the right to negotiate with EPA on requests that would represent an adverse work load.

EPA will provide technical assistance to the State on compliance, enforcement and emergency response, with the State taking the lead in such actions. However,

nothing in this agreement shall restrict EPA's oversight authority and right to take unilateral enforcement action.

EPA may conduct periodic site and activity inspections on injection operations, giving priority to operations having the greatest potential to endanger public health. The Regional Administrator will normally notify the State at least seven days before any such inspection and allow opportunity for the State to accompany EPA on any such inspection. However, if an emergency exists, or for some other reason it is impossible to give advance notification, the Regional Administrator may waive advance notification to inspect a facility. In keeping with Section 1445(b)(2) of the Safe Drinking Water Act, the State agrees not to use such information to inform the person whose property is to be entered of the pending inspection. In addition, EPA may periodically accompany state inspectors during routine well inspections and participate in the performance of file reviews for compliance evaluation purposes.

2. Permit Development

The State agrees to provide EPA with copies of 50% of the permit applications and permit modification requests for all injection wells. To assure a random selection, a copy of every other application as received will be provided to EPA. Copies of such applications or extensions requests together with copies of all supporting documentation will be provided to EPA as soon as possible after receipt by the Director but in all cases no later than the date of a notice of a public hearing on the subject well(s). In the absence of comments by that date, the State may assume that no comments will be offered. However, EPA may submit a written request for a one month continuance to allow time for written comments to be provided, subject to the due process rights of an operator provided by law. The State must address all comments provided by EPA prior to issuing the permit. The percentage of permits to be reviewed by EPA will be reduced with time and performance. The State agrees to provide EPA copies of all permits (Board Orders) and permit modifications, once they are issued.

F. Emergency Action

The Director shall immediately notify the Regional Administrator by telephone, or otherwise, of any endangerment to public health resulting from the actual or threatened direct or indirect injection of fluids into the groundwater of the State.

IV. Signatures

Mississippi State Oil and Gas Board	U.S. Environmental Protection Agency
by A. Richard Henderson, Supervisor Supervisor 21 October 1988	by Greer C. Tidwell Regional Administrator 31 October 1988

ATTACHMENT A: RULE CHANGES

The following rule changes shall be made by July 1, 1989:

1. Rule 63(5)(A)(15) will be reworded so as to clearly prohibit fracturing of the designated confining zone.

2. Rule 63(8)(D) will be changed from "…operation is causing fluid to enter…" to "…operation may cause fluid to enter…."

3. Rule 63(9)(F) will be modified by adding "<u>may endanger</u> a USDW,…" after the word "condition" on the fifth ling.

4. The following terms shall be defined in Rule 63(II): area of review (AOR); confining zone; exempted aquifer; fluid.

5. The term "fresh water" in Rule 63(14) will be changed to USDW.

6. Rule 63, as revised, uses the terms "produced fluid disposal" for 2D wells. However, at Rule 63(11) and (12) the term "salt water disposal" is used. To eliminate arguments that the change in terminology is purposive and significant, the terminology will be made consistent.

TAB 9

805 KAR 1:110

DRAFT

(Rev. 7-29-99)

Section 1. Definitions. The definitions contained in KRS 353.510 and the following additional definitions shall apply to this regulation.

(1) "Administrator" means the head of the EPA.

(2) "Area of Review" means that area within not less than a fixed radius of one-fourth (½) mile around an injection well; provided, however, that at the option of the permit applicant, the area of review may be deemed to be the zone of endangering influence calculated in accordance with 40 CFR 146.06, which is adopted and incorporated herein by reference.

(3) "Aquifer" means geological formation, group of formations, or part of a formation that is capable of yielding a significant amount of water to a well or spring.

(4) "Casing" means a pipe or tubing of appropriate material, of varyinq diameter and weiqht, lowered into a borehole during or after drilling in order to support the sides of the hole and thus prevent the walls from caving, to prevent loss of drilling mud into porous ground, or to prevent water, gas, or other fluid from entering or leaving the hole.

(5) "Cementing" means the operation whereby a cement slurry is pumped into a drilled hole and/or forced behind the casing.

(6) "Class II well" means a well which injects fluids,

(a) Which are brought to the surface in connection with conventional oil or natural gas production and may be comingled with waste waters from gas plants which are an integral part of production operations, unless those waters are classified as a hazardous waste at the time of injection; or

(b) For enhanced recovery of oil or natural gas; or

(c) For storage of hydrocarbons which are liquid at standard temperature and pressure.

(7) "Commercially Producible" means a well which in the opinion of the Department can be used commercially for the production of oil and gas, or for Class II injection.

(8) "Confining bed" means a body of impermeable or distinctly less permeable material stratigraphically adjacent to one or more aquifers.

(9) "Confininq zone" means a geological formation, group of formations, or part of a formation that is capable of limiting fluid movement above an injection zone.

(10) "Contaminant" means any physical, chemical, biological, or radiological substance or matter in water.

(11) "Date of Primacy" means the effective date of the Administrator of the Environmental Protection Agency's approval of Kentucky's Underground injection Control (UIC) Program, made pursuant to Section 1425 of the Safe Drinking Water Act.

(12) "Department" means the Kentucky Department of Mines and Minerals.

(13) "Director" means the Director of the Kentucky Division of Oil and Gas.

(14) "Effective date of a UIC Program" means the date that a State UIC program is approved or established by the Administrator.

(15) "Endanger" means that an injection operation may result in the presence in underground water, which supplies or can reasonably be expected to supply any public water system, and that the presence of that contaminant, or any contaminant may result in such system not complying with any national primary drinking water regulation or may otherwise adversely affect the health of persons.

(16) "EPA" means the United States Environmental Protection Agency.

(17) "Existing Class II well" means a Class II well which was in existence prior to the effective date of the Federal UIC regulations for Kentucky (i.e., June 25, 1984).

(18) "Formation breakdown pressure" means indicated values from data recorded prior to and during squeeze cementing, acidizing, or acid-fracturing jobs performed by appropriate service companies. These breakdown pressure values are frequently reported as the surface gauge pressure which must, through appropriate engineerinq calculations, be modified to reflect the corresponding sand-face pressure at which the formation fracture occurs.

(19) "Formation fluid" means "fluid" present in a "formation" under natural conditions as opposed to introduced fluids, such as drilling mud.

(20) "Flow rate" means the volume per time unit given to the flow of gases or other fluid substance which emerges from an orifice, pump, turbine or passes along a conduit or channel.

(21) "Fluid" means any material or substance which flows or moves whether in a semi-solid, liquid, sludge, gas or any other form or state.

(22) "Freshwater" is defined as an Underground Source of Drinking Water (USDW).

(23) "Fresh water zone" means USDW.

(24) "Ground water" means water below the land surface in a zone of saturation.

(25) "Injection well" means a "well" into which "fluids" are being injected.

(26) "Instantaneous Shut In Pressure" (ISIP) means the pressure observed (recorded) at the moment the fracturing operations are discontinued. ISIP is that static pressure required to hold a fracture open, to inject fluids into an established fracture system under dynamic conditions if there were no pipe and/or perforation frictional pressure losses influencing the observed (recorded) surface pressure.

(27) "Injection zone" means a geological "formation", group of formations, or part of a formation receiving fluids through a well.

(28) "Lithology" means the description of rocks on the basis of their physical and chemical characteristics.

(29) "Mechanical Integrity" means a condition of injection wells which exists if there is no significant leakage in the well's casing, tubing, or packer and no significant fluid movement into an underground source of drinking water through vertical channels adjacent to the injection well bore.

(30) "New Class II well" means a Class II well for which construction or conversion was initiated after the effective date of the Federal UIC regulations for Kentucky (i.e., June 25, 1984).

(31) "Owner or Operator" means the owner or operator of any facility or activity.

(32) "Packer" means a device lowered into a well to produce a fluid-tight seal.

(33) "Plugging" means the act or process of stopping the flow of water, oil or gas into or out of a formation through a borehole or well penetrating that formation.

(34) "Project" means a group of wells in a single operation.

(35) "Public water system" means a system for the provision to the public of piped water for human consumption, if such system has at least fifteen (15) service connections or regularly serves at least twenty-five (25) individuals.

(36) "Site" means the land or water area where any facility or activity is physically located or conducted, including adjacent land used in connection with the facility or activity.

(37) "Step-Rate" means water or other fluid injection type testing performed specifically to determine the "Breakdown pressure" of the injection zone prior to the initiation of the enhanced recovery project.

(38) "Stratum" (plural strata) means a single sedimentary bed or layer, regardless of thickness that consists of generally the same kind of rock material.

(39) "Surface casing" means the first string of well casing to be installed in the well.

(40) "Underground source of drinking water" (USDW) means an aquifer or its portion:

(a) 1. Which supplies any public water system; or,

2. Which contains a sufficient quantity of groundwater to supply a public system; and,

A. Currently supplies drinking water for human consumption; or,

B. Contains fewer than 10,000 mg/1 total dissolved solids; and,

(b) Which is not an exempted aquifer.

(41) "Well" means a bored, drilled or driven shaft, or a dug hole, whose depth is greater than the largest surface dimension.

Section 2. General

(1) No person shall construct a Class II well or convert an existing well to a Class II well without first obtaining a permit to construct the well. This permit shall be issued pursuant to KRS 353.570(l) and (2) and Section 11(l)(a)-(l)(2) of this regulation. The fee for a permit to drill will be one hundred fifty dollars ($150) upon the date of primacy pursuant to KRS 353.590(2)(b).

(2) No person shall inject into a Class II well without first obtaining a permit to inject pursuant to Section 11(3)(4), or of an authorization by rule in accordance with Section 4 of this regulation.

(3) The owner or operator of a Class II well is required to maintain financial responsibility and resources to close, plug, and abandon the underground injection operation in a manner prescribed by the director. These requirements are set forth in Section 9 of this regulation.

(4) The permit to operate any Class II well may be transferred to a successor only after notice is given to the director, subject to review and approval of the director. Such notice shall include at least the following:

(a) The original operators company name and address;

(b) The successor's company name and address;

(c) The permit number of the well;

(d) The Carter Coordinate location;

(e) The farm name and well number;

(f) Signatures of the original operator and the successor, or that of their official representative(s);

(g) A statement that the successor assumes all responsibility for the well, and provides financial responsibility pursuant to Section 9 of this regulation.

(h) A Class II well in non-compliance will not be transferred unless the successor is willing to correct deficiencies, and submits a corrective action plan for said well, subject to approval of the director.

(6) All Class II wells shall be plugged in the manner established in Section 10 of this regulation.

(7) An applicant for an injection permit shall be required to satisfy the director that the Class II well will not endanger a USDW.

(8) No authorization by Rule shall be interpreted as authorizing injection through a Class II well which endangers a USDW.

(9) In administering and applying this regulation, the director shall, to the maximum practicable extent, take into account the varying geologic, hydrological and historical conditions in different areas within the state. The director may, where

consistent with other provisions of this section, upon application and after notice and hearing, grant a variance from any requirement of this regulation upon a showing that alternate prudent engineering practices will prevent the endangerment of a USDW.

(10) The owner or operator submitting form(s) required by this regulation shall use the most up-to-date form(s) or application(s) on file with the Department and approved by the administrator.

(11) An owner or operator in non-compliance with this regulation is subject to penalties pursuant to KRS 353.991 and KRS 353.992.

(12) The provisions of this regulation shall become applicable upon the date of primacy. On and after said date, Class II wells shall be subject to the requirements of this regulation and shall be exempt from regulation under Sections 4, 5 and 6 of 805 KAR 1:020.

Section 3. Exempted Aquifers. An aquifer or a portion thereof which meets the criteria established in this section for a USDW may be determined by the director, after notice, opportunity for public comment, and opportunity for EPA review and approval prior to the director's final action, to be an "exempted aquifer" if it meets the following criteria:

(1) It does not currently serve as a source of drinking water; and,

(2) It cannot now and will not in the future serve as a source of drinking water because:

(a) It is mineral, hydrocarbon or geothermal energy producing, or can be demonstrated by the permit applicant to contain minerals or hydrocarbons that, considering their quantity and location, are expected to be commercially producible;

(b) It is situated at a depth or location which makes recovery of water for drinking water purposes economically or technologically impractical;

(c) It is so contaminated that it would be economically or technologically impractical to render that water fit for human consumption; or

(d) It is located over a Class III mining area subject to subsidence or catastrophic collapse; or

(3) The total dissolved solids content of the groundwater is more than 3,000 and less than 10,000 mg/1 and it is not reasonably expected to supply a public water system.

Section 4. Permit by Rule (1) All existing Class II wells are authorized by rule to inject fluids to the subsurface provided that the owner or operator:

(1) Maintains compliance with all applicable requirements of Sections 2, 5, 7, 9 and 10 of this regulation; and

(2) Within one (1) year from the effective date of this regulation the owner or operator of an existing Class II well shall provide a listing of all wells owned or operated setting forth the following information for each well. (A single description of wells at a single facility with substantially the same characteristics is acceptable).

(a) Operator name;

(b) Permit number;

(c) Lease name (farm name) and well number if known;

(d) The field name;

(e) Carter Coordinate location of each well;

(f) Date of completion of each well;

(g) Identification and depth of the formation(s) into which each well is injecting;

(h) Total depth of each well;

(i) Casing and cementing record, tubing size, and depth of packer;

(j) Nature of the injected fluids;

(k) Average and maximum injection pressure at the wellhead;

(1) Average and maximum injection rate; and

(m) Date of the last mechanical integrity test, if any.

(3) A topographic map (USGS) 7½ minute topographic quadrangle map will suffice which extends one (1) mile beyond the property boundary showing, the injection wells where fluids from the facility are injected, the project area for which an area permit is sought, and the area of review. Within the area of review: all intake and discharge structures; the number/name, location and permit number of those wells (by Carter Coordinate), springs and other surface bodies of water and drinking

water wells listed in public records or otherwise known to the applicant. All the information does not have to be included in the map itself, but instead it can be submitted in tabular form. A list of all landowners in the area of review and their addresses must also be submitted.

(4) The operator may submit in lieu of the information requested in paragraph (2) and (3) of this section a copy of the information required to be filed by the EPA for registration of existing Class II wells.

(5) All existing Class II wells must be cased and cemented in such a manner to prevent movement of fluids into or between any USDW. If the director determines that casing and cementing is not adequate, the owner or operator shall comply with the requirements of Section 6(5)(a) and (b).

(6) Duration of authorization for wells regulated by rule:

(a) For Class II wells except enhanced recovery and hydrocarbon storage, five years after approval or promulgation of the US EPA administered UIC program unless a complete permit application is pending.

(b) Injection into existing Class II enhanced recovery and hydrocarbon storage wells is authorized for the life of the well or project.

(7) If the director concludes that a Class II well authorized by rule allows movement of fluids into any USDW, the director shall notify the owner or operator of such well of necessary corrective action, and injection shall cease until the well is brought into compliance. The owner or operator of such well shall submit a written response to the director within fifteen (15) calendar days from the date the notice was received from the director. Such response shall describe the steps to be taken to bring the well into compliance, subject to approval of the director. Any such corrective action must be completed within one (1) year of notification of the owner or operator.

Section 5. Requirements Applicable to All Class II Wells. Authorization to inject fluids through all Class II wells (whether by rule or by individual permit) shall be conditioned upon compliance with the following requirements:

(1) The owner or operator shall notify the director in writing prior to any modification in the manner in which the injection operation is conducted, and provide a description of all proposed modifications, subject to the approval of the director.

(2) The owner or operator shall notify the director verbally within twenty-four (24) hours from the time of occurrence, and follow within five (5) working days from the date of the occurrence with written notice of any mechanical failure or downhole problem encountered in the operation of the Class II well or upon

recognition of a failure in an injection system. The written response shall describe the nature of the problem and proposed plan for correcting the well or injection system. Said well or wells which have indications of significant leakage shall be shut down immediately and correction procedures shall be initiated within fifteen (15) calendar days from the date of occurrence and the owner or operator shall proceed with due diligence until the well is repaired or the director may revoke the permit to inject, or may require the well to be plugged.

(3) The owner or operator shall afford the director, or his authorized representative(s), or authorized representatives of the Department, upon proper presentation of credentials, for all purposes related to UIC, access to Class II wells and related facilities, and nearby producing wells, for the purpose of conducting inspections, witnessing mechanical integrity tests, corrective action operations and plugging procedures and testing samples of injected fluids.

(4) The owner or operator shall regulate injection pressure in the injection zone in such a manner that is calculated to permit new fractures or propagate existing fractures in the confining zone, and is calculated to prevent the movement of injection or formation fluid into a USDW. Information showing that injection will not initiate fractures through the overlying strata shall include one of the tests or information provided pursuant to Section 11(3)(c). The director may, when necessary to insure compliance with this requirement, establish limitation on the well head pressure at which Class II well may be operated. Any such limitation shall be included as a permit condition or through an order issued after notice and opportunity for hearing.

(5) The owner or operator shall provide for the mechanical integrity of the well by operating without leaks in the casing, tubing, or packer and without fluid movement into a USDW through vertical channels adjacent to the well bore. The permittee shall upon request of the director, conduct tests of the mechanical integrity of the Class II wells, utilizing a method approved by the director as required in Section 7 of this regulation. Any alternate mechanical integrity test authorized by the director must be approved by the Administrator.

(6) The owner or operator shall provide the director with the following minimum monitoring and reporting requirements on forms provided by the director:

(a) Monitoring of the nature of injected fluids at time intervals sufficiently frequent to yield data representative of their characteristics.

The proposed injected fluid at a minimum shall be analyzed for the following:

1. Barium if sulfate is less than 500 mg/1:

2. Calcium

3. Total Iron

4. Magnesium

5. Sodium

6. Bicarbonate

7. Carbonate

8. Specific Gravity

9. Carbon Dioxide

10. Dissolved Oxygen

11. Hydrogen sulfide if H2S odor is detected

(b) A list of any inhibitors added to the injection fluid, of scaling, corrosion or bacterial growth shall be provided. A description of the chemical(s) composition or the brand name of the product and the manufacturer's address shall be provided.

(c) The nature of the annulus fluid to be used in the annulus between the tubing and the casing. This description should include the type of fluid to be used and the corrosivity of the annulus fluid. Any corrosion inhibitors shall be analyzed, or a report of the chemical name and company should be submitted. The amount of inhibitor to be added shall be listed.

(d) Observation of injection pressure, flow rate, and cumulative volume at least with the following frequencies:

1. Weekly for produced fluid disposal operations;

2. Monthly for enhanced recovery operations;

3. Daily during the injection of liquid hydrocarbons and injection for withdraw of stored hydrocarbons; and,

4. Daily during the injection phase of cyclic steam operations; And recording of one observation at injection pressure, flow rate and cumulative volume at reasonable intervals no greater than thirty (30) days.

(e) An annual report of the results of such monitorinq in paragraph (6)(a) through (d) of this Section shall be provided for the director. The permittee shall retain all such records on file for a period of five (5) years. The owner or operator of liquid hydrocarbon storage or enhanced recovery wells may monitor them by manifold monitoring on a field or project basis rather than on an individual well bases if such facilities consist of more than one (1) injection well, operate with a common manifold, and provided the owner or operator demonstrates to the director that manifold monitoring is comparable to individual monitoring.

Section 6. Requirements for a permit to construct new Class II wells:

(1) All new Class II wells shall be sited in such a fashion that they inject into a formation which is separated from any USDW by a confining zone that is free of known open faults or fractures within the area of review.

(2) A Class II injection well(s) shall be cased and cemented to prevent movement of fluids into a USDW. The casing and cement used in the construction of each newly drilled well shall be designed for the life expectancy of the well. In determining and specifying casing and cementing requirements, the following factors shall be considered;

(a) Depth to the injection zone;

(b) Depth to the bottom of all USDWs; and

(c) Estimated maximum and average injection pressures.

(3) In addition the Director may consider information on:

(a) Nature of formation fluids;

(b) Lithology of injection and confining zones;

(c) External pressure, internal pressure, and axial loading;

(d) Hole size;

(e) Size and grade of all casing strings; and,

(f) Class of cement.

(4) The owner or operator shall provide the director with appropriate logs and other tests conducted during the drilling construction of New Class II wells which

specifically relate to the USDW(s) and the confining zone adjacent to it, and the injection and adjacent formations, and shall include the following:

(a) A log(s) marked to indicate all fresh water zones, the confining zone(s) and the injection interval;

(b) A geologic description of the confining and injection zone(s) that shall include: lithologic description, and geologic name and thickness;

(c) A report describing the nature of fluids and formation pressure in the injection zone.

This information may be obtained from geophysical logs, physical examinations of samples and cores, and chemical analysis, etc; and shall be prepared by a knowledgeable log analyst or geologist acceptable to the department and submitted to the director. The owner or operator may substitute information from nearby wells if they are comparable to the injection well, and in the case of an area permit, sufficient information from wells within the field to adequately describe the whole field.

(5) Cementing requirement for New Class II wells.

(a) The casing string shall have the annulus of the casing and well bore, or annulus with another casing string circulated with cement from the total depth of each casing string to the surface. If surface casing is used, it shall be set fifty (50) feet below the lowest fresh water depth and circulated to the surface. A tubing and packer shall be installed in the casing immediately above the injection zone not to exceed fifty (50) feet above the injection zone. The owner or operator shall provide a detailed description of the casing plan on forms provided by the Department to be submitted with the application for permit to inject in Section 11(l)(d). The casing plan shall be approved by the director and shall include a listing of casing size, type, and grade and the depth of each casing string and the class and volume of cement to be used.

(b) Any active oil and gas well, or an abandoned or plugged well reopened for the purpose of conversion to a new Class II injection well, shall satisfy the requirements for cementing of new Class II wells.

Section 7. Mechanical Integrity Requirements for all Class II Injection wells:

(1) All operators shall demonstrate mechanical integrity of new and existing Class II injection wells. For all new Class II wells a plan to demonstrate mechanical integrity shall be submitted with the permit application to inject in Section 11 of this regulation.

(2) An injection well is determined to have mechanical integrity if:

(a) There is no significant leak in the casing, tubing or packer; and,

(b) There is no significant fluid movement into an underground source of drinking water through vertical channels adjacent to the injection well bore.

(3) One of the following methods must be used to evaluate the absence of significant leaks under paragraph (2)(a) of this Section:

(a) Regular monitorinq of annulus pressure providing an initial pressure test has been run; or,

(b) Pressure test with liquid or gas; or,

(c) Records of monitorinq showing the absence of significant changes in the relationship between injection pressure and injection flow rate for Class II enhanced recovery wells.

(4) A permittee of new or converted Class II injection wells shall perform mechanical integrity test(s) of the installation(s) prior to injection to insure there are not leaks in the system(s). A mechanical integrity test shall be performed on the annulus of the tubing and casing. If tubing is not present, then it must be run prior to performing the test. A minimum pressure of 300 psi shall be applied to the annulus of the tubing and casing. The well is considered to have mechanical integrity if, at the end of thirty (30) minutes, there is no more than a plus or minus three percent (3%) change of the test pressure on the gauge. The director may require higher test pressures to be used when the anticipated injection pressures will be high. The test results shall be filed on forms provided by the Department.

(5) The owner or operator shall not perform mechanical integrity test(s) of any Class II well without giving written notice to the Department within fifteen (15) calendar days prior to the proposed test date. The Department shall then notify the operator of the earliest possible date available to test the well.

(6) The permittee of all Class II wells, both new and existing, shall schedule, at intervals of Five (5) years or less, mechanical integrity test(s) as described in paragraph five (5) of this section.

(7) One of the following methods must be used to determine the absence of significant fluid movement under paragraph (2)(b) of this Section:

(a) The results of a temperature log or noise log, cement bond log; or,

(b) Cementing records demonstrating the presence of adequate cement to prevent such migration; or,

(c) Such other methods approved by the Administrator.

Section 8. Area of Review for New Class II Wells. The owner or operator shall supply the following information when applying for a permit to injection in Section 11 of this regulation:

(1) A description of the area of review which shall be determined by:

(a) A fixed radius of one-fourth (¼) mile around the injection well; or one-fourth (¼) mile around the permit area boundary.

(b) The zone of endangering influence calculated in accordance with 40 CFR 146.6 for an area of review less than one-fourth (¼) mile. The use of a mathematical model will not be allowed by the director until approval is granted by the Administrator. If a request is made by the owner or operator to use such a mathematical model for determining the area of review a copy of all such material provided the director shall be forwarded to the administrator for review and approval, and if approval is not granted by the administrator the method described in (1)(a) of this Section must be used.

(2) The owner or operator of New Class II wells shall submit the map information required for existing Class II wells in Section 4 (3) and map(s) showing the following information within the area of review (only information of public record and pertinent information known to the applicant):

(a) Existing producing wells, injection wells, abandoned wells, dry holes and water wells; and,

(b) Mines (surface and subsurface), quarries and other pertinent surface features including residences, roads, and faults, and,

(c) The distribution manifold applying injection fluid to all wells in the area including all system monitoring points, for those injection wells, if operating from a common manifold.

(3) The following data for any wells within the area of review shall be submitted:

(a) A tabulation of data, reasonably available from public records or otherwise known to the applicant, including a description of each well's type,

construction, date drilled, location, depth, record of plugging and/or completion, and any additional information; and,

(b) The record of completion and plugging for each well which penetrates the injection zone, and any other wells within the area of review wells which would be affected by any proposed increase in pressure if the injection well(s) is to be operated over the fracture pressure of the injection formation.

(4) The owner or operator of any wells in the area of review which are improperly sealed, completed, or abandoned, shall submit a corrective action plan which consists of such steps or modifications as are necessary to prevent movement of fluid into underground sources of drinking water. The director may consider the following criteria and factors during evaluation of the corrective action plan:

(a) Nature and volume of injected fluids;

(b) Nature of native fluids or by-products of injection;

(c) Potentially affected population;

(d) Geology;

(e) Hydrology;

(f) History of injection operations;

(g) Completion and plugging records;

(h) Plugging procedures at the time of abandonment;

(i) Hydraulic connections with underground sources of drinking water.

Section 9. Financial Responsibility.

(1) The owner or operator of all Class II wells shall demonstrate financial responsibility to plug and abandon said well(s).

(a) The demonstration of financial responsibility for existing rule authorized Class II wells shall by submitted to the director.

(b) The owner or operator of New Class II wells authorized a permit to inject pursuant to these regulations shall demonstrate financial responsibility and submit the plugging abandonment plan described in Section 10 of this regulation.

(c) The owner or operator applying for a permit to inject in Section 11 of this regulation shall demonstrate financial responsibility at the time the application to construct is filed with the director.

(2) The owner or operator shall provide financial coverage to adequately plug the well as described in Section 10 of this regulation.

(a) A surety bond issued by a Corporate surety authorized to issue such bonds by the Kentucky Department of Insurance. This bond shall be submitted on forms provided by the Department and will be held until the well is plugged to satisfy the requirements of this regulation. If the plugging requirements are not satisfied the department shall cause a notice of non-compliance to be served and bonds forfeited within the same time frame and manner as required for bonds in KRS 353.590(7) and 805 KAR 1:050 Sec (1).

(b) An Irrevocable Letter of Credit may be used for financial security. The letter of credit shall be submitted on forms provided by the Department.

(c) The owner or operator may deposit cash, cashier's check, bank check or certified check as proof of financial responsibility, in a form negotiable by the department and made payable to Kentucky State Treasurer.

(d) A certificate of deposit (CD) may be used after the owner or operator has previously submitted at least five thousand ($5,000) dollars of any combination of bonding described in paragraph 2(a) through (c) of this section. The CD shall be submitted with forms provided by the Department, and must be approved by the Department. The CD shall be held until the well is plugged.

(e) An owner or operator of Class II well(s) satisfying financial responsibility using paragraph (2)(b) and (d) of this Section, that is in non-compliance shall be served notice within the same time frame and manner as required for bonds in KRS 353.590(8).

Section 10. Plugging and Abandonment Plans

(1) The owner or operator of all Class II wells shall submit a plugging and abandonment plan describing how the well(s) will be plugged with cement in a manner which will not allow the movement of fluids either into or between underground sources of drinking water. For an area permit for which all wells are constructed the same and for which all wells will be plugged and abandoned in the same manner, one description will be acceptable.

(a) The plan shall include detailed descriptions of the type, number and placement (including elevations of the top and bottom) of plugs to be used, the type and grade and quantity of cement to be used, and method of placing the plugs.

(b) The plan shall include the cost of plugging and abandoning the well(s) properly in accordance with paragraph (2) of this Section. This cost estimate must cover the cost for having the work done by an independent third party and must show the itemized cost for each step of the plugging operation, including cost of cement, rig operation, labor, etc. The plugging plan and cost estimate shall be submitted with the financial responsibility requirements of Section 9.

(2) Class II wells shall be plugged using methods and materials conforming to good and accepted practices and standards in the industry. The methods described in this paragraph are minimum standards that must be used, and the director may order additional requirements to prevent movement of fluids into or between any USDW, to protect oil and gas producing zones, and to insure that all other natural resource zones are safely plugged.

(a) Unless otherwise specified, cement plugs may be placed in the hole by dump bailer, pumping through tubing/casing, or the pump and plug method.

(b) All casing strings left in a Class II well to be plugged, must be adequately cemented by having cement circulated in the annular space between the casing and well bore of a sufficient volume of cement, calculated using approved engineering methods, to assure the return of the cement to the surface.

(c) The following method(s) shall be used to set plugs through a casing strinq(s) with the annulus cemented, described in (2)(b) of this Section. Any uncased hole below the shoe of any casing to be left in the well shall be filled with cement from a depth of thirty (30) feet below the casing shoe, or the bottom of the hole, and the casing above the shoe shall be filled with cement to at least thirty (30) feet above the shoe of the casing. A bridge plug shall be placed at the top of the perforated injection interval(s) within thirty (30) feet of the top perforation, with at least thirty (30) feet of cement placed on the plug. A plug of cement shall be set thirty (30) feet below all producing coal zones to a depth thirty (30) feet above the coal zone. The USDW shall be plugged by setting a plug of cement fifty (50) feet below to a depth fifty (50) feet above the USDW. A surface plug shall be placed from a depth of thirty-five (35) feet below the surface to within five (5) feet of the surface.

(d) An uncased well shall have plugs set in the following manner. A cement plug shall be set thirty (30) feet below all injection or producing zone(s) of oil, gas, or water-bearing strata to a depth thirty (30) feet above this zone. All producible coal zones shall have a cement plug set thirty (30) feet below to a depth of thirty (30) feet above the coal zone. A cement plug shall be set fifty (50) feet below the USDW or to a depth of fifty (50) feet above the USDW or fifty (50) feet into any surface casing with the annulus of the casing and well bore cemented. A surface plug shall be set fifty (50) feet below the surface to a depth of five (5) feet from the surface.

(3) The owner or operator shall not plug any Class II well without a plugging plan being approved by the director. Written notice shall be given to the Department of the intention to abandon such well within 15 calendar days prior to the proposed plugging date. The Department shall then notify the operator of the earliest possible date available to plug the well. A seventy-two (72) hour verbal notice shall be given to the Department prior to the actual time of plugging. The operator may proceed with plugging if written notice from the Department is not received prior to the time of plugging.

(4) A plugging affidavit shall be filed with the Department thirty (30) days after the well is plugged on a form provided by the Department.

(5) An owner or operator may have a well temporarily abandoned by applying in writing to the director requesting such well status. The director shall allow the well to be shut-in if the applicant can demonstrate the well casing to be adequately cemented to prevent contamination of any USDW. This application shall be renewed on an annual basis and subject to approval of the director.

Section 11. Requirements for a permit to inject into New Class II wells.

(1) No person shall construct a New Class II well without obtaining written authorization from the director. To obtain authorization to construct a Class II well, an applicant shall submit to and have approved by the director an application. The application shall be submitted on forms provided by the director and shall include such information as the director deems necessary, including, but not limited to, the following:

(a) 1. Type of injection well and its location (Carter coordinates);

2. Applicant name, address, and contact person and phone number;

3. Operating data including average and maximum daily rate and volume, and average and maximum pressure of proposed injected fluid;

4. An analysis of injection fluid to yield data representative of its characteristics;

(b) Geologic data on the injection and confining zones (lithologic description, geological name, thickness and depth), and the geologic name and depth to the bottom of all potentially affected USDW's.

(c) Maps showing location data and other pertinent data for each injection well as required in Section 8 (1)(2)(3) of this regulation.

(d) A step by step description of proposed construction plans including casing (size, type & grade) cementing, mechanical integrity test(s);

(e) A schematic or other appropriate drawing(s) of the surface and subsurface construction details of the well.

(f) A description of all proposed stimulation programs.

(g) A description of proposed plans to cope with all shut-ins or well failures, so as to prevent migration of fluids into any USDW.

(h) If a manifold monitoring program is utilized describe the program and compare it to individual well monitoring.

(i) A corrective action plan must be submitted for all well(s) within the area of review as required in Section 8(4) of the regulation.

(j) A demonstration of financial responsibility as required in Section 9(l)(c)-(2) and a plugging and abandonment plan pursuant to Section 10(l)(2) and (3) of this regulation.

(k) Applications for permit shall be signed by the owner or operator of the injection well, including proprietors, or other persons authorized to execute such documents on behalf of the applicant.

(l) An applicant for permit under this section shall provide public notice of the permit application by causing a notice of the application to be placed in a newspaper having general circulation in the county in which the proposed Class II wells is located. Such notice shall describe the proposed action, and advise interested parties that additional information may be obtained from the director, that a public hearing may be requested, and that comments on the proposed action and requests for public hearing must be submitted to the director within fifteen (15) calendar days of filing the notice. The applicant shall provide a copy of the public notice to the director accompanied by an affidavit as to the manner in which public notice of the application was provided. If a significant degree of

public interest is indicated, the director shall conduct a public hearing on the application. At the conclusion of the public comment period (including any public hearing) the director shall take final action on the application.

(2) The director shall review the information supplied by the applicant in paragraph (1)(a)-(l) of this section. If the applicant has demonstrated that all applicable requirements of this regulation are satisfied, the director shall issue a permit to construct the well. Before construction of the well, the applicant shall provide the director or his appropriate field inspector a seventy two (72) hour notice prior to drilling the well. The applicant shall not inject into the well until a permit to inject is issued as required in paragraph (3) of this section.

(3) No person shall inject fluids to the subsurface through a New Class II well without obtaining a permit to inject. This permit shall be issued under the authorization of the director, and shall include such information on Department forms as the director deems necessary for the issuance of the permit including, but not limited to, the following:

(a) A copy of the well log and completion report.

(b) A copy of marked logs and formation analyses and tests required in Section 6(4)(a)-(c) of this regulation.

(c) Information showing that injection will not initiate fractures through the overlying strata shall include one of the following:

1. Instantaneous shut-in pressure;

2. Formation breakdown pressure;

3. Water (or other fluid) injection step-rate type testing performed specifically to determine the breakdown pressure of the injection zone prior to the initiation of the enhanced recovery project;

4. Other reliable field tests or performance data which the operator can demonstrate as accurately reflecting the actual sand-face fracture pressure for the injection formation may also be utilized to meet the requirement.

5. Data from nearby wells may be substituted if approved by the Department.

(d) A certificate that shall include the following:

1. The identification of the well by permit number, owner or operator's name, lease name, well number, Carter coordinate location, elevation and county.

2. The entire casing and cementing record, any packers and other special downhole equipment.

3. The anticipated maximum bottom hole pressure (psi) and volume in barrels or cubic feet per day.

4. The certification by the operator of mechanical integrity as required in Section 7(1) through (4) and (6) of this regulation. A copy of all logs and cement records shall be included.

(4) The director shall review the information supplied by the applicant in paragraph (3)(a)-(d) of this section for permit to inject. If the applicant has demonstrated that all applicable requirements of this regulation are satisfied, the permit to inject will be issued. If the applicant does not satisfy the requirements of this Section, the director shall deny the permit to inject into the well. The applicant will be provided with written explanation of such denial by certified mail. The director may require the application be modified or place additional operating requirements on the permit as necessary to prevent contamination of USDWs. Appeals of the director's decision to issue, deny, modify or revoke any permit shall be taken within thirty (30) days from the Department's action according to the provisions set forth in KRS 353.593.

(5) Modifications of the permit can only be made after notice in writing to and approval of the director. Significant modifications, as determined by the director, will require the owner or operator to publish notice in accordance with paragraph (1)(l) of this Section.

(6) The owner or operator may apply for an area permit for injection wells used for enhancement of oil or gas production, or for pressure maintenance. The applicant for an area permit shall satisfy the requirements in Section 11(l)(a) through (i), (k),(1) and paragraph (3)(c) of this Section, providing sufficient information to show that the field is of similar nature, subject to approval of the director. The owner or operator must apply for individual permits within the approved area supplying the requirements of Section 11(1)(a),(j),(k),location plat requirements, a one hundred fifty dollar ($150) fee and paragraph (3)(a) and (b).

(7) The application for permit to inject may be denied if the owner or operator fails to provide the director with sufficient information as requested to satisfy the requirements of the regulation. Written notice will be provided by certified mail to the owner or operator describing the reasons for denial, and appeals may be made within thirty (30) days as described in KRS 353.593.

(8) If the director determines that the owner or operator does not comply with the requirements of this regulation or when a USDW is endangered and response is not made to a written notice to bring the well into compliance, the director may revoke the permit to inject. A written notice be forwarded by certified mail to the owner or operator describing the reasons for termination of the permit and provide the opportunity for appeals pursuant to KRS 353.593.

(9) Injection down the annulus of the tubing/casing and the well bore is prohibited.

(10) A dual completion of a Class II well is prohibited, for purposes other than Class II injections.

(11) The permit to inject into all Class II injection wells shall remain valid for the life of the well or project. However, the director shall review each Class II well UIC permit at least once every five (5) years to determine whether it should be reissued, terminated, or modification made.

(12) The permittee of all Class II injection wells shall notify the director in writing within thirty (30) days of the termination of operations at which time the permit to inject shall expire.

Section 12. Transitional Requirements for owner or Operators of Class II wells.

(1) The director shall honor New Class II well permits issued under the authority of the EPA administered program in Kentucky if the owner or operator of such well(s) submits to the director an identical copy of the application and all other information requested by and submitted to the EPA, and a copy of the notice of approval by the EPA to inject into said well(s). The financial responsibility requirements in Section 9(2)(b), and (2) and the Plugging and Abandonment Plan in Section 10 shall be satisfied within ninety (90) days following the effective date of Primacy in Kentucky.

(2) Existing Class II wells are wells which were in existence prior to the effective date of the Federal UIC regulations for Kentucky (i.e., June 25, 1984). Only those Class II wells which were properly registered and listed in EPA files will be considered as Existing Class II wells under this regulation. All other Class II wells will be treated as New Class II wells, and those not registered under the EPA regulations in Kentucky will be required to obtain a permit to inject pursuant to Section 11 of this regulation, and must submit the application for permit to inject within ninety (90) days after Kentucky is delegated primacy of the UIC program.

(3) Owner or Operators of Class II wells having mechanical integrity test(s) approved under the administration of the EPA underground injection control program in Kentucky, shall be required to stay on the same schedule of mechanical integrity

tests (i.e. 5-year intervals), upon the date Kentucky receives Primacy of Class II wells. A copy of all documents showing the approval by the EPA of the well(s) mechanical integrity, and a copy of all forms, test data, and logs required by and submitted to the EPA shall be submitted to the director upon the date Kentucky receives Primacy. All mechanical integrity tests shall satisfy the requirements of Section 7 of this regulation and be scheduled at the same intervals required under the EPA administered program in Kentucky. The results of such test shall be forwarded to the director.

(4) The owner or operator of pending application(s) submitted for New Class II wells under the EPA administered program in Kentucky, may transfer such pending application(s) to the director, and shall satisfy the permitting requirements of the Department in Section 11 of this regulation upon the delegation of primacy to Kentucky.

(5) Owners or operators of existing Class II wells in Paragraph 2 of this section registered with the EPA, must submit a Plugging and Abandonment Plan pursuant to Section 10 of this regulation, and demonstrate financial responsibility required in Section 9 of this regulation within one year after Kentucky receives primacy of the UIC Program.

(6) Owners or operators having Class II wells shut-in under the EPA administered program in Kentucky may be allowed to keep such well(s) shut-in up to the time limit allowed by the EPA, if a copy of EPA authorization is forwarded to the director within ninety (90) days after Kentucky receives primacy of the UIC Program.

TAB 10

SAFE DRINKING WATER ACT

HISTORY: Public Law 93-523, Dec. 16, 1974; 88 Stat. 1660, 42 U.S.C. 300f et seq.; Amended by PL 94-317, June 23, 1976; PL 94-484, Oct. 12, 1976; PL 95-190, Nov. 16, 1977; PL 96-63, Sept. 6, 1979; PL 96-502, Dec. 5, 1980; PL 98-620, Nov. 11, 1984; PL 99-339, June 19, 1986; PL 100-572, Oct. 31, 1988; PL 103-382, Oct. 20, 1994; PL 104-66, Dec. 21, 1995; PL 104-182, Aug. 6, 1996

SEC. 1 Short Title. This Act may be cited as the "Safe Drinking Water Act of 1974."
[§1 amended by PL 104-182]

SEC. 2 Public Water Systems

(a) The Public Health Service Act is amended by inserting after title XIII the following new title:

TITLE XIV -- SAFETY OF PUBLIC WATER SYSTEMS

SEC. 1400 Short Title. This title may be cited as the "Safe Drinking Water Act."
[§1400 added by PL 104-182]

PART A -- DEFINITIONS

SEC. 1401 [42 U.S.C. 300f] Definitions.

For purposes of this title:

(1) The term "primary drinking water regulation" means a regulation which --

(A) applies to public water systems;

(B) specifies contaminants which, in the judgment of the Administrator, may have any adverse effect on the health of persons:

(C) specifies for each such contaminant either --

(i) a maximum contaminant level, if, in the judgment of the Administrator, it is economically and technologically feasible to ascertain the level of such contaminant in water in public water systems, or

(ii) if, in the judgment of the Administrator, it is not economically or technologically feasible to so ascertain the level of such contaminant, each treatment technique known to the Administrator which leads to a reduction in the level of such contaminant sufficient to satisfy the requirements of section 1412; and

(D) contains criteria and procedures to assure a supply of drinking water which dependably complies with such maximum contaminant levels; including accepted methods for quality control and testing procedures to insure compliance with such levels and to insure proper operation and maintenance of the system, and requirements as to

(i) the minimum quality of water which may be taken into the system and

(ii) siting for new facilities for public systems.

At any time after promulgation of a regulation referred to in this paragraph, the Administrator may add equally effective quality control and testing procedures by guidance published in the Federal Register. Such procedures shall be treated as an alternative for public water systems to the quality control and testing procedures listed in the regulation.
[§1401(1)(D) revised by PL 104-182]

(2) The term "secondary drinking water regulation" means a regulation which applies to public water systems and which specifies the maximum contaminant levels which, in the judgment of the Administrator, are requisite to protect the public welfare. Such regulations may apply to any contaminant in drinking water

(A) which may adversely affect the odor or appearance of such water and consequently may cause a substantial number of the persons served by the public water system providing such water to discontinue its use, or

(B) which may otherwise adversely affect the public welfare. Such regulations may vary according to geographic and other circumstances.

(3) The term "maximum contaminant level" means the maximum permissible level of a contaminant in water which is delivered to any user of a public water system.

(4) Public water system.--

(A) In general.--The term "public water system" means a system for the provision to the public of water for human consumption through pipes or other constructed conveyances, if such system has at least fifteen service connections or regularly serves at least twenty-five individuals. Such term includes
[Former §1401(4) amended and redesignated as new (4)(A) by PL 104-182]

(i) any collection, treatment, storage, and distribution facilities under control of the operator of such system and used primarily in connection with such system, and
[Former §1401(4)(A) redesignated as new (4)(A)(i) by PL 104-182]

(ii) any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system.
[Former §1401(4)(B) redesignated as new (4)(A)(ii) by PL 104-182]

(B) Connections.--

(i) In general.--For purposes of subparagraph (A), a connection to a system that delivers water by a constructed conveyance other than a pipe shall not be considered a connection, if--

(I) the water is used exclusively for purposes other than residential uses (consisting of drinking, bathing, and cooking, or other similar uses);

(II) the Administrator or the State (in the case of a State exercising primary enforcement responsibility for public water systems) determines that alternative water to achieve the equivalent level of public health protection provided by the applicable national primary drinking water regulation is provided for residential or similar uses for drinking and cooking; or

(III) the Administrator or the State (in the case of a State exercising primary enforcement responsibility for public water systems) determines that the water provided for residential or similar uses for drinking, cooking,

and bathing is centrally treated or treated at the point of entry by the provider, a pass-through entity, or the user to achieve the equivalent level of protection provided by the applicable national primary drinking water regulations.

(ii) Irrigation districts.--An irrigation district in existence prior to May 18, 1994, that provides primarily agricultural service through a piped water system with only incidental residential or similar use shall not be considered to be a public water system if the system or the residential or similar users of the system comply with subclause (II) or (III) of clause (i).
[New §1401(4)(B) added by PL 104-182]

(C) Transition period.--A water supplier that would be a public water system only as a result of modifications made to this paragraph by the Safe Drinking Water Act Amendments of 1996 shall not be considered a public water system for purposes of the Act until the date that is two years after the date of enactment of this subparagraph. If a water supplier does not serve 15 service connections (as defined in subparagraphs (A) and (B)) or 25 people at any time after the conclusion of the 2-year period, the water supplier shall not be considered a public water system.
[§1401(4)(C) added by PL 104-182]

(5) The term "supplier of water" means any person who owns or operates a public water system.

(6) The term "contaminant" means any physical, chemical, biological, or radiological substance or matter in water.

(7) The term "Administrator"' means the Administrator of the Environmental Protection Agency.

(8) The term "Agency" means the Environmental Protection Agency.

(9) The term "Council" means the National Drinking Water Advisory Council established under section 1446.

(10) The term "municipality" means a city, town, or other public body created by or pursuant to State law, or an Indian Tribe.
[§1401(10) amended by PL 99-339]

(11) The term "Federal agency" means any department agency, or instrumentality of the United States.

(12) The term "person" means an individual, corporation, company, association, partnership, State, municipality, or Federal agency (and includes officers, employees, and agents of any corporation, company, association, State, municipality, or Federal agency).
[§1401(12) amended by PL 95-190]

(13)(A) Except as provided in subparagraph (B), the term State" includes, in addition to the several States, only the District of Columbia, Guam, and Commonwealth of Puerto Rico, the Northern Mariana Islands, the Virgin Islands, American Samoa, and the Trust Territory of the Pacific Islands.

(B) For purposes of section 1452, the term "State" means each of the 50 States, the District of Columbia, and the Commonwealth of Puerto Rico.
[§1401(13) added by PL 94-317; amended by PL 94-484; revised by PL 104-182]

(14) The term "Indian Tribe" means any Indian tribe having a Federally recognized governing body carrying

out substantial governmental duties and powers over any area. For purposes of section 1452, the term includes any Native village (as defined in section 3(c) of the Alaska Native Claims Settlement Act (43 U.S.C. 1602(c))). [§1401(14) added by PL 99-339; amended by PL 104-182]

(15) Community water system.--The term "community water system" means a public water system that--

(A) serves at least 15 service connections used by year-round residents of the area served by the system; or

(B) regularly serves at least 25 year-round residents.
[§1401(15) added by PL 104-182]

(16) Noncommunity water system.--The term "noncommunity water system" means a public water system that is not a community water system.
[§1401(16) added by PL 104-182]

PART B -- PUBLIC WATER SYSTEMS

SEC. 1411 [42 U.S.C. 300g] Coverage.

Subject to sections 1415 and 1416, national primary drinking water regulations under this part shall apply to each public water system in each State; except that such regulations shall not apply to a public water system --

(1) which consists only of distribution and storage facilities (and does not have any collection and treatment facilities);

(2) which obtains all of its water from, but is not owned or operated by, a public water system to which such regulations apply;

(3) which does not sell water to any person; and

(4) which is not a carrier which conveys passengers in interstate commerce.

SEC. 1412 [42 U.S.C. 300g-1] National Drinking Water Regulations.

(a)(1) Effective on the enactment of the Safe Drinking Water Act Amendments of 1986, each national interim or revised primary drinking water regulation promulgated under this section before such enactment shall be deemed to be a national primary drinking water regulation under subsection (b). No such regulation shall be required to comply with the standards set forth in subsection (b)(4) unless such regulation is amended to establish a different maximum contaminant level after the enactment of such amendments.

(2) After the enactment of the Safe Drinking Water Act Amendments of 1986 each recommended maximum contaminant level published before the enactment of such amendment shall be treated as a maximum contaminant level goal.

(3) Whenever a national primary drinking water regulation is proposed under subsection (b) for any contaiminant, the maximum contaminant level goal for such contaminant shall be proposed simultaneously. Whenever a national primary drinking water regulation is promulgated under subsection (b) for any contaminant, the maximum contaminant level goal for such contaminant shall be published simultaneously. [§1412(a)(3) amended by PL 104-182]

(4) Paragraph (3) shall not apply to any recommended maximum contaminant level published before the enactment of the Safe Drinking Water Act Amendments of 1986.
[§1412(a) revised by PL 99-339]

(b) Standards.--

(1) Identification of contaminants for listing.--

(A) General authority.--The Administrator shall, in accordance with the procedures established by this subsection, publish a maximum contaminant level goal and promulgate a national primary drinking water regulation for a contaminant (other than a contaminant referred to in paragraph (2) for which a national primary drinking water regulation has been promulgated as of the date of enactment of the Safe Drinking Water Act Amendments of 1996) if the Administrator determines that--

(i) the contaminant may have an adverse effect on the health of persons;

(ii) the contaminant is known to occur or there is a substantial likelihood that the contaminant will occur in public water systems with a frequency and at levels of public health concern; and

(iii) in the sole judgment of the Administrator, regulation of such contaminant presents a meaningful opportunity for health risk reduction for persons served by public water systems.

(B) Regulation of unregulated contaminants.--

(i) Listing of contaminants for consideration.--

(I) Not later than 18 months after the date of enactment of the Safe Drinking Water Act Amendments of 1996 and every 5 years thereafter, the Administrator, after consultation with the scientific community, including the Science Advisory Board, after notice and opportunity for public comment, and after considering the occurrence data base established under section 1445(g), shall publish a list ofcontaminants which, at the time of publication, are not subject to any proposed or promulgated national primary drinking water regulation, which are known or anticipated to occur in public water systems, and which may require regulation under this title.

(II) The unregulated contaminants considered under subclause (I)shall include, but not be limited to,substances referred to in section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, and substances registered as pesticides under the Federal Insecticide, Fungicide, and Rodenticide Act.

(III) The Administrator's decision whether or not to select an unregulated contaminant for a list under this clause shall not be subject to judicial review.

(ii) Determination to regulate.--

(I) Not later than 5 years after the date of enactment of the Safe Drinking Water Act Amendments of 1996, and every 5 years thereafter, the Administrator shall, after notice of the preliminary determination and opportunity for public comment, for not fewer than 5 contaminants included on the list published under clause (i), make determinations of whether or not to regulate such contaminants.

(II) A determination to regulate a contaminant shall be based on findings that the criteria of clauses (i), (ii),

and (iii) of subparagraph (A) are satisfied. Such findings shall be based on the best available public health information, including the occurrence data base established under section 1445(g).

(III) The Administrator may make a determination to regulate a contaminant that does not appear on a list under clause (i) if the determination to regulate is made pursuant to subclause (II).

(IV) A determination under this clause not to regulate a contaminant shall be considered final agency action and subject to judicial review.

(iii) Review.--Each document setting forth the determination for a contaminant under clause (ii) shall be available for public comment at such time as the determination is published.

(C) Priorities.--In selecting unregulated contaminants for consideration under subparagraph (B), the Administrator shall select contaminants that present the greatest public health concern. The Administrator, in making such selection, shall take into consideration, among other factors of public health concern, the effect of such contaminants upon subgroups that comprise a meaningful portion of the general population (such as infants, children, pregnant women, the elderly, individuals with a history of serious illness, or other subpopulations) that are identifiable as being at greater risk of adverse health effects due to exposure to contaminants in drinking water than the general population.

(D) Urgent threats to public health.--The Administrator may promulgate an interim national primary drinking water regulation for a contaminant without making a determination for the contaminant under paragraph (4)(C), or completing the analysis under paragraph (3)(C), to address an urgent threat to public health as determined by the Administrator after consultation with and written response to any comments provided by the Secretary of Health and Human Services, acting through the director of the Centers for Disease Control and Prevention or the director of the National Institutes of Health. A determination for any contaminant in accordance with paragraph (4)(C) subject to an interim regulation under this subparagraph shall be issued, and a completed analysis meeting the requirements of paragraph (3)(C) shall be published, not later than 3 years after the date on which the regulation is promulgated and the regulation shall be repromulgated, or revised if appropriate, not later than 5 years after that date.

(E) Regulation.--For each contaminant that the Administrator determines to regulate under subparagraph (B), the Administrator shall publish maximum contaminant level goals and promulgate, by rule, national primary drinking water regulations under this subsection. The Administrator shall propose the maximum contaminant level goal and national primary drinking water regulation for a contaminant not later than 24 months after the determination to regulate under subparagraph (B), and may publish such proposed regulation concurrent with the determination to regulate. The Administrator shall publish a maximum contaminant level goal and promulgate a national primary drinking water regulation within 18 months after the proposal thereof. The Administrator, by notice in the Federal Register, may extend the deadline for such promulgation for up to 9 months.

(F) Health advisories and other actions.--The Administrator may publish health advisories (which are not regulations) or take other appropriate actions for contaminants not subject to any national primary drinking water regulation.
[§1412(b)(1) revised by PL 99-339; PL 104-182]

(2) Schedules and deadlines.--

(A) In general.--In the case of the contaminants listed in the advance Notice of Proposed Rulemaking published in 47 FR 9352 volume 47, Federal Register, page 9352, and in 47 FR 9352 volume 48, Federal

Register, page 45502, the Administrator shall publish maximum contaminant level goals and promulgate national primary drinking water regulations--

(i) not later than 1 year after June 19, 1986, for not fewer than 9 of the listed contaminants;

(ii) not later than 2 years after June 19, 1986, for not fewer than 40 of the listed contaminants; and

(iii) not later than 3 years after June 19, 1986, for the remainder of the listed contaminants.

(B) Substitution of contaminants.--If the Administrator identifies a drinking water contaminant the regulation of which, in the judgment of the Administrator, is more likely to be protective of public health (taking into account the schedule for regulation under subparagraph (A)) than a contaminant referred to in subparagraph (A), the Administrator may publish a maximum contaminant level goal and promulgate a national primary drinking water regulation for the identified contaminant in lieu of regulating the contaminant referred to in subparagraph (A). Substitutions may be made for not more than 7 contaminants referred to in subparagraph (A). Regulation of a contaminant identified under this subparagraph shall be in accordance with the schedule applicable to the contaminant for which the substitution is made.

(C) Disinfectants and disinfection byproducts.--The Administrator shall promulgate an Interim Enhanced Surface Water Treatment Rule, a Final Enhanced Surface Water Treatment Rule, a Stage I Disinfectants and Disinfection Byproducts Rule, and a Stage II Disinfectants and Disinfection Byproducts Rule in accordance with the schedule published in 59 FR 6361 volume 59, Federal Register, page 6361 (February 10, 1994), in table III.13 of the proposed Information Collection Rule. If a delay occurs with respect to the promulgation of any rule in the schedule referred to in this subparagraph, all subsequent rules shall be completed as expeditiously as practicable but no later than a revised date that reflects the interval or intervals for the rules in the schedule.
[§1412(b)(2) revised by PL 99-339; PL 104-182]

(3) Risk assessment, management, and communication.--

(A) Use of science in decisionmaking.--In carrying out this section, and, to the degree that an Agency action is based on science, the Administrator shall use--

(i) the best available, peer-reviewed science and supporting studies conducted in accordance with sound and objective scientific practices; and

(ii) data collected by accepted methods or best available methods (if the reliability of the method and the nature of the decision justifies use of the data).

(B) Public information.--In carrying out this section, the Administrator shall ensure that the presentation of information on public health effects is comprehensive, informative, and understandable. The Administrator shall, in a document made available to the public in support of a regulation promulgated under this section, specify, to the extent practicable--

(i) each population addressed by any estimate of public health effects;

(ii) the expected risk or central estimate of risk for the specific populations;

(iii) each appropriate upper-bound or lower-bound estimate of risk;

(iv) each significant uncertainty identified in the process of the assessment of public health effects and studies that would assist in resolving the uncertainty; and

(v) peer-reviewed studies known to the Administrator that support, are directly relevant to, or fail to support any estimate of public health effects and the methodology used to reconcile inconsistencies in the scientific data.

(C) Health risk reduction and cost analysis.--

(i) Maximum contaminant levels.--When proposing any national primary drinking water regulation that includes a maximum contaminant level, the Administrator shall, with respect to a maximum contaminant level that is being considered in accordance with paragraph (4) and each alternative maximum contaminant level that is being considered pursuant to paragraph (5) or (6)(A), publish, seek public comment on, and use for the purposes of paragraphs (4), (5), and (6) an analysis of each of the following:

(I) Quantifiable and nonquantifiable health risk reduction benefits for which there is a factual basis in the rulemaking record to conclude that such benefits are likely to occur as the result of treatment to comply with each level.

(II) Quantifiable and nonquantifiable health risk reduction benefits for which there is a factual basis in the rulemaking record to conclude that such benefits are likely to occur from reductions in co-occurring contaminants that may be attributed solely to compliance with the maximum contaminant level, excluding benefits resulting from compliance with other proposed or promulgated regulations.

(III) Quantifiable and nonquantifiable costs for which there is a factual basis in the rulemaking record to conclude that such costs are likely to occur solely as a result of compliance with the maximum contaminant level, including monitoring, treatment, and other costs and excluding costs resulting from compliance with other proposed or promulgated regulations.

(IV) The incremental costs and benefits associated with each alternative maximum contaminant level considered.

(V) The effects of the contaminant on the general population and on groups within the general population such as infants, children, pregnant women, the elderly, individuals with a history of serious illness, or other subpopulations that are identified as likely to be at greater risk of adverse health effects due to exposure to contaminants in drinking water than the general population.

(VI) Any increased health risk that may occur as the result of compliance, including risks associated with co-occurring contaminants.

(VII) Other relevant factors, including the quality and extent of the information, the uncertainties in the analysis supporting subclauses (I) through (VI), and factors with respect to the degree and nature of the risk.

(ii) Treatment techniques.--When proposing a national primary drinking water regulation that includes a treatment technique in accordance with paragraph (7)(A), the Administrator shall publish and seek public comment on an analysis of the health risk reduction benefits and costs likely to be experienced as the result of compliance with the treatment technique and alternative treatment techniques that are being considered, taking into account, as appropriate, the factors described in clause (i).

(iii) Approaches to measure and value benefits.--The Administrator may identify valid approaches for the

measurement and valuation of benefits under this subparagraph, including approaches to identify consumer willingness to pay for reductions in health risks from drinking water contaminants.

(iv) Authorization.--There are authorized to be appropriated to the Administrator, acting through the Office of Ground Water and Drinking Water, to conduct studies, assessments, and analyses in support of regulations or the development of methods, $35,000,000 for each of fiscal years 1996 through 2003.
[§1412(b)(3) revised by PL 99-339; PL 104-182]

(4) Goals and standards.--
[§1412(b)(4) added by PL 99-339]

(A) Maximum contaminant level goals.-- Each maximum contaminant level goal established under this subsection shall be set at the level at which no known or anticipated adverse effects on the health of person occur and which allows an adequate margin of safety.
[§1412(b)(4)(A) designated and amended by PL 104-182]

(B) Maximum contaminant levels.-- Except as provided in paragraphs (5) and (6), each national primary drinking water regulation for a contaminant for which a maximum contaminant level goal is established under this subsection shall specify a maximum contaminant level for such contaminant which is as close to the maximum contaminant level goal as is feasible.
[§1412(b)(4)(B) amended by PL 104-182]

(C) Determination.--At the time the Administrator proposes a national primary drinking water regulation under this paragraph, the Administrator shall publish a determination as to whether the benefits of the maximum contaminant level justify, or do not justify, the costs based on the analysis conducted under paragraph (3)(C).
[§1412(b)(4)(C) added by PL 104-182]

(D) Definition of feasible.-- For the purposes of this subsection, the term "feasible' means feasible with the use of the best technology, treatment techniques and other means which the Administrator finds, after examination for efficacy under field conditions and not solely under laboratory conditions, are available (taking cost into consideration). For the purpose of this paragraph, granular activated carbon is feasible for the control of synthetic organic chemicals, and any technology, treatment technique, or other means found to be the best available for the control of synthetic organic chemicals must be at least as effective in controlling synthetic organic chemicals as granular activated carbon.
[§1412(b)(5) added by PL 99-339; amended and redesignated as new (b)(4)(D) by PL 104-182]

(E) Feasible technologies.--

(i) In general.-- Each national primary drinking water regulation which establishes a maximum contaminant level shall list the technology, treatment techniques, and other means which the Administrator finds to be feasible for purposes of meeting such maximum contaminant level, but a regulation under this subsection shall not require that any specified technology, treatment technique, or other means be used for purposes of meeting such maximum contaminant level.

(ii) List of technologies for small systems.--The Administrator shall include in the list any technology, treatment technique, or other means that is affordable, as determined by the Administrator in consultation with the States, for small public water systems serving--

(I) a population of 10,000 or fewer but more than 3,300;

(II) a population of 3,300 or fewer but more than 500; and

(III) a population of 500 or fewer but more than 25; and that achieves compliance with the maximum contaminant level or treatment technique, including packaged or modular systems and point-of-entry or point-of-use treatment units. Point-of-entry and point-of-use treatment units shall be owned, controlled and maintained by the public water system or by a person under contract with the public water system to ensure proper operation and maintenance and compliance with the maximum contaminant level or treatment technique and equipped with mechanical warnings to ensure that customers are automatically notified of operational problems. The Administrator shall not include in the list any point-of-use treatment technology, treatment technique, or other means to achieve compliance with a maximum contaminant level or treatment technique requirement for a microbial contaminant (or an indicator of a microbial contaminant). If the American National Standards Institute has issued product standards applicable to a specific type of point-of-entry or point-of-use treatment unit, individual units of that type shall not be accepted for compliance with a maximum contaminant level or treatment technique requirement unless they are independently certified in accordance with such standards. In listing any technology, treatment technique, or other means pursuant to this clause, the Administrator shall consider the quality of the source water to be treated.

(iii) List of technologies that achieve compliance.-- Except as provided in clause (v), not later than 2 years after the date of enactment of this clause and after consultation with the States, the Administrator shall issue a list of technologies that achieve compliance with the maximum contaminant level or treatment technique for each category of public water systems described in subclauses (I), (II), and (III) of clause (ii) for each national primary drinking water regulation promulgated prior to the date of enactment of this paragraph.

(iv) Additional technologies.--The Administrator may, at any time after a national primary drinking water regulation has been promulgated, supplement the list of technologies describing additional or new or innovative treatment technologies that meet the requirements of this paragraph for categories of small public water systems described in subclauses (I), (II), and (III) of clause (ii)that are subject to the regulation.

(v) Technologies that meet surface water treatment rule.--Within one year after the date of enactment of this clause, the Administrator shall list technologies that meet the Surface Water Treatment Rule for each category of public water systems described in subclauses (I), (II), and (III) of clause (ii).
[§1412(b)(6) added by PL 99-339; revised and redesignated as new (b)(4)(E) by PL 104-182]

(5) Additional health risk considerations.--

(A) In general.--Notwithstanding paragraph (4), the Administrator may establish a maximum contaminant level for a contaminant at a level other than the feasible level, if the technology, treatment techniques, and other means used to determine the feasible level would result in an increase in the health risk from drinking water by--

(i) increasing the concentration of other contaminants in drinking water; or

(ii) interfering with the efficacy of drinking water treatment techniques or processes that are used to comply with other national primary drinking water regulations.

(B) Establishment of level.--If the Administrator establishes a maximum contaminant level or levels or requires the use of treatment techniques for any contaminant or contaminants pursuant to the authority of this paragraph--

(i) the level or levels or treatment techniques shall minimize the overall risk of adverse health effects by balancing the risk from the contaminant and the risk from other contaminants the concentrations of which may be affected by the use of a treatment technique or process that would be employed to attain the maximum contaminant level or levels; and

(ii) the combination of technology, treatment techniques, or other means required to meet the level or levels shall not be more stringent than is feasible (as defined in paragraph (4)(D)).
[New §1412(b)(5) added by PL 104-182]

(6) Additional health risk reduction and cost considerations.--

(A) In general.--Notwithstanding paragraph (4), if the Administrator determines based on an analysis conducted under paragraph (3)(C) that the benefits of a maximum contaminant level promulgated in accordance with paragraph (4) would not justify the costs of complying with the level, the Administrator may, after notice and opportunity for public comment, promulgate a maximum contaminant level for the contaminant that maximizes health risk reduction benefits at a cost that is justified by the benefits.

(B) Exception.--The Administrator shall not use the authority of this paragraph to promulgate a maximum contaminant level for a contaminant, if the benefits of compliance with a national primary drinking water regulation for the contaminant that would be promulgated in accordance with paragraph (4) experienced by--

(i) persons served by large public water systems; and

(ii) persons served by such other systems as are unlikely, based on information provided by the States, to receive a variance under section 1415(e) (relating to small system variances); would justify the costs to the systems of complying with the regulation. This subparagraph shall not apply if the contaminant is found almost exclusively in small systems eligible under section 1415(e) for a small system variance.

(C) Disinfectants and disinfection byproducts.--The Administrator may not use the authority of this paragraph to establish a maximum contaminant level in a Stage I or Stage II national primary drinking water regulation (as described in paragraph (2)(C)) for contaminants that are disinfectants or disinfection byproducts, or to establish a maximum contaminant level or treatment technique requirement for the control of cryptosporidium. The authority of this paragraph may be used to establish regulations for the use of disinfection by systems relying on ground water sources as required by paragraph (8).

(D) Judicial review.--A determination by the Administrator that the benefits of a maximum contaminant level or treatment requirement justify or do not justify the costs of complying with the level shall be reviewed by the court pursuant to section 1448 only as part of a review of a final national primary drinking water regulation that has been promulgated based on the determination and shall not be set aside by the court under that section unless the court finds that the determination is arbitrary and capricious.
[New §1412(b)(6) added by PL 104-182]

(7)(A) The Administrator is authorized to promulgate a national primary drinking water regulation that requires the use of a treatment technique in lieu of establishing a maximum contaminant level, if the Administrator makes a finding that it is not economically or technologically feasible to ascertain in the level of the contaminant. In such case, the Administrator shall identify those treatment techniques which, in the Administrator's judgment, would prevent known or anticipated adverse effects on the health of persons to the extent feasible. Such regulations shall specify each treatment technique known to the Administrator which meets the requirements of this paragraph, but the Administrator may grant a variance from any specified treatment technique in accordance with section 1415(a)(3).

(B) Any scheduled referred to in this subsection for the promulgation of a national primary drinking water regulation for any contaminant shall apply in the same manner if the regulation requires a treatment technique in lieu of establishing a maximum contaminant level.

(C)(i) Not later than 18 months after the enactment of the Safe Drinking Water Act Amendments of 1986, the Administrator shall propose and promulgate national primary drinking water regulations specifying criteria under which filtration (including coagulation and sedimentation as appropriate) is required as a treatment technique for public water systems supplied by surface water sources. In promulgating such rules, the Administrator shall consider the quality of source waters, protection afforded by watershed management, treatment practices (such as disinfection and length of water storage) and other factors relevant to protection of health.

(ii) In lieu of the provisions of section 1415 the Administrator shall specify procedures by which the State determines which public water systems within its jurisdiction shall adopt filtration under the criteria of clause (i). The State may require the public water system to provide studies or other information to assist in this determination. The procedures shall provide notice and opportunity for public hearing on this determination. If the State determines that filtration is required, the State shall prescribe a schedule for compliance by the public water system with the filtration requirement. A schedule shall require compliance within 18 months of a determination made under clause (iii).

(iii) Within 18 months from the time that the Administrator establishes the criteria and procedures under this subparagraph, a State with primary enforcement responsibility shall adopt any necessary regulations to implement this subparagraph. Within 12 months of adoption of such regulations the State shall make determinations regarding filtration for all the public water systems within its jurisdiction supplied by surface waters.

(iv) If a State does not have primary enforcement responsibility for public water systems, the Administrator shall have the same authority to make the determination in clause (ii) in such State as the State would have under that clause. Any filtration requirement or schedule under this subparagraph shall be treated as if it were a requirement of a national primary drinking water regulation.
[§1412(b)(7) added by PL 99-339]

(v) As an additional alternative to the regulations promulgated pursuant to clauses (i) and (iii), including the criteria for avoidingfiltration contained in 40 CFR 141.71, a State exercising primary enforcement responsibility for public water systems may, on a case-by-case basis, and after notice and opportunity for public comment, establish treatment requirements as an alternative to filtration in the case of systems having uninhabited, undeveloped watersheds in consolidated ownership, and having control over access to, and activities in, those watersheds, if the State determines (and the Administrator concurs) that the quality of the source water and the alternative treatment requirements established by the State ensure greater removal or inactivation efficiencies of pathogenic organisms for which national primary drinking water regulations have been promulgated or that are of public health concern than would be achieved by the combination of filtration and chlorine disinfection (in compliance with this section).
[§1412(b)(7)(C)(v) added by PL 104-182]

(8) Disinfection.--At any time after the end of the 3-year period that begins on the date of enactment of the Safe Drinking Water Act Amendments of 1996, but not later than the date on which the Administrator promulgates a Stage II rulemaking for disinfectants and disinfection byproducts (as described in paragraph (2)(C)), the Administrator shall also promulgate national primary drinking water regulations requiring disinfection as a treatment technique for all public water systems, including surface water systems and, as

necessary, ground water systems. After consultation with the States, the Administrator shall (as part of the regulations) promulgate criteria that the Administrator, or a State that has primary enforcement responsibility under section 1413, shall apply to determine whether disinfection shall be required as a treatment technique for any public water system served by ground water. The Administrator shall simultaneously promulgate a rule specifying criteria that will be used by the Administrator (or delegated State authorities) to grant variances from this requirement according to the provisions of sections 1415(a)(1)(B) and 1415(a)(3). In implementing section 1442(e) the Administratoror the delegated State authority shall, where appropriate, give special consideration to providing technical assistance to small public water systems in complying with the regulations promulgated under this paragraph.
[§1412(b)(8) added by PL 99-339; revised by PL 104-182]

(9) Review and revision.--The Administrator shall, not less often than every 6 years, review and revise, as appropriate, each national primary drinking water regulation promulgated under this title. Any revision of a national primary drinking water regulation shall be promulgated in accordance with this section, except that each revision shall maintain, or provide for greater, protection of the health of persons.
[Former §1412(b)(4) amended and redesignated as (9) by PL 99-339; revised by PL 104-182]

(10) Effective date.--A national primary drinking water regulation promulgated under this section (and any amendment thereto) shall take effect on the date that is 3 years after the date on which the regulation is promulgated unless the Administrator determines that an earlier date is practicable, except that the Administrator, or a State (in the case of an individual system), may allow up to 2 additional years to comply with a maximum contaminant level or treatment technique if the Administrator or State (in the case of an individual system) determines that additional time is necessary for capital improvements.
[Former §1412(b)(5) amended and redesignated as (10) by PL 99-339; revised by PL 104-182]

(11) No national primary drinking water regulation may require addition of any substance for preventive health care purposes unrelated to contamination of drinking water.
[Former §1412(b)(6) redesignated as (11) by PL 99-339]

(12) Certain contaminants.--

(A) Arsenic.--

(i) Schedule and standard.--Notwithstanding the deadlines set forth in paragraph (1), the Administrator shall promulgate a national primary drinking water regulation for arsenic pursuant to this subsection, in accordance with the schedule established by this paragraph.

(ii) Study plan.--Not later than 180 days after the date of enactment of this paragraph, the Administrator shall develop a comprehensive plan for study in support of drinking water rulemaking to reduce the uncertainty in assessing health risks associated with exposure to low levels of arsenic. In conducting such study, the Administrator shall consult with the National Academy of Sciences, other Federal agencies, and interested public and private entities.

(iii) Cooperative agreements.--In carrying out the study plan, the Administrator may enter into cooperative agreements with other Federal agencies, State and local governments, and other interested public and private entities.

(iv) Proposed regulations.--The Administrator shall propose a national primary drinking water regulation for arsenic not later than January 1, 2000.

(v) Final regulations.--Not later than January 1, 2001, after notice and opportunity for public comment, the Administrator shall promulgate a national primary drinking water regulation for arsenic.

(vi) Authorization.--There are authorized to be appropriated $2,500,000 for each of fiscal years 1997 through 2000 for the studies required by this paragraph.

(B) Sulfate.--

(i) Additional study.--Prior to promulgating a national primary drinking water regulation for sulfate, the Administrator and the Director of the Centers for Disease Control and Prevention shall jointly conduct an additional study to establish a reliable dose-response relationship for the adverse human health effects that may result from exposure to sulfate in drinking water, including the health effects that may be experienced by groups within the general population (including infants and travelers) that are potentially at greater risk of adverse health effects as the result of such exposure. The study shall be conducted in consultation with interested States, shall be based on the best available, peer-reviewed science and supporting studies conducted in accordance with sound and objective scientific practices, and shall be completed not later than 30 months after the date of enactment of the Safe Drinking Water Act Amendments of 1996.

(ii) Determination.--The Administrator shall include sulfate among the 5 or more contaminants for which a determination is made pursuant to paragraph (3)(B) not later than 5 years after the date of enactment of the Safe Drinking Water Act Amendments of 1996.

(iii) Proposed and final rule.--Notwithstanding the deadlines set forth in paragraph (2), the Administrator may, pursuant to the authorities of this subsection and after notice and opportunity for public comment, promulgate a final national primary drinking water regulation for sulfate. Any such regulation shall include requirements for public notification and options for the provision of alternative water supplies to populations at risk as a means of complying with the regulation in lieu of a best available treatment technology or other means.
[§1412(b)(12) added by PL 104-182]

(13) Radon in drinking water.--

(A) National primary drinking water regulation.-- Notwithstanding paragraph (2), the Administrator shall withdraw any national primary drinking water regulation for radon proposed prior to the date of enactment of this paragraph and shall propose and promulgate a regulation for radon under this section, as amended by the Safe Drinking Water Act Amendments of 1996.

(B) Risk assessment and studies.--

(i) Assessment by nas.--Prior to proposing a national primary drinking water regulation for radon, the Administrator shall arrange for the National Academy of Sciences to prepare a risk assessment for radon in drinking water using the best available science in accordance with the requirements of paragraph (3). The risk assessment shall consider each of the risks associated with exposure to radon from drinking water and consider studies on the health effects of radon at levels and under conditions likely to be experienced through residential exposure. The risk assessment shall be peer-reviewed.

(ii) Study of other measures.--The Administrator shall arrange for the National Academy of Sciences to prepare an assessment of the health risk reduction benefits associated with various mitigation measures to reduce radon levels in indoor air. The assessment may be conducted as part of the risk assessment authorized by clause (i) and shall be used by the Administrator to prepare the guidance and approve State programs under

subparagraph (G).

(iii) Other organization.--If the National Academy of Sciences declines to prepare the risk assessment or studies required by this subparagraph, the Administrator shall enter into a contract or cooperative agreement with another independent, scientific organization to prepare such assessments or studies.

(C) Health risk reduction and cost analysis.--Not later than 30 months after the date of enactment of this paragraph, the Administrator shall publish, and seek public comment on, a health risk reduction and cost analysis meeting the requirements of paragraph (3)(C) for potential maximum contaminant levels that are being considered for radon in drinking water. The Administrator shall include a response to all significant public comments received on the analysis with the preamble for the proposed rule published under subparagraph (D).

(D) Proposed regulation.--Not later than 36 months after the date of enactment of this paragraph, the Administrator shall propose a maximum contaminant level goal and a national primary drinking water regulation for radon pursuant to this section.

(E) Final regulation.--Not later than 12 months after the date of the proposal under subparagraph (D), the Administrator shall publish a maximum contaminant level goal and promulgate a national primary drinking water regulation for radon pursuant to this section based on the risk assessment prepared pursuant to subparagraph (B) and the health risk reduction and cost analysis published pursuant to subparagraph (C). In considering the risk assessment and the health risk reduction and cost analysis in connection with the promulgation of such a standard, the Administrator shall take into account the costs and benefits of control programs for radon from other sources.

(F) Alternative maximum contaminant level.--If the maximum contaminant level for radon in drinking water promulgated pursuant to subparagraph (E) is more stringent than necessary to reduce the contribution to radon in indoor air from drinking water to a concentration that is equivalent to the national average concentration of radon in outdoor air, the Administrator shall, simultaneously with the promulgation of such level, promulgate an alternative maximum contaminant level for radon that would result in a contribution of radon from drinking water to radon levels in indoor air equivalent to the national average concentration of radon in outdoor air. If the Administrator promulgates an alternative maximum contaminant level under this subparagraph, the Administrator shall, after notice and opportunity for public comment and in consultation with the States, publish guidelines for State programs, including criteria for multimedia measures to mitigate radon levels in indoor air, to be used by the States in preparing programs under subparagraph (G). The guidelines shall take into account data from existing radon mitigation programs and the assessment of mitigation measures prepared under subparagraph (B).

(G) Multimedia radon mitigation programs.--

(i) In general.--A State may develop and submit a multimedia program to mitigate radon levels in indoor air for approval by the Administrator under this subparagraph. If, after notice and the opportunity for public comment, such program is approved by the Administrator, public water systems in the State may comply with the alternative maximum contaminant level promulgated under subparagraph (F) in lieu of the maximum contaminant level in the national primary drinking water regulation promulgated under subparagraph (E).

(ii) Elements of programs.--State programs may rely on a variety of mitigation measures including public education, testing, training, technical assistance, remediation grant and loan or incentive programs, or other regulatory or nonregulatory measures. The effectiveness of elements in State programs shall be evaluated by the Administrator based on the assessment prepared by the National Academy of Sciences under subparagraph (B) and the guidelines published by the Administrator under subparagraph (F).

(iii) Approval.--The Administrator shall approve a State program submitted under this paragraph if the health risk reduction benefits expected to be achieved by the program are equal to or greater than the health risk reduction benefits that would be achieved if each public water system in the State complied with the maximum contaminant level promulgated under subparagraph (E). The Administrator shall approve or disapprove a program submitted under this paragraph within 180 days of receipt. A program that is not disapproved during such period shall be deemed approved. A program that is disapproved may be modified to address the objections of the Administrator and be resubmitted for approval.

(iv) Review.--The Administrator shall periodically, but not less often than every 5 years, review each multimedia mitigation program approved under this subparagraph to determine whether it continues to meet the requirements of clause (iii) and shall, after written notice to the State and an opportunity for the State to correct any deficiency in the program, withdraw approval of programs that no longer comply with such requirements.

(v) Extension.--If, within 90 days after the promulgation of an alternative maximum contaminant level under subparagraph (F), the Governor of a State submits a letter to the Administrator committing to develop a multimedia mitigation program under this subparagraph, the effective date of the national primary drinking water regulation for radon in the State that would be applicable under paragraph (10) shall be extended for a period of 18 months.

(vi) Local programs.--In the event that a State chooses not to submit a multimedia mitigation program for approval under this subparagraph or has submitted a program that has been disapproved, any public water system in the State may submit a program for approval by the Administrator according to the same criteria, conditions, and approval process that would apply to a State program. The Administrator shall approve a multimedia mitigation program if the health risk reduction benefits expected to be achieved by the program are equal to or greater than the health risk reduction benefits that would result from compliance by the public water system with the maximum contaminant level for radon promulgated under subparagraph (E).
[§1412(b)(13) added by PL 104-182]

(14) Recycling of filter backwash.--The Administrator shall promulgate a regulation to govern the recycling of filter backwash water within the treatment process of a public water system. The Administrator shall promulgate such regulation not later than 4 years after the date of enactment of the Safe Drinking Water Act Amendments of 1996 unless such recycling has been addressed by the Administrator's Enhanced Surface Water Treatment Rule prior to such date.
[§1412(b)(14) added by PL 104-182]

(15) Variance technologies.--

(A) In general.--At the same time as the Administrator promulgates a national primary drinking water regulation for a contaminant pursuant to this section, the Administrator shall issue guidance or regulations describing the best treatment technologies, treatment techniques, or other means (referred to in this paragraph as "variance technology") for the contaminant that the Administrator finds, after examination for efficacy under field conditions and not solely under laboratory conditions, are available and affordable, as determined by the Administrator in consultation with the States, for public water systems of varying size, considering the quality of the source water to be treated. The Administrator shall identify such variance technologies for public water systems serving--

(i) a population of 10,000 or fewer but more than 3,300;

(ii) a population of 3,300 or fewer but more than 500; anid

(iii) a population of 500 or fewer but more than 25, if, considering the quality of the source water to be treated, no treatment technology is listed for public water systems of that size under paragraph (4)(E). Variance technologies identified by the Administrator pursuant to this paragraph may not achieve compliance with the maximum contaminant level or treatment technique requirement of such regulation, but shall achieve the maximum reduction or inactivation efficiency that is affordable considering the size of the system and the quality of the source water. The guidance or regulations shall not require the use of a technology from a specific manufacturer or brand.

(B) Limitation.--The Administrator shall not identify any variance technology under this paragraph, unless the Administrator has determined, considering the quality of the source water to be treated and the expected useful life of the technology, that the variance technology is protective of public health.

(C) Additional information.--The Administrator shall include in the guidance or regulations identifying variance technologies under this paragraph any assumptions supporting the public health determination referred to in subparagraph (B), where such assumptions concern the public water system to which the technology may be applied, or its source waters. The Administrator shall provide any assumptions used in determining affordability, taking into consideration the number of persons served by such systems. The Administrator shall provide as much reliable information as practicable on performance, effectiveness, limitations, costs, and other relevant factors including the applicability of variance technology to waters from surface and underground sources.

(D) Regulations and guidance.--Not later than 2 years after the date of enactment of this paragraph and after consultation with the States, the Administrator shall issue guidance or regulations under subparagraph (A) for each national primary drinking water regulation promulgated prior to the date of enactment of this paragraph for which a variance may be granted under section 1415(e). The Administrator may, at any time after a national primary drinking water regulation has been promulgated, issue guidance or regulations describing additional variance technologies. The Administrator shall, not less often than every 7 years, or upon receipt of a petition supported by substantial information, review variance technologies identified under this paragraph. The Administrator shall issue revised guidance or regulations if new or innovative variance technologies become available that meet the requirements of this paragraph and achieve an equal or greater reduction or inactivation efficiency than the variance technologies previously identified under this subparagraph. No public water system shall be required to replace a variance technology during the useful life of the technology for the sole reason that a more efficient variance technology has been listed under this subparagraph.
[§1412(b)(15) added by PL 104-182]

(c) The Administrator shall publish proposed national secondary drinking water regulations within 270 days after the date of enactment of this title. Within 90 days after publication of any such regulation, he shall promulgate such regulation with such modifications as he deems appropriate. Regulations under this subsection may be amended from time to time.

(d) Regulation under this section shall be prescribed in accordance with section 553 of title 5, United States Code (relating to rulemaking), except that the Administrator shall provide opportunity for public hearing prior to promulgation of such regulations. In proposing and promulgating regulations under this section, the Administrator shall consult with the Secretary and the National Drinking Water Advisory Council.

(e) The Administrator shall request comments from the Science Advisory Board (established under the Environmental Research, Development, and Demonstration Act of 1978) prior to proposal of a maximum

contaminant level goal and national primary drinking water regulation. The Board shall respond, as it deems appropriate, within the time period applicable for promulgation of the national primary drinking water standard concerned. This subsection shall, under no circumstances, be used to delay final promulgation of any national primary drinking water standard.
[§1412(e) revised by PL 99-339]

SEC. 1413 [42 U.S.C. 300g-2] State Primary Enforcement Responsibility.

(a) For purposes of this title, a State has primary enforcement responsibility for public water systems during any period for which the Administrator determines (pursuant to regulations prescribed under subsection (b) that such State --

(1) has adopted drinking water regulations that are no less stringent than the national primary drinking water regulations promulgated by the Administrator under subsections (a) and (b) of section 1412 not later than 2 years after the date on which the regulations are promulgated by the Administrator, except that the Administrator may provide for an extension of not more than 2 years if, after submission and review of appropriate, adequate documentation from the State, the Administrator determines that the extension is necessary and justified;
[§1413(a)(1) revised by PL 99-339; amended by PL 104-182]

(2) has adopted and is implementing adequate procedures for the enforcement of such State regulations, including conducting such monitoring and making such inspections as the Administrator may require by regulation;

(3) will keep such records and make such reports with respect to its activities under paragraphs (1) and (2) as the Administrator may require by regulation;

(4) if it permits variances or exemptions, or both, from the requirements of its drinking water regulations which meet the requirements of paragraph (1), permits such variances and exemptions under conditions and in a manner which is not less stringent than the conditions under, and the manner in, which variances and exemptions may be granted under sections 1415 and 1416;
[§1413(a)(4) amended by PL 104-182]

(5) has adopted and can implement an adequate plan for the provision of safe drinking water under emergency circumstances including earthquakes, floods, hurricanes, and other natural disasters, as appropriate; and
[§1413(a)(5) amended by PL 104-182]

(6) has adopted authority for administrative penalties (unless the constitution of the State prohibits the adoption of the authority) in a maximum amount--

(A) in the case of a system serving a population of more than 10,000, that is not less than $1,000 per day per violation; and

(B) in the case of any other system, that is adequate to ensure compliance (as determined by the State); except that a State may establish a maximum limitation on the total amount of administrative penalties that may be imposed on a public water system per violation.
[§1413(a)(6) added by PL 104-182]

(b)(1) The Administrator shall, by regulation (proposed within 180 days of the date of the enactment of this

title), prescribe the manner in which a State may apply to the Administrator for a determination that the requirements of paragraphs (1), (2), (3), and (4) section (a) are satisfied with respect to the State, the manner in which the determination is made, the period for which the determination will be effective, and the manner in which the Administrator may determine that such requirements are no longer met. Such regulations shall require that before a determination of the Administrator that such requirements are met are no longer met with respect to a State may become effective, the Administrator shall notify such State of the determination and the reasons therefor and shall provide an opportunity for public hearing on the determination. Such regulations shall be promulgated (with such modifications as the Administrator deems appropriate) within 90 days of the publication of the proposed regulations in the Federal Register. The Administrator shall promptly notify in writing the chief executive officer of each State of the promulgation of regulations under this paragraph. Such notice shall contain a copy of the regulations and shall specify a State's authority under this title when it is determined to have primary enforcement responsibility for public water systems.

(2) When an application is submitted in accordance with the Administrator's regulations under paragraph (1), the Administrator shall within 90 days of the date on which such application is submitted (A) make the determination applied for, or (B) deny the application and notify the applicant in writing of the reasons for his denial.

(c) Interim Primary Enforcement Authority.--A State that has primary enforcement authority under this section with respect to each existing national primary drinking water regulation shall be considered to have primary enforcement authority with respect to each new or revised national primary drinking water regulation during the period beginning on the effective date of a regulation adopted and submitted by the State with respect to the new or revised national primary drinking water regulation in accordance with subsection (b)(1) and ending at such time as the Administrator makes a determination under subsection (b)(2)(B) with respect to the regulation.
[§1413(c) added by PL 104-182]

SEC. 1414 [42 U.S.C. 300g-3] Enforcement of Drinking Water Regulations.
[§1414 head amended by PL 99-339]

(a)(1) (A) Whenever the Administrator finds during a period during which a State has primary enforcement responsibility for public water systems (within the meaning of section 1413(a)) that any public water system --

(i) for which a variance under section 1415 or an exemption under section 1416 is not in effect, does not comply with any applicable requirement, or
[§1414(a)(1)(A)(i) amended by PL 104-182]

(ii) for which a variance under section 1415 or an exemption under section 1416 is in effect, does not comply with any schedule, or other requirement imposed pursuant thereto, he shall so notify the State and such public water system and provide such advice and technical assistance to such State and public water system as may be appropriate to bring the system into compliance with the requirement by the earliest feasible time.
[§1414(a)(1)(A)(ii) amended by PL 104-182]
[§1414(a)(1)(A) revised by PL 99-339]

(B) If, beyond the thirtieth day after the Administrator's notification under subparagraph (A), the State has not commenced appropriate enforcement action, the Administrator shall issue an order under subsection (g) requiring the public water system to comply with such applicable requirement or the Administrator shall commence a civil action under subsection (b)
[§1414(a)(1)(B) revised by PL 99-339; amended by PL 104-182]

(2) Enforcement in nonprimacy states.--

(A) In general.--If, on the basis of information available to the Administrator, the Administrator finds, with respect to a period in which a State does not have primary enforcement responsibility for public water systems, that a public water system in the State--

(i) for which a variance under section 1415 or an exemption under section 1416 is not in effect, does not comply with any applicable requirement; or

(ii) for which a variance under section 1415 or an exemption under section 1416 is in effect, does not complywith any schedule or other requirement imposed pursuant tothe variance or exemption; the Administrator shall issue an order under subsection (g) requiring the public water system to comply with the requirement, or commence a civil action under subsection (b).

(B) Notice.--If the Administrator takes any action pursuant to this paragraph, the Administrator shall notify an appropriate local elected official, if any, with jurisdiction over the public water system of the action prior to the time that the action is taken.
[§1414(a)(2) amended by PL 99-339; revised by PL 104-182]

(b) The Administrator may bring a civil action in the appropriate United States district court to require compliance with any applicable requirement, with an order issued under subsection (g), or with any schedule or other requirement imposed pursuant to a variance or exemption granted under section 1415 or 1416 if --
[§1414(b) amended by PL 104-182]

(1) authorized under paragraph (1) or (2) of subsection (a), or

(2) if requested by (A) the chief executive officer of the State in which is located the public water system which is not in compliance with such regulation or requirement, or (B) the agency of such State which has jurisdiction over compliance by public water systems in the State with national primary drinking water regulations or State drinking water regulations. The court may enter, in an action brought under this subsection, such judgment as protection of public health may require, taking into consideration the time necessary to comply and the availability of alternative water supplies; and, if the court determines that there has been a violation of the regulation or schedule or other requirement with respect which the action was brought, the court may, taking into account the seriousness of the violation, the population at risk, and other appropriate factors, impose on the violator a civil penalty of not to exceed $25,000 for each day in which such violation occurs.
[§1414(b) amended by PL 99-339]

(c) Notice to Persons Served.--

(1) In general.--Each owner or operator of a public water system shall give notice of each of the following to the persons served by the system:

(A) Notice of any failure on the part of the public water system to--

(i) comply with an applicable maximum contaminant level or treatment technique requirement of, or a testing procedure prescribed by, a national primary drinking water regulation; or

(ii) perform monitoring required by section 1445(a).

(B) If the public water system is subject to a variance granted under subsection (a)(1)(A), (a)(2), or (e) of section 1415 for an inability to meet a maximum contaminant level requirement or is subject to an exemption granted under section 1416, notice of--

(i) the existence of the variance or exemption; and

(ii) any failure to comply with the requirements of any schedule prescribed pursuant to the variance or exemption.

(C) Notice of the concentration level of any unregulated contaminant for which the Administrator has required public notice pursuant to paragraph (2)(E).

(2) Form, manner, and frequency of notice.--

(A) In general.--The Administrator shall, by regulation, and after consultation with the States, prescribe the manner, frequency, form, and content for giving notice under this subsection. The regulations shall--

(i) provide for different frequencies of notice based on the differences between violations that are intermittent or infrequent and violations that are continuous or frequent; and

(ii) take into account the seriousness of any potential adverse health effects that may be involved.

(B) State requirements.--

(i) In general.--A State may, by rule, establish alternative notification requirements--

(I) with respect to the form and content of notice given under and in a manner in accordance with subparagraph (C); and

(II) with respect to the form and content of notice given under subparagraph (D).

(ii) Contents.--The alternative requirements shall provide the same type and amount of information as required pursuant to this subsection and regulations issued under subparagraph (A).

(iii) Relationship to section 1413.--Nothing in this subparagraph shall be construed or applied to modify the requirements of section 1413.

(C) Violations with potential to have serious adverse effects on human health.--Regulations issued under subparagraph (A) shall specify notification procedures for each violation by a public water system that has the potential to have serious adverse effects on human health as a result of short-term exposure. Each notice of violation provided under this subparagraph shall--

(i) be distributed as soon as practicable after the occurrence of the violation, but not later than 24 hours after the occurrence of the violation;

(ii) provide a clear and readily understandable explanation of--

(I) the violation;

(II) the potential adverse effects on human health;

(III) the steps that the public water system is taking to correct the violation; and

(IV) the necessity of seeking alternative water supplies until the violation is corrected;

(iii) be provided to the Administrator or the head of the State agency that has primary enforcement responsibility under section 1413 as soon as practicable, but not later than 24 hours after the occurrence of the violation; and

(iv) as required by the State agency in general regulations of the State agency, or on a case-by-case basis after the consultation referred to in clause (iii), considering the health risks involved--

(I) be provided to appropriate broadcast media;

(II) be prominently published in a newspaper of general circulation serving the area not later than 1 day after distribution of a notice pursuant to clause (i) or the date of publication of the next issue of the newspaper; or

(III) be provided by posting or door-to-door notification in lieu of notification by means of broadcast media or newspaper.

(D) Written notice.--

(i) In general.--Regulations issued under subparagraph (A) shall specify notification procedures for violations other than the violations covered by subparagraph (C). The procedures shall specify that a public water system shall provide written notice to each person served by the system by notice (I) in the first bill (if any) prepared after the date of occurrence of the violation, (II) in an annual report issued not later than 1 year after the date of occurrence of the violation, or (III) by mail or direct delivery as soon as practicable, but not later than 1 year after the date of occurrence of the violation.

(ii) Form and manner of notice.--The Administrator shall prescribe the form and manner of the notice to provide a clear and readily understandable explanation of the violation, any potential adverse health effects, and the steps that the system is taking to seek alternative water supplies, if any, until the violation is corrected.

(E) Unregulated contaminants.--The Administrator may require the owner or operator of a public water system to give notice to the persons served by the system of the concentration levels of an unregulated contaminant required to be monitored under section 1445(a).

(3) Reports.--

(A) Annual report by state.--

(i) In general.--Not later than January 1, 1998, and annually thereafter, each State that has primary enforcement responsibility under section 1413 shall prepare, make readily available to the public, and submit to the Administrator an annual report on violations of national primary drinking water regulations by public water systems in the State, including violations with respect to (I) maximum contaminant levels, (II) treatment requirements, (III) variances and exemptions, and (IV) monitoring requirements determined to be significant by the Administrator after consultation with the States.

(ii) Distribution.--The State shall publish and distribute summaries of the report and indicate where the full

report is available for review.

(B) Annual report by administrator.--Not later than July 1, 1998, and annually thereafter, the Administrator shall prepare and make available to the public an annual report summarizing and evaluating reports submitted by States pursuant to subparagraph (A) and notices submitted by public water systems serving Indian Tribes provided to the Administrator pursuant to subparagraph (C) or (D) of paragraph (2) and making recommendations concerning the resources needed to improve compliance with this title. The report shall include information about public water system compliance on Indian reservations and about enforcement activities undertaken and financial assistance provided by the Administrator on Indian reservations, and shall make specific recommendations concerning the resources needed to improve compliance with this title on Indian reservations.

(4) Consumer confidence reports by community water systems.--

(A) Annual reports to consumers.--The Administrator, in consultation with public water systems, environmental groups, public interest groups, risk communication experts, and the States, and other interested parties, shall issue regulations within 24 months after the date of enactment of this paragraph to require each community water system to mail to each customer of the system at least once annually a report on the level of contaminants in the drinking water purveyed by that system (referred to in this paragraph as a "consumer confidence report"). Such regulations shall provide a brief and plainly worded definition of the terms "maximum contaminant level goal", "maximum contaminant level", "variances", and "exemptions" and brief statements in plain language regarding the health concerns that resulted in regulation of each regulated contaminant. The regulations shall also include a brief and plainly worded explanation regarding contaminants that may reasonably be expected to be present in drinking water, including bottled water. The regulations shall also provide for an Environmental Protection Agency toll-free hotline that consumers can call for more information and explanation.

(B) Contents of report.--The consumer confidence reports under this paragraph shall include, but not be limited to, each of the following:

(i) Information on the source of the water purveyed.

(ii) A brief and plainly worded definition of the terms "maximum contaminant level goal", "maximum contaminant level", "variances", and "exemptions" as provided in the regulations of the Administrator.

(iii) If any regulated contaminant is detected in the water purveyed by the public water system, a statement setting forth (I) the maximum contaminant level goal, (II) the maximum contaminant level, (III) the level of such contaminant in such water system, and (IV) for any regulated contaminant for which there has been a violation of the maximum contaminant level during the year concerned, the brief statement in plain language regarding the health concerns that resulted in regulation of such contaminant, as provided by the Administrator in regulations under subparagraph (A).

(iv) Information on compliance with national primary drinking water regulations, as required by the Administrator, and notice if the system is operating under a variance or exemption and the basis on which the variance or exemption was granted.

(v) Information on the levels of unregulated contaminants for which monitoring is required under section 1445(a)(2) (including levels of cryptosporidium and radon where States determine they may be found).

(vi) A statement that the presence of contaminants in drinking water does not necessarily indicate that the

drinking water poses a health risk and that more information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency hotline.

A public water system may include such additional information as it deems appropriate for public education. The Administrator may, for not more than 3 regulated contaminants other than those referred to in subclause (IV) of clause (iii), require a consumer confidence report under this paragraph to include the brief statement in plain language regarding the health concerns that resulted in regulation of the contaminant or contaminants concerned, as provided by the Administrator in regulations under subparagraph (A).

(C) Coverage.--The Governor of a State may determine not to apply the mailing requirement of subparagraph (A) to a community water system serving fewer than 10,000 persons. Any such system shall--

(i) inform, in the newspaper notice required by clause (iii) or by other means, its customers that the system will not be mailing the report as required by subparagraph (A);

(ii) make the consumer confidence report available upon request to the public; and

(iii) publish the report referred to in subparagraph (A) annually in one or more local newspapers serving the area in which customers of the system are located.

(D) Alternative to publication.--For any community water system which, pursuant to subparagraph (C), is not required to meet the mailing requirement of subparagraph (A) and which serves 500 persons or fewer, the community water system may elect not to comply with clause (i) or of subparagraph (C). If the community water system so elects, the system shall, at a minimum--

(i) prepare an annual consumer confidence report pursuant to subparagraph (B); and

(ii) provide notice at least once per year to each of its customers by mail, by door-to-door delivery, by posting or by other means authorized by the regulations of the Administrator that the consumer confidence report is available upon request.

(E) Alternative form and content.--A State exercising primary enforcement responsibility may establish, by rule, after notice and public comment, alternative requirements with respect to the form and content of consumer confidence reports under this paragraph.
[§1414(c) amended by PL 95-190; PL 99-339; revised by PL 104-182]

(d) Whenever, on the basis of information available to him, the Administrator finds that within a reasonable time after national secondary drinking water regulations have been promulgated, one or more public water systems in a State do not comply with such secondary regulations, and that such noncompliance appears to result from a failure of such State to take reasonable action to assure that public water systems throughout such State meet such secondary regulations, he shall so notify the State.

(e) Nothing in this title shall diminish any authority of a State or political subdivision to adopt or enforce any law or regulation respecting drinking water regulations or public water systems, but no such law or regulation shall relieve any person of any requirement otherwise applicable under this title.

(f) If the Administrator makes a finding of noncompliance (described in subparagraph (A) or (B) of subsection (a)(1)) with respect to a public water system in a State which has primary enforcement responsibility, the Administrator may, for the purpose of assisting that State in carrying out such responsibility and upon the petition of such State or public water system or persons served by such system, hold, after

appropriate notice, public hearings for the purpose of gathering information from technical or other experts, Federal, State, or other public officials, representatives of such public water system, persons served by such system, and other interested persons on --

(1) the ways in which such systems can within the earliest feasible time be brought into compliance with the regulation or requirement with respect to which such finding was made, and

(2) the means for the maximum feasible protection of the public health during any period in which such system is not in compliance with a national primary drinking water regulation or requirement applicable to a variance or exemption.

On the basis of such hearings the Administrator shall issue recommendations which shall be sent to such State and public water system and shall be made available to the public and communications media.

(g)(1) In any case in which the Administrator is authorized to bring a civil action under this section or under section 1445 with respect to any applicable requirement, the Administrator also may issue an order to require compliance with such applicable requirement.
[§1414(g)(1) amended by PL 104-182]

(2) An order issued under this subsection shall not take effect, in the case of a State having primary enforcement responsibility for public water systems in that State, until after the Administrator has provided the State with an opportunity to confer with the Administrator regarding the order. A copy of any order issued under this subsection shall be sent to the appropriate State agency of the State involved if the State has primary enforcement responsibility for public water systems in that State. Any order issued under this subsection shall state with reasonable specificity the nature of the violation. In any case in which an order under this subsection is issued to a corporation, a copy of such order that be issued to appropriate corporate officers.
[§1414(g)(2) amended by PL 104-182]

(3)(A) Any person who violates, or fails or refuses to comply with, an order under this subsection shall be liable to the United States for a civil penalty of not more than $25,000 per day of violation.

(B) In a case in which a civil penalty sought by the Administrator under this paragraph does not exceed $5,000, the penalty shall be assessed by the Administrator after notice and opportunity for a public hearing (unless the person against whom the penalty is assessed requests a hearing on the record in accordance with section 554 of title 5, United States Code). In a case in which a civil penalty sought by the Administrator under this paragraph exceeds $5,000, but does not exceed $25,000, the penalty shall be assessed by the Administrator after notice and opportunity for a hearing on the record in accordance with section 554 of title 5, United States Code.
[§1414(g)(1)(B) revised by PL 104-182]

(C) Whenever any civil penalty sought by the Administrator under this subsection for a violation of an applicable requirement exceeds $25,000, the penalty shall be assessed by a civil action brought by the Administrator in the appropriate United States district court (as determined under the provisions of title 28 of the United States Code).
[§1414(g)(1)(C) amended by PL 104-182]

(D) If any person fails to pay an assessment of a civil penalty after it has become a final and unappealable order, or after the appropriate court of appeals has entered final judgment in favor of the Administrator, the Attorney General shall recover the amount for which such person is liable in any appropriate district court of the United States. In any such action, the validity and appropriateness of the final order imposing the civil

penalty shall not be subject to review.
[§1414(g) added by PL 99-339]

(h) Consolidation Incentive.--

(1) In general.--An owner or operator of a public water system may submit to the State in which the system is located (if the State has primary enforcement responsibility under section 1413) or to the Administrator (if the State does not have primary enforcement responsibility) a plan (including specific measures and schedules) for--

(A) the physical consolidation of the system with 1 or more other systems;

(B) the consolidation of significant management and administrative functions of the system with 1 or more other systems; or

(C) the transfer of ownership of the system that may reasonably be expected to improve drinking water quality.

(2) Consequences of approval.--If the State or the Administrator approves a plan pursuant to paragraph (1), no enforcement action shall be taken pursuant to this part with respect to a specific violation identified in the approved plan prior to the date that is the earlier of the date on which consolidation is completed according to the plan or the date that is 2 years after the plan is approved.

(i) Definition of Applicable Requirement.--In this section, the term "applicable requirement" means--

(1) a requirement of section 1412, 1414, 1415, 1416, 1417, 1441, or 1445;

(2) a regulation promulgated pursuant to a section referred to in paragraph (1);

(3) a schedule or requirement imposed pursuant to a section referred to in paragraph (1); and

(4) a requirement of, or permit issued under, an applicable State program for which the Administrator has made a determination that the requirements of section 1413 have been satisfied, or an applicable State program approved pursuant to this part.
[§1414(h) added by PL 104-182]

SEC. 1415 [42 U.S.C. 300g-4] Variances.

(a) Notwithstanding any other provision of this part, variances from national primary drinking water regulations may be granted as follows:

(1)(A) A State which has primary enforcement responsibility for public water systems may grant one or more variances from an applicable national primary drinking water regulation to one or more public water systems within its jurisdiction which, because of characteristics of the raw water sources which are reasonably available to the systems, cannot meet the requirements respecting the maximum contaminant levels of such drinking water regulation. A variance may be issued to a system on condition that the system install the best technology, treatment techniques, or other means, which the Administrator finds are available (taking costs into consideration) and based upon an evaluation satisfactory to the State that indicates that alternative sources of water are not reasonably available to the system. The Administrator shall propose and promulgate his finding of the best available technology, treatment techniques or other means available for each contaminant for

purposes of this subsection at the time he proposes and promulgates a maximum contaminant level for each such contaminant. The Administrator's finding of best available technology, treatment techniques or other means for purposes of this subsection may vary depending on the number of persons served by the system or for other physical conditions related to engineering feasibility and costs of compliance with maximum contaminant levels as considered appropriate by the Administrator. Before a State may grant a variance under this subparagraph, the State must find that the variance will not result in an unreasonable risk to health. If a State grants a public water system a variance under this subparagraph, the State shall prescribe at the time the variance is granted, a schedule for --
[§1415(a)(1)(A) amended by PL 104-182]

(i) compliance (including increments of progress) by the public water system with each contaminant level requirement with respect to which the variance was granted, and

(ii) implementation by the public water system of such additional control measures as the State may require for each contaminant, subject to such contaminant level requirement, during the period ending on the date compliance with such requirement is required. Before a schedule prescribed by a State pursuant to this subparagraph may take effect, the State shall provide notice and opportunity for a public hearing on the schedule. A notice given pursuant to the preceding sentence may cover the prescribing of more than one such schedule and a hearing held pursuant to such notice shall include each of the schedules covered by the notice. A schedule prescribed pursuant to this subparagraph for a public water system granted a variance shall require compliance by the system with each contaminant level requirement with respect to which the variance was granted as expeditiously as practicable (as the State may reasonably determine).
[§1415(a)(1)(A) amended by PL 99-339]

(B) A State which has primary enforcement responsibility for public water systems may grant to one or more public water systems within its jurisdiction one or more variances from any provision of a national primary drinking water regulation which requires the use of a specified treatment technique with respect to a contaminant if the public water system applying for the variance demonstrates to the satisfaction of the State that such treatment technique is not necessary to protect the health of persons because of the nature of the raw water source of such system. A variance granted under this subparagraph shall be conditioned on such monitoring and other requirements as the Administrator may prescribe.

(C) Before a variance proposed to be granted by a State under subparagraph (A) or (B) may take effect, such State shall provide notice and opportunity for public hearing on the proposed variance. A notice given pursuant to the preceding sentence may cover the granting of more than one variance and a hearing held pursuant to such notice shall include each of the variances covered by the notice. The State shall promptly notify the Administrator of all variances granted by it. Such notification shall contain the reason for the variance (and in the case of a variance under subparagraph (A), the basis for the finding required by that subparagraph before the granting of the variance) and documentation of the need for the variance.

(D) Each public water system's variance granted by a State under subparagraph (A) shall be conditioned by the State upon compliance by the public water system with the schedule prescribed by the State pursuant to that subparagraph. The requirements of each schedule prescribed by a State pursuant to that subparagraph shall be enforceable by the State under its laws. Any requirement of a schedule on which a variance granted under that subparagraph is conditioned may be enforced under section 1414 as if such requirement was part of a national primary drinking water regulation.

(E) Each schedule prescribed by a State pursuant to subparagraph (A) shall be deemed approved by the Administrator unless the variance for which it was prescribed is revoked by the Administrator under subparagraph (G) or the schedule is revised by the Administrator under such subparagraph.

(F) Not later than 18 months after the effective date of the interim national primary drinking water regulations the Administrator shall complete a comprehensive review of the variances granted under subparagraph (A) (and schedules prescribed pursuant thereto) and under sub paragraph (B) by the States during the one-year period beginning on such effective date. The Administrator shall conduct such subsequent reviews of variances and schedules as he deems necessary to carry out the purposes of this title, but each subsequent review shall be completed within each 3-year period following the completion of the first review under this subparagraph. Before conducting any review under this subparagraph, the Administrator shall publish notice of the proposed review in the Federal Register. Such notice shall (i) provide information respecting the locaton of data and other information respecting the variances to be reviewed (including data and other information concerning new scientific matters bearing on such variances), and (ii) advise of the opportunity to submit comments on the variances reviewed and on the need for continuing them. Upon completion of any such review, the Administrator shall publish in the Federal Register the results of his review together with findings responsive to comments submitted in connection with such review.

(G)(i) If the Administrator finds that a State has, in a substantial number of instances, abused its discretion in granting variances under subparagraph (A)or (B) or that in a substantial number of cases the State has failed to prescribe schedules in accordance with subparagraph (A), the Administrator shall notify the State of his findings. In determining if a State has abused its discretion in granting variances in a substantial number of instances, the Administrator shall consider the number of persons who are affected by the variances and if the requirements applicable to the granting of the variances were complied with. A notice under this clause shall--

(I) identify each public water system with respect to which the finding was made

(II) specify the reasons for the finding, and

(III) as appropriate, propose revocations of specific variances or propose revised schedules or other requirements for specific public water systems granted variances, or both.

(ii) The Administrator shall provide reasonable notice and public hearing on the provisions of each notice given pursuant to clause (i) of this subparagraph. After a hearing on a notice pursuant to such clause, the Administrator shall

(I) rescind the finding for which the notice was given and promptly notify the State of such rescission, or

(II) promulgate (with such modifications as he deems appropriate) such variance revocations and revised schedules or other requirements proposed in such notice as he deems appropriate. Not later than 180 days after the date a notice is given pursuant to clause (i) of this subparagraph, the Administrator shall complete the hearing on the notice and take the action required by the preceding sentence.

(iii) If a State is notified under clause (i) of this subparagraph of a finding of the Administrator made with respect to a variance granted a public water system within that State or to a schedule or other requirement for a variance and if, before a revocation of such variance or a revision of such schedule or other requirement promulgated by the Administrator takes effect, the State takes corrective action with respect to such variance or schedule or other requirement which the Administrator determines makes his finding inapplicable to such variance or schedule or other requirement, the Administrator shall rescind the application of his finding to that variance or schedule or other requirement. No variance revocation or revised schedule or other requirement may take effect before the expiration of 90 days following the date of the notice in which the revocation or revised schedule or other requirement was proposed.

(2) If a State does not have primary enforcement responsibility for public water systems, the Administrator shall have the same authority to grant variances in such State as the State would have under paragraph (1) if it had primary enforcement responsibility.

(3) The Administrator may grant a variance from any treatment technique requirement of a national primary drinking water regulation upon a showing by any person that an alternative treatment technique not included in such requirement is a least as efficient in lowering the level of the contaminant with respect to which such requirement was prescribed. A variance under this paragraph shall be conditioned on the use of the alternative treatment technique which is the basis of the variance.

(b) Any schedule or other requirement on which a variance granted under paragraph (1)(B) or (2)of subsection (a) is conditioned may be enforced under section 1414 as if such schedule or other requirement was part of a national primary drinking water regulation.

(c) If an application for a variance under subsection (a)is made, the State receiving the application or the Administrator, as the case may be, shall act upon such application within a reasonable period (as determined under regulations prescribed by the Administrator) after the date of its submission.

(d) For purposes of this section, the term "treatment technique requirement' means requirement in a national primary drinking water regulation which specifies for a contaminant (in accordance with section 1401(1)(C)(ii) each treatment technique known to the Administrator which leads to a reduction in the level of such contaminant sufficient to satisfy the requirements of section 1412(b).
[§1415(d) amended by PL 104-182]

(e) Small System Variances.--

(1) In general.--A State exercising primary enforcement responsibility for public water systems under section 1413 (or the Administrator in nonprimacy States) may grant a variance under this subsection for compliance with a requirement specifying a maximum contaminant level or treatment technique contained in a national primary drinking water regulation to--

(A) public water systems serving 3,300 or fewer persons; and

(B) with the approval of the Administrator pursuant to paragraph (9), public water systems serving more than 3,300 persons but fewer than 10,000 persons, if the variance meets each requirement of this subsection.

(2) Availability of variances.--A public water system may receive a variance pursuant to paragraph (1), if--

(A) the Administrator has identified a variance technology under section 1412(b)(15) that is applicable to the size and source water quality conditions of the public water system;

(B) the public water system installs, operates, and maintains, in accordance with guidance or regulations issued by the Administrator, such treatment technology, treatment technique, or other means; and

(C) the State in which the system is located determines that the conditions of paragraph (3) are met.

(3) Conditions for granting variances.--A variance under this subsection shall be available only to a system--

(A) that cannot afford to comply, in accordance with affordability criteria established by the Administrator (or the State in the case of a State that has primary enforcement responsibility under section 1413), with a

national primary drinking water regulation, including compliance through--

(i) treatment;

(ii) alternative source of water supply; or

(iii) restructuring or consolidation (unless the Administrator (or the State in the case of a State that has primary enforcement responsibility under section 1413) makes a written determination that restructuring or consolidation is not practicable); and

(B) for which the Administrator (or the State in the case of a State that has primary enforcement responsibility under section 1413) determines that the terms of the variance ensure adequate protection of human health, considering the quality of the source water for the system and the removal efficiencies and expected useful life of the treatment technology required by the variance.

(4) Compliance schedules.--A variance granted under this subsection shall require compliance with the conditions of the variance not later than 3 years after the date on which the variance is granted, except that the Administrator (or the State in the case of a State that has primary enforcement responsibility under section 1413) may allow up to 2 additional years to comply with a variance technology, secure an alternative source of water, restructure or consolidate if the Administrator (or the State) determines that additional time is necessary for capital improvements, or to allow for financial assistance provided pursuant to section 1452 or any other Federal or State program.

(5) Duration of variances.--The Administrator (or the State in the case of a State that has primary enforcement responsibility under section 1413) shall review each variance granted under this subsection not less often than every 5 years after the compliance date established in the variance to determine whether the system remains eligible for the variance and is conforming to each condition of the variance.

(6) Ineligibility for variances.--A variance shall not be available under this subsection for--

(A) any maximum contaminant level or treatment technique for a contaminant with respect to which a national primary drinking water regulation was promulgated prior to January 1, 1986; or

(B) a national primary drinking water regulation for a microbial contaminant (including a bacterium, virus, or other organism) or an indicator or treatment technique for a microbial contaminant.

(7) Regulations and guidance.--

(A) In general.--Not later than 2 years after the date of enactment of this subsection and in consultation with the States, the Administrator shall promulgate regulations for variances to be granted under this subsection. The regulations shall, at a minimum, specify--

(i) procedures to be used by the Administrator or a State to grant or deny variances, including requirements for notifying the Administrator and consumers of the public water system that a variance is proposed to be granted (including information regarding the contaminant and variance) and requirements for a public hearing on the variance before the variance is granted;

(ii) requirements for the installation and proper operation of variance technology that is identified (pursuant to section 1412(b)(15)) for small systems and the financial and technical capability to operate the treatment system, including operator training and certification;

(iii) eligibility criteria for a variance for each national primary drinking water regulation, including requirements for the quality of the source water (pursuant to section 1412(b)(15)(A)); and

(iv) information requirements for variance applications.

(B) Affordability criteria.--Not later than 18 months after the date of enactment of the Safe Drinking Water Act Amendments of 1996, the Administrator, in consultation with the States and the Rural Utilities Service of the Department of Agriculture, shall publish information to assist the States in developing affordability criteria. The affordability criteria shall be reviewed by the States not less often than every 5 years to determine if changes are needed to the criteria.

(8) Review by the administrator.--

(A) In general.--The Administrator shall periodically review the program of each State that has primary enforcement responsibility for public water systems under section 1413 with respect to variances to determine whether the variances granted by the State comply with the requirements of this subsection. With respect to affordability, the determination of the Administrator shall be limited to whether the variances granted by the State comply with the affordability criteria developed by the State.

(B) Notice and publication.--If the Administrator determines that variances granted by a State are not in compliance with affordability criteria developed by the State and the requirements of this subsection, the Administrator shall notify the State in writing of the deficiencies and make public the determination.

(9) Approval of variances.--A State proposing to grant a variance under this subsection to a public water system serving more than 3,300 and fewer than 10,000 persons shall submit the variance to the Administrator for review and approval prior to the issuance of the variance. The Administrator shall approve the variance if it meets each of the requirements of this subsection. The Administrator shall approve or disapprove the variance within 90 days. If the Administrator disapproves a variance under this paragraph, the Administrator shall notify the State in writing of the reasons for disapproval and the variance may be resubmitted with modifications to address the objections stated by the Administrator.

(10) Objections to variances.--

(A) By the administrator.--The Administrator may review and object to any variance proposed to be granted by a State, if the objection is communicated to the State not later than 90 days after the State proposes to grant the variance. If the Administrator objects to the granting of a variance, the Administrator shall notify the State in writing of each basis for the objection and propose a modification to the variance to resolve the concerns of the Administrator. The State shall make the recommended modification or respond in writing to each objection. If the State issues the variance without resolving the concerns of the Administrator, the Administrator may overturn the State decision to grant the variance if the Administrator determines that the State decision does not comply with this subsection.

(B) Petition by consumers.--Not later than 30 days after a State exercising primary enforcement responsibility for public water systems under section 1413 proposes to grant a variance for a public water system, any person served by the system may petition the Administrator to object to the granting of a variance. The Administrator shall respond to the petition and determine whether to object to the variance under subparagraph (A) not later than 60 days after the receipt of the petition.

(C) Timing.--No variance shall be granted by a State until the later of the following:

(i) 90 days after the State proposes to grant a variance.

(ii) If the Administrator objects to the variance, the date on which the State makes the recommended modifications or responds in writing to each objection.
[§1415(e) added by PL 104-182]

SEC. 1416 [42 U.S.C. 300g-5] Exemptions.

(a) A State which has primary enforcement responsibility may exempt any public water system within the State's jurisdiction from any requirement respecting a maximum contaminant level or any treatment technique requirement, or from both, of an applicable national primary drinking water regulation upon a finding that --

(1) due to compelling factors (which may include economic factors, including qualification of the public water system as a system serving a disadvantaged community pursuant to section 1452(d)), the public water system is unable to comply with such contaminant level or treatment technique requirement or to implement measures to develop an alternative source of water supply,
[§1416(a)(1) amended by PL 104-182]

(2) the public water system was in operation on the effective date of such contaminant level or treatment technique requirement, or, for a system that was not in operation by that date, only if no reasonable alternative source of drinking water is available to such new system,
[§1416(a)(2) amended by PL 96-502; PL 104-182]

(3) the granting of the exemption will not result in an unreasonable risk to health; and
[§1416(a)(3) amended by PL 104-182]

(4) management restructuring changes (or both) cannot reasonably be made that will result in compliance with this title or, if compliance cannot be achieved, improve the quality of the drinking water.
[§1416(a)(4) added by PL 104-182]

(b)(1) If a State grants a public water system an exemption under subsection (a), the State shall prescribe, at the time the exemption is granted, a schedule for--

(A) compliance (including increments of progress or measures to develop an alternative source of water supply) by the public water system with each contaminant level requirement or treatment technique requirement with respect to which the exemption was granted, and
[§1416(b)(1)(A) amended by PL 104-182]

(B) implementation by the public water system of such control measures as the State may require for each contaminant, subject to such contaminant level requirement or treatment technique requirement, during the period ending on the date compliance with such requirement is required.

Before a schedule prescribed by a State pursuant to this subsection may take effect, the State shall provide notice and opportunity for a public hearing on the schedule. A notice given pursuant to the preceding sentence may cover the prescribing of more than one such schedule and a hearing held pursuant to such notice shall included each of the schedules covered by the notice.
[§1416(b)(1) amended by PL 95-190; PL 99-339]

(2)(A) A schedule prescribed pursuant to this subsection for a public water system granted an exemption

under subsection A shall require compliance by the system with each contaminant level and treatment technique requirement with respect to which the exemption was granted as expeditiously as practicable (as the State may reasonably determine) but not later than 3 years after the otherwise applicable compliance date established in section 1412(b)(10).
[§1416(b)(2)(A) amended by PL 104-182]

(B) No exemption shall be granted unless the public water system establishes that --
[§1416(b)(2)(B) revised by PL 104-182]

(i) the system cannot meet the standard without capital improvements which cannot be completed prior to the date established pursuant to section 1412(b)(10).
[§1416(b)(2)(B)(i) amended by PL 104-182]

(ii) in the case of a system which needs financial assistance for the necessary improvements, the system has entered into an agreement to obtain such financial assistance or assistance pursuant to section 1452, or any other Federal or State program is reasonably likely to be available within the period of the exemption; or
[§1416(b)(2)(B)(ii) amended by PL 104-182]

(iii) the system has entered into an enforceable agreement to become a part of a regional public water system; and the system is taking all practicable steps to meet the standard.
[§1416(b)(2)(B) amended by PL 96-502; revised by PL 99-339]

(C) In the case of a system which does not serve more than a population of 3,300 and which needs financial assistance for the necessary improvements, an exemption granted under clause (i) or (ii) of subparagraph (B) may be renewed for one or more additional 2-year periods, but not to exceed a total of 6 years if the system establishes that it is taking all practicable steps to meet the requirements of subparagraph (B).
[§1416(b)(2)(C) added by PL 99-339; amended by PL 104-182]

(D) Limitation.--A public water system may not receive an exemption under this section if the system was granted a variance under section 1415(e).
[§1416(b)(2)(D) added by PL 104-182]

(3) Each public water system's exemption granted by a State under subsection (a) shall be conditioned by the State upon compliance by the public water system with the schedule prescribed by the State pursuant to this subsection. The requirements of each schedule prescribed by a State pursuant to this subsection shall be enforceable by the State under its laws. Any requirement of a schedule on which an exemption granted under this section is conditioned may be enforced under section 1414 as if such requirement was part of a national primary drinking water regulation.

(4) Each schedule prescribed by a State pursuant to this subsection shall be deemed approved by the Administrator unless the exemption for which it was prescribed is revoked by the Administrator under subsection (d)(2) or the schedule is revised by the Administrator under such subsection.

(c) Each State which grants an exemption under subsection (a) shall promptly notify the Administrator of the granting of such exemption. Such notification shall contain the reasons for the exemption (including the basis of the finding required by subsection (a)(3) before the exemption may be granted) and document the need for the exemption.

(d)(1) Not later than 18 months after the effective date of the interim national primary drinking water regulations the Administrator shall complete a comprehensive review of the exemptions granted (and schedules

prescribed pursuant thereto) by the States during the one-year period beginning on such effective date. The Administrator shall conduct such subsequent reviews of exemptions and schedules as he deems necessary to carry out the purposes of this title, but each subsequent review shall be completed within each 3-year period following the completion of the first review under this subparagraph. Before conducting any review under this subparagraph, the Administrator shall publish notice of the proposed review in the Federal Register. Such notice shall (A) provide information respecting the location of data and other information respecting the exemptions to be reviewed (including data and other information concerning new scientific matters bearing on such exemptions), and

(B) advise of the opportunity to submit comments on the exemptions reviewed and on the need for continuing them. Upon completion of any such review, the Administrator shall publish in the Federal Register the results of his review together with findings responsive to comments submitted in connection with such review.

(2)(A) If the Administrator finds that a State has, in a substantial number of instances, abused its discretion in granting exemptions under subsection (a) or failed to prescribe schedules in accordance with subsection (b), the Administrator shall notify the State of his finding. In determining if a State has abused its discretion in granting exemptions in a substantial number of instances, the Administrator shall consider the number of persons who are affected by the exemptions and if the requirements applicable to the granting of the exemptions were complied with. A notice under this subparagraph shall --

(i) identify each exempt public water system with respect to which the finding was made,

(ii) specify the reasons for the finding, and

(iii) as appropriate, propose revocations of specific exemptions or propose revised schedules for specific exempt public water systems, or both.

(B) The Administrator shall provide reasonable notice and public hearing on the provisions of each notice given pursuant to subparagraph (A). After a hearing on a notice pursuant to subparagraph (A), the Administrator shall (i) rescind the finding for which the notice was given and promptly notify the State of such rescission, or (ii) promulgate (with such modifications as he deems appropriate) such exemption revocations and revised schedules proposed in such notice as he deems appropriate. Not later than 180 days after the date a notice is given pursuant to subparagraph (A), the Administrator shall complete the hearing on the notice and take the action required by the preceding sentence.

(C) If a State is notified under subparagraph (A) of a finding of the Administrator made with respect to an exemption granted a public water system within that State or to a schedule prescribed pursuant to such an exemption and if before a revocation of such exemption or a revision of such schedule promulgated by the Administrator takes effect the State takes corrective action with respect to such exemption or schedule which the Administrator determines makes his finding inapplicable to such exemption or schedule, the Administrator shall rescind the application of his finding to that exemption or schedule. No exemption revocation or revised schedule may take effect before the expiration of 90 days following the date of the notice in which the revocation or revised schedule was proposed.

(e) For purposes of this section, the term "treatment technique requirement' means a requirement in a national primary drinking water regulation which specifies for a contaminant (in accordance with section 1401(1)(C)(ii)) each treatment technique known to the Administrator which leads to a reduction in the level of such contaminant sufficient to satisfy the requirements of section 1412(b).
[§1416(e) amended by PL 99-339]

(f) If a State does not have primary enforcement responsibility for public water systems, the Administrator shall have the same authority to exempt public water systems in such state from maximum contaminant level requirements and treatment technique requirements under the same conditions and in the same manner as the State would be authorized to grant exemptions under this section if it had primary enforcement responsibility.

(g) If an application for an exemption under this section is made, the State receiving the application or the Administrator, as the case may be, shall act upon such application within a reasonable period (as determined under regulations prescribed by the Administrator) after the date of its submission.

SEC. 1417 [42 U.S.C. 300g-6] Prohibition On Use of Lead Pipes, Solder, and Flux.

(a) In General. --

(1) Prohibitions.--

(A) In general.--No person may use any pipe, any pipe or plumbing fitting or fixture, any solder, or any flux, after June 19, 1986, in the installation or repair of--

(i) any public water system; or

(ii) any plumbing in a residential or nonresidential facility providing water for human consumption, that is not lead free (within the meaning of subsection (d)).

(B) Leaded joints.--Subparagraph (A) shall not apply to leaded joints necessary for the repair of cast iron pipes.
[§1417(a)(1) revised by PL 104-182]

(2) Public Notice Requirements.--

(A) In General. -- Each owner or operator of a public water system shall identify and provide notice to persons that may be affected by lead contamination of their drinking water where such contaminants results from either or both of the following:
[§1417(a)(2)(A) amended by PL 104-182]

(i) The lead content in the construction materials of the public water distribution system.

(ii) Corrosivity of the water supply sufficient to cause leaching of lead. The notice shall be provided in such manner and form as may be reasonably required by the Administrator. Notice under this paragraph shall be provided notwithstanding the absence of a violation of any national drinking water standard.

(B) Contents Of Notice. -- Notice under this paragraph shall provide a clear and readily understandable explanation of --

(i) the potential sources of lead in the drinking water,

(ii) potential adverse health effects,

(iii) reasonably available methods of mitigating known or potential lead content in drinking water,

(iv) any steps the system is taking to mitigate lead content in drinking water, and

(v) the necessity for seeking alternative water supplies, if any.

(3) Unlawful acts.--Effective 2 years after the date of enactment of this paragraph, it shall be unlawful--

(A) for any person to introduce into commerce any pipe, or any pipe or plumbing fitting or fixture, that is not lead free, except for a pipe that is used in manufacturing or industrial processing;
(B) for any person engaged in the business of selling plumbing supplies, except manufacturers, to sell solder or flux that is not lead free; or

(C) for any person to introduce into commerce any solder or flux that is not lead free unless the solder or flux bears a prominent label stating that it is illegal to use the solder or flux in the installation or repair of any plumbing providing water for human consumption.
[§1417(a)(3) added by PL 104-182]

(b) State Enforcement. --

(1) Enforcement Of Prohibition. -- The requirements of subsection (a)(1) shall be enforced in all States effective 24 months after the enactment of this section. States shall enforce such requirements through State or local plumbing codes, or such other means of enforcement as the State may determine to be appropriate.

(2) Enforcement Of Public Notice Requirements. -- The requirements of subsection (a)(2) shall apply in all States effective 24 months after the enactment of this section.

(c) Penalties. -- If the Administrator determines that a State is not enforcing the requirements of subsection (a) as required pursuant to subsection (b), the Administrator may withhold up to 5 percent of Federal funds available to that State for State program grants under section 1443(a).

(d) Definition Of Lead Free. -- For purposes of this section, the term "lead free'--

(1) when used with respect to solders and flux refers to solders and flux containing not more than 0.2 percent lead;
[§1417(d)(1) amended by PL 104-182]

(2) when used with respect to pipes and pipe fittings refers to pipes and pipe fittings containing not more than 8.0 percent lead; and
[§1417(d)(2) amended by PL 104-182]

(3) when used with respect to plumbing fittings and fixtures, refers to plumbing fittings and fixtures in compliance with standards established in accordance with subsection (e).
[§1417(d)(3) added by PL 104-182]

(e) Plumbing Fittings and Fixtures.--

(1) In general.--The Administrator shall provide accurate and timely technical information and assistance to qualified third- party certifiers in the development of voluntary standards and testing protocols for the leaching of lead from new plumbing fittings and fixtures that are intended by the manufacturer to dispense water for human ingestion.

(2) Standards.--

(A) In general.--If a voluntary standard for the leaching of lead is not established by the date that is 1 year after the date of enactment of this subsection, the Administrator shall, not later than 2 years after the date of enactment of this subsection, promulgate regulations setting a health-effects- based performance standard establishing maximum leaching levels from new plumbing fittings and fixtures that are intended by the manufacturer to dispense water for human ingestion. The standard shall become effective on the date that is 5 years after the date of promulgation of the standard.

(B) Alternative requirement.--If regulations are required to be promulgated under subparagraph (A) and have not been promulgated by the date that is 5 years after the date of enactment of this subsection, no person may import, manufacture, process, or distribute in commerce a new plumbing fitting or fixture, intended by the manufacturer to dispense water for human ingestion, that contains more than 4 percent lead by dry weight.
[§1417(e) added by PL 104-182]

SEC. 1418 Monitoring of Contaminants
[§1418 added by PL 104-182]

(a) Interim Monitoring Relief Authority.--

(1) In general.--A State exercising primary enforcement responsibility for public water systems may modify the monitoring requirements for any regulated or unregulated contaminants for which monitoring is required other than microbial contaminants (or indicators thereof), disinfectants and disinfection byproducts or corrosion byproducts for an interim period to provide that any public water system serving 10,000 persons or fewer shall not be required to conduct additional quarterly monitoring during an interim relief period for such contaminants if--

(A) monitoring, conducted at the beginning of the period for the contaminant concerned and certified to the State by the public water system, fails to detect the presence of the contaminant in the ground or surface water supplying the public water system; and

(B) the State, considering the hydrogeology of the area and other relevant factors, determines in writing that the contaminant is unlikely to be detected by further monitoring during such period.

(2) Termination; timing of monitoring.--The interim relief period referred to in paragraph (1) shall terminate when permanent monitoring relief is adopted and approved for such State, or at the end of 36 months after the date of enactment of the Safe Drinking Water Act Amendments of 1996, whichever comes first. In order to serve as a basis for interim relief, the monitoring conducted at the beginning of the period must occur at the time determined by the State to be the time of the public water system's greatest vulnerability to the contaminant concerned in the relevant ground or surface water, taking into account in the case of pesticides the time of application of the pesticide for the source water area and the travel time for the pesticide to reach such waters and taking into account, in the case of other contaminants, seasonality of precipitation and contaminant travel time.

(b) Permanent Monitoring Relief Authority.--

(1) In general.--Each State exercising primary enforcement responsibility for public water systems under this title and having an approved source water assessment program may adopt, in accordance with guidance published by the Administrator, tailored alternative monitoring requirements for public water systems in such State (as an alternative to the monitoring requirements for chemical contaminants set forth in the applicable

national primary drinking water regulations) where the State concludes that (based on data available at the time of adoption concerning susceptibility, use, occurrence, or wellhead protection, or from the State's drinking water source water assessment program) such alternative monitoring would provide assurance that it complies with the Administrator's guidelines. The State program must be adequate to assure compliance with, and enforcement of, applicable national primary drinking water regulations. Alternative monitoring shall not apply to regulated microbiological contaminants (or indicators thereof), disinfectants and disinfection byproducts, or corrosion byproducts. The preceding sentence is not intended to limit other authority of the Administrator under other provisions of this title to grant monitoring flexibility.

(2) Guidelines.--

(A) In general.--The Administrator shall issue, after notice and comment and at the same time as guidelines are issued for source water assessment under section 1453, guidelines for States to follow in proposing alternative monitoring requirements under paragraph (1) for chemical contaminants. The Administrator shall publish such guidelines in the Federal Register. The guidelines shall assure that the public health will be protected from drinking water contamination. The guidelines shall require that a State alternative monitoring program apply on a contaminant-by-contaminant basis and that, to be eligible for such alternative monitoring program, a public water system must show the State that the contaminant is not present in the drinking water supply or, if present, it is reliably and consistently below the maximum contaminant level.

(B) Definition.--For purposes of subparagraph (A), the phrase reliably and consistently below the maximum contaminant level" means that, although contaminants have been detected in a water supply, the State has sufficient knowledge of the contamination source and extent of contamination to predict that the maximum contaminant level will not be exceeded. In determining that a contaminant is reliably and consistently below the maximum contaminant level, States shall consider the quality and completeness of data, the length of time covered and the volatility or stability of monitoring results during that time, and the proximity of such results to the maximum contaminant level. Wide variations in the analytical results, or analytical results close to the maximum contaminant level, shall not be considered to be reliably and consistently below the maximum contaminant level.

(3) Effect of detection of contaminants.--The guidelines issued by the Administrator under paragraph (2) shall require that if, after the monitoring program is in effect and operating, a contaminant covered by the alternative monitoring program is detected at levels at or above the maximum contaminant level or is no longer reliably or consistently below the maximum contaminant level, the public water system must either--

(A) demonstrate that the contamination source has been removed or that other action has been taken to eliminate the contamination problem; or

(B) test for the detected contaminant pursuant to the applicable national primary drinking water regulation.

(4) States not exercising primary enforcement responsibility.--The Governor of any State not exercising primary enforcement responsibility under section 1413 on the date of enactment of this section may submit to the Administrator a request that the Administrator modify the monitoring requirements established by the Administrator and applicable to public water systems in that State. After consultation with the Governor, the Administrator shall modify the requirements for public water systems in that State if the request of the Governor is in accordance with each of the requirements of this subsection that apply to alternative monitoring requirements established by States that have primary enforcement responsibility. A decision by the Administrator to approve a request under this clause shall be for a period of 3 years and may subsequently be extended for periods of 5 years.

(c) Treatment as NPDWR.--All monitoring relief granted by a State to a public water system for a regulated contaminant under subsection (a) or (b) shall be treated as part of the national primary drinking water regulation for that contaminant.

(d) Other Monitoring Relief.--Nothing in this section shall be construed to affect the authority of the States under applicable national primary drinking water regulations to alter monitoring requirements through waivers or other existing authorities. The Administrator shall periodically review and, as appropriate, revise such authorities.

SEC. 1419 Operation Certificate
[§1419 added by PL 104-182]

(a) Guidelines.--Not later than 30 months after the date of enactment of the Safe Drinking Water Act Amendments of 1996 and in cooperation with the States, the Administrator shall publish guidelines in the Federal Register, after notice and opportunity for comment from interested persons, including States and public water systems, specifying minimum standards for certification (and recertification) of the operators of community and nontransient noncommunity public water systems. Such guidelines shall take into account existing State programs, the complexity of the system, and other factors aimed at providing an effective program at reasonable cost to States and public water systems, taking into account the size of the system.

(b) State Programs.--Beginning 2 years after the date on which the Administrator publishes guidelines under subsection (a), the Administrator shall withhold 20 percent of the funds a State is otherwise entitled to receive under section 1452 unless the State has adopted and is implementing a program for the certification of operators of community and nontransient noncommunity public water systems that meets the requirements of the guidelines published pursuant to subsection (a) or that has been submitted in compliance with subsection (c) and that has not been disapproved.

(c) Existing Programs.--For any State exercising primary enforcement responsibility for public water systems or any other State which has an operator certification program, the guidelines under subsection (a) shall allow the State to enforce such program in lieu of the guidelines under subsection (a) if the State submits the program to the Administrator within 18 months after the publication of the guidelines unless the Administrator determines (within 9 months after the State submits the program to the Administrator) that such program is not substantially equivalent to such guidelines. In making this determination, an existing State program shall be presumed to be substantially equivalent to the guidelines, notwithstanding program differences, based on the size of systems or the quality of source water, providing the State program meets the overall public health objectives of the guidelines. If disapproved, the program may be resubmitted within 6 months after receipt of notice of disapproval.

(d) Expense Reimbursement.--

(1) In general.--The Administrator shall provide reimbursement for the costs of training, including an appropriate per diem for unsalaried operators, and certification for persons operating systems serving 3,300 persons or fewer that are required to undergo training pursuant to this section.

(2) State grants.--The reimbursement shall be provided through grants to States with each State receiving an amount sufficient to cover the reasonable costs for training all such operators in the State, as determined by the Administrator, to the extent required by this section. Grants received by a State pursuant to this paragraph shall first be used to provide reimbursement for training and certification costs of persons operating systems serving 3,300 persons or fewer. If a State has reimbursed all such costs, the State may, after notice to the Administrator, use any remaining funds from the grant for any of the other purposes authorized for grants

under section 1452.

(3) Authorization.--There are authorized to be appropriated to the Administrator to provide grants for reimbursement under this section $30,000,000 for each of fiscal years 1997 through 2003.

(4) Reservation.--If the appropriation made pursuant to paragraph (3) for any fiscal year is not sufficient to satisfy the requirements of paragraph (1), the Administrator shall, prior to any other allocation or reservation, reserve such sums as necessary from the funds appropriated pursuant to section 1452(m) to provide reimbursement for the training and certification costs mandated by this subsection.

SEC. 1420 Capacity Development

(a) State Authority for New Systems.--A State shall receive only 80 percent of the allotment that the State is otherwise entitled to receive under section 1452 (relating to State loan funds) unless the State has obtained the legal authority or other means to ensure that all new community water systems and new nontransient, noncommunity water systems commencing operation after October 1, 1999, demonstrate technical, managerial, and financial capacity with respect to each national primary drinking water regulation in effect, or likely to be in effect, on the date of commencement of operations.

(b) Systems in Significant Noncompliance.--

(1) List.--Beginning not later than 1 year after the date of enactment of this section, each State shall prepare, periodically update, and submit to the Administrator a list of community water systems and nontransient, noncommunity water systems that have a history of significant noncompliance with this title (as defined in guidelines issued prior to the date of enactment of this section or any revisions of the guidelines that have been made in consultation with the States) and, to the extent practicable, the reasons for noncompliance.

(2) Report.--Not later than 5 years after the date of enactment of this section and as part of the capacity development strategy of the State, each State shall report to the Administrator on the success of enforcement mechanisms and initial capacity development efforts in assisting the public water systems listed under paragraph (1) to improve technical, managerial, and financial capacity.

(3) Withholding.--The list and report under this subsection shall be considered part of the capacity development strategy of the State required under subsection (c) of this section for purposes of the withholding requirements of section 1452(a)(1)(G)(i) (relating to State loan funds).

(c) Capacity Development Strategy.--

(1) In general.--Beginning 4 years after the date of enactment of this section, a State shall receive only--

(A) 90 percent in fiscal year 2001;

(B) 85 percent in fiscal year 2002; and

(C) 80 percent in each subsequent fiscal year, of the allotment that the State is otherwise entitled to receive under section 1452 (relating to State loan funds), unless the State is developing and implementing a strategy to assist public water systems in acquiring and maintaining technical, managerial, and financial capacity.

(2) Content.--In preparing the capacity development strategy, the State shall consider, solicit public comment on, and include as appropriate--

(A) the methods or criteria that the State will use to identify and prioritize the public water systems most in need of improving technical, managerial, and financial capacity;

(B) a description of the institutional, regulatory, financial, tax, or legal factors at the Federal, State, or local level that encourage or impair capacity development;

(C) a description of how the State will use the authorities and resources of this title or other means to--

(i) assist public water systems in complying with national primary drinking water regulations;

(ii) encourage the development of partnerships between public water systems to enhance the technical, managerial, and financial capacity of the systems; and

(iii) assist public water systems in the training and certification of operators;

(D) a description of how the State will establish a baseline and measure improvements in capacity with respect to national primary drinking water regulations and State drinking water law; and

(E) an identification of the persons that have an interest in and are involved in the development and implementation of the capacity development strategy (including all appropriate agencies of Federal, State, and local governments, private and nonprofit public water systems, and public water system customers).

(3) Report.--Not later than 2 years after the date on which a State first adopts a capacity development strategy under this subsection, and every 3 years thereafter, the head of the State agency that has primary responsibility to carry out this title in the State shall submit to the Governor a report that shall also be available to the public on the efficacy of the strategy and progress made toward improving the technical, managerial, and financial capacity of public water systems in the State.

(4) Review.--The decisions of the State under this section regarding any particular public water system are not subject to review by the Administrator and may not serve as the basis for withholding funds under section 1452.

(d) Federal Assistance.--

(1) In general.--The Administrator shall support the States in developing capacity development strategies.

(2) Informational assistance.--

(A) In general.--Not later than 180 days after the date of enactment of this section, the Administrator shall--

(i) conduct a review of State capacity development efforts in existence on the date of enactment of this section and publish information to assist States and public water systems in capacity development efforts; and

(ii) initiate a partnership with States, public water systems, and the public to develop information for States on recommended operator certification requirements.

(B) Publication of information.--The Administrator shall publish the information developed through the partnership under subparagraph (A)(ii) not later than 18 months after the date of enactment of this section.

(3) Promulgation of drinking water regulations.--In promulgating a national primary drinking water regulation, the Administrator shall include an analysis of the likely effect of compliance with the regulation on the technical, financial, and managerial capacity of public water systems.

(4) Guidance for new systems.--Not later than 2 years after the date of enactment of this section, the Administrator shall publish guidance developed in consultation with the States describing legal authorities and other means to ensure that all new community water systems and new nontransient, noncommunity water systems demonstrate technical, managerial, and financial capacity with respect to national primary drinking water regulations.

(e) Variances and Exemptions.--Based on information obtained under subsection (c)(3), the Administrator shall, as appropriate, modify regulations concerning variances and exemptions for small public water systems to ensure flexibility in the use of the variances and exemptions. Nothing in this subsection shall be interpreted, construed, or applied to affect or alter the requirements of section 1415 or 1416.

(f) Small Public Water Systems Technology Assistance Centers.--

(1) Grant program.--The Administrator is authorized to make grants to institutions of higher learning to establish and operate small public water system technology assistance centers in the United States.

(2) Responsibilities of the centers.--The responsibilities of the small public water system technology assistance centers established under this subsection shall include the conduct of training and technical assistance relating to the information, performance, and technical needs of small public water systems or public water systems that serve Indian Tribes.

(3) Applications.--Any institution of higher learning interested in receiving a grant under this subsection shall submit to the Administrator an application in such form and containing such information as the Administrator may require by regulation.

(4) Selection criteria.--The Administrator shall select recipients of grants under this subsection on the basis of the following criteria:

(A) The small public water system technology assistance center shall be located in a State that is representative of the needs of the region in which the State is located for communities or Indian Tribes.

(B) The grant recipient shall be located in a region that has experienced problems, or may reasonably be foreseen to experience problems, with small and rural public water systems.

(C) The grant recipient shall have access to expertise in small public water system technology management.

(D) The grant recipient shall have the capability to disseminate the results of small public water system technology and training programs.

(E) The projects that the grant recipient proposes to carry out under the grant are necessary and appropriate.

(F) The grant recipient has regional support beyond the host institution.

(5) Consortia of states.--At least 2 of the grants under this subsection shall be made to consortia of States with low population densities.

(6) Authorization of appropriations.--There are authorized to be appropriated to make grants under this subsection $2,000,000 for each of the fiscal years 1997 through 1999, and $5,000,000 for each of the fiscal years 2000 through 2003.

(g) Environmental Finance Centers.--

(1) In general.--The Administrator shall provide initial funding for one or more university-based environmental finance centers for activities that provide technical assistance to State and local officials in developing the capacity of public water systems. Any such funds shall be used only for activities that are directly related to this title.

(2) National capacity development clearinghouse.--The Administrator shall establish a national public water system capacity development clearinghouse to receive and disseminate information with respect to developing, improving, and maintaining financial and managerial capacity at public water systems. The Administrator shall ensure that the clearinghouse does not duplicate other federally supported clearinghouse activities.

(3) Capacity development techniques.--The Administrator may request an environmental finance center funded under paragraph (1) to develop and test managerial, financial, and institutional techniques for capacity development. The techniques may include capacity assessment methodologies, manual and computer based public water system rate models and capital planning models, public water system consolidation procedures, and regionalization models.

(4) Authorization of appropriations.--There are authorized to be appropriated to carry out this subsection $1,500,000 for each of the fiscal years 1997 through 2003.

(5) Limitation.--No portion of any funds made available under this subsection may be used for lobbying expenses.
[§1420 added by PL 104-182]

PART C -- PROTECTION OF UNDERGROUND SOURCES OF DRINKING WATER.

SEC. 1421 [42 U.S.C. 300h] Regulations for State Programs.

(a)(1) The Administrator shall publish proposed regulations for State underground injection control programs within 180 days after the date of enactment of this title. Within 180 days after publication of such proposed regulations, he shall promulgate such regulations, with such modifications as he deems appropriate. Any regulation under this subsection may be amended from time to time.

(2) Any regulation under this section shall be proposed and promulgated in accordance with section 553 of title 5, United States Code (relating to rulemaking), except that the Administrator shall provide opportunity for public hearing prior to promulgation of such regulations. In proposing and promulgating regulations under this section, the Administrator shall consult with the Secretary, the National Drinking Water Advisory Council, and other appropriate Federal entities and with interested State entities.

(b)(1) Regulations under subsection (a) for State underground injection programs shall contain minimum requirements for effective programs to prevent underground injection which endangers drinking water sources within the meaning of subsection (d)(2). Such regulations shall require that a State program, in order to be approved under section 1422--

(A) shall prohibit, effective on the date on which the applicable underground injection control program takes

effect, any underground injection in such State which is not authorized by a permit issued by the State (except that the regulations may permit a State to authorize underground injection by rule);
[§1421(b)(1)(A) amended by PL 96-502]

(B) shall require (i) in the case of a program which provides for authorization of underground injection by permit, that the applicant for the permit to inject must satisfy the State that the underground injection will not endanger drinking water sources, and (ii) in the case of program which provides for such an authorization by rule, that no rule may be promulgated which authorizes any underground injection which endangers drinking water sources;

(C) shall include inspection, monitoring, recordkeeping, and reporting requirements; and

(D) shall apply (i) as prescribed by section 1447(6), to underground injections by Federal agencies, and (ii) to underground injections by any other person whether or not occurring on property owned or leased by the United States.

(2) Regulations of the Administrator under this section for State underground injection control programs may not prescribe requirements which interfere with or impede --

(A) the underground injection of brine or other fluids which are brought to the surface in connection with oil or natural gas production or natural gas storage operations, or
[§1421(b)(2)(A) amended by PL 99-339]

(B) any underground injection for the secondary or tertiary recovery of oil or natural gas, unless such requirements are essential to assure that underground sources of drinking water will not be endangered by such injection.

(3)(A) The regulations of the Administrator under this section shall permit or provide for consideration of varying geologic, hydrological, or historical conditions in different States and in different areas within a State.

(B)(i) In prescribing regulations under this section the Administrator shall, to the extent feasible, avoid promulgation of requirements which would unnecessarily disrupt State underground injection control programs which are in effect and being enforced in a substantial number of States.

(ii) For the purpose of this subparagraph, a regulation prescribed by the Administrator under this section shall be deemed to disrupt a State underground injection control program only if it would be infeasible to comply with both such regulation and the State underground injection control program.

(iii) For the purpose of this subparagraph, a regulation prescribed by the Administrator under this section shall be deemed unnecessary only if, without such regulation, underground source of drinking water will not be endangered by any underground injection.

(C) Nothing in this section shall be construed to alter or affect the duty to assure that underground sources of drinking water will not be endangered by any underground injection.
[§1421(b)(3) added by PL 95-190]

(c)(1) The Administrator may, upon application of the Governor of a State which authorizes underground injection by means of permits, authorize such State to issue (without regard to subsection (b)(1)(B)(i)) temporary permits for underground injection which maybe effective until the expiration of four years after the date of enactment of this title, if --

(A) the Administrator finds that the State has demonstrated that it is unable and could not reasonably have been able to process all permit applications within the time available;

(B) the Administrator determines the adverse effect on the environment of such temporary permits is not unwarranted;

(C) such temporary permits will be issued only with respect to injection wells in operation on the date on which such State's permit program approved under this part first takes effect and for which there was inadequate time to process its permit application; and

(D) the Administrator determines the temporary permits require the use of adequate safeguards established by rules adopted by him.

(2) The Administrator may, upon application of the Governor or a State which authorizes underground injection by means of permits, authorize such State to issue (without regard to subsection (b)(1)(B)(i)), but after reasonable notice and hearing, one or more temporary permits each of a which is applicable to a particular injection well and to the underground injection of a particular fluid and which may be effective until the expiration of four year after the date of enactment of this title, if the State finds, on the record of such hearing --

(A) that technology (or other means) to permit safe injection of the fluid in accordance with the applicable underground injection control program is not generally available (taking costs into consideration);

(B) that injection of the fluid would be less harmful to health than the use of other available means of disposing of waste or producing the desired product; and

(C) that available technology or other means have been employed (and will be employed) to reduce the volume and toxicity of the fluid and to minimize the potentially adverse effect of the injection on the public health.

(d) For purposes of this part;

(1) The term "underground injection' means the subsurface emplacement of fluids by well injection. Such term does not include the underground injection of natural gas for purposes of storage.
[§1421(d)(1) amended by PL 96-502]

(2) Underground injection endangers drinking water sou1rces if such injection may result in the presence in underground water which supplies or can reasonably be expected to supply any public water system of any contaminant, and if the presence of such contaminant may result in such system's not complying with any national primary drinking water regulation or may otherwise adversely affect the health of persons.

SEC. 1422 [42 U.S.C. 300h-1] State Primary Enforcement Responsibility.

(a) Within 180 days after the date of enactment of this title, the Administrator shall list in the Federal Register each State for which in his judgment a State underground injection control program may be necessary to assure that underground injection will not endanger drinking water sources. Such list may be amended from time to time.

(b)(1) (A) Each State listed under subsection (a) shall within 270 days after the date of promulgation of any

regulation under section 1421 (or, if later, within 270 days after such State is first listed under subsection (a)) submit to the Administrator an application which contains a showing satisfactory to the Administrator that the State--

(i) has adopted after reasonable notice and public hearings, and will implement, an underground injection control program which meets the requirements of regulations in effect under section 1421; and

(ii) will keep such records and make such report with respect to its activities under its underground injection control program as the Administrator may require by regulation.

The Administrator may, for good cause, extend the date for submission of an application by any State under this subparagraph for a period not to exceed an additional 270 days.
[§1422(b)(1)(A) amended by PL 95-190]

(B) Within 270 days of any amendment of a regulation under section 1421 revising or adding any requirement respecting State underground injection control programs, each State listed under subsection (a) shall submit (in such form and manner as the Administrator may require) a notice to the Administrator containing a showing satisfactory to him that the State underground injection control program meets the revised or added requirement.

(2) Within ninety days after the State's application under paragraph (1)(A) or notice under paragraph (1)(B) and after reasonable opportunity for presentation of views, the Administrator shall by rule either approve, disapprove, or approve in part and disapprove in part, the State's underground injection control program.

(3) If the Administrator approves the State's program under paragraph (2), the State shall have primary enforcement responsibility for underground water sources until such time as the Administrator determines, by rule, that such State no longer meets the requirements of clause (i) or (ii)of paragraph (1)(A) of this subsection.

(4) Before promulgating any rule under paragraph (2) or (3)of this subsection, the Administrator shall provide opportunity for public hearing respecting such rule,

(c) If the Administrator disapproves a State's program (or part thereof) under subsection (b)(2), if the Administrator determines under subsection (b)(3)that a State no longer meets the requirements of clause (i) or (ii)subsection (b)(1)(A), or if a State fails to submit an application or notice before the date of expiration of the period specified in subsection (b)(1), the Administrator shall by regulation within 90 days after the date of such disapproval, determination, or expiration (as the case may be) prescribe (and may from time to time by regulation revise) a program applicable to such State meeting the requirements of section 1421(b). Such program may not include requirements which interfere with or impede--

(1) the underground injection of brine or other fluids which are brought to the surface in connection with oil or natural gas production or natural gas storage operations, or
[§1422(c)(1) amended by PL 99-339]

(2) any underground injection for the secondary or tertiary recovery of oil or natural gas, unless such requirements are essential to assure that underground sources of drinking water will not be endangered by such injection. Such program shall apply in such State to the extent that a program adopted by such State which the Administrator determines meets such requirements is not in effect. Before promulgating any regulation under this section, the Administrator shall provide opportunity for public hearing respecting such regulation.

(d) For purposes of this title, the term "applicable underground injection control program' with respect to a

State means the program (or most recent amendment thereof)

(1) which has been adopted by the State and which has been approved under subsection (b), or

(2) which has been prescribed by the Administrator under subsection (c).

(e) An Indian Tribe may assume primary enforcement responsibility for underground injection control under this section consistent with such regulations as the Administrator has prescribed pursuant to Part C and section 1451 of this Act. The area over which such Indian Tribe exercises governmental jurisdiction need not have been listed under subsection (a) of this section, and such Tribe need not submit an application to assume primary enforcement responsibility within the 270-day deadline noted in subsection (b)(1)(A) of this section. Until an Indian Tribe assumes primary enforcement responsibility, the currently applicable underground injection control program shall continue to apply. If an applicable underground injection control program does not exist for an Indian Tribe, the Administrator shall prescribe such a program pursuant to subsection (c) of this section, and consistent with section 1421(b), within 270 days after the enactment of the Safe Drinking Water Act Amendments of 1986, unless an Indian Tribe first obtains approval to assume primary enforcement responsibility for underground injection control.
[§1422(e) added by PL 99-339]

SEC. 1423 [42 U.S.C. 300h-2] Enforcement of Program.
[§1423 head amended by PL 99-339]

(a)(1) Whenever the Administrator finds during a period during which a State has primary enforcement responsibility for underground water sources (within the meaning of section 1422(b)(3)or section 1425(c)) that any person who is subject to a requirement of an applicable underground injection control program in such State is violating such requirement, he shall so notify the State and the person violating such requirement. If beyond the thirtieth day after the Administrator's notification the State has not commenced appropriate enforcement action, the Administrator shall issue an order under subsection (c) requiring the person to comply with such requirement or the Administrator shall commence a civil action under subsection (b).
[§1423(a)(1) amended by PL 96-502; revised by PL 99-339]

(2) Whenever the Administrator finds during a period during which a State does not have primary enforcement responsibility for underground water sources that any person subject to any requirement of any applicable underground injection control program in such State is violating such requirement, the Administrator shall issue an order under subsection (c) requiring the person to comply with such requirement or the Administrator shall commence civil action under subsection (b).
[§1423(a)(2) amended by PL 99-339]

(b) Civil and Criminal Actions. -- Civil actions referred to in paragraphs (1) and (2) of subsection (a) shall be brought in the appropriate United States district court. Such court shall have jurisdiction to require compliance with any requirement of an applicable underground injection program or with an order issued under subsection (c). The court may enter such judgment as protection of public health may require. Any person who violates any requirement of an applicable underground injection control program or an order requiring compliance under subsection (c)--

(1) shall be subject to a civil penalty of not more than $25,000 for each day of such violation, and

(2) if such violation is willful, such person may, in addition to or in lieu of the civil penalty authorized by paragraph (1), be imprisoned for not more than 3 years, or fined in accordance with title 18 of the United States Code, or both.

[§1423(b) revised by PL 99-339]

(c) Administrative Orders. --

(1) In any case in which the Administrator is authorized to bring a civil action under this section with respect to any regulation or other requirement of this part other than those relating to --

(A) the underground injection of brine or other fluids which are brought to the surface in connection with oil or natural gas production, or

(B) any underground injection for the secondary or tertiary recovery of oil or natural gas,the Administrator may also issue an order under this subsection either assessing a civil penalty of not more than $10,000 for each day of violation for any past or current violation, up to a maximum administrative penalty of $125,000, or requiring compliance with such regulation or other requirement, or both.

(2) In any case in which the Administrator is authorized to bring a civil action under this section with respect to any regulation, or other requirement of this part relating to --

(A) the underground injection of brine or other fluids which are brought to the surface in connection with oil or natural gas production, or

(B) any underground injection for the secondary or tertiary recovery of oil or natural gas,the Administrator may also issue an order under this subsection either assessing a civil penalty of not more than $5,000 for each day of violation for any past or current violation, up to a maximum administrative penalty of $125,000, or requiring compliance with such regulation or other requirement, or both.

(3)(A) An order under this subsection shall be issued by the Administrator after opportunity (provided in accordance with this subparagraph) for a hearing. Before issuing the order, the Administrator shall give to the person to whom it is directed written notice of the Administrator's proposal to issue such order and the opportunity to request, within 30 days of the date the notice is received by such person, a hearing on the order. Such hearing shall not be subject to section 554 or 556 of title 5, United States Code, but shall provide a reasonable opportunity to be heard and to present evidence.

(B) The Administrator shall provide public notice of, and reasonable opportunity to comment on, any proposed order.

(C) Any citizen who comments on any proposed order under subparagraph (B) shall be given notice of any hearing under this subsection and of any order. In any hearing held under subparagraph (A), such citizen shall have a reasonable opportunity to be heard and to present evidence.

(D) Any order issued under this subsection shall become effective 30 days following its issuance unless an appeal is taken pursuant to paragraph (6).

(4)(A) Any order issued under this subsection shall state with reasonable specificity the nature of the violation and may specify a reasonable time for compliance.

(B) In assessing any civil penalty under this subsection, the Administrator shall take into account appropriate factors, including (i) the seriousness of the violation; (ii) the economic benefit (if any) resulting from the violation; (iii) any history of such violations; (iv) any good-faith efforts to comply with the applicable requirements; (v) the economic impact of the penalty on the violator; and (vi) such other matters as justice may

require.

(5) Any violation with respect to which the Administrator has commenced and is diligently prosecuting an action, or has issued an order under this subsection assessing a penalty, shall not be subject to an action under subsection (b)of this section or section 1424(c)or 1449, except that the foregoing limitation on civil actions under section 1449 of this Act shall not apply with respect to any violation for which--

(A) a civil action under section 1449(a)(1) has been filed prior to commencement of an action under this subsection, or

(B) a notice of violation under section 1449(b)(1) has been given before commencement of an action under this subsection and an action under section 1449(a)(1) of this Act is filed before 120 days after such notice is given.

(6) Any person against whom an order is issued or who commented on a proposed order pursuant to paragraph (3) may file an appeal of such order with the United States District Court for the District of Columbia or the district in which the violation is alleged to have occurred. Such an appeal may only be filed within the 30-day period beginning on the date the order is issued. Appellant shall simultaneously send a copy of the appeal by certified mail to the Administrator and to the Attorney General. The Administrator shall promptly file in such court a certified copy of the record on which such order was imposed. The district court shall not set aside or remand such order unless there is not substantial evidence on the record, taken as a whole, to support the finding of a violation or, unless the Administrator's assessment of penalty or requirement for compliance constitutes an abuse of discretion. The district court shall not impose additional civil penalities for the same violation unless the Administrator's assessment of a penalty constitutes an abuse of discretion. Notwithstanding section 1448(a)(2), any order issued under paragraph (3) shall be subject to judicial review exclusively under this paragraph.

(7) If any person fails to pay an assessment of a civil penalty --

(A) after the order becomes effective under paragraph (3), or

(B) after a court, in an action brought under paragraph (6), has entered a final judgment in favor of the Administrator, the Administrator may request the Attorney General to bring a civil action in an appropriate district court to recover the amount assessed (plus costs, attorneys' fees, and interest at currently prevailing rates from the date the order is effective or the date of such final judgment, as the case may be). In such an action, the validity, amount, and appropriateness of such penalty shall not be subject to review.

(8) The Administrator may, in connection with administrative proceedings under this subsection, issue subpoenas compelling the attendance and testimony of witnesses and subpoenas duces tecum, and may request the Attorney General to bring an action to enforce any subpoena under this section. The district courts shall have jurisdiction to enforce such subpoenas and impose sanction.
[New §1423(c) added by PL 99-339]

(d) Nothing in this title shall diminish any authority of a State or political subdivision to adopt or enforce any law or regulation respecting underground injection but no such law or regulation shall relieve any person of any requirement otherwise applicable under this title.
[Former §1423(c) redesignated as (d) by PL 99-339]

SEC. 1424 [42 U.S.C. 300h-3] Interim Regulation of Underground Injections.

(a)(1) Any person may petition the Administrator to have an area of a State (or States) designated as an area in which no new underground injection well may be operated during the period beginning on the date of the designation and ending on the date on which the applicable underground injection control program covering such area takes effect unless a permit for the operation of such well has been issued by the Administrator under subsection (b). The Administrator may so designate an area within a State if he finds that the area has one aquifer which is the sole or principal drinking water source for the area and which, if contaminated, would create a significant hazard to public health.

(2) Upon receipt of a petition under paragraph (1) of this subsection, the Administrator shall publish it in the Federal Register and shall provide an opportunity to interested persons to submit written data, views, or arguments thereon. Not later than the 30th day following the date of the publication of a petition under this paragraph in the Federal Register, the Administrator shall either make the designation for which the petition is submitted or deny the petition.

(b)(1) During the period beginning on the date an area is designated under subsection (a) and ending on the date the applicable underground injection control program covering such area takes effect, no new underground injection well may be operated in such area unless the Administrator has issued a permit for such operation.

(2) Any person may petition the Administrator for the issuance of a permit for the operation of such a well in such an area. A petition submitted under this paragraph shall be submitted in such manner and contain such information as the Administrator may require by regulation. Upon receipt of such a petition, the Administrator shall publish it in the Federal Register. The Administrator shall give notice of any proceeding on a petition and shall provide opportunity for agency hearing. The Administrator shall act upon such petition on the record of any hearing held pursuant to the preceding sentence respecting such petition. Within 120 days of the publication in the Federal Register of a petition submitted under this paragraph, the Administrator shall either issue the permit for which the petition was submitted or shall deny its issuance.

(3) The Administrator may issue a permit for the operation of a new underground injection well in an area designated under subsection (a) only if he finds that the operation of such well will not cause contamination of the aquifer of such area so as to create a significant hazard to public health. The Administrator may condition the issuance of such a permit upon the use of such control measures in connection with the operation of such well, for which the permit is to be issued, as he deems necessary to assure that the operation of the well will not contaminate the aquifer of the designated area in which the well is located so as to create a significant hazard to public health.

(c) Any person who operates a new underground injection well in violation of subsection (b), (1) shall be subject to a civil penalty of not more than $5,000 for each day in which such violation occurs, or (2) if such violation is willful, such person may, in lieu of the civil penalty authorized by clause (1) be fined not more than $10,000 for each day in which such violation occurs. If the Administrator has reason to believe that any person is violating or will violate subsection (b), he may petition the United States district court to issue a temporary restraining order or injunction (including a mandatory injunction) to enforce such subsection.

(d) For purposes of this section, the term "new underground injection well' means an underground injection well whose operation was not approved by appropriate State and Federal agencies before the date of the enactment of this title.

(e) If the Administrator determines, on his own initiative or upon petition, that an area has an aquifer which is the sole or principal drinking water source for the area and which, if contaminated, would create a significant hazard to public health, he shall publish notice of that determination in the Federal Register. After the

publication of any such notice, no commitment for Federal financial assistance (through a grant, contract, loan guarantee, or otherwise) may be entered into for any project which the Administrator determines may contaminate such aquifer through a recharge zone so as to create a significant hazard to public health, but a commitment for Federal financial assistance may, if authorized under another provision of law, be entered into to plan or design the project to assure that it will not so contaminate the aquifer.

SEC. 1425 [42 U.S.C. 300h-4] Optional Demonstration by States Relating to Oil or Natural Gas.
[§1425 added by PL 96-502]

(a) For purposes of the Administrator's approval or disapproval under section 1422 of that portion of any State underground injection control program which relates to--

(1) the underground injection of brine or other fluids which are brought to the surface in connection with oil or natural gas production or natural gas storage operations, or
[§1425(a)(1) amended by PL 99-339]

(2) any underground injection for the secondary or tertiary recovery of oil or natural gas. In lieu of the showing required under subparagraph (A) of section 1422(b)(1) the State may demonstrate that such portion of the State program meets the requirements of subparagraphs (A) through (D) of section 1421(b)(1) and represents an effective program (including adequate recordkeeping and reporting) to prevent underground injection which endangers drinking water sources.

(b) If the Administrator revises or amends any requirement of a regulation under section 1421 relating to any aspect of the underground injection referred to in subsection (a), in the case of that portion of a State underground injection control program for which the demonstration referred to in subsection (a) has been made, in lieu of the showing required under section 1422(b)(1)(B) the State may demonstrate that, with respect to that aspect of such underground injection, the State program meets the requirements of subparagraphs (A) through (D) of section 1421(b)(1) and represents an effective program (including adequate recordkeeping and reporting) to prevent underground injection which endangers drinking water sources.

(c)(1) Section 1422(b)(3) shall not apply to that portion of any State underground injection control program approved by the Administrator pursuant to a demonstration under subsection of this section (and under subsection (b) of this section where applicable).

(2) If pursuant to such a demonstration, the Administrator approves such portion of the State program, the State shall have primary enforcement responsibility with respect to that portion until such time as the Administrator determines, by rule, that such demonstration is no longer valid. Following such a determination, the Administrator may exercise the authority of subsection (c) of section 1422 in the same manner as provided in such subsection with respect to a determination described in such subsection.

(3) Before promulgating any rule under paragraph (2), the Administrator shall provide opportunity for public hearing respecting such rule.

SEC. 1426 [42 U.S.C. 300h-5] Regulation of State Programs.
[§1426 added by PL 99-339]

(a) Not later than 18 months after enactment of the Safe Drinking Water Act Amendments of 1986, the Administrator shall modify regulations issued under this Act for Class I injection wells to identify monitoring methods, in addition to those in effect on November 1, 1985, including groundwater monitoring. In accordance with such regulations, the Administrator, or delegated State authority, shall determine the applicability of such

monitoring methods, wherever appropriate, at locations and in such a manner as to provide the earliest possible detection of fluid migration into, or in the direction of, underground sources of drinking water from such wells, based on its assessment of the potential for fluid migration from the injection zone that may be harmful to human health or the environment. For purposes of this subsection, a class I injection well is defined in accordance with 40 CFR 146.05 as in effect on November 1, 1985.
[§1426(a) amended by PL 104-66]

(b) [Repealed]
[§1426(b) repealed by PL 104-66]

SEC. 1427 [42 U.S.C. 300h-6] Sole Source Aquifer Demonstration Program.
[§1427 added by PL 99-339]

(a) Purpose. -- The purpose of this section is to establish procedures for development, implementation, and assessment of demonstration program designed to protect critical aquifer protection areas located within areas designated as sole or principal source aquifers under section 1424(e) of this Act.

(b) Definition. -- Four purposes of this section, the term "critical aquifer protection area' means either of the following:

(1) All or part of an area located within an area for which an application or designation as a sole or principal source aquifer pursuant to section 1424(e), has been submitted and approved by the Administrator and which satisfies the criteria established by the Administrator under subsection (d).
[§1427(b)(1) amended at PL 104-182]

(2) All or part of an area which is within an aquifer designated as a sole source aquifer as of the enactment of the Safe Drinking Water Act Amendments of 1986 and for which an areawide ground water quality protection plan has been approved under section 208 of the Clean Water Act prior to such enactment.

(c) Application. -- Any State, municipal or local government or political subdivision thereof or any planning entity (including any interstate regional planning entity) that identifies a critical aquifer protection area over which it has authority or jurisdiction may apply to the Administrator for the selection of such area for a demonstration program under this section. Any applicant shall consult with other government or planning entities with authority or jurisdiction in such area prior to application. Applicants, other than the Governor, shall submit the application for a demonstration program jointly with the Governor.

(d) Criteria. -- Not later than 1 year after the enactment of the Safe Drinking Water Act Amendments of 1986, the Administrator shall, by rule, establish criteria for identifying critical aquifer protection areas under this section. In establishing such criteria, the Administrator shall consider each of the following:

(1) The vulnerability of the aquifer to contamination due to hydrogeologic characteristics.

(2) The number of persons or the proportion of population using the ground water as a drinking water source.

(3) The economic, social and environmental benefits that would result to the area from maintenance of ground water of high quality.

(4) The economic, social and environmental costs that would result from degradation of the quality of the ground water.

(e) Contents of Application. -- An application submitted to the Administrator by any applicant for a demonstration program under this section shall meet each of the following requirements:

(1) The application shall propose boundaries for the critical aquifer protection area within its jurisdiction.

(2) The application shall designate or, if necessary, establish a planning entity (which shall be a public agency and which shall include representation of elected local and State governmental officials) to develop a comprehensive management plan (hereinafter in this section referred to as the "plan') for the critical protection area. Where a local government planning agency exists with adequate authority to carry out this section with respect to any proposed critical protection area, such agency shall be designated as the planning entity.

(3) The application shall establish procedures for public participation in the development of the plan, for review, approval, and adoption of the plan, and for assistance to municipalities and other public agencies with authority under State law to implement the plan.

(4) The application shall include a hydrogeologic assessment of surface and ground water resources within the critical protection area.

(5) The application shall include a comprehensive management plan for the proposed protection area.

(6) The application shall include the measures and schedule proposed for implementation of such plan.

(f) Comprehensive Plan. --

(1) The objective of a comprehensive management plan submitted by an applicant under this section shall be to maintain the quality of the ground water in the critical protection area in a manner reasonably expected to protect human health, the environment and ground water resources. In order to achieve such objective, the plan may be designed to maintain, to the maximum extent possible, the natural vegetative and hydrogeological conditions. Each of the following elements shall be included in such a protection plan:

(A) A map showing the detailed boundary of the critical protection area.

(B) An identification of existing and potential point and nonpoint sources of ground water degradation.

(C) An assessment of the relationship between activities on the land surface and ground water quality.

(D) Specific actions and management practices to be implemented in the critical protection area to prevent adverse impacts on ground water quality.

(E) Identification of authority adequate to implement the plan, estimates of program costs, and sources of State matching funds.

(2) Such plan may also include the following:

(A) A determination of the quality of the existing ground water recharged through the special protection area and the natural recharge capabilities of the special protection area watershed.

(B) Requirements designed to maintain existing underground drinking water quality or improve underground drinking water quality if prevailing conditions fail to meet drinking water standards, pursuant to this Act and

State law.

(C) Limits on Federal, State, and local government, financially assisted activities and projects which may contribute to degradation of such ground water or any loss of natural surface and subsurface infiltration of purification capability of the special protection watershed.

(D) A comprehensive statement of land use management including emergency contingency planning as it pertains to the maintenance of the quality of underground sources of drinking water or to the improvement of such sources if necessary to meet drinking water standards pursuant to this Act and State law.

(E) Actions in the special protection area which would avoid adverse impacts on water quality, recharge capabilities, or both.

(F) Consideration of specific techniques which may include clustering, transfer of development rights, and other innovative measures sufficient to achieve the objectives of this section.

(G) Consideration of the establishment of a State institution to facilitate and assist funding a development transfer credit system.

(H) A program for State and local implementation of the plan described in this subsection in a manner that will insure the continued, uniform, consistent protection of the critical protection area in accord with the purposes of this section.

(I) Pollution abatement measures, if appropriate.

(g) Plans Under Section 208 of the Clean Water Act. -- A plan approved before the enactment of the Safe Drinking Water Act Amendments of 1986 under section 208 of the Clean Water Act to protect a sole source aquifer designated under section 1424(e) of this Act shall be considered a comprehensive management plan for the purposes of this section.

(h) Consultation and Hearings. -- During the development of a comprehensive management plan under this section, the planning entity shall consult with, and consider the comments of, appropriate officials of any municipality and State or Federal agency which has jurisdiction over lands and waters within the special protection area, other concerned organizations and technical and citizen advisory committees. The planning entity shall conduct public hearings at places within the special protection area for the purpose of providing the opportunity to comment on any aspect of the plan.

(i) Approval or Disapproval. -- Within 120 days after receipt of an application under this section, the Administrator shall approve or disapprove the application. The approval or disapproval shall be based on a determination that the critical protection area satisfies the criteria established under subsection (d) and that a demonstration program for the area would provide protection for ground water quality consistent with the objectives stated in subsection (f). The Administrator shall provide to the Governor a written explanation of the reasons for the disapproval of any such application. Any petitioner may modify and resubmit any application which is not approved. Upon approval of an application, the Administrator may enter into a cooperative agreement with the applicant to establish a demonstration program under this section.

(j) Grants and Reimbursement. -- Upon entering a cooperative agreement under subsection (i), the Administrator may provide to the applicant, on a matching basis, a grant of 50 per centum of the costs of implementing the plan established under this section. The Administrator may also reimburse the applicant of an approved plan up to 50 per centum of the costs of developing such plan, except for plans approved under

section 208 of the Clean Water Act. The total amount of grants under this section for any one aquifer, designated under section 1424(e), shall not exceed $4,000,000 in any one fiscal year.

(k) Activities Funded Under Other Law. -- No funds authorized under this section may be used to fund activities funded under other sections of this Act or the Clean Water Act, the Solid Waste Disposal Act, the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 or other environmental laws.
[§1427(k) amended by PL 104-]
[Former §1427(l) repealed, (m) and (n) redesignated as new (l) and (m) by PL 104-66]

(l) Savings Provision. -- Nothing under this section shall be construed to amend, supersede or abrogate rights to quantities of water which have been established by interstate water compacts, Supreme Court decrees, or State water laws; or any requirement imposed or right provided under any Federal or State environmental or public health statute.

(m) Authorization. -- There are authorized to be appropriated to carry out this section not more than the following amounts:

Fiscal year:	Amount
1987	$10,000,000
1988	$15,000,000
1989	$17,500,000
1990	$17,500,000
1991	$17,500,000
1992-2003	$15,000,000

[§1427(m) table amended by PL 104-182]

Matching grants under this section may also be used to implement or update any water quality management plan for a sole or principal source aquifer approved (before the date of the enactment of this section) by the Administrator under section 208 of the Federal Water Pollution Control Act.

SEC. 1428 [42 U.S.C. 300h-7] State Programs to Establish Wellhead Protection Areas.
[§1428 added by PL 99-339]

(a) State Programs. -- The Governor or Governor's designee of each State shall, within 3 years of the date of enactment of the Safe Drinking Water Act Amendments of 1986, adopt and submit to the Administrator a State program to protect wellhead areas within their jurisdiction from contaminants which may have any adverse effect on the health of persons. Each State program under this section shall, at a minimum --

(1) specify the duties of State agencies, local governmental entities, and public water supply systems with respect to the development and implementation of programs required by this section;

(2) for each wellhead, determine the wellhead protection area as defined in subsection (e) based on all reasonably available hydrogeologic information on ground water flow, recharge and discharge and other information the State deems necessary to adequately determine the wellhead protection area;

(3) identify within each wellhead protection area all potential anthropogenic sources of contaminants which may have any adverse effect on the health of persons;

(4) describe a program that contains, as appropriate, technical assistance, financial assistance, implementation of control measures, education, training, and demonstration projects to protect the water supply within wellhead protection areas from such contaminants;

(5) include contingency plans for the location and provision of alternate drinking water supplies for each public water system in the event of well or wellfield contamination by such contaminants; and

(6) include a requirement that consideration be given to all potential sources of such contaminants within the expected wellhead area of a new water well which serves a public water supply system.

(b) Public Participation. -- To the maximum extent possible, each State shall establish procedures, including but not limited to the establishment of technical and citizens' advisory committees, to encourage the public to participate in developing the protection program for wellhead areas and source water assessment programs under section 1453. Such procedures shall include notice and opportunity for public hearing on the State program before it is submitted to the Administrator.
[§1428(b) amended by PL 104-182]

(c) Disapproval. --

(1) In General. -- If, in the judgment of the Administrator, a State program or portion thereof under subsection (a) is not adequate to protect public water systems as required by subsection (a) or a State program under section 1453 or section 1418(b) does not meet the applicable requirements of section 1453 or section 1418(b), the Administrator shall disapprove such program or portion thereof. A State program developed pursuant to subsection (a) shall be deemed to be adequate unless the Administrator determines, within 9 months of the receipt of a State program, that such program (or portion thereof) is inadequate for the purpose of protecting public water systems as required by this section from contaminants that may have any adverse effect on the health of persons. A State program developed pursuant to section 1453 or section 1418(b) shall be deemed to meet the applicable requirements of section 1453 or section 1418(b) unless the Administrator determines within 9 months of the receipt of the program that such program (or portion thereof) does not meet such requirements. If the Administrator determines that a proposed State program (or any portion thereof) is disapproved, the Administrator shall submit a written statement of the reasons for such determination to the Governor of the State.
[§1428(c)(1) amended by PL 104-182]

(2) Modification and Resubmission. -- Within 6 months after receipt of the Administrator's written notice under paragraph (1) that any proposed State program (or portion thereof) is disapproved, the Governor or Governor's designee, shall modify the program based upon the recommendations of the Administrator and resubmit the modified program to the Administrator.
[§1428(c)(2) amended by PL 104-182]

(d) Federal Assistance. -- After the date 3 years after the enactment of this section, no State shall receive funds authorized to be appropriated under this section except for the purpose of implementing the program and requirements of paragraphs (4)and (6)of subsection (a).

(e) Definition of Wellhead Protection Area. -- As used in this section, the term "wellhead protection area' means the surface and subsurface area surrounding a water well or wellfield, supplying a public water system,

through which contaminants are reasonably likely to move toward and reach such water well or wellfield. The extent of a wellhead protection area, within a State, necessary to provide protection from contaminants which may have any adverse effect on the health of persons is to be determined by the State in the program submitted under subsection (a). Not later than one year after the enactment of the Safe Drinking Water Act Amendments of 1986, the Administrator shall issue technical guidance which States may use in making such determination. Such guidance may reflect such factors as the radius of influence around a well or wellfield, the depth of drawdown of the water table by such well or wellfield at any given point, the time or rate of travel of various contaminants in various hydrologic conditions, distance from the well or wellfield, or other factors affecting the likelihood of contaminants reaching the well or wellfield, taking into account available engineering pump tests or comparable data, field reconnaissance, topographic information, and the geology of the formation in which the well or wellfield is located.

(f) Prohibitions.--

(1) Activities under other laws. -- No funds authorized to be appropriate under this section may be used to support activities authorized by the Federal Water Pollution Control Act, the Solid Waste Disposal Act, the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, or other sections of this Act.

(2) Individual sources. -- No funds authorized to be appropriated under this section may be used to bring individual sources of contamination into compliance.

(g) Implementation -- Each State shall make every reasonable effort to implement the State wellhead area protection program under this section within 2 years of submitting the program to the Administrator. Each State shall submit to the Administrator a biennial status report describing the State's progress in implementing the program. Such report shall include amendments to the State program for water wells sited during the biennial period.

(h) Federal Agencies. -- Each department, agency, and instrumentality of the executive, legislative, and judicial branches of the Federal Government having jurisdiction over any potential source of contaminants identified by a State program pursuant to the provisions of subsection (a)(3) shall be subject to and comply with all requirements of the State program developed according to subsection (a)(4)applicable to such potential source of contaminants, both substantive and procedural, in the same manner and to the same extent, as any other person is subject to such requirements, including payment of reasonable charges and fees. The President may exempt any potential source under the jurisdiction of any department, agency, or instrumentality in the executive branch if the President determines it to be in the paramount interest of the United States to do so. No such exemption shall be granted due to the lack of an appropriation unless the President shall have specifically requested such appropriation as part of the budgetary process and the Congress shall have failed to make available such requested appropriations.

(i) Additional Requirement. --

(1) In General. -- In addition to the provisions of subsection (a) of this section, States in which there are more than 2,500 active wells at which annular injection is used as of January 1, 1986, shall include in their State program a certification that a State program exists and is being adequately enforced that provides protection from contaminants which may have any adverse effect on the health of persons and which are associated with the annual injection or surface disposal of brines associated with oil and gas production.

(2) Definition. -- For purposes of this subsection, the term "annular injection' means the reinjection of brines associated with the production of oil or gas between the production and surface casings of a conventional oil

or gas producing well.

(3) Review. -- The Administrator shall conduct a review of each program certified under this subsection.

(4) Disapproval. -- If a State fails to include the certification required by this subsection or if in the judgment of the Administrator the State program certified under this subsection is not being adequately enforced, the Administrator shall disapprove the State program submitted under subsection (a) of this section.

(j) Coordination With Other Laws. -- Nothing in this section shall authorize or require any department, agency, or other instrumentality of the Federal Government or State or local government to apportion, allocate or otherwise regulate the withdrawal or beneficial use of ground or surface waters, so as to abrogate or modify any existing rights to water established pursuant to State or Federal law, including interstate compacts.

(k) Authorization of Appropriations. -- Unless the State program is disapproved under this section, the Administrator shall make grants to the State for not less than 50 or more than 90 percent of the costs incurred by a State (as determined by the Administrator) in developing and implementing each State program under this section. For purposes of making such grants there is authorized to be appropriated not more than the following amounts:

Fiscal year:	Amount
1987	$20,000,000
1988	$20,000,000
1989	$35,500,000
1990	$35,500,000
1991	$35,500,000
1992-2003	$30,000,000

[§1428(k) table amended at PL 104-182]

SEC. 1429 State Ground Water Protection Grants
[§1429 added by PL 104-182]

(a) In General.--The Administrator may make a grant to a State for the development and implementation of a State program to ensure the coordinated and comprehensive protection of ground water resources within the State.

(b) Guidance.--Not later than 1 year after the date of enactment of the Safe Drinking Water Act Amendments of 1996, and annually thereafter, the Administrator shall publish guidance that establishes procedures for application for State groundwater protection program assistance and that identifies key elements of State ground water protection programs.

(c) Conditions of Grants.--

(1) In general.--The Administrator shall award grants to States that submit an application that is approved by the Administrator. The Administrator shall determine the amount of a grant awarded pursuant to this paragraph on the basis of an assessment of the extent of ground water resources in the State and the likelihood

that awarding the grant will result in sustained and reliable protection of ground water quality.

(2) Innovative program grants.--The Administrator may also award a grant pursuant to this subsection for innovative programs proposed by a State for the prevention of ground water contamination.

(3) Allocation of funds.--The Administrator shall, at a minimum, ensure that, for each fiscal year, not less than 1 percent of funds made available to the Administrator by appropriations to carry out this section are allocated to each State that submits an application that is approved by the Administrator pursuant to this section.

(4) Limitation on grants.--No grant awarded by the Administrator may be used for a project to remediate ground water contamination.

(d) Amount of Grants.--The amount of a grant awarded pursuant to paragraph (1) shall not exceed 50 percent of the eligible costs of carrying out the ground water protection program that is the subject of the grant (as determined by the Administrator) for the 1-year period beginning on the date that the grant is awarded. The State shall pay a State share to cover the costs of the ground water protection program from State funds in an amount that is not less than 50 percent of the cost of conducting the program.

(e) Evaluations and Reports.--Not later than 3 years after the date of enactment of the Safe Drinking Water Act Amendments of 1996, and every 3 years thereafter, the Administrator shall evaluate the State ground water protection programs that are the subject of grants awarded pursuant to this section and report to the Congress on the status of ground water quality in the United States and the effectiveness of State programs for ground water protection.

(f) Authorization of Appropriations.--There are authorized to be appropriated to carry out this section $15,000,000 for each of fiscal years 1997 through 2003.

PART D -- EMERGENCY POWERS

SEC. 1431 [42 U.S.C. 300i] Emergency Powers.

(a) Notwithstanding any other provision of this title, the Administrator, upon receipt of information that a contaminant which is present in or is likely to enter a public water system or an underground source of drinking water may present an imminent and substantial endangerment to the health of persons, and that appropriate State and local authorities have not acted to protect the health of such persons, may take such actions as he may deem necessary in order to protect the health of such persons. To the extent he determines it to be practicable in light of such imminent endangerment, he shall consult with the State and local authorities in order to confirm the correctness of the information on which action proposed to be taken under this subsection is based and to ascertain the action which such authorities are or will be taking. The action which the Administrator may take may include (but shall not be limited to) (1) issuing such orders as may be necessary to protect the health of persons who are or may be users of such system (including travelers), including orders requiring the provision of alternative water supplies by persons who caused or contributed to the endangerment, and (2) commencing a civil action for appropriate relief, including a restraining order or permanent or temporary injunction.
[§1431(a) amended by PL 99-339]

(b) Any person who violates or fails or refuses to comply with any order issued by the Administrator under subsection (a)(1) may, in an action brought in the appropriate United States district court to enforce such order, be subject to a civil penalty of not to exceed $15,000 for each day in which such violation occurs or failure

to comply continues.
[§1431(b) amended by PL 99-339; PL 104-182]

SEC. 1432 [42 U.S.C. 300i-1] Tampering with Public Water Systems.
[§1432 added by PL 99-339]

(a) Tampering. -- Any person who tampers with a public water system shall be imprisoned for not more than 5 years, or fined in accordance with title 18 of the United States Code, or both.

(b) Attempt or Threat. -- Any person who attempts to tamper, or makes a threat to tamper, with a public drinking water system be imprisoned for not more than 3 years, or fined in accordance with title 18 of the United States Code, or both.

(c) Civil Penalty. -- The Administrator may bring a civil action in the appropriate United States district court (as determined under the provisions of title 28 of the United States Code) against any person who tampers, attempts to tamper, or makes a threat to tamper with a public water system. The court may impose on such person a civil penalty of not more than $50,000 for such tampering or not more than $20,000 for such attempt or threat.

(d) Definition of "Tamper'. -- For purposes of this section, the term "tamper' means --

(1) to introduce a contaminant into a public water system with the intention of harming persons; or

(2) to otherwise interfere with the operation of a public water system with the intention of harming persons.

PART E -- GENERAL PROVISIONS

SEC. 1441 [42 U.S.C. 300j] Assurance of Availability of Adequate Supplies of Chemicals Necessary for Treatment of Water.

(a) If any person who uses chlorine, activated carbon, lime, ammonia, soda ash, potassium permanganate caustic soda, or other chemical or substance for the purpose of treating water in any public water system or in any public treatment works determines that the amount of such chemical or substance necessary to effectively treat such water is not reasonably available to him or will not be so available to him when required for the effective treatment of such water, such person may apply to the Administrator for a certification (hereinafter in this section referred to as a "certification of need') that the amount of such chemical or substance which such person requires to effectively treat such water is not reasonably available to him or will not be so available when required for the effective treatment of such water.

(b)(1) An application for a certification of need shall be in such form and submitted in such manner as the Administrator may require and shall (A) specify the persons the applicant determines are able to provide the chemical or substance with respect to which the application is submitted, (B) specify the persons from whom the applicant has sought such chemical or substance, and (C) contain such other information as the Administrator may require.

(2) Upon receipt of an application under this section, the Administrator shall (A) publish in the Federal Register a notice of the receipt of the application and a brief summary of it, notify in writing each person whom the President or his delegate (after consultation with the Administrator) determines could be made subject to an order required to be issued upon the issuance of the certification of need applied for in such application, and (C) provide an opportunity for the submission of written comments on such application. The requirements

of the preceding sentence of this paragraph shall not apply when the Administrator for good cause finds (and incorporates the finding with a brief statement of reasons therefor in the order issued) that waiver of such requirements is necessary in order to protect the public health.

(3) Within 30 days after--

(A) the date a notice is published under paragraph (2) in the Federal Register with respect to an application submitted under this section for the issuance of a certification of need, or

(B) the date on which such application is received if as authorized by the second sentence of such paragraph no notice is published with respect to such application, the Administrator shall take action either to issue or deny the issuance of a certification of need.

(c)(1) If the Administrator finds that the amount of a chemical or substance necessary for an applicant under an application submitted under this section to effectively treat water in a public water system or in a public treatment works is not reasonably available to the applicant or will not be so available to him when required for the effective treatment of such water, the Administrator shall issue a certification of need. Not later than seven days following the issuance of such certification, the President or his delegate shall issue an order requiring the provision to such person of such amounts of such chemical or substance as the Administrator deems necessary in the certification of need issued for such person. Such order shall apply to such manufacturers, producers, processors, distributors, and repackagers of such chemical or substance as the President or his delegate deems necessary and appropriate, except that such order may not apply to any manufacturer, producer, or processor of such chemical or substance who manufactures, produces, or processes (as the case may be) such chemical or substance solely for its own use. Persons subject to an order issued under this section shall be given a reasonable opportunity to consult with the President or his delegate with respect to the implementation of the order.

(2) Orders which are to be issued under paragraph (1) to manufacturers, producers, and processors of a chemical or substance shall be equitably apportioned, as far as practicable, among all manufacturers, producers, and processors of such chemical or substance; and orders which are to be issued under paragraph (1) to distributors and repackagers of a chemical or substance shall be equitably apportioned, as far as practicable, among all distributors and repackagers of such chemical or substance. In apportioning orders issued under paragraph (1) to manufacturers, producers, processors, distributors, and repackagers of chlorine, the President or his delegate shall, in carrying out the requirements of the preceding sentence, consider.--

(A) the geographical relationships and established commercial relationships between such manufacturers, producers, processors, distributors, and repackagers and the persons for whom the orders are issued;

(B) in the case of orders to be issued to producers of chlorine, the (i) amount of chlorine historically supplied by each such producer to treat water in public water systems and public treatment works, and (ii) share of each such producer of the total annual production of chlorine in the United States; and

(C) such other factors as the President or his delegate may determine are relevant to the apportionment of orders in accordance with the requirements of the preceding sentence.

(3) Subject to subsection (f), any person for whom a certification of need has been issued under this subsection may upon the expiration of the order issued under paragraph (1) upon such certification apply under this section for additional certifications.

(d) There shall be available as a defense to any action brought for breach of contract in a Federal or State

court arising out of delay or failure to provide, sell, or offer for sale or exchange a chemical or substance subject to an order issued pursuant to subsection (c)(1), that such delay or failure was caused solely by compliance with such order.

(e)(1) Whoever knowingly fails to comply with any order issued pursuant to subsection (c)(1) shall be fined not more than $5,000 for each such failure to comply.

(2) Whoever fails to comply with any order issued pursuant to subsection (c)(1) shall be subject to a civil penalty of not more than $2,500 for each such failure to comply.

(3) Whenever the Administrator or the President or his delegate has reason to believe that any person is violating or will violate any order issued pursuant to subsection (c)(1), he may petition a United States district court to issue a temporary restraining order or preliminary or permanent injunction (including a mandatory injunction) to enforce the provision of such order.

(f) No certification of need or order issued under this section may remain in effect for more than one year. [§1441(f) amended by PL 95-190; PL 96-63; PL 99-339]

SEC. 1442 [42 U.S.C. 300j-1] Research, Technical Assistance, Information, Training of Personnel.

(a)(1) The Administrator may conduct research, studies, and demonstrations relating to the causes, diagnosis, treatment, control, and prevention of physical and mental diseases and other impairments of man resulting directly or indirectly from contaminants in water, or to the provision of a dependably safe supply of drinking water, including--

(A) improved methods (i) to identify and measure the existence of contaminants in drinking water (including methods which may be used by State and local health and water officials), and

(ii) to identify the source of such contaminants;

(B) improved methods to identify and measure the health effects of contaminants in drinking water;

(C) new methods of treating raw water to prepare it for drinking so as to improve the efficiency of water treatments and to remove contaminants from water;

(D) improved methods of providing a dependably safe supply of drinking water, including improvements in water purification and distribution, and methods of assessing the health related hazards of drinking water; and

(E) improved methods of protecting underground water sources of public water systems from contaminantion.

(2) Information and research facilities.--In carrying out this title, the Administrator is authorized to--

(A) collect and make available information pertaining to research, investigations, and demonstrations with respect to providing a dependably safe supply of drinking water, together with appropriate recommendations in connection with the information; and
[§1442(a)(2)(A) designated by PL 95-190; revised by PL 104-182]

(B) make available research facilities of the Agency to appropriate public authorities, institutions, and

individuals engaged in studies and research relating to this title.
[§1442(a)(2)(B) added by PL 104-182]
[§1442(a)(3) removed by PL 104-182]

(3) The Administrator shall carry out a study of polychlorinated biphenyl contamination of actual or potential sources of drinking water, contamination of such sources by other substances known or suspected to be harmful to public health, the effects of such contamination, and means of removing, treating, or otherwise controlling such contamination. To assist in carrying out this paragraph, the Administrator is authorized to make grants to public agencies and private nonprofit institutions.
[§1442(a)(11) added by PL 95-190; redesignated as new (3) by PL 104-182]

(4) The Administrator shall conduct a survey and study of--

(A) disposal of water (including residential waste) which may endanger underground water which supplies, or can reasonably be expected to supply, any public water systems, and

(B) means of control of such waste disposal. Not later than one year after the date of enactment of this title, he shall transmit to the Congress the results of such survey and study, together with such recommendations as he deems appropriate.

(5) The Administrator shall carry out a study of methods of underground injection which do not result in the degradation of underground drinking water sources.

(6) The Administrator shall carry out a study of methods of preventing, detecting, and dealing with surface spills of contaminants which may degrade underground water sources for public water systems.

(7) The Administrator shall carry out a study of virus contamination of drinking water sources and means of control of such contamination.

(8) The Administrator shall carry out a study of the nature and extent of the impact on underground water which supplies or can reasonably be expected to supply public water systems of

(A) abandoned injection or extraction wells;

(B) intensive application of pesticides and fertilizers in underground water recharge areas; and

(C) ponds, pools, lagoons, pits, or other surface disposal of contaminants in underground water recharge areas.

(9) The Administrator shall conduct a comprehensive study of public water supplies and drinking water sources to determine the nature, extent, sources of and means of control of contamination by chemicals or other substances suspected of being carcinogenic. Not later than six months after the date of enactment of this title, he shall transmit to the Congress the initial results of such study, together with such recommendations for further review and corrective action as he deems appropriate.

(10) The Administrator shall carry out a study of the reaction of chlorine and humic acids and the effects of the contaminants which result from such reaction on public health and on the safety of drinking water, including any carcinogenic effect.
[§1442(a)(10) added by PL 95-190]

(b) The Administrator is authorized to provide technical assistance and to make grants to States, or publicly owned water systems to assist in responding to and alleviating any emergency situation affecting public water systems (including sources of water for such systems) which the Administrator determines to present substantial danger to the public health. Grants provided under this subparagraph shall be used only to support those actions which

(i) or mitigating danger to the public health in such emergency situation and

(ii) would not, in the judgment of the Administrator, be taken without such emergency assistance. The Administrator may carry out the program authorized under this subparagraph as part of, and in accordance with the terms and conditions of, any other program of assistance for environmental emergencies which the Administrator is authorized to carry out under any other provision of law. No limitation on appropriations for any such other program shall apply to amounts appropriated under the subparagraph.
[Former §1442(a)(2)(B) added and amended by PL 95-190; redesignated as new (b) by PL 104-182]

[EDITOR'S NOTE: §2021(h) of P.L. 104-66 issued amendatory language for 42 U.S.C. 300h-6, however, the changes actually affected 300j-1 and are incorporated herewithin.]

(c) The Administrator shall--

(1) provide training for, and make grants for training (including postgraduate training) of

(A) personnel of State agencies which have primary enforcement responsibility and of agencies or units of local government to which enforcement responsibilities have been delegated by the State, and

(B) personnel who manage or operate public water systems, and

(2) make grants for postgraduate training of individuals (including grants to educational institutions for traineeships) for purposes of qualifying such individuals to work as personnel referred to in paragraph (1). Reasonable fees may be charged for training provided under paragraph (1)(B) to persons other than personnel of State or local agencies but such training shall be provided to personnel of State or local agencies without charge.
[EDITOR'S NOTE: Sec. 121 of P.L. 104-182 contained amendatory language redesignating 1442(b)(3) as (d)(3). However, the change actually affected (c)(3) and is incorporated herein.]

(3) make grants to, and enter into contracts with, any public agency, educational institution, and any other organization, in accordance with procedures prescribed by the Administrator, under which he may pay all or a part of the costs (as may be determined by the Administrator) of any project or activity which is designed--

(A) to develop, expand, or carry out a program (which may combine training education and employment) for training persons for occupations involving the public health aspects of providing safe drinking water;

(B) to train inspectors and supervisory personnel to train or supervise persons in occupations involving the public health aspects of providing safe drinking water; or

(C) to develop and expand the capability of programs of States and municipalities to carry out the purposes of this title (other than by carrying out State programs of public water system supervision or underground water source protection (as defined in section 1443(c)).
[§1442(b)(3)(C) amended by PL 95-190]
[Former §1442(b)(1) and (2) repealed, (3) redesignated as new (c)(3) by PL 104-182]

[§1442(d) added by PL 95-190; former (c) repealed, former (d) redesignated as new (c) by PL 104-66]

(d) There are authorized to be appropriated to carry out the provisions of this section other than subsections (a)(2)(B) and provisions relating to research $15,000,000 for the fiscal year ending June 30, 1975; $25,000,000 for the fiscal year ending June 30, 1976; $35,000,000 for the fiscal year ending June 30, 1977; $17,000,000 for each of the fiscal years 1978 and 1979; $21,405,000 for the fiscal year ending September 30, 1980; $30,000,000 for the fiscal year ending September 30, 1981; and $35,000,000 for the fiscal year ending September 30, 1982. There are authorized to be appropriated to carry out subsection (a)(2)(B) $8,000,000 for each of the fiscal years 1978 through 1982. There are authorized to be appropriated to carry out subsection (a)(2)(B) not more than the following amounts:

Fiscal year:	Amount
1987	$7,650,000
1988	$7,650,000
1989	$8,050,000
1990	$8,050,000
1991	$8,050,000

There are authorized to be appropriated to carry out the provisions of this section (other than subsection (g), subsection (a)(2)(B), and provisionlating to research), not more than the following amounts:

Fiscal year:	Amount
1987	$35,600,000
1988	$35,600,000
1989	$38,020,000
1990	$38,020,000
1991	$38,020,000

[Former §1442(c) redesignated as (e) by PL 95-190; amended by PL 96-63; redesignated as (f) by PL 96-502; amended by PL 99-339; redesignated as new (d) by PL 104-66]

(e) Technical Assistance.--The Administrator may provide technical assistance to small public water systems to enable such systems to achieve and maintain compliance with applicable national primary drinking water regulations. Such assistance may include circuit-rider and multi-State regional technical assistance programs, training, and preliminary engineering evaluations. The Administrator shall ensure that technical assistance pursuant to this subsection is available in each State. Each nonprofit organization receiving assistance under this subsection shall consult with the State in which the assistance is to be expended or otherwise made available before using assistance to undertake activities to carry out this subsection. There are authorized to be appropriated to the Administrator to be used for such technical assistance $15,000,000 for each of the fiscal years 1997 through 2003. No portion of any State loan fund established under section 1452 (relating to State loan funds) and no portion of any funds made available under this subsection may be used for lobbying expenses. Of the total amount appropriated under this subsection, 3 percent shall be used for technical

assistance to public water systems owned or operated by Indian Tribes.
[§1442(g) added and amended by PL 99-339; redesignated as new (e) by PL 104-66; revised by PL 104-182]

(e) [Repealed]
[§1442(e) added by PL 96-502; repealed by PL 99-339]

SEC. 1443 [42 U.S.C. 300j-2] Grants for State Programs.
(a)(1) From allotments made pursuant to paragraph (4), the Administrator may make grants to States to carry out public water system supervision programs.

(2) No grant may be made under paragraph (1) unless an application therefor has been submitted to the Administrator in such form and manner as he may require. The Administrator may not approve an application of a State for its first grant under paragraph (1) unless he determines that the State--

(A) has established or will establish within one year from the date of such grant a public water system supervision program, and

(B) will, within that one year, assume primary enforcement responsibility for public water systems within the State. No grant may be made to a State under paragraph (1) for any period beginning more than one year after the date of the State's first grant unless the State has assumed and maintains primary enforcement responsibility for public water systems within the State. The prohibitions contained in the preceding two sentences shall not apply to such grants when made to Indian Tribes.
[§1443(a)(2) amended by PL 99-339]

(3) A grant under paragraph (1) shall be made to cover not more than 75 per centum of the grant recipient's costs (as determined under regulations of the Administrator) in carrying out, during the one-year period beginning on the date the grant is made, a public water system supervision program.

(4) In each fiscal year the Administrator shall, in accordance with regulations, allot the sums appropriated for such year under paragraph (5) among the States on the basis of population, geographical area, number of public water systems, and other relevant factors.

No State shall receive less than 1 per centum of the annual appropriation for grants under paragraph (1): Provided, That the Administrator may, by regulation, reduce such percentage in accordance with the criteria specified in this paragraph: And provide further, That such percentage shall not apply to grants allotted to Guam, American Samoa, or the Virgin Islands.

(5) The prohibition contained in the last sentence of paragraph (2) may be waived by the Administrator with respect to a grant to a State through fiscal year 1979 but such prohibition may only be waived if, in the judgment of the Administrator--

(A) the state is making a diligent effort to assume and maintain primary enforcement responsibility for public water systems within the state:

(B) the State has made significant progress toward assuming and maintaining such primary enforcement responsibility; and

(C) there is reason to believe the State will assume such primary enforcement responsibility by October 1, 1979. The amount of any grant awarded for the fiscal years 1978 and 1979 pursuant to a waiver under this paragraph may not exceed 75 per centum of the allotment which the State would have received for such fiscal

year if it had assumed and maintained such primary enforcement responsibility. The remaining 25 per centum of the amount allotted to such State for such fiscal year shall be retained by the Administrator, and the Administrator may award such amount to such State at such time as the State assumes such responsibility before the beginning of fiscal year 1980. At the beginning of each fiscal years 1979 and 1980 the amounts retained by the Administrator for any preceding fiscal year and not awarded by the beginning of fiscal year 1979 or 1980 to the states to which such amounts were originally allotted may be removed from the original allotment and reallotted for fiscal year 1979 or 1980 (as the case may be) to States which have assumed primary enforcement responsibility by the beginning of such fiscal year.

(6) The Administrator shall notify the State of the approval or disapproval of any application for a grant this section--

(A) within ninety days after receipt of such application, or

(B) not later than the first day of the fiscal year for which the grant application is made, whichever is later.

(7) Authorization.--For the purpose of making grants under paragraph (1), there are authorized to be appropriated $100,000,000 for each of fiscal years 1997 through 2003.
[§1443(a)(7) amended by PL 96-63; PL 99-339; revised by PL 104-182]

(8) Reservation of funds by the administrator.--If the Administrator assumes the primary enforcement responsibility of a State public water system supervision program, the Administrator may reserve from funds made available pursuant to this subsection an amount equal to the amount that would otherwise have been provided to the State pursuant to this subsection. The Administrator shall use the funds reserved pursuant to this paragraph to ensure the full and effective administration of a public water system supervision program in the State.
[§1443(a)(8) added by PL 104-182]

(9) State loan funds.--

(A) Reservation of funds.--For any fiscal year for which the amount made available to the Administrator by appropriations to carry out this subsection is less than the amount that the Administrator determines is necessary to supplement funds made available pursuant to paragraph (8) to ensure the full and effective administration of a public water system supervision program in a State, the Administrator may reserve from the funds made available to the State under section 1452 (relating to State loan funds) an amount that is equal to the amount of the shortfall. This paragraph shall not apply to any State not exercising primary enforcement responsibility for public water systems as of the date of enactment of the Safe Drinking Water Act Amendments of 1996.

(B) Duty of administrator.--If the Administrator reserves funds from the allocation of a State under subparagraph (A), the Administrator shall carry out in the State each of the activities that would be required of the State if the State had primary enforcement authority under section 1413.
[§1443(a)(9) added by PL 104-182]

(b)(1) From allotments made pursuant to paragraph (4), the Administrator may make grants to States to carry out underground water source protection programs.

(2) No grant may be made under paragraph (1) unless an application therefor has been submitted to the Administrator in such form and manner as he may require. No grant may be made to any State under paragraph (1) unless the State has assumed primary enforcement responsibility within two years after the date the

Administrator promulgates regulations for State underground injection control programs under section 1421. The prohibition contained in the preceding sentence shall not apply to such grants when made to Indian Tribes. [§1443(b)(2) revised by PL 96-502; amended by PL 99-339]

(3) A grant under paragraph (1) shall be made to cover not more than 75 per centum of the grant recipient's costs (as determined under regulations of the Administrator) in carrying out, during the one-year period beginning on the date the grant is made, an underground water source protection program.

(4) In each fiscal year the Administrator shall, in accordance with regulations, allot the sums appropriated for each year under paragraph (5) among the States on the basis of population, geographical area, and other relevant factors;

(5) For purposes of making grants under paragraph (1) there are authorized to be appropriated $5,000,000 for the fiscal year ending June 30, 1976, $7,500,000 for the fiscal year ending June 30, 1977, $10,000,000 for each of the fiscal years 1978 and 1979, $7,795,000 for the fiscal year ending September 30, 1980, $18,000,000 for the fiscal year ending September 30, 1981, and $21,000,000 for the fiscal year ending September 30, 1982. For the purpose of making grants under paragraph (1) there are authorized to be appropriated not more than the following amounts:

Fiscal year:	Amount
1987	$19,700,000
1988	$19,700,000
1989	$20,850,000
1990	$20,850,000
1991	$20,850,000
1992-2003	$15,000,000

[§1443(b)(5) table amended by PL 95-63; PL 99-339; PL 104-182]

(c) For purposes of this section:

(1) The term "public water system supervision program' means a program for the adoption and enforcement of drinking water regulations (with such variances and exemptions from such regulations under conditions and in a manner which is not less stringent than the conditions under, and the manner in, which variances and exemptions may be granted under sections 1415 and 1416) which are no less stringent than the national primary drinking water regulations under section 1412, and for keeping records and making reports required by section 1413(a)(3).

(2) The term "underground water source protection program' means a program for the adoption and enforcement of a program which meets the requirements of regulations under section 1421 and for keeping records and making reports required by section 1422(b)(1)(A)(ii). Such term includes, where applicable, a program which meets the requirements of section 1425.
[§1443(c)(2) amended by PL 96-502]

(d) New York City Watershed Protection Program.--

(1) In general.--The Administrator is authorized to provide financial assistance to the State of New York for

demonstration projects implemented as part of the watershed program for the protection and enhancement of the quality of source waters of the New York City water supply system, including projects that demonstrate, assess, or provide for comprehensive monitoring and surveillance and projects necessary to comply with the criteria for avoiding filtration contained in 40 CFR 141.71. Demonstration projects which shall be eligible for financial assistance shall be certified to the Administrator by the State of New York as satisfying the purposes of this subsection. In certifying projects to the Administrator, the State of New York shall give priority to monitoring projects that have undergone peer review.

(2) Report.--Not later than 5 years after the date on which the Administrator first provides assistance pursuant to this paragraph, the Governor of the State of New York shall submit a report to the Administrator on the results of projects assisted.

(3) Matching requirements.--Federal assistance provided under this subsection shall not exceed 50 percent of the total cost of the protection program being carried out for any particular watershed or ground water recharge area.

(4) Authorization.--There are authorized to be appropriated to the Administrator to carry out this subsection for each of fiscal years 1997 through 2003, $15,000,000 for the purpose of providing assistance to the State of New York to carry out paragraph (1).
[§1443(d) added by PL 104-182]

SEC. 1444 [42 U.S.C. 300j-3] Special Study and Demonstration Project Grants; Guaranteed Loans.

(a) The Administrator may make grants to any person for the purposes of--
(1) assisting in the development and demonstration (including construction) of any project which will demonstrate a new or improved method, approach, or technology for providing a dependably safe supply of drinking water to the public; and

(2) assisting in the development and demonstration (including construction) of any project which will investigate and demonstrate health implications involved in the reclamation, recycling, and reuse of waste waters for drinking and the processes and methods for the preparation of safe and acceptable drinking water.

(b) Grants made by the Administrator under this section shall be subject to the following limitations:

(1) Grants under this section shall not exceed 662/3 per centum of the total cost of construction of any facility and 75 per centum of any other costs, as determined by the Administrator.

(2) Grants under this section shall not be made for any project involving the construction or modification of any facilities for any public water system in a State unless such project has been approved by the State agency charged with the responsibility for safety of drinking water (or if there is no such agency in a State, by the State health authority).

(3) Grants under this section shall not be made for any project unless the Administrator determines, after consulting the National Drinking Water Advisory Council, that such project will serve a useful purpose relating to the development and demonstration of new or improved techniques, methods, or technologies for the provision of safe water to the public for drinking.

(4) Priority for grants under this section shall be given where there are known or potential public health hazards which require advanced technology for the removal of particles which are too small to be removed by ordinary treatment technology.

(c) For the purposes of making grants under subsections (a) and (b) of this section there are authorized to be appropriated $7,500,000 for the fiscal year ending June 30, 1975; and $7,500,000 for the fiscal year ending June 30, 1976; and $10,000,000 for the fiscal year ending June 30, 1977.

(d) The Administrator during the fiscal years ending June 30, 1975, and June 30, 1976, shall carry out a program of guaranteeing loans made by private lenders to small public water systems for the purpose of enabling such systems to meet national primary drinking water regulations prescribed under section 1412. No such guarantee may be made with respect to a system unless (1) such system cannot reasonably obtain financial assistance necessary to comply with such regulations from any other source, and (2) the Administrator determines that any facilities constructed with a loan guaranteed under this subsection is not likely to be made obsolete by subsequent changes in primary regulations. The aggregate amount of indebtedness guaranteed with respect to any system may not exceed $50,000. The aggregate amount of indebtedness guaranteed under this subsection may not exceed $50,000,000. The Administrator shall prescribe regulations to carry out this subsection.
[§1444(d) amended by PL 99-339]

SEC. 1445 [42 U.S.C. 300j-4] Record and Inspections.

(a) Review of Existing Requirements

(1)(A) Every person who is subject to any requirement of this title or who is a grantee, shall establish and maintain such records, make such reports, conduct such monitoring, and provide such information as the Administrator may reasonably require by regulation to assist the Administrator in establishing regulations under this title, in determining whether such person has acted or is acting in compliance with this title, in administering any program of financial assistance under this title, in evaluating the health risks of unregulated contaminants, or in advising the public of such risks. In requiring a public water system to monitor under this subsection, the Administrator may take into consideration the system size and the contaminants likely to be found in the system's drinking water.

(B) Every person who is subject to a national primary drinking water regulation under section 1412 shall provide such information as the Administrator may reasonably require, after consultation with the State in which such person is located if such State has primary enforcement responsibility for public water systems, on a case-by-case basis, to determine whether such person has acted or is acting in compliance with this title.

(C) Every person who is subject to a national primary drinking water regulation under section 1412 shall provide such information asthe Administrator may reasonably require to assist the Administrator in establishing regulations under section 1412 of this title, after consultation with States and suppliers of water. The Administrator may not require under this subparagraph the installation of treatment equipment or process changes, the testing of treatment technology, or the analysis or processing of monitoring samples, except where the Administrator provides the funding for such activities. Before exercising this authority, the Administrator shall first seek to obtain the information by voluntary submission.

(D) The Administrator shall not later than 2 years after the date of enactment of this subparagraph, after consultation with public health experts, representatives of the general public, and officials of State and local governments, review the monitoring requirements for not fewer than 12 contaminants identified by the Administrator, and promulgate any necessary modifications.
[Former §1445(a) amended by PL 95-190; amended and redesignated as new (a)(1) by PL 99-339; revised by PL 104-182]

(2) Monitoring program for unregulated contaminants.--

(A) Establishment.--The Administrator shall promulgate regulations establishing the criteria for a monitoring program for unregulated contaminants. The regulations shall require monitoring of drinking water supplied by public water systems and shall vary the frequency and schedule for monitoring requirements for systems based on the number of persons served by the system, the source of supply, and the contaminants likely to be found, ensuring that only a representative sample of systems serving 10,000 persons or fewer are required to monitor.

(B) Monitoring program for certain unregulated contaminants.--

(i) Initial list.--Not later than 3 years after the date of enactment of the Safe Drinking Water Act Amendments of 1996 and every 5 years thereafter, the Administrator shall issue a list pursuant to subparagraph (A) of not more than 30 unregulated contaminants to be monitored by public water systems and to be included in the national drinking water occurrence data base maintained pursuant to subsection (g).

(ii) Governors' petition.--The Administrator shall include among the list of contaminants for which monitoring is required under this paragraph each contaminant recommended in a petition signed by the Governor of each of 7 or more States, unless the Administrator determines that the action would prevent the listing of other contaminants of a higher public health concern.

(C) Monitoring plan for small and medium systems.--

(i) In general.--Based on the regulations promulgated by the Administrator, each State may develop a representative monitoring plan to assess the occurrence of unregulated contaminants in public water systems that serve a population of 10,000 or fewer in that State. The plan shall require monitoring for systems representative of different sizes, types, and geographic locations in the State.

(ii) Grants for small system costs.--From funds reserved under section 1452(o) or appropriated under subparagraph (H), the Administrator shall pay the reasonable cost of such testing and laboratory analysis as are necessary to carry out monitoring under the plan.

(D) Monitoring results.--Each public water system that conducts monitoring of unregulated contaminants pursuant to this paragraph shall provide the results of the monitoring to the primary enforcement authority for the system.

(E) Notification.--Notification of the availability of the results of monitoring programs required under paragraph (2)(A) shall be given to the persons served by the system.

(F) Waiver of monitoring requirement.--The Administrator shall waive the requirement for monitoring for a contaminant under this paragraph in a State, if the State demonstrates that the criteria for listing the contaminant do not apply in that State.

(G) Analytical methods.--The State may use screening methods approved by the Administrator under subsection (i) in lieu of monitoring for particular contaminants under this paragraph.

(H) Authorization of appropriations.--There are authorized to be appropriated to carry out this paragraph $10,000,000 for each of the fiscal years 1997 through 2003.
[§1445(a)(2) added by 99-339; revised by 104-182]

(3)--(8) [Repealed]
[§1445(a)(3)--8 added by 99-339; repealed by PL 104-182]

(b)(1) Except as provided in paragraph (2), the Administrator, or representatives of the Administrator duly designated by him, upon presenting appropriate credentials and a written notice to any supplier of water or other person subject to (A) a national primary drinking water regulation prescribed under section 1412(B), an applicable underground injection control program or (C) any requirement to monitor an unregulated contaminant pursuant to subsection (a), or person in charge of any of the property of such supplier or other person referred to in clause A, (B), or (C), is authorized to enter any establishment, facility, or other property of such supplier or other person in order to determine whether such supplier or other person has acted or is acting in compliance with this title, including for this purpose, inspection, at reasonable times, of records, files, papers, processes, controls, and facilities, or in order to test any feature of a public water system, including its raw water source. The Administrator or the Comptroller General (or any representative designated by either) shall have access for the purpose of audit and examination to any records, reports, or information of a grantee which are required to be maintained under subsection (a) or which are pertinent to any financial assistance under this title.
[§1445(b)(1) amended by PL 95-190]

(2) No entry may be made under the first sentence of paragraph (1) in an establishment, facility, or other property of a supplier of water or other person subject to a national primary drinking water regulation if the establishment, facility, or other property is located in a State which has primary enforcement responsibility for public water systems unless, before written notice of such entry is made, the Administrator (or his representative) notifies the State agency charged with responsibility for safe drinking water of the reasons for such entry. The Administrator shall, upon a showing by the State agency that such an entry will be detrimental to the administration of the State's program of primary enforcement responsibility, take such showing into consideration in determining whether to make such entry. No State agency which receives notice under this paragraph of an entry proposed to be made under paragraph (1) may use the information contained in the notice to inform the person whose property is proposed to be entered of the proposed entry; and if a State agency so uses such information, notice to the agency under this paragraph is not required until such time as the Administrator determines the agency has provided him satisfactory assurances that it will no longer so use information contained in a notice under this paragraph.

(c) Whoever fails or refuses to comply with any requirement of subsection (a) or to allow the Administrator, the Comptroller General, or representatives of either, to enter and conduct any audit or inspection authorized by subsection (b) shall be subject to a civil penalty of not to exceed $25,000.
[§1445(c) amended by PL 99-339]

(d)(1) Subject to paragraph (2), upon a showing satisfactory to the Administrator by any person that any information required under this section from such person, if made public, would divulge trade secrets or secret processes of such person, the Administrator shall consider such information confidential in accordance with the purposes of section 1905 of title 18 of the United States Code. If the applicant fails to make a showing satisfactory to the Administrator, the Administrator shall give such applicant thirty days' notice before releasing the information to which the application relates (unless the public health or safety requires an earlier release of such information).

(2) Any information required under this section

(A) may be disclosed to other officers, employees, or authorized representatives of the United States concerned with carrying out this title or to committees of the Congress, or when relevant in any proceeding under this title, and

(B) shall be disclosed to the extent it deals with the level of contaminants in drinking water. For purposes of this subsection the term "information required under this section' means any papers, books, documents, or information, or any particular part thereof, reported to or otherwise obtained by the Administrator under this section.

(e) For purposes of this section,

(1) the term "grantee' means any person who applies for or receives financial assistance, by grant, contract, or loan guarantee under this title, and

(2) the term "person' includes a Federal agency.

(f) Information Regarding Drinking Water Coolers.--The Administator may utilize the authorities of this section for purposes of part F. Any person who manufactures, imports, sells, or distributes drinking water coolers in interstate commerce shall be treated as a supplier of water for purposes of applying the provisions of this section in the case of persons subject to part F.
[§1445(f) added by PL 100-572]

(g) Occurrence Data Base.--

(1) In general.--Not later than 3 years after the date of enactment of the Safe Drinking Water Act Amendments of 1996, the Administrator shall assemble and maintain a national drinking water contaminant occurrence data base, using information on the occurrence of both regulated and unregulated contaminants in public water systems obtained under subsection (a)(1)(A) or subsection (a)(2) and reliable information from other public and private sources.

(2) Public input.--In establishing the occurrence data base, the Administrator shall solicit recommendations from the Science Advisory Board, the States, and other interested parties concerning the development and maintenance of a national drinking water contaminant occurrence data base, including such issues as the structure and design of the data base, data input parameters and requirements, and the use and interpretation of data.

(3) Use.--The data shall be used by the Administrator in making determinations under section 1412(b)(1) with respect to the occurrence of a contaminant in drinking water at a level of public health concern.

(4) Public recommendations.--The Administrator shall periodically solicit recommendations from the appropriate officials of the National Academy of Sciences and the States, and any person may submit recommendations to the Administrator, with respect to contaminants that should be included in the national drinking water contaminant occurrence data base, including recommendations with respect to additional unregulated contaminants that should be listed under subsection (a)(2). Any recommendation submitted under this clause shall be accompanied by reasonable documentation that--

(A) the contaminant occurs or is likely to occur in drinking water; and

(B) the contaminant poses a risk to public health.

(5) Public availability.--The information from the data base shall be available to the public in readily accessible form.

(6) Regulated contaminants.--With respect to each contaminant for which a national primary drinking water regulation has been established, the data base shall include information on the detection of the contaminant at a quantifiable level in public water systems (including detection of the contaminant at levels not constituting a violation of the maximum contaminant level for the contaminant).

(7) Unregulated contaminants.--With respect to contaminants for which a national primary drinking water regulation has not been established, the data base shall include--

(A) monitoring information collected by public water systems that serve a population of more than 10,000, as required by the Administrator under subsection (a);

(B) monitoring information collected from a representative sampling of public water systems that serve a population of 10,000 or fewer; and

(C) other reliable and appropriate monitoring information on the occurrence of the contaminants in public water systems that is available to the Administrator.
[§1445(g) added by PL 104-182]

(h) Availability of Information on Small System Technologies.-- For purposes of sections 1412(b)(4)(E) and 1415(e) (relating to small system variance program), the Administrator may request information on the characteristics of commercially available treatment systems and technologies, including the effectiveness and performance of the systems and technologies under various operating conditions. The Administrator may specify the form, content, and submission date of information to be submitted by manufacturers, States, and other interested persons for the purpose of considering the systems and technologies in the development of regulations or guidance under sections 1412(b)(4)(E) and 1415(e).
[§1445(h) added by PL 104-182]

(i) Screening Methods.--The Administrator shall review new analytical methods to screen for regulated contaminants and may approve such methods as are more accurate or cost-effective than established reference methods for use in compliance monitoring.
[§1445(i) added by PL 104-182]

SEC. 1446 [42 U.S.C. 300j-5] National Drinking Water Advisory Council.

(a) There is established a National Drinking Water Advisory Council which shall consist of fifteen members appointed by the Administrator after consultation with the Secretary. Five members shall be appointed from the general public: five members shall be appointed from appropriate State and local agencies concerned with water hygiene and public water supply; and five members shall be appointed from representatives of private organizations or groups demonstrating an active interest in the field of water hygiene and public water supply of which two such members shall be associated with small, rural public water systems. Each member of the Council shall hold office for a term of three years, except that--
[§1446(a) amended by PL 104-182]

(1) any member appointed to fill a vacancy occurring prior to the expiration of the term for which his predecessor was appointed shall be appointed for the remainder of such term; and

(2) the terms of the members first taking office shall expire as follows: Five shall expire three years after the date of enactment of this title, five shall expire two years after such date, and five shall expire one year after such date, as designated by the Administrator at the time of appointment. The members of the Council shall be eligible for reappointment.

(b) The Council shall advise, consult with, and make recommendations to, the Administrator on matters relating to activities, functions, and policies of the Agency under this title.

(c) Members of the Council appointed under this section shall, while attending meetings or conferences of the Council or otherwise engaged in business of the Council, receive compensation and allowances at a rate to be fixed by the Administrator, but not exceeding the daily equivalent of the annual rate of basic pay in effect for grade GS-18 of the General Schedule for each day (including traveltime) during which they are engaged in the actual performance of duties vested in the Council. While away from their homes or regular places of business in the performance of services for the Council, members of the Council shall be allowed travel expenses, including per diem in lieu of subsistence, in the same manner as persons employed intermittently in the Government service are allowed expenses under sections 5703(b) of title 5 of the United States Code.

(d) Section 14(a) of the Federal Advisory Committee Act (relating to termination) shall not apply to the Council.

SEC. 1447 [42 U.S.C. 300j-6] Federal Agencies.

(a) In General.--Each department, agency, and instrumentality of the executive, legislative, and judicial branches of the Federal Government--

(1) owning or operating any facility in a wellhead protection area;

(2) engaged in any activity at such facility resulting, or which may result, in the contamination of water supplies in any such area;

(3) owning or operating any public water system; or

(4) engaged in any activity resulting, or which may result in, underground injection which endangers drinking water (within the meaning of section 1421(d)(2)), shall be subject to, and comply with, all Federal, State, interstate, and local requirements, both substantive and procedural (including any requirement for permits or reporting or any provisions for injunctive relief and such sanctions as may be imposed by a court to enforce such relief), respecting the protection of such wellhead areas, respecting such public water systems, and respecting any underground injection in the same manner and to the same extent as any person is subject to such requirements, including the payment of reasonable service charges. The Federal, State, interstate, and local substantive and procedural requirements referred to in this subsection include, but are not limited to, all administrative orders and all civil and administrative penalties and fines, regardless of whether such penalties or fines are punitive or coercive in nature or are imposed for isolated, intermittent, or continuing violations. The United States hereby expressly waives any immunity otherwise applicable to the United States with respect to any such substantive or procedural requirement (including, but not limited to, any injunctive relief, administrative order or civil or administrative penalty or fine referred to in the preceding sentence, or reasonable service charge). The reasonable service charges referred to in this subsection include, but are not limited to, fees or charges assessed in connection with the processing and issuance of permits, renewal of permits, amendments to permits, review of plans, studies, and other documents, and inspection and monitoring of facilities, as well as any other nondiscriminatory charges that are assessed in connection with a Federal, State, interstate, or local regulatory program respecting the protection of wellhead areas or public water systems or respecting any underground injection. Neither the United States, nor any agent, employee, or officer thereof, shall be immune or exempt from any process or sanction of any State or Federal Court with respect to the enforcement of any such injunctive relief. No agent, employee, or officer of the United States shall be personally liable for any civil penalty under any Federal, State, interstate, or local law concerning the

protection of wellhead areas or public water systems or concerning underground injection with respect to any act or omission within the scope of the official duties of the agent, employee, or officer. An agent, employee, or officer of the United States shall be subject to any criminal sanction (including, but not limited to, any fine or imprisonment) under any Federal or State requirement adopted pursuant to this title, but no department, agency, or instrumentality of the executive, legislative, or judicial branch of the Federal Government shall be subject to any such sanction. The President may exempt any facility of any department, agency, or instrumentality in the executive branch from compliance with such a requirement if he determines it to be in the paramount interest of the United States to do so. No such exemption shall be granted due to lack of appropriation unless the President shall have specifically requested such appropriation as a part of the budgetary process and the Congress shall have failed to make available such requested appropriation. Any exemption shall be for a period not in excess of 1 year, but additional exemptions may be granted for periods not to exceed 1 year upon the President's making a new determination. The President shall report each January to the Congress all exemptions from the requirements of this section granted during the preceding calendar year, together with his reason for granting each such exemption.
[§1447(a) amended by PL 95-190; revised by PL 104-182]

(b) Administrative Penalty Orders.--

(1) In general.--If the Administrator finds that a Federal agency has violated an applicable requirement under this title, the Administrator may issue a penalty order assessing a penalty against the Federal agency.

(2) Penalties.--The Administrator may, after notice to the agency, assess a civil penalty against the agency in an amount not to exceed $25,000 per day per violation.

(3) Procedure.--Before an administrative penalty order issued under this subsection becomes final, the Administrator shall provide the agency an opportunity to confer with the Administrator and shall provide the agency notice and an opportunity for a hearing on the record in accordance with chapters 5 and 7 of title 5, United States Code.

(4) Public review.--

(A) In general.--Any interested person may obtain review of an administrative penalty order issued under this subsection. The review may be obtained in the United States District Court for the District of Columbia or in the United States District Court for the district in which the violation is alleged to have occurred by the filing of a complaint with the court within the 30-day period beginning on the date the penalty order becomes final. The person filing the complaint shall simultaneously send a copy of the complaint by certified mail to the Administrator and the Attorney General.

(B) Record.--The Administrator shall promptly file in the court a certified copy of the record on which the order was issued.

(C) Standard of review.--The court shall not set aside or remand the order unless the court finds that there is not substantial evidence in the record, taken as a whole, to support the finding of a violation or that the assessment of the penalty by the Administrator constitutes an abuse of discretion.

(D) Prohibition on additional penalties.--The court may not impose an additional civil penalty for a violation that is subject to the order unless the court finds that the assessment constitutes an abuse of discretion by the Administrator.
[§1447(b) revised by PL 104-182]

(c) Limitation on State Use of Funds Collected From Federal Government.--Unless a State law in effect on the date of enactment of the Safe Drinking Water Act Amendments of 1996 or a State constitution requires the funds to be used in a different manner, all funds collected by a State from the Federal Government from penalties and fines imposed for violation of any substantive or procedural requirement referred to in subsection (a) shall be used by the State only for projects designed to improve or protect the environment or to defray the costs of environmental protection or enforcement.
[New §1447(c) added by PL 104-182]

(d)(1) Nothing in the Safe Drinking Water Amendments of 1977 shall be construed to alter or affect the status of American Indian lands or water rights nor to waive any sovereignty over Indian lands guaranteed by treaty or statute.

(2) For the purposes of this Act, the term "Federal agency' shall not be construed to refer to or include any American Indian tribe, nor to the Secretary of the Interior in his capacity as trustee of Indian lands.
[Former §1447(c) redesignated as new (d) by PL 104-182]

(e) Washington Aqueduct.--The Secretary of the Army shall not pass the cost of any penalty assessed under this title on to any customer, user, or other purchaser of drinking water from the Washington Aqueduct system, including finished water from the Dalecarlia or McMillan treatment plant.
[§1447(e) added by 104-182]

SEC. 1448 [42 U.S.C. 300j-7] Judicial Review.

(a) A petition for review of--

(1) actions pertaining to the establishment of national primary drinking water regulations (including maximum contaminant level goals) may filed only in the United States Court of Appeals for the District of Columbia circuit; and
[§1448(a)(1) revised by PL 99-339]

(2) any other final action of the Administrator under this Act may be filed in the circuit in which the petitioner resides or transacts business which is directly affected by the action.

Any such petition shall be filed within the 45-day period beginning on the date of the promulgation of the regulation or any other final Agency action with respect to which review is sought or on the date of the determination with respect to which review is sought, and may be filed after the expiration of such 45-day period if the petition is based solely on grounds arising after the expiration of such period. Action of the Administrator with respect to which review could have been obtained under this subsection shall not be subject to judicial review in any civil or criminal proceeding for enforcement or in any civil action to enjoin enforcement. In any petition concerning the assessment of a civil penalty pursuant to section 1414(g)(3)(B), the petitioner shall simultaneously send a copy of the complaint by certified mail to the Administrator and the Attorney General. The court shall set aside and remand the penalty order if the court finds that there is not substantial evidence in the record to support the finding of a violation or that the assessment of the penalty by the Administrator constitutes an abuse of discretion.
[§1448(a)(2) revised by PL 99-339; PL 104-182]

(b) The United States district courts shall have jurisdiction of actions brought to review (1) the granting of, or the refusing to grant, a variance or exemption under section 1415 or 1416 or (1) the requirements of any schedule prescribed for a variance or exemption under such section or the failure to prescribe such a schedule. Such an action may only be brought upon a petition for review filed with the court within the 45-day period

beginning on the date the action sought to be reviewed is taken or, in the case of a petition to review the refusal to grant a variance or exemption or the failure to prescribe a schedule, within the 45-day period beginning on the date action is required to be taken on the variance, exemption, or schedule, as the case may be. A petition for such review may be filed after the expiration of such period if the petition is based solely on grounds arising after the expiration of such period. Action with respect to which review could have been obtained under this subsection shall not be subject to judicial review in any civil or criminal proceeding for enforcement or in any civil action to enjoin enforcement.

(c) In any judicial proceeding in which review is sought of a determination under this title required to be made on the record after notice and opportunity for hearing, if any party applies to the court for leave to adduce additional evidence and shows to the satisfaction of the court that such additional evidence is material and that there were reasonable grounds for the failure to adduce such evidence in the proceeding before the Administrator, the court may order such additional evidence (and evidence in rebuttal thereof) to be taken before the Administrator, in such manner and upon such terms and conditions as to the court may deem proper. The Administrator may modify his findings as to the facts, or make new findings, by reason of the additional evidence so taken, and he shall file such modified or new findings, and his recommendation, if any, for the modification or setting aside of his original determination, with the return of such additional evidence.

SEC. 1449 [42 U.S.C. 300j-8] Citizen's Civil Action.

(a) Except as provided in subsection (b) of this section, any person may commence a civil action on his own behalf--

(1) against any person (including (A) the United States, and (B) any other governmental instrumentality or agency to the extent permitted by the eleventh amendment to the Constitution) who is alleged to be in violation of any requirement prescribed by or under this title;
[§1449(a)(1) amended by PL 104-182]

(2) against the Administrator where there is alleged a failure of the Administrator to perform any act or duty under this title which is not discretionary with the Administrator. No action may be brought under paragraph (1) against a public water system for a violation of a requirement prescribed by or under this title which occurred within the 27-month period beginning on the first day of the month in which this title is enacted. The United States district courts shall have jurisdiction, without regard to the amount in controversy or the citizenship of the parties, to enforce in an action brought under this subsection any requirement prescribed by or under this title or to order the Administrator to perform an act or duty described in paragraph (2), as the case may be; or
[§1449(a)(2) amended by PL 104-182]

(3) for the collection of a penalty by the United States Government (and associated costs and interest) against any Federal agency that fails, by the date that is 18 months after the effective date of a final order to pay a penalty assessed by the Administrator under section 1429(b), to pay the penalty.
[§1449(a)(3) added by PL 104-182]

(b) No civil action may be commenced--

(1) under subsection (a)(1)of this section respecting violation of a requirement prescribed by or under this title--

(A) prior to sixty days after the plaintiff has given notice of such violation (i) to the Administrator, (ii) to any alleged violator of such requirement and (iii) to the State in which the violation occurs, or

(B) if the Administrator, the Attorney General, or the State has commenced and is diligently prosecuting a civil action in a court of the United States to require compliance with such requirement, but in any such action in a court of the United States any person may intervene as a matter of right; or

(2) under subsection (a)(2) of this section prior to sixty days after the plaintiff has given notice of such action to the Administrator. Notice required by this subsection shall be given in such manner as the Administrator shall prescribe by regulation. No person may commence a civil action under subsection (a)to require a State to prescribe a schedule under section 1415 or 1416 for a variance or exemption, unless such person shows to the satisfaction of the court that the State has in a substantial number of cases failed to prescribe such schedules; or
[§1449(b)(2) amended by PL 104-182]

(3) under subsection (a)(3) prior to 60 days after the plaintiff has given notice of such action to the Attorney General and to the Federal agency.
[§1449(b)(3) added by PL 104-182]
(c) In any action under this section, the Administrator or the Attorney General, if not a party, may intervene as a matter of right.

(d) The court, in issuing any final order in any action brought under subsection (a)of this section, may award costs of litigation (including reasonable attorney and expert witness fees) to any party whenever the court determines such an award is appropriate. The court may, if a temporary restraining order or preliminary injunction is sought, require the filing of a bond or equivalent security in accordance with the Federal Rules of Civil Procedure.

(e) Nothing in this section shall restrict any right which any person (or class of persons) may have under any statute or common law to seek enforcement of any requirement prescribed by or under this title or to seek any other relief. Nothing in this section or in any other law of the United States shall be construed to prohibit, exclude, or restrict any State or local government from --

(1) bringing any action or obtaining any remedy or sanction in any State or local court, or

(2) bringing any administrative action or obtaining any administrative remedy or sanction,against any agency of the United States under State or local law to enforce any requirement respecting the provision of safe drinking water or respecting any underground injection control program. Nothing in this section shall be construed to authorize judicial review of regulations or orders of the Administrator under this title, except as provided in section 1448. For provisions providing for application of certain requirements to such agencies in the same manner as to nongovernmental entities, see section 1447.
[§1449(e) amended by PL 95-190]

SEC. 1450 [42 U.S.C. 300j-9] General Provisions.

(a)(1) The Administrator is authorized to prescribe such regulations as are necessary or appropriate to carry out his functions under this title.

(2) The Administrator may delegate any of his functions under this title (other than prescribing regulations) to any officer or employee of the Agency.

(b) The Administrator, with the consent of the head of any other agency of the United States, may utilize such officers and employees of such agency as he deems necessary to assist him in carrying out the purposes

of this title.

(c) Upon the request of a State or interstate agency, the Administrator may assign personnel of the Agency to such State or interstate agency for the purposes of carrying out the provisions of this title.

(d)(1) The Administrator may make payments of grants under this title (after necessary adjustment on account of previously made underpayments or overpayments) in advance or by way of reimbursement, and in such installments and on such conditions as he may determine.

(2) Financial assistance may be made available in the form of grants only to individuals and nonprofit agencies or institutions. For purposes of this paragraph, the term "nonprofit agency or institution' means an agency or institution no part of the net earnings of which inure, or may lawfully inure, to the benefit of any private shareholder or individual.

(e) The Administrator shall take such action as may be necessary to assure compliance with provisions of the Act of March 3, 1931 (known as the Davis-Bacon Act; 40 U.S.C. 276a-276a(5)). The Secretary of Labor shall have, with respect to the labor standards specified in this subsection, the authority and functions set forth in Reorganization Plan Numbered 14 of 1950 (15 F.R. 3176; 64 Stat. 1267) and section 2 of the Act of June 13, 1934 (40 U.S.C. 276c).

(f) The Administrator shall request the Attorney General to appear and represent him in any civil action instituted under this title to which the Administrator is a party. Unless, within a reasonable time, the Attorney General notifies the Administrator that he will appear in such action, attorneys appointed by the Administrator shall appear and represent him.

(g) The provisions of this title shall not be construed as affecting any authority of the Administrator under part G of title III of this Act.

(h) Not later than April 1 of each year, the Administrator shall submit to the Committee on Commerce of the Senate and the Committee on Interstate and Foreign Commerce of the House of Representatives a report respecting the activities of the Agency under this title and containing such recommendations for legislation as he considers necessary. The report of the Administrator under this subsection which is due not later than April 1, 1975, and each subsequent report of the Administrator under this subsection shall include a statement on the actual and anticipated cost to public water systems in each State of compliance with the requirements of this title. The Office of Management and Budget may review any report required by this subsection before its submission to such committees of Congress, but the Office may not revise any such report, require any revision in any such report, or delay its submission beyond the day prescribed for its submission, and may submit to such committees of Congress its comments respecting any such report.

(i)(1) No employer may discharge any employee or otherwise discriminate against any employee with respect to his compensation, terms, conditions, or privileges of employment because the employee (or any person acting pursuant to a request of the employee) has--

(A) commenced, caused to be commenced, or is about to commence or cause to be commenced a proceeding under this title or a proceeding for the administration or enforcement of drinking water regulations or underground injection control programs of a State,

(B) testified or is about to testify in any such proceeding, or

(C) assisted or participated or is about to assist or participate in any manner in such a proceeding or in any

other action to carry out the purposes of this title.

(2)(A) Any employee who believes that he has been discharged or otherwise discriminated against by any person in violation of paragraph (1) may, within 30 days after such violation occurs, file (or have any person file on his behalf) a complaint with the Secretary of Labor (hereinafter in this subsection referred to as the "Secretary') alleging such discharge or discrimination. Upon receipt of such a complaint, the Secretary shall notify the person named in the complaint of the filing of the complaint.

(B)(i) Upon receipt of a complaint filed under subparagraph (A), the Secretary shall conduct an investigation of the violation alleged in the complaint. Within 30 days of the receipt of such complaint, the Secretary shall complete such investigation and shall notify in writing the complainant (any person acting in his behalf) and the person alleged to have committed such violation of the results of the investigation conducted pursuant to this subparagraph. Within 90 days of the receipt of such complaint the Secretary shall, unless the proceeding on the complaint is terminated by the Secretary on the basis of a settlement entered into by the Secretary and the person alleged to have committed such violation, issue an order either providing the relief prescribed by clause (ii) or denying the complaint. An order of the Secretary shall be made on the record after notice and opportunity for agency hearing. The Secretary may not enter into a settlement terminating a proceeding on a complaint without the participation and consent of the complainant.

(ii) If in response to a complaint filed under subparagraph (A) the Secretary determines that a violation of paragraph (1) has occurred, the Secretary shall order

(I) the person who committed such violation to take the affirmative action to abate the violation,

(II) such person to reinstate the complainant to his former position together with the compensation (including back pay), terms, conditions, and privileges of his employment,

(III) compensatory damages, and

(IV) where appropriate, exemplary damages.

If such an order is issued, the Secretary, at the request of the complainant, shall assess against the person against whom the order is issued a sum equal to the aggregate amount of all costs and expenses (including attorneys' fees) reasonably incurred, as determined by the Secretary, by the complainant for, or in connection with, the bringing of the complaint upon which the order was issued.

(3)(A) Any person adversely affected or aggrieved by an order issued under paragraph (2) may obtain review of the order in the United States Court of Appeals for the circuit in which the violation, with respect to which the order was issued, allegedly occurred. The petition for review must be filed within sixty days from the issuance of the Secretary's order. Review shall conform to chapter 7 of title 5 of the United States Code. The commencement of proceedings under this subparagraph shall not, unless ordered by the court, operate as a stay of the Secretary's order.

(B) An order of the Secretary with respect to which review could have been obtained under subparagraph (A) shall not be subject to judicial review in any criminal or other civil proceeding.

(4) Whenever a person has failed to comply with an order issued under paragraph (2)(B), the Secretary shall file a civil action in the United States District Court for the district in which the violation was found to occur to enforce such order. In actions brought under this paragraph, the district courts shall have jurisdiction to grant all appropriate relief including, but not limited to, injunctive relief, compensatory, and exemplary damages.

[§1450(i)(4) amended by PL 98-620]

(5) Any nondiscretionary duty imposed by this section is enforceable in mandamus proceeding brought under section 1361 of title 28 of the United States Code.

(6) Paragraph (1) shall not apply with respect to any employee who, acting without direction from his employer (or the employer's agent), deliberately causes a violation of any requirement of this title.

SEC. 1451 [42 U.S.C. 300j-11] Indian Tribes.
[§1451 added by PL 99-339]

(a) In General. -- Subject to the provisions of subsection (b), the Administrator--

(1) is authorized to treat Indian Tribes as States under this title,

(2) may delegate to such Tribes primary enforcement responsibility for public water systems and for underground injection control, and

(3) may provide such Tribes grant and contract assistance to carry out functions provided by this title.

(b) EPA Regulations. --

(1) Specific Provisions. -- The Administrator shall, within 18 months after the enactment of the Safe Drinking Water Act Amendments of 1986, promulgate final regulations specifying those provisions of this title for which it is appropriate to treat Indian Tribes as States. Such treatment shall be authorized only if:

(A) the Indian Tribe is recognized by the Secretary of the Interior and has a governing body carrying out substantial governmental duties and powers;

(B) the functions to be exercised by the Indian Tribe are within the area of the Tribal Government's jurisdiction; and

(C) the Indian Tribe is reasonably expected to be capable, in the Administrator's judgment, of carrying out the functions to be exercised in a manner consistent with the terms and purposes of this title and of all applicable regulations.

(2) Provisions where treatment as state inappropriate. -- For any provision of this title where treatment of Indian Tribes as identical to States is inappropriate, administratively infeasible or otherwise inconsistent with the purposes of this title, the Administrator may include in the regulations promulgated under this section, other means for administering such provision in a manner that will achieve the purpose of the provision. Nothing in this section shall be construed to allow Indian Tribes to assume or maintain primary enforcement responsibility for public water systems or for underground injection control in a manner less protective of the health of persons than such responsibility may be assumed or maintained by a State. An Indian tribe shall not be required to exercise criminal enforcement jurisdiction for purposes of complying with the preceding sentence.

SEC. 1452 State Revolving Loan Funds
[Former §1442(b) removed by PL 104-182]

(a) General Authority.--

(1) Grants to states to establish state loan funds.--

(A) In general.--The Administrator shall offer to enter into agreements with eligible States to make capitalization grants, including letters of credit, to the States under this subsection to further the health protection objectives of this title, promote the efficient use of fund resources, and for other purposes as are specified in this title.

(B) Establishment of fund.--To be eligible to receive a capitalization grant under this section, a State shall establish a drinking water treatment revolving loan fund (referred to in this section as a "State loan fund") and comply with the other requirements of this section. Each grant to a State under this section shall be deposited in the State loan fund established by the State, except as otherwise provided in this section and in other provisions of this title. No funds authorized by other provisions of this title to be used for other purposes specified in this title shall be deposited in any State loan fund.

(C) Extended period.--The grant to a State shall be available to the State for obligation during the fiscal year for which the funds are authorized and during the following fiscal year, except that grants made available from funds provided prior to fiscal year 1997 shall be available for obligation during each of the fiscal years 1997 and 1998.

(D) Allotment formula.--Except as otherwise provided in this section, funds made available to carry out this section shall be allotted to States that have entered into an agreement pursuant to this section (other than the District of Columbia) in accordance with--

(i) for each of fiscal years 1995 through 1997, a formula that is the same as the formula used to distribute public water system supervision grant funds under section 1443 in fiscal year 1995, except that the minimum proportionate share established in the formula shall be 1 percent of available funds and the formula shall be adjusted to include a minimum proportionate share for the State of Wyoming and the District of Columbia; and

(ii) for fiscal year 1998 and each subsequent fiscal year, a formula that allocates to each State the proportional share of the State needs identified in the most recent survey conducted pursuant to subsection (h), except that the minimum proportionate share provided to each State shall be the same as the minimum proportionate share provided under clause (i).

(E) Reallotment.--The grants not obligated by the last day of the period for which the grants are available shall be reallotted according to the appropriate criteria set forth in subparagraph (D), except that the Administrator may reserve and allocate 10 percent of the remaining amount for financial assistance to Indian Tribes in addition to the amount allotted under subsection (i) and none of the funds reallotted by the Administrator shall be reallotted to any State that has not obligated all sums allotted to the State pursuant to this section during the period in which the sums were available for obligation.

(F) Nonprimacy states.--The State allotment for a State not exercising primary enforcement responsibility for public water systems shall not be deposited in any such fund but shall be allotted by the Administrator under this subparagraph. Pursuant to section 1443(a)(9)(A) such sums allotted under this subparagraph shall be reserved as needed by the Administrator to exercise primary enforcement responsibility under this title in such State and the remainder shall be reallotted to States exercising primary enforcement responsibility for public water systems for deposit in such funds. Whenever the Administrator makes a final determination pursuant to section 1413(b) that the requirements of section 1413(a) are no longer being met by a State, additional grants for such State under this title shall be immediately terminated by the Administrator. This

subparagraph shall not apply to any State not exercising primary enforcement responsibility for public water systems as of the date of enactment of the Safe Drinking Water Act Amendments of 1996.

(G) Other programs.--

(i) New system capacity.--Beginning in fiscal year 1999, the Administrator shall withhold 20 percent of each capitalization grant made pursuant to this section to a State unless the State has met the requirements of section 1420(a) (relating to capacity development) and shall withhold 10 percent for fiscal year 2001, 15 percent for fiscal year 2002, and 20 percent for fiscal year 2003 if the State has not complied with the provisions of section 1420(c) (relating to capacity development strategies). Not more than a total of 20 percent of the capitalization grants made to a State in any fiscal year may be withheld under the preceding provisions of this clause. All funds withheld by the Administrator pursuant to this clause shall be reallotted by the Administrator on the basis of the same ratio as is applicable to funds allotted under subparagraph (D). None of the funds reallotted by the Administrator pursuant to this paragraph shall be allotted to a State unless the State has met the requirements of section 1420 (relating to capacity development).

(ii) Operator certification.--The Administrator shall withhold 20 percent of each capitalization grant made pursuant to this section unless the State has met the requirements of 1419 (relating to operator certification). All funds withheld by the Administrator pursuant to this clause shall be reallotted by the Administrator on the basis of the same ratio as applicable to funds allotted under subparagraph (D). None of the funds reallotted by the Administrator pursuant to this paragraph shall be allotted to a State unless the State has met the requirements of section 1419 (relating to operator certification).

(2) Use of funds.--Except as otherwise authorized by this title, amounts deposited in a State loan fund, including loan repayments and interest earned on such amounts, shall be used only for providing loans or loan guarantees, or as a source of reserve and security for leveraged loans, the proceeds of which are deposited in a State loan fund established under paragraph (1), or other financial assistance authorized under this section to community water systems and nonprofit noncommunity water systems, other than systems owned by Federal agencies. Financial assistance under this section may be used by a public water system only for expenditures (not including monitoring, operation, and maintenance expenditures) of a type or category which the Administrator has determined, through guidance, will facilitate compliance with national primary drinking water regulations applicable to the system under section 1412 or otherwise significantly further the health protection objectives of this title. The funds may also be used to provide loans to a system referred to in section 1401(4)(B) for the purpose of providing the treatment described in section 1401(4)(B)(i)(III). The funds shall not be used for the acquisition of real property or interests therein, unless the acquisition is integral to a project authorized by this paragraph and the purchase is from a willing seller. Of the amount credited to any State loan fund established under this section in any fiscal year, 15 percent shall be available solely for providing loan assistance to public water systems which regularly serve fewer than 10,000 persons to the extent such funds can be obligated for eligible projects of public water systems.

(3) Limitation.--

(A) In general.--Except as provided in subparagraph (B), no assistance under this section shall be provided to a public water system that--

(i) does not have the technical, managerial, and financial capability to ensure compliance with the requirements of this title; or

(ii) is in significant noncompliance with any requirement of a national primary drinking water regulation or variance.

(B) Restructuring.--A public water system described in subparagraph (A) may receive assistance under this section if--

(i) the use of the assistance will ensure compliance; and

(ii) if subparagraph (A)(i)applies to the system, the owner or operator of the system agrees to undertake feasible and appropriate changes in operations (including ownership, management, accounting, rates, maintenance, consolidation, alternative water supply, or other procedures) if the State determines that the measures are necessary to ensure that the system has the technical, managerial, and financial capability to comply with the requirements of this title over the long term.

(C) Review.--Prior to providing assistance under this section to a public water system that is in significant noncompliance with any requirement of a national primary drinking water regulation or variance, the State shall conduct a review to determine whether subparagraph (A)(i) applies to the system.

(b) Intended Use Plans.--

(1) In general.--After providing for public review and comment, each State that has entered into a capitalization agreement pursuant to this section shall annually prepare a plan that identifies the intended uses of the amounts available to the State loan fund of the State.

(2) Contents.--An intended use plan shall include--

(A) a list of the projects to be assisted in the first fiscal year that begins after the date of the plan, including a description of the project, the expected terms of financial assistance, and the size of the community served;

(B) the criteria and methods established for the distribution of funds; and

(C) a description of the financial status of the State loan fund and the short-term and long-term goals of the State loan fund.

(3) Use of funds.--

(A) In general.--An intended use plan shall provide, to the maximum extent practicable, that priority for the use of funds be given to projects that--

(i) address the most serious risk to human health;

(ii) are necessary to ensure compliance with the requirements of this title (including requirements for filtration); and

(iii) assist systems most in need on a per household basis according to State affordability criteria.

(B) List of projects.--Each State shall, after notice and opportunity for public comment, publish and periodically update a list of projects in the State that are eligible for assistance under this section, including the priority assigned to each project and, to the extent known, the expected funding schedule for each project.

(c) Fund Management.--Each State loan fund under this section shall be established, maintained, and credited with repayments and interest. The fund corpus shall be available in perpetuity for providing financial assistance

under this section. To the extent amounts in the fund are not required for current obligation or expenditure, such amounts shall be invested in interest bearing obligations.

(d) Assistance for Disadvantaged Communities.--

(1) Loan subsidy.--Notwithstanding any other provision of this section, in any case in which the State makes a loan pursuant to subsection (a)(2) to a disadvantaged community or to a community that the State expects to become a disadvantaged community as the result of a proposed project, the State may provide additional subsidization (including forgiveness of principal).

(2) Total amount of subsidies.--For each fiscal year, the total amount of loan subsidies made by a State pursuant to paragraph (1) may not exceed 30 percent of the amount of the capitalization grant received by the State for the year.

(3) Definition of disadvantaged community.--In this subsection, the term "disadvantaged community" means the service area of a public water system that meets affordability criteria established after public review and comment by the State in which the public water system is located. The Administrator may publish information to assist States in establishing affordability criteria.

(e) State Contribution.--Each agreement under subsection (a) shall require that the State deposit in the State loan fund from State moneys an amount equal to at least 20 percent of the total amount of the grant to be made to the State on or before the date on which the grant payment is made to the State, except that a State shall not be required to deposit such amount into the fund prior to the date on which each grant payment is made for fiscal years 1994, 1995, 1996, and 1997 if the State deposits the State contribution amount into the State loan fund prior to September 30, 1999.

(f) Types of Assistance.--Except as otherwise limited by State law, the amounts deposited into a State loan fund under this section may be used only--

(1) to make loans, on the condition that--

(A) the interest rate for each loan is less than or equal to the market interest rate, including an interest free loan;

(B) principal and interest payments on each loan will commence not later than 1 year after completion of the project for which the loan was made, and each loan will be fully amortized not later than 20 years after the completion of the project, except that in the case of a disadvantaged community (as defined in subsection (d)(3)), a State may provide an extended term for a loan, if the extended term--

(i) terminates not later than the date that is 30 years after the date of project completion; and

(ii) does not exceed the expected design life of the project;

(C) the recipient of each loan will establish a dedicated source of revenue (or, in the case of a privately owned system, demonstrate that there is adequate security) for the repayment of the loan; and

(D) the State loan fund will be credited with all payments of principal and interest on each loan;

(2) to buy or refinance the debt obligation of a municipality or an intermunicipal or interstate agency within the State at an interest rate that is less than or equal to the market interest rate in any case in which a debt

obligation is incurred after July 1, 1993;

(3) to guarantee, or purchase insurance for, a local obligation (all of the proceeds of which finance a project eligible for assistance under this section) if the guarantee or purchase would improve credit market access or reduce the interest rate applicable to the obligation;

(4) as a source of revenue or security for the payment of principal and interest on revenue or general obligation bonds issued by the State if the proceeds of the sale of the bonds will be deposited into the State loan fund; and

(5) to earn interest on the amounts deposited into the State loan fund.

(g) Administration of State Loan Funds.--

(1) Combined financial administration.--Notwithstanding subsection (c), a State may (as a convenience and to avoid unnecessary administrative costs) combine, in accordance with State law, the financial administration of a State loan fund established under this section with the financial administration of any other revolving fund established by the State if otherwise not prohibited by the law under which the State loan fund was established and if the Administrator determines that--

(A) the grants under this section, together with loan repayments and interest, will be separately accounted for and used solely for the purposes specified in subsection (a); and

(B) the authority to establish assistance priorities and carry out oversight and related activities (other than financial administration) with respect to assistance remains with the State agency having primary responsibility for administration of the State program under section 1413, after consultation with other appropriate State agencies (as determined by the State): Provided, That in nonprimacy States eligible to receive assistance under this section, the Governor shall determine which State agency will have authority to establish priorities for financial assistance from the State loan fund.

(2) Cost of administering fund.--Each State may annually use up to 4 percent of the funds allotted to the State under this section to cover the reasonable costs of administration of the programs under this section, including the recovery of reasonable costs expended to establish a State loan fund which are incurred after the date of enactment of this section, and to provide technical assistance to public water systems within the State. For fiscal year 1995 and each fiscal year thereafter, each State may use up to an additional 10 percent of the funds allotted to the State under this section--

(A) for public water system supervision programs under section 1443(a);

(B) to administer or provide technical assistance through source water protection programs;

(C) to develop and implement a capacity development strategy under section 1420(c); and

(D) for an operator certification program for purposes of meeting the requirements of section 1419, if the State matches the expenditures with at least an equal amount of State funds. At least half of the match must be additional to the amount expended by the State for public water supervision in fiscal year 1993. An additional 2 percent of the funds annually allotted to each State under this section may be used by the State to provide technical assistance to public water systems serving 10,000 or fewer persons in the State. Funds utilized under subparagraph (B) shall not be used for enforcement actions.

(3) Guidance and regulations.--The Administrator shall publish guidance and promulgate regulations as may be necessary to carry out the provisions of this section, including--

(A) provisions to ensure that each State commits and expends funds allotted to the State under this section as efficiently as possible in accordance with this title and applicable State laws;

(B) guidance to prevent waste, fraud, and abuse; and

(C) guidance to avoid the use of funds made available under this section to finance the expansion of any public water system in anticipation of future population growth. The guidance and regulations shall also ensure that the States, and public water systems receiving assistance under this section, use accounting, audit, and fiscal procedures that conform to generally accepted accounting standards.

(4) State report.--Each State administering a loan fund and assistance program under this subsection shall publish and submit to the Administrator a report every 2 years on its activities under this section, including the findings of the most recent audit of the fund and the entire State allotment. The Administrator shall periodically audit all State loan funds established by, and all other amounts allotted to, the States pursuant to this section in accordance with procedures established by the Comptroller General.

(h) Needs Survey.--The Administrator shall conduct an assessment of water system capital improvement needs of all eligible public water systems in the United States and submit a report to the Congress containing the results of the assessment within 180 days after the date of enactment of the Safe Drinking Water Act Amendments of 1996 and every 4 years thereafter.

(i) Indian Tribes.--

(1) In general.--1½ percent of the amounts appropriated annually to carry out this section may be used by the Administrator to make grants to Indian Tribes and Alaska Native villages that have not otherwise received either grants from the Administrator under this section or assistance from State loan funds established under this section. The grants may only be used for expenditures by tribes and villages for public water system expenditures referred to in subsection (a)(2).

(2) Use of funds.--Funds reserved pursuant to paragraph (1) shall be used to address the most significant threats to public health associated with public water systems that serve Indian Tribes, as determined by the Administrator in consultation with the Director of the Indian Health Service and Indian Tribes.

(3) Alaska native villages.--In the case of a grant for a project under this subsection in an Alaska Native village, the Administrator is also authorized to make grants to the State of Alaska for the benefit of Native villages. An amount not to exceed 4 percent of the grant amount may be used by the State of Alaska for project management.

(4) Needs assessment.--The Administrator, in consultation with the Director of the Indian Health Service and Indian Tribes, shall, in accordance with a schedule that is consistent with the needs surveys conducted pursuant to subsection (h), prepare surveys and assess the needs of drinking water treatment facilities to serve Indian Tribes, including an evaluation of the public water systems that pose the most significant threats to public health.

(j) Other Areas.--Of the funds annually available under this section for grants to States, the Administrator shall make allotments in accordance with section 1443(a)(4) for the Virgin Islands, the Commonwealth of the Northern Mariana Islands, American Samoa, and Guam. The grants allotted as provided in this subsection may

be provided by the Administrator to the governments of such areas, to public water systems in such areas, or to both, to be used for the public water system expenditures referred to in subsection (a)(2). The grants, and grants for the District of Columbia, shall not be deposited in State loan funds. The total allotment of grants under this section for all areas described in this subsection in any fiscal year shall not exceed 0.33 percent of the aggregate amount made available to carry out this section in that fiscal year.

(k) Other Authorized Activities.--

(1) In general.--Notwithstanding subsection (a)(2), a State may take each of the following actions:

(A) Provide assistance, only in the form of a loan, to one or more of the following:

(i) Any public water system described in subsection (a)(2) to acquire land or a conservation easement from a willing seller or grantor, if the purpose of the acquisition is to protect the source water of the system from contamination and to ensure compliance with national primary drinking water regulations.

(ii) Any community water system to implement local, voluntary source water protection measures to protect source water in areas delineated pursuant to section 1453, in order to facilitate compliance with national primary drinking water regulations applicable to the system under section 1412 or otherwise significantly further the health protection objectives of this title. Funds authorized under this clause may be used to fund only voluntary, incentive-based mechanisms.

(iii) Any community water system to provide funding in accordance with section 1454(a)(1)(B)(i).

(B) Provide assistance, including technical and financial assistance, to any public water system as part of a capacity development strategy developed and implemented in accordance with section 1420(c).

(C) Make expenditures from the capitalization grant of the State for fiscal years 1996 and 1997 to delineate and assess source water protection areas in accordance with section 1453, except that funds set aside for such expenditure shall be obligated within 4 fiscal years.

(D) Make expenditures from the fund for the establishment and implementation of wellhead protection programs under section 1428.

(2) Limitation.--For each fiscal year, the total amount of assistance provided and expenditures made by a State under this subsection may not exceed 15 percent of the amount of the capitalization grant received by the State for that year and may not exceed 10 percent of that amount for any one of the following activities:

(A) To acquire land or conservation easements pursuant to paragraph (1)(A)(i).

(B) To provide funding to implement voluntary, incentive-based source water quality protection measures pursuant to clauses (ii) and (iii) of paragraph (1)(A).

(C) To provide assistance through a capacity development strategy pursuant to paragraph (1)(B).

(D) To make expenditures to delineate or assess source water protection areas pursuant to paragraph (1)(C).

(E) To make expenditures to establish and implement wellhead protection programs pursuant to paragraph (1)(D).

(3) Statutory construction.--Nothing in this section creates or conveys any new authority to a State, political subdivision of a State, or community water system for any new regulatory measure, or limits any authority of a State, political subdivision of a State or community water system.

(l) Savings.--The failure or inability of any public water system to receive funds under this section or any other loan or grant program, or any delay in obtaining the funds, shall not alter the obligation of the system to comply in a timely manner with all applicable drinking water standards and requirements of this title.

(m) Authorization of Appropriations.--There are authorized to be appropriated to carry out the purposes of this section $599,000,000 for the fiscal year 1994 and $1,000,000,000 for each of the fiscal years 1995 through 2003. To the extent amounts authorized to be appropriated under this subsection in any fiscal year are not appropriated in that fiscal year, such amounts are authorized to be appropriated in a subsequent fiscal year (prior to the fiscal year 2004). Such sums shall remain available until expended.

(n) Health Effects Studies.--From funds appropriated pursuant to this section for each fiscal year, the Administrator shall reserve $10,000,000 for health effects studies on drinking water contaminants authorized by the Safe Drinking Water Act Amendments of 1996. In allocating funds made available under this subsection, the Administrator shall give priority to studies concerning the health effects of cryptosporidium (as authorized by section 1458(c)), disinfection byproducts (as authorized by section 1458(c)), and arsenic (as authorized by section 1412(b)(12)(A)), and the implementation of a plan for studies of subpopulations at greater risk of adverse effects (as authorized by section 1458(a)).

(o) Monitoring for Unregulated Contaminants.--From funds appropriated pursuant to this section for each fiscal year beginning with fiscal year 1998, the Administrator shall reserve $2,000,000 to pay the costs of monitoring for unregulated contaminants under section 1445(a)(2)(C).

(p) Demonstration Project for State of Virginia.--Notwithstanding the other provisions of this section limiting the use of funds deposited in a State loan fund from any State allotment, the State of Virginia may, as a single demonstration and with the approval of the Virginia General Assembly and the Administrator, conduct a program to demonstrate alternative approaches to intergovernmental coordination to assist in the financing of new drinking water facilities in the following rural communities in southwestern Virginia where none exists on the date of enactment of the Safe Drinking Water Act Amendments of 1996 and where such communities are experiencing economic hardship: Lee County, Wise County, Scott County, Dickenson County, Russell County, Buchanan County, Tazewell County, and the city of Norton, Virginia. The funds allotted to that State and deposited in the State loan fund may be loaned to a regional endowment fund for the purpose set forth in this subsection under a plan to be approved by the Administrator. The plan may include an advisory group that includes representatives of such counties.

(q) Small System Technical Assistance.--The Administrator may reserve up to 2 percent of the total funds appropriated pursuant to subsection (m) for each of the fiscal years 1997 through 2003 to carry out the provisions of section 1442(e) (relating to technical assistance for small systems), except that the total amount of funds made available for such purpose in any fiscal year through appropriations (as authorized by section 1442(e)) and reservations made pursuant to this subsection shall not exceed the amount authorized by section 1442(e).

(r) Evaluation.--The Administrator shall conduct an evaluation of the effectiveness of the State loan funds through fiscal year 2001. The evaluation shall be submitted to the Congress at the same time as the President submits to the Congress, pursuant to section 1108 of title 31, United States Code, an appropriations request for fiscal year 2003 relating to the budget of the Environmental Protection Agency.

SEC. 1453 Source Water Quality Assessment
[§1453 added by PL 104-182]

(a) Source Water Assessment.--

(1) Guidance.--Within 12 months after the date of enactment of the Safe Drinking Water Act Amendments of 1996, after notice and comment, the Administrator shall publish guidance for States exercising primary enforcement responsibility for public water systems to carry out directly or through delegation (for the protection and benefit of public water systems and for the support of monitoring flexibility) a source water assessment program within the State's boundaries. Each State adopting modifications to monitoring requirements pursuant to section 1418(b) shall, prior to adopting such modifications, have an approved source water assessment program under this section and shall carry out the program either directly or through delegation.

(2) Program requirements.--A source water assessment program under this subsection shall--

(A) delineate the boundaries of the assessment areas in such State from which one or more public water systems in the State receive supplies of drinking water, using all reasonably available hydrogeologic information on the sources of the supply of drinking water in the State and the water flow, recharge, and discharge and any other reliable information as the State deems necessary to adequately determine such areas; and

(B) identify for contaminants regulated under this title for which monitoring is required under this title (or any unregulated contaminants selected by the State, in its discretion, which the State, for the purposes of this subsection, has determined may present a threat to public health), to the extent practical, the origins within each delineated area of such contaminants to determine the susceptibility of the public water systems in the delineated area to such contaminants.

(3) Approval, implementation, and monitoring relief.--A State source water assessment program under this subsection shall be submitted to the Administrator within 18 months after the Administrator's guidance is issued under this subsection and shall be deemed approved 9 months after the date of such submittal unless the Administrator disapproves the program as provided in section 1428(c). States shall begin implementation of the program immediately after its approval. The Administrator's approval of a State program under this subsection shall include a timetable, established in consultation with the State, allowing not more than 2 years for completion after approval of the program. Public water systems seeking monitoring relief in addition to the interim relief provided under section 1418(a) shall be eligible for monitoring relief, consistent with section 1418(b), upon completion of the assessment in the delineated source water assessment area or areas concerned.

(4) Timetable.--The timetable referred to in paragraph (3) shall take into consideration the availability to the State of funds under section 1452 (relating to State loan funds) for assessments and other relevant factors. The Administrator may extend any timetable included in a State program approved under paragraph (3) to extend the period for completion by an additional 18 months.

(5) Demonstration project.--The Administrator shall, as soon as practicable, conduct a demonstration project, in consultation with other Federal agencies, to demonstrate the most effective and protective means of assessing and protecting source waters serving large metropolitan areas and located on Federal lands.

(6) Use of other programs.--To avoid duplication and to encourage efficiency, the program under this section may make use of any of the following:

(A) Vulnerability assessments, sanitary surveys, and monitoring programs.

(B) Delineations or assessments of ground water sources under a State wellhead protection program developed pursuant to this section.

(C) Delineations or assessments of surface or ground water sources under a State pesticide management plan developed pursuant to the Pesticide and Ground Water State Management Plan Regulation (subparts I and J of part 152 of title 40, Code of Federal Regulations), promulgated under section 3(d) of the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 136a(d)).

(D) Delineations or assessments of surface water sources under a State watershed initiative or to satisfy the watershed criterion for determining if filtration is required under the Surface Water Treatment Rule (section 141.70 of title 40, Code of Federal Regulations).

(E) Delineations or assessments of surface or ground water sources under programs or plans pursuant to the Federal Water Pollution Control Act.

(7) Public availability.--The State shall make the results of the source water assessments conducted under this subsection available to the public.

(b) Approval and Disapproval.--For provisions relating to program approval and disapproval, see section 1428(c).

SEC. 1454 Source Water Petition Program
[§1454 added by PL 104-182]

(a) Petition Program.--

(1) In general.--

(A) Establishment.--A State may establish a program under which an owner or operator of a community water system in the State, or a municipal or local government or political subdivision of a State, may submit a source water quality protection partnership petition to the State requesting that the State assist in the local development of a voluntary, incentive-based partnership, among the owner, operator, or government and other persons likely to be affected by the recommendations of the partnership, to--

(i) reduce the presence in drinking water of contaminants that may be addressed by a petition by considering the origins of the contaminants, including to the maximum extent practicable the specific activities that affect the drinking water supply of a community;

(ii) obtain financial or technical assistance necessary to facilitate establishment of a partnership, or to develop and implement recommendations of a partnership for the protection of source water to assist in the provision of drinking water that complies with national primary drinking water regulations with respect to contaminants addressed by a petition; and

(iii) develop recommendations regarding voluntary and incentive-based strategies for the long-term protection of the source water of community water systems.

(B) Funding.--Each State may--

(i) use funds set aside pursuant to section 1452(k)(1)(A)(iii) by the State to carry out a program described in subparagraph (A), including assistance to voluntary local partnerships for the development and implementation of partnership recommendations for the protection of source water such as source water quality assessment, contingency plans, and demonstration projects for partners within a source water area delineated under section 1453(a); and

(ii) provide assistance in response to a petition submitted under this subsection using funds referred to in subsection (b)(2)(B).

(2) Objectives.--The objectives of a petition submitted under this subsection shall be to--

(A) facilitate the local development of voluntary, incentive-based partnerships among owners and operators of community water systems, governments, and other persons in source water areas; and

(B) obtain assistance from the State in identifying resources which are available to implement the recommendations of the partnerships to address the origins of drinking water contaminants that may be addressed by a petition (including to the maximum extent practicable the specific activities contributing to the presence of the contaminants) that affect the drinking water supply of a community.

(3) Contaminants addressed by a petition.--A petition submitted to a State under this subsection may address only those contaminants--

(A) that are pathogenic organisms for which a national primary drinking water regulation has been established or is required under section 1412; or

(B) for which a national primary drinking water regulation has been promulgated or proposed and that are detected by adequate monitoring methods in the source water at the intake structure or in any collection, treatment, storage, or distribution facilities by the community water systems at levels--

(i) above the maximum contaminant level; or

(ii) that are not reliably and consistently below the maximum contaminant level.

(4) Contents.--A petition submitted under this subsection shall, at a minimum--

(A) include a delineation of the source water area in the State that is the subject of the petition;

(B) identify, to the maximum extent practicable, the origins of the drinking water contaminants that may be addressed by a petition (including to the maximum extent practicable the specific activities contributing to the presence of the contaminants) in the source water area delineated under section 1453;

(C) identify any deficiencies in information that will impair the development of recommendations by the voluntary local partnership to address drinking water contaminants that may be addressed by a petition;

(D) specify the efforts made to establish the voluntary local partnership and obtain the participation of--

(i) the municipal or local government or other political subdivision of the State with jurisdiction over the source water area delineated under section 1453; and

(ii) each person in the source water area delineated under section 1453--

(I) who is likely to be affected by recommendations of the voluntary local partnership; and

(II) whose participation is essential to the success of the partnership;

(E) outline how the voluntary local partnership has or will, during development and implementation of recommendations of the voluntary local partnership, identify, recognize and take into account any voluntary or other activities already being undertaken by persons in the source water area delineated under section 1453 under Federal or State law to reduce the likelihood that contaminants will occur in drinking water at levels of public health concern; and

(F) specify the technical, financial, or other assistance that the voluntary local partnership requests of the State to develop the partnership or to implement recommendations of the partnership.

(b) Approval or Disapproval of Petitions.--

(1) In general.--After providing notice and an opportunity for public comment on a petition submitted under subsection (a), the State shall approve or disapprove the petition, in whole or in part, not later than 120 days after the date of submission of the petition.

(2) Approval.--The State may approve a petition if the petition meets the requirements established under subsection (a). The notice of approval shall, at a minimum, include for informational purposes--

(A) an identification of technical, financial, or other assistance that the State will provide to assist in addressing the drinking water contaminants that may be addressed by a petition based on--

(i) the relative priority of the public health concern identified in the petition with respect to the other water quality needs identified by the State;

(ii) any necessary coordination that the State will perform of the program established under this section with programs implemented or planned by other States under this section; and

(iii) funds available (including funds available from a State revolving loan fund established under title VI of the Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.)) or section 1452;

(B) a description of technical or financial assistance pursuant to Federal and State programs that is available to assist in implementing recommendations of the partnership in the petition, including--

(i) any program established under the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.);

(ii) the program established under section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990 (16 U.S.C. 1455b);

(iii) the agricultural water quality protection program established under chapter 2 of subtitle D of title XII of the Food Security Act of 1985 (16 U.S.C. 3838 et seq.);

(iv) the sole source aquifer protection program established under section 1427;

(v) the community wellhead protection program established under section 1428;

(vi) any pesticide or ground water management plan;

(vii) any voluntary agricultural resource management plan or voluntary whole farm or whole ranch management plan developed and implemented under a process established by the Secretary of Agriculture; and

(iii) any abandoned well closure program; and

(C) a description of activities that will be undertaken to coordinate Federal and State programs to respond to the petition.

(3) Disapproval.--If the State disapproves a petition submitted under subsection (a), the State shall notify the entity submitting the petition in writing of the reasons for disapproval. A petition may be resubmitted at any time if--

(A) new information becomes available;

(B) conditions affecting the source water that is the subject of the petition change; or

(C) modifications are made in the type of assistance being requested.

(c) Grants to Support State Programs.--

(1) In general.--The Administrator may make a grant to each State that establishes a program under this section that is approved under paragraph (2). The amount of each grant shall not exceed 50 percent of the cost of administering the program for the year in which the grant is available.

(2) Approval.--In order to receive grant assistance under this subsection, a State shall submit to the Administrator for approval a plan for a source water quality protection partnership program that is consistent with the guidance published under subsection (d). The Administrator shall approve the plan if the plan is consistent with the guidance published under subsection (d).

(d) Guidance.--

(1) In general.--Not later than 1 year after the date of enactment of this section, the Administrator, in consultation with the States, shall publish guidance to assist--

(A) States in the development of a source water quality protection partnership program; and

(B) municipal or local governments or political subdivisions of a State and community water systems in the development of source water quality protection partnerships and in the assessment of source water quality.

(2) Contents of the guidance.--The guidance shall, at a minimum--

(A) recommend procedures for the approval or disapproval by a State of a petition submitted under subsection (a);

(B) recommend procedures for the submission of petitions developed under subsection (a);

(C) recommend criteria for the assessment of source water areas within a State; and

(D) describe technical or financial assistance pursuant to Federal and State programs that is available to address the contamination of sources of drinking water and to develop and respond to petitions submitted under subsection (a).

(e) Authorization of Appropriations.--There are authorized to be appropriated to carry out this section $5,000,000 for each of the fiscal years 1997 through 2003. Each State with a plan for a program approved under subsection (b) shall receive an equitable portion of the funds available for any fiscal year.

(f) Statutory Construction.--Nothing in this section--

(1)(A) creates or conveys new authority to a State, political subdivision of a State, or community water system for any new regulatory measure; or

(B) limits any authority of a State, political subdivision, or community water system; or

(2) precludes a community water system, municipal or local government, or political subdivision of a government from locally developing and carrying out a voluntary, incentive-based, source water quality protection partnership to address the origins of drinking water contaminants of public health concern.

SEC. 1455 Water Conservation Plan
[§1455 added by PL 104-182]

(a) Guidelines.--Not later than 2 years after the date of enactment of the Safe Drinking Water Act Amendments of 1996, the Administrator shall publish in the Federal Register guidelines for water conservation plans for public water systems serving fewer than 3,300 persons, public water systems serving between 3,300 and 10,000 persons, and public water systems serving more than 10,000 persons, taking into consideration such factors as water availability and climate.

(b) Loans or Grants.--Within 1 year after publication of the guidelines under subsection (a), a State exercising primary enforcement responsibility for public water systems may require a public water system, as a condition of receiving a loan or grant from a State loan fund under section 1452, to submit with its application for such loan or grant a water conservation plan consistent with such guidelines.

SEC. 1456 Assistance to Colonias
[§1456 added by PL 104-182]

(a) Definitions.--As used in this section:

(1) Border state.--The term "border State" means Arizona, California, New Mexico, and Texas.

(2) Eligible community.--The term "eligible community" means a low-income community with economic hardship that--

(A) is commonly referred to as a colonia;

(B) is located along the United States-Mexico border (generally in an unincorporated area); and

(C) lacks a safe drinking water supply or adequate facilities for the provision of safe drinking water for human consumption.

(b) Grants To Alleviate Health Risks.--The Administrator of the Environmental Protection Agency and the heads of other appropriate Federal agencies are authorized to award grants to a border State to provide assistance to eligible communities to facilitate compliance with national primary drinking water regulations or otherwise significantly further the health protection objectives of this title.

(c) Use of Funds.--Each grant awarded pursuant to subsection (b) shall be used to provide assistance to one or more eligible communities with respect to which the residents are subject to a significant health risk (as determined by the Administrator or the head of the Federal agency making the grant) attributable to the lack of access to an adequate and affordable drinking water supply system.

(d) Cost Sharing.--The amount of a grant awarded pursuant to this section shall not exceed 50 percent of the costs of carrying out the project that is the subject of the grant.

(e) Authorization of Appropriations.--There are authorized to be appropriated to carry out this section $25,000,000 for each of the fiscal years 1997 through 1999.

SEC. 1457 Estrogenic Substances Screening Program
[§1457 added by PL 104-182]

In addition to the substances referred to in section 408(p)(3)(B) of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 346a(p)(3)(B)) the Administrator may provide for testing under the screening program authorized by section 408(p) of such Act, in accordance with the provisions of section 408(p) of such Act, of any other substance that may be found in sources of drinking water if the Administrator determines that a substantial population may be exposed to such substance.

SEC. 1458 Drinking Water Studies
[§1458 added by PL 104-182]

(a) Subpopulations at Greater Risk.--

(1) In general.--The Administrator shall conduct a continuing program of studies to identify groups within the general population that may be at greater risk than the general population of adverse health effects from exposure to contaminants in drinking water. The study shall examine whether and to what degree infants, children, pregnant women, the elderly, individuals with a history of serious illness, or other subpopulations that can be identified and characterized are likely to experience elevated health risks, including risks of cancer, from contaminants in drinking water.

(2) Report.--Not later than 4 years after the date of enactment of this subsection and periodically thereafter as new and significant information becomes available, the Administrator shall report to the Congress on the results of the studies.

(b) Biological Mechanisms.--The Administrator shall conduct biomedical studies to--

(1) understand the mechanisms by which chemical contaminants are absorbed, distributed, metabolized, and eliminated from the human body, so as to develop more accurate physiologically based models of the phenomena;

(2) understand the effects of contaminants and the mechanisms by which the contaminants cause adverse effects (especially noncancer and infectious effects) and the variations in the effects among humans, especially subpopulations at greater risk of adverse effects, and between test animals and humans; and

(3) develop new approaches to the study of complex mixtures, such as mixtures found in drinking water, especially to determine the prospects for synergistic or antagonistic interactions that may affect the shape of the dose-response relationship of the individual chemicals and microbes, and to examine noncancer endpoints and infectious diseases, and susceptible individuals and subpopulations.

(c) Studies on Harmful Substances in Drinking Water.--

(1) Development of studies.--The Administrator shall, not later than 180 days after the date of enactment of this section and after consultation with the Secretary of Health and Human Services, the Secretary of Agriculture, and, as appropriate, the heads of other Federal agencies, conduct the studies described in paragraph (2) to support the development and implementation of the most current version of each of the following:

(A) Enhanced Surface Water Treatment Rule (59 Fed. Reg. 38832 (July 29, 1994)).

(B) Disinfectant and Disinfection Byproducts Rule (59 Fed. Reg. 38668 (July 29, 1994)).

(C) Ground Water Disinfection Rule (availability of draft summary announced at (57 Fed. Reg. 33960; July 31, 1992)).

(2) Contents of studies.--The studies required by paragraph (1) shall include, at a minimum, each of the following:

(A) Toxicological studies and, if warranted, epidemiological studies to determine what levels of exposure from disinfectants and disinfection byproducts, if any, may be associated with developmental and birth defects and other potential toxic end points.

(B) Toxicological studies and, if warranted, epidemiological studies to quantify the carcinogenic potential from exposure to disinfection byproducts resulting from different disinfectants.

(C) The development of dose-response curves for pathogens, including cryptosporidium and the Norwalk virus.

(3) Authorization of appropriations.--There are authorized to be appropriated to carry out this subsection $12,500,000 for each of fiscal years 1997 through 2003.

(d) Waterborne Disease Occurrence Study.--

(1) System.--The Director of the Centers for Disease Control and Prevention, and the Administrator shall jointly--

(A) within 2 years after the date of enactment of this section, conduct pilot waterborne disease occurrence studies for at least 5 major United States communities or public water systems; and

(B) within 5 years after the date of enactment of this section, prepare a report on the findings of the pilot studies, and a national estimate of waterborne disease occurrence.

(2) Training and education.--The Director and Administrator shall jointly establish a national health care provider training and public education campaign to inform both the professional health care provider

community and the general public about waterborne disease and the symptoms that may be caused by infectious agents, including microbial contaminants. In developing such a campaign, they shall seek comment from interested groups and individuals, including scientists, physicians, State and local governments, environmental groups, public water systems, and vulnerable populations.

(3) Funding.--There are authorized to be appropriated for each of the fiscal years 1997 through 2001, $3,000,000 to carry out this subsection. To the extent funds under this subsection are not fully appropriated, the Administrator may use not more than $2,000,000 of the funds from amounts reserved under section 1452(n) for health effects studies for purposes of this subsection. The Administrator may transfer a portion of such funds to the Centers for Disease Control and Prevention for such purposes.

PART F -- ADDITIONAL REQUIREMENTS TO REGULATE THE SAFETY OF DRINKING WATER.

SEC. 1461 [42 U.S.C. 300j-21] Definitions.

As used in this part --

(1) Drinking Water Cooler -- The term "drinking water cooler' means any mechanical device affixed to drinking water supply plumbing which actively cools water for human consumption.

(2) Lead Free. -- The term "lead free' means, with respect to a drinking water cooler, that each part or component of the cooler which may come in contact with drinking water contains not more than 8 percent lead, except that no drinking water cooler which contains any solder, flux, or storage tank interior surface which may come in contact with drinking water shall be considered lead free if the solder, flux, or storage tank interior surface contains more than 0.2 percent lead. The Administrator may establish more stringent requirements for treating any part or component of a drinking water cooler as lead free for purposes of this part whenever he determines that any such part may constitute an important source of lead in drinking water.

(3) Local Educational Agency. -- The term "local educational agency' means--

(A) any local educational agency as defined in section 14101 of the Elementary and Secondary Education Act of 1965,
[§1461(3)(A) amended by PL 103-382]

(B) the owner of any private, nonprofit elementary or secondary school building, and

(C) the governing authority of any school operating under the defense dependent's education system provided for under the Defense Dependent's Education Act of 1978 (20 U.S.C. 921 and following).

(4) Repair -- The term "repair' means, with respect to a drinking water cooler, to take such corrective action as is necessary to ensure that water cooler is lead free.

(5) Replacement. -- The term "replacement,' when used with respect to a drinking water cooler, means the permanent removal of the water cooler and the installation of a lead free water cooler.

(6) School -- The term "school' means any elementary school or secondary school as defined in section 14101 of the Elementary and Secondary Education Act of 1965 and any kindergarten or day care facility.
[§1461(6) amended by PL 103-382]

(7) Lead-Lined Tank. -- The term "lead-lined tank' means a water reservoir container in a drinking water cooler which container is constructed of lead or which has an interior surface which is notlead free.

SEC. 1462 [42 U.S.C. 300j-22] Recall of Drinking Water Coolers with Lead-Lined Tanks.

For purposes of the Consumer Product Safety Act, all drinking water coolers identified by the Administrator on the list under section 1463 as having a lead-lined tank shall be considered to be imminently hazardous consumer products within the meaning of section 12 of such Act (15 U.S.C. 2061). After notice and opportunity for comment, including a public hearing, the Consumer Product Safety Commission shall issue an order requiring the manufacturers and importers of such coolers to repair, replace, or recall and provide a refund for such coolers within 1 year after the enactment of the Lead Contamination Control Act of 1988. For purposes of enforcement, such order shall be treated as an order under section 15(d)of that Act (15 U.S.C. 2064(d)).

SEC. 1463 [42 U.S.C. 300j-23] Drinking Water Coolers Containing Lead.

(a) Publication Of Lists. -- The Administrator shall, after notice and opportunity for public comment, identify each brand and model of drinking water cooler which is not lead free, including each brand and model of drinking water cooler which has a lead-free tank. For purposes of identifying the brand and model of drinking water coolers under this subsection, the Administrator shall use the best information available to the Environmental Protection Agency. Within 200 days after the enactment of this section, the Administrator shall publish a list of each brand and model of drinking water cooler identified under this subsection. Such list shall separately identify each brand and model of cooler which has a lead-lined tank. The Administrator shall continue to gather information regarding lead in drinking water coolers and shall revise and republish the list from time to time as may be appropriate as new information or analysis becomes available regarding lead contamination in drinking water coolers.

(b) Prohibition. -- No person may sell in interstate commerce, or manufacture for sale in interstate commerce, any drinking water cooler listed under subsection (a) or any other drinking water cooler which is not lead free, including a lead-lined drinking water cooler.

(c) Criminal Penalty. -- Any person who knowingly violates the prohibition contained in subsection (b) shall be imprisoned for not more than 5 years, or fined in accordance with title 18 of the United States Code, or both.

(d) Civil Penalty. -- The Administrator may bring a civil action in the appropriate United States District Court (as determined under the provisions of title 28 of the United States Code) to impose a civil penalty on any person who violates subsection (b). In any such action the court may impose on such person a civil penalty of not more than $5,000 ($50,000 in the case of a second or subsequent violation).

SEC. 1464 [42 U.S.C. 300j-24] Lead Contamination in School Drinking Water.

(a) Distribution Of Drinking Water Cooler List. -- Within 100 days after the enactment of this section, the Administrator shall distribute to the States a lists of each brand and model of drinking water cooler identified and listed by the Administrator under section 1463(a).

(b) Guidance Document And Testing Protocol. -- The Administrator shall publish a guidance document and a testing protocol to assist schools in determining the source and degree of lead contamination in school drinking water supplies and in remedying such contamination. The guidance document shall include guidelines for sample preservation. The guidance document shall also include guidance to assist States, schools, and the

general public in ascertaining the levels of lead contamination in drinking water coolers and in taking appropriate action to reduce or eliminate such contamination. The guidance document shall contain a testing protocol for the identification of drinking water coolers which contribute to lead contamination in drinking water. Such document and protocol may be revised, republished and redistributed as the Administrator deems necessary. The Administrator shall distribute the guidance document and testing protocol to the State within 100 days after the enactment of this section.

(c) Dissemination To Schools Etc. -- Each State shall provide for the dissemination to local educational agencies, private nonprofit elementary or secondary schools and to day care centers of the guidance document and testing protocol published under subsection (b), together with the list of drinking water coolers published under section 1463(a).

(d) Remedial Action Program. --

(1) Testing And Remedying Lead Contamination. -- Within 9 months after the enactment of this section, each State shall establish a program, consistent with this section, to assist local educational agencies in testing for, and remedying, lead contamination in drinking water from coolers and from other sources of lead contamination at schools under the jurisdiction of such agencies.

(2) Public Availability. -- Copy of the results of any testing under paragraph (1) shall be available in the administrative offices of the local educational agency for inspection by the public, including teachers, other school personnel, and parents. The local educational agency shall notify parent, teacher, and employee organizations of the availability of such testing results.

(3) Coolers. -- In the case of drinking water coolers, such program shall include measures for the reduction or elimination of lead contamination from those water coolers which are not lead free and which are located in schools. Such measures shall be adequate to ensure that within 15 months after the enactment of this subsection all such water coolers in schools under the jurisdiction of such agencies are repaired, replaced, permanently removed, or rendered inoperable unless the cooler is tested and found (within the limits of testing accuracy) not to contribute lead to drinking water.

SEC. 1465 [42 U.S.C. 300j-25] Federal Assistance For State Programs Regarding Lead Contamination In School Drinking Water.

(a) School Drinking Water Programs. --The Administrator shall make grants to States to establish and carry out State programs under section 1464 to assist local educational agencies in testing for, and remedying, lead contamination in drinking water from drinking water coolers and from other sources of lead contamination at schools under the jurisdiction of such agencies. Such grants may be used by State to reimburse local educational agencies for expenses incurred after the enactment of this section for such testing and remedial action.

(b) Limits. -- Each grant under this section shall be used by the State for testing water coolers in accordance with section 1464, for testing for lead contamination in other drinking water supplies under section 1464, or for remedial action under State programs under section 1464. Not more than 5 percent of the grant may be used for program administration.
[§1465(b) amended by PL 104-182]

(c) Authorization Of Appropriations. --There are authorized to be appropriated to carry out this section not more than $30,000,000 for fiscal year 1989, $30,000,000 for fiscal year 1990, and $30,000,000 for fiscal year 1991.

(b) Section 2(f) of the Public Health Service Act is amended by inserting " (1)"after "except that" and by inserting before the semicolon at the end thereof the following: ", and (2) as used in Title XIV such term includes Guam, American Samoa, and the Trust Territory of the Pacific Islands".

SEC. 3 [42 U.S.C. 300f nt] Rural Water Survey.

(a) The Administrator of the Environmental Protection Agency shall (after consultation with the Secretary of Agriculture and the several States) enter into arrangements with public or private entities as may be appropriate to conduct a survey of the quantity, quality, and availability of rural drinking water supplies. Such survey shall include, but not be limited to, the consideration of the number of residents in each rural area --

(1) presently being inadequately served by a public or private drinking water supply system, or by an individual home drinking water supply system;

(2) presently having limited or otherwise inadequate access to drinking water;

(3) who, due to the absence or inadequacy of a drinking water supply system, are exposed to an increased health hazard; and

(4) who have experienced incidents of chronic or acute illness, which may be attributed to the absence or inadequacy of a drinking water supply system.

(b) Such survey shall be completed within eighteen months of the date of enactment of this Act and a final report thereon submitted, not later than six months after the completion of such survey, to the President and to the Congress. Such report shall include recommendations for improving rural water supplies.
[§3(b) amended by PL 95-190]

(c) There are authorized to be appropriated to carry out the provisions of this section $1,000,000 for the fiscal year ending June 30, 1975; $2,000,000 for the fiscal year ending June 30, 1976; $1,000,000 for the fiscal year ending June 30, 1977; and $1,000,000 for each of fiscal years 1978 and 1979.
[§3(c) amended by PL 95-190]

SEC. 4 [21 U.S.C. 349] Bottled Drinking Water

Chapter IV of the Federal Food, Drug, and Cosmetic Act is amended by adding after section 409 the following new section:

SEC. 410 Bottled Drinking Water Standards.

(a) Except as provided in subsection (b), whenever the Administrator of the Environmental Protection Agency prescribes interim or revised national primary drinking water regulations under section 1412 of the Public Health Service Act, the Secretary shall consult with the Administrator and within 180 days after the promulgation of such drinking water regulations either promulgate amendments to regulations under this chapter applicable to bottled drinking water or publish in the Federal Register his reasons for not making such amendments.

(b)(1) Not later than 180 days before the effective date of anational primary drinking water regulation promulgated by theAdministrator of the Environmental Protection Agency for a contaminant under section 1412 of the Safe Drinking Water Act (42 U.S.C. 300g-1), the Secretary shall promulgate a standard of quality

regulation under this subsection for that contaminant in bottled water or make a finding that such a regulation is not necessary to protect the public health because the contaminant is contained in water in public water systems (as defined under section 1401(4) of such Act (42 U.S.C. 300f(4))) but not in water used for bottled drinking water. The effective date for any such standard of quality regulation shall be the same as the effective date for such national primary drinking water regulation, except for any standard of quality of regulation promulgated by the Secretary before the date of enactment of the Safe Drinking Water Act Amendments of 1996 for which (as of such date of enactment) an effective date had not been established. In the case of a standard of quality regulation to which such exception applies, the Secretary shall promulgate monitoring requirements for the contaminants covered by the regulation not later than 2 years after such date of enactment.

(2) A regulation issued by the Secretary as provided in this subsection shall include any monitoring requirements that the Secretary determines appropriate for bottled water.

(3) A regulation issued by the Secretary as provided in this subsection shall require the following:

(A) In the case of contaminants for which a maximum contaminant level is established in a national primary drinking water regulation under section 1412 of the Safe Drinking Water Act (42 U.S.C. 300g-1), the regulation under this subsection shall establish a maximum contaminant level for the contaminant in bottled water which is no less stringent than the maximum contaminant level provided in the national primary drinking water regulation.

(B) In the case of contaminants for which a treatment technique is established in a national primary drinking water regulation under section 1412 of the Safe Drinking Water Act (42 U.S.C. 300g-1), the regulation under this subsection shall require that bottled water be subject to requirements no less protective of the public health than those applicable to water provided by public water systems using the treatment technique required by the national primary drinking water regulation.

(4)(A) If the Secretary does not promulgate a regulation under this subsection within the period described in paragraph (1), the national primary drinking water regulation referred to in paragraph (1) shall be considered, as of the date on which the Secretary is required to establish a regulation under paragraph (1), as the regulation applicable under this subsection to bottled water.

(B) In the case of a national primary drinking water regulation that pursuant to subparagraph (A) is considered to be a standard of quality regulation, the Secretary shall, not later than the applicable date referred to in such subparagraph, publish in the Federal Register a notice--

(i) specifying the contents of such regulation, including monitoring requirements; and

(ii) providing that for purposes of this paragraph the effective date for such regulation is the same as the effective date for the regulation for purposes of the Safe Drinking Water Act(or, if the exception under paragraph (1) applies to theregulation, that the effective date for the regulation is not later than 2 years and 180 days after the date of enactment of the Safe Drinking Water Act Amendments of 1996).
[§410 revised by PL 104-182]

ADDITIONAL PROVISIONS

[EDITOR'S NOTE: Several provisions of PL 95-190 did not amend the Safe Drinking Water Act directly but are relevant. Those provisions follow.]

SEC. 2

(e) Nothing in this Act shall be construed to authorize thc appropriation of any amount for research under title XIV of the Public Health Service Act (relating to safe drinking water).

SEC. 3

(e)(2) Nothing in this Act shall be construed to alter or affect the Administrator's authority or duty under title 14 of the Public Health Service Act to promulgate regulations or take other action with respect to any contaminant.

SEC. 11

(b) To the extent that the Administrator of the Environmental Protection Agency deems such action necessary to the discharge of his functions under title XIV of the Public Health Service Act (relating to safe drinking water) and under other provisions of law, he may appointment personnel to fill not more than thirty scientific, engineering, professional, legal, and administrative positions within the Environmental Protection Agency without regard to the civil service laws and may fix the compensation of such personnel not in excess of the maximum rate payable for GS-18 of the General Schedule under section 5332 of title 5, United States Code.

[EDITOR'S NOTE: §304(b) and (e) of PL 99-339 contained requirements for surveys to be conducted by the EPA. Those provisions follow.]

SEC. 304

(b) Comparative Health Effects Assessment. -- The Administrator of the Environmental Protection Agency shall conduct a comparative health effects assessment, using available data, to compare the public health effects (both positive and negative) associated with water treatment chemicals and their byproducts to the public health effects associated with contaminants found in public water supplies. Not later than 18 months after the date of the enactment of this Act, the Administrator shall submit a report to the Congress setting forth the results of such assessment.

SEC. 304

(e) Study. -- The Administrator of the Environmental Protection Agency, in cooperation with the Director of the Indian Health Service, shall, within 12 months after the enactment of this Act, conduct a survey of drinking water on Indian reservations, identifying drinking water problems and the need, if any, for alternative drinking water supplies.

[EDITOR'S NOTE: §4 of PL 100-572 relates to testing laboratories. Its provisions follow.]

SEC. 4 Certification of Testing Laboratories.

The Administrator of the Environmental Protection Agency shall assure that programs for the certification of testing laboratories which test drinking water supplies for lead contamination certify only those laboratories which provide reliable accurate testing. The Administrator (or thc State in the case of a State to which certification authority is delegated under this subsection) shall publish and make available to the public upon request the list of laboratories certified under this subsection.

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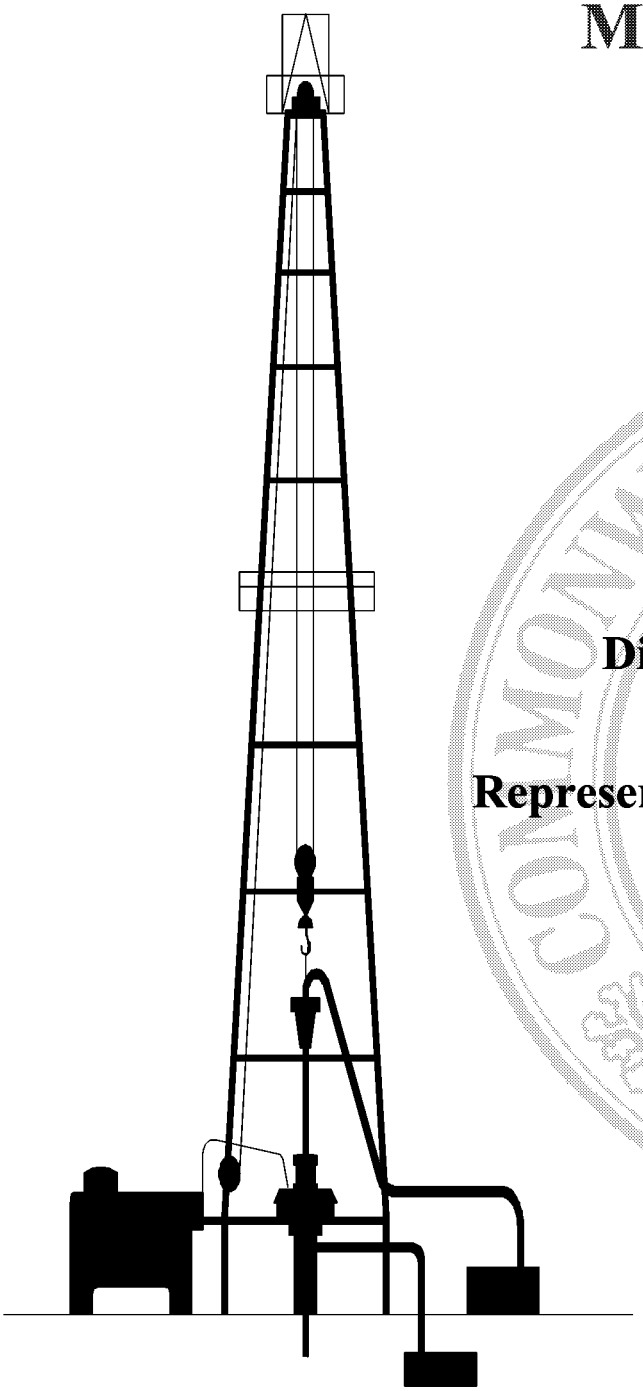
COMMONWEALTH OF KENTUCKY

OIL AND GAS WELL OPERATOR'S MANUAL



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APPENDIX B See Appendix Cover Page for Listing of Contents

FOREWORD

For over 100 years, exploration for oil and gas has occurred in the Commonwealth of Kentucky. Conservation of these resources was addressed by the ratification of the interstate compact to conserve oil and natural gas in 1942. This compact was later repealed, amended and re-enacted by joint resolution of the General Assembly in 1948. Regulation regarding these exploration and conservation efforts began in 1960 by the formation of the Kentucky Oil and Gas Conservation Commission and the Oil and Gas Division under the Department of Mines and Minerals. From 1960 until the present, various other agencies have adopted regulations regarding the numerous activities related to the exploration of oil and gas in Kentucky. These agencies, as listed throughout this document, have developed regulations regarding the activities which in many cases overlap and possibly add confusion to the regulated community as to which agency and regulation apply to a given situation. In order to provide a better understanding of all the regulations and agencies responsible for these regulations, this manual was prepared. Use of this manual shall hopefully provide guidance to compliance with the respective regulation of the appropriate agency and the manner under which operations should be conducted.

I wish to acknowledge and express my deep appreciation to the following team members that participated in the preparation of this manual. They include the following: Brian Gilpin, and Marvin Combs from the Division of Oil and Gas, Dan Juett, Jim Sproles and Gene Blair from the Division of Water, James Hale and Tim Hubbard from the Division of Waste Management, Ralph Dennis from the Public Service Commission, Rodney Raby and James Helm from the State Fire Marshal's Office, and Charles P. Susie and Michael Sanders representing the Kentucky Oil and Gas Association. In particular of these, I wish to say a special thank you to Mr. Susie and Mr. Sanders for taking time out from their employment to perform this task.

I would also like to thank with great appreciation the U.S. Department of Energy for the financial support of this effort. It is my firm belief that the development of this document shall serve as a useful tool for achieving compliance and fostering further exploration efforts in the Commonwealth of Kentucky. The Department of Energy should be commended for their support and encouragement of this and other similar projects.

Rick Bender

Rick Bender, Director
Division of Oil and Gas

INTRODUCTION

This handbook was prepared by a task force consisting of representatives from state regulatory agencies and the oil and gas industry under a grant from the U.S. Department of Energy. The purpose of this handbook is to serve as a guidance document and reference manual for oil and gas well operators in dealing with state and federal agencies which regulate the various phases of drilling, production, operation and abandonment of oil and gas wells.

The manual is composed of sections listed in chronological order from Pre-Drilling through Well Abandonment which an operator would typically follow in drilling a well. A simplified step-by-step checklist using this format is included (See Pages ix-xii). A Well Operator's Activity Chart is included describing regulatory agencies' involvement in the various phases of operation (See Pages xiii-xvi). A narrative describing each phase of well operation with regulatory agency requirements is included and listed in the Table of Contents.

The appendix contains directories of state and federal agencies and personnel, regulatory agency forms and other information to assist the well operator in complying with Kentucky statutes and regulations. Forms shown in Appendix B of this manual are for example and are not intended for official use. It is recommended the agency having regulatory control of the form be contacted concerning any requirements for form use and reproduction.

This manual is presented as a general reference and illustrates those practices which have been proven in a safe and workman-like manner to conform to State and Federal regulation at the time of printing. It is beyond the scope of this manual to cite every applicable state and federal regulation and statute, and thus this manual is not intended to take the place of one's responsibility to know and understand all applicable regulations and statutes. Statutes and regulations referred to in this manual are not provided in their complete form. The reader is encouraged to read the full text of each statute and regulation and seek counsel if and when necessary for clarification as to the applicability of each.

SIMPLIFIED STEP-BY-STEP CHECKLIST (☑) PROCEDURE FOR DRILLING A WELL IN KENTUCKY

Section 1. Pre-Drilling and Permitting A Well

- ❒ **Prepare a Game Plan** for each well drilled. It is recommended that the operator prepare an overall game plan that incorporates all actions to be undertaken by the operation. This plan should include all impacts to the environment and the rights of all parties involved.

- ❒ **Post bond** with Division of Oil and Gas. See Page 1.

- ❒ **Prepare a well plat** of the well location. See Page 2.

- ❒ **Obtain a well permit.** See Page 5.

- ❒ **Obtain permits for stream/river crossing.** See Page 7.

- ❒ **Plan for management and disposal** of waste generated by the operation including construction of the drilling pit. See Page 12.

Section 2. Drilling

- ❒ **Notify Division of Oil and Gas Inspector** (on permit) 24 hrs. before spudding. See Page 11.

- ❒ **Construct drilling pit** adequate to contain drilling fluids and prevent flow into streams. See Page 12.

- ❒ **Contain and dispose of drilling muds/fluids** in accordance with applicable regulations. See Page 13.

- ❒ **Post drilling permit** at the well site during drilling. See Page 11.

- ❒ **Set surface or intermediate casing** in accordance with regulations. See Page 14.

- ❒ **Provide Oil and Gas inspector with total depth,** amount of casing, if run and cement quantity immediately following completion of drilling. See Page 11.

Simplified Step-by-Step Checklist (☑) Procedure for Drilling a Well in Kentucky

- ❒ **Contain and clean-up oil spills, leaks, discharges or releases** of pollutants immediately. For reportable spills notify Environmental Response Team 1-800-928-2380. See Page 26.

Section 3. Well Completion and Operation

- ❒ **File well records** with Division of Oil and Gas 90 days after reaching total depth. See Page 17.

- ❒ **Register tank battery** with Division of Water within 60 Days after production begins. See Page 17.

- ❒ **Submit annual production report** to Division of Oil and Gas on or before April 15th for previous year. See Page 28.

- ❒ **Dispose of waste** in accordance with applicable regulations. See Page 23.

- ❒ **Contain and clean-up oil spills, leaks, discharges or releases** of pollutants immediately. For reportable spills notify Environmental Response Team 1-800-928-2380. See Page 27.

Section 4. Abandonment and Closure

- ❒ **Plugging** well in accordance with Inspector's instruction. See Page 31.

- ❒ **File plugging affidavit** with the Division of Oil and Gas. See Page 31.

- ❒ **Remove debris** and associated equipment in conjunction with site closure. See Page 31.

- ❒ **Remove equipment** upon closure of lease activities and contact Division of Water for inactivation of registration. See Page 31.

- ❒ **Take steps** as necessary in order to prevent erosion and sedimentation including back-fill of pits.

Simplified Step-by-Step Checklist (☑) Procedure for Drilling a Well in Kentucky

- ❒ **Perform well site reclamation** on severed mineral tracts in accordance with applicable regulations. See Page 32.

- ❒ **Contain and clean-up oil spills, leaks, discharges or releases** of pollutants immediately. For reportable spills notify Environmental Response Team 1-800-928-2380. See Page 27.

- ❒ **Assure that all wastes have been properly disposed** and all releases have been cleaned up.

- ❒ **Request release of bond** upon completion of site closure, filing of records or transfer of wells to another operator. See Page 33.

WELL OPERATOR'S ACTIVITY CHART

AGENCY ABBREVIATION

DOG-Division of Oil & Gas DOW-Division of Water
DWM-SWB-Division of Waste Management-Solid Waste Branch
DWM-HWB-Division of Waste Management-Hazardous Waste Branch
SFM-Kentucky State Fire Marshal's Office EPA-United States Environmental Protection Agency

ACTIVITY	STATE/FEDERAL REGULATORY AGENCY	FEE ($)	PERMIT REQUIRED	REGULATORY AGENCY FORM NO.	TIME	ADMINISTRATIVE REGULATION or STATUTE	REMARKS
I. PRE-DRILLING							
Bonding of Well	DOG	Individual Bond Based on Depth	No	ED-5,ED-6 ED-14 ED-16 ED-20	Life of Well	805 KAR 1:050 KRS 353.590	Blanket Bond-$10,000 Individual Well Bond Based on Depth. **PAGE 1**
Well Plat	DOG	None	No	Approved Well Plat	Less Than 1 Year Old	805 KAR 1:030 KRS 353.590(4)	Reg. Eng. & L.S.-Coal Reg. L.S.-Non-Coal **PAGE 2**
Shallow Wells	DOG	Permit Fee ($300)	Yes	ED-3	1 Year	KRS 353.510 KRS 353.610	Less than 4,000 Ft. or Below Devonian Shale. **PAGE 3**
Deep Wells	DOG	Permit Fee ($300)	Yes	ED-3 ED-7	1 Year	805 KAR 1:100 805 KAR 1:130	4,000 Ft. or Deeper East of 84Deg. 30 Min. **PAGE 3**
Well Spacing Variance	DOG	None	No	None	None	KRS 353.620	Director Approval **PAGE 4**
Well Permits	DOG	$300.00	Yes	Approved Well Plat ED-1	1 Year	KRS 353.570 KRS 353.580 KRS 353.590	Required on All Wells Drilled, Deepened, or Re-Open, Spud Within 1 Yr. **PAGE 5**
Well Permits In Coal Regions	DOG	Permit Fee ($300)	Yes	ED-1	1 Year	KRS 353.050	. 15 Day Hold on Permit for Coal Co. Evaluation. **PAGE 5**
Well Permits In Gas Storage Fields	DOG	Permit Fee ($300)	Yes	ED-1	1 Year	805 KAR 1:080	Notify Gas Storage Field Operator. **PAGE 6**
Well Permits on Severed Mineral Tracts	DOG	$100.00	Yes	ED-1 ED-10	1 Year	805 KAR 1:170 KRS 353.5901	$100 Mediation Fee to Surf. Owner &Oper. **PAGE 6**
Crossing Wetlands, Wild Rivers, Stream Discharge	DOW	None	Yes	Construct across or along a stream	Prior to Construction	401 KAR 4:060 KRS 151.125	Stream Obstruction Requires Permit. **PAGE 7**
Well Site Waste Mgmt. Guidelines	DWM-SWB	None	None	None	None	401 KAR 30:031 401 KAR 47:030	Must Meet Environmental Standards. **PAGES 13 & 20**
Objection Well by Coal Oper.	DOG	None	No	None	None	KRS 353.060	D.O.G. Hearing **PAGE 5**
Twin Wells	DOG	Permit Fee ($300)	Yes	Well Plat ED-3	1 Year	KRS 353.610(2)	Wells Must Produce From Different Zones. **PAGE 8**

ACTIVITY	STATE/FEDERAL REGULATORY AGENCY	FEE ($)	PERMIT REQUIRED	REGULATORY AGENCY FORM NO.	TIME	ADMINISTRATIVE REGULATION or STATUTE	REMARKS
Directional or Horizontal Wells	DOG	Permit Fee ($300)	Yes	Well Plat ED-3 ED-7 ED-8	1 Year	805 KAR 1:020 805 KAR 1:140 KRS 353.550	Wellbore Cross-Section Revised Well Plat B.O.P. Required **PAGE 9**
Pooling of Oil & Gas Tracts	DOG	None	No	None	None	KRS 353.630	Hearing Required. **PAGE 4**
II. DRILLING							
Spudding-Drilling	DOG	See Well Permit	Yes	ED-3	1 Year	KRS 353.660	Notify Inspector 24 Hrs. Before Spud. Contact Inspector at Total Depth. **PAGE 11**
Drilling Pits	DOW	None	No	None	30 Days	401 KAR 5:090 KRS 151.125	Pits Must Contain all Fluids to Prevent water Contamination. Close After 30 Days. **PAGE 12**
Protection of Fresh Water Aquifers	DOG	None	No	None	None	805 KAR 1:020 KRS 353.520	Casing Set 30' Below Aquifer, Cement to Surf. **PAGE 14**
Drilling Through Minable Coal Seams	DOG	None	No	None	None	KRS 353.080 KRS 353.100	Casing Set 30' Below Seam, Cement to Surf. **PAGE 14**
Drilling Fluids	DWM-SWB	None	Permit-By-Rule	None	None	401 KAR 31:030 401 KAR 45:060 KRS 224.50-760	Disposal Requirements. **PAGE 13**
Drill Samples	Ky. Geol. Survey DOG	None	No	None	None		Required if Requested By Ky. Geol. Survey.
	DWM-SWB	None	Permit-By-Rule	None	None	401 KAR 31:030 401 KAR C.(30) 401 KAR 45:060	Must Meet Disposal Requirements. **PAGE 14**
Drilling Deeper Than Permitted Depth	DOG	Individual Bond May Be Increased with Depth	No	None	None	805 KAR 1:120 KRS 353.520	Notify D.O.G. Immediately May Require Revision of Permit & Bond. **PAGE 15**
Blow-Out Preventer [BOP]	DOG	None	No	ED-7	None	805 KAR 1:130 805 KAR 1:140 KRS 353.520	3,000# Test Pressure 1,500# Work Pressure **PAGE 11**
III. COMPLETION-OPERATION							
Well Completion Filing of Well Records	DOG	None	No	ED-3 ED-38	90 Days 30 Days	KRS 353.660	File ED-3 90 Days After Drilling, File Electric Logs. File ED-38 if Plugged. **PAGE 17**

ACTIVITY	STATE/FEDERAL REGULATORY AGENCY	FEE ($)	PERMIT REQUIRED	REGULATORY AGENCY FORM NO.	TIME	ADMINISTRATIVE REGULATION or STATUTE	REMARKS
Registration of Oil & Gas Facility [Tank Battery]	DOW	None	Yes	Oil & Gas Facility Registration Form	60 Days	401 KAR 5:090 KRS 151.125	Sign Posted with Comp. Name, Address, Phone, & DOW Registration No. **PAGE 17**
Storage and Piping System Compliance	SFM	$50.00	Yes	Const. Above Grd. Tanks Pet. Prod. Haz. Mat.	Before Construction	815 KAR 10:050 NFPA 30 Ky. Fire Prev. Code	Pipe & Tanks Must Comply with NFPA 30 & Current Edition of Ky. Fire Prev. Code. **PAGE 18**
Danger Signs on Oil Storage Facilities	DOG	None	No	None	None	KRS 353.656	Posted on Oil Tank Battery **PAGE 18**
Spill Prevention Control and Countermeasure (SPCC) Plan	DOW	None	No	SPCC Plan	Upon Facility Start-up	EPA 40 CFR Parts 110 & 112 401 KAR 5:090 KRS 151.125	Plan Must Be In Accordance With 40 CFR 112. **PAGE 19**
Transfer of Ownership-Oil & Gas Facility	DOW	None	No	Transfer of Ownership	Upon Transfer of Owner Operatorship	401 KAR 5:090 KRS 151.125	New Operator to File Updated Regis. Form. **PAGE 20**
Transfer of Well Ownership	DOG	$25/Well	No	ED-13	None	KRS 353.590	Successor Operator Must Bond Well(s) Prior to Operation. **PAGE 21**
Holding Pits	DOW	$100.00	Yes	Construction & Operation Plan	30 Days Before Construction	401 KAR 5:090 KRS 151.125	Pit Utilized for Storage of Produced Water. **PAGE 21**
Improperly Abandoned Wells-Temporary Abandoned Permits	DOG	None	Yes	Up To 2 Years	Up To 2 Years	KRS 353.550	File with Completion Report, Inspector Must Approve T.A. **PAGE 22**
Injection Wells	EPA		Yes	7520-6		40 CFR 144	EPA (404-347-3379) Requires Mechanical Integrity Test.
Class II Wells	DOG	None	No	ED-23	None	805 KAR 1:020	**PAGE 22**
Produced Water Disposal	DOW	Depends Upon Disposal Method	Yes	Disposal of Produced Water K.P.D.E.S.	None	401 KAR 5:090 KRS 151.125	Disposal of Produced Water Must Not Violate Water Qual. **PAGE 23**
Vacuum Pumps	DOG	None	No	ED-9	None	805 KAR 1:040 KRS 353.560	Identify All Wells Within 1,000 ' **PAGE 24**
Operator Classification of Hazardous Waste	DWM-HWB	None	No	None	None	401 KAR 32:010 401 KAR Chap. 30 & 31 KRS 224.46-510	Generate less than 220 Lbs. Hazardous Waste Per Month **PAGE 25**
Groundwater Protection Plan (GPP)	DOW	None	No	None	Upon Facility Startup	401 KAR 5:037 KRS 224.01-010 KRS 224.10-100	Have an acceptable GPP in accordance with KRS 224 **PAGE 25**

ACTIVITY	STATE/FEDERAL REGULATORY AGENCY	FEE ($)	PERMIT REQUIRED	REGULATORY AGENCY FORM NO.	TIME	ADMINISTRATIVE REGULATION or STATUTE	REMARKS
Reporting Spills, Bypasses Leaks of Oil Produced Fluids and Chemicals	DOW	None	No	None	Report Spills Immediately	401 KAR 5:015 401 KAR 5:090 KRS 224.10-100 KRS 224.70-110 KRS 151.125	Spills that reach water ways and have the potential to impact contact DOW ERT immediately at 1 800 928-2380 **PAGE 26**
	DWM-HWB	None	No	None	Report Spills Immediately	KRS 224.01-400 KRS 224.01-405	Otherwise on soil, report to DWM ERT if more than 25 Gal of oil or 75 Gal of diesel fuel at the above number. **PAGE 26**
N.O.R.M.	Cabinet for Human Resources	None	No	None			Monitor Tubulars for Radiation Exposure. **PAGE 27**
Oil & Gas Production Reporting	DOG	None	No	ED-17	*April 15	KRS 353.206	*File by April 15 for Prior Yrs. Prod. **PAGE 28**
IV. ABANDONMENT & CLOSURE							
Plugging of Wells	DOG	None	No	ED-38	File Affidavit 30 Days After Plugging	KRS 353.120	Contact Inspector for Plugging Instructions. **PAGE 31**
Termination of Oil & Gas Facility	DOW	None	No	None	After Operation Ceases	401 KAR 5:090 KRS 151.125 KRS 224.10-100	Tanks Removed, Site Reclaimed. **PAGE 31**
Well Site Reclamation on Severed Mineral Tracts	DOG	None	No	ED-10	1 Year After Plug & Abnd.	805 KAR 1:150 KRS 353.5901 KRS353.590(5)	Inspection of Site 1 Yr. After Plugging and Reclamation of Well Site. **PAGE 32**
Bond Release	DOG	None	No	None	None	805 KAR 1:050 KRS 353.590(5)	Well Plugged, Records Filed or Wells Transferred. **PAGE 33**
Bond Forfeiture	DOG	None	No	None	45 Days After Notification	805 KAR 1:050 KRS 353.590(5)	Operator May Get Extension. **PAGE 33**
V. INSPECTION & ENFORCEMENT							
Division of Oil & Gas Inspection & Enforcement Policy	DOG	None	No	None	Anytime	KRS 353.220 KRS 353.990 KRS353.991 KRS 353.992	Inspectors May Inspect Any Well Site At Any Time. **PAGE 35**
Division of Water & Waste Management Insp. & Enf. Policy	DOW DWM	None	No	None	Anytime	401 KAR 5:090 KRS 224.10-100 KRS 224.10-410 KRS 224.99-010	Inspectors May Inspect Any Oil & Gas Facility At Any Time. **PAGE 35**
Public Service Commission Enforcement Policy	PSC	None	No	None	Anytime	KRS 278.900 KRS 278.992	Inspectors May Inspect Any Pipeline Facility At Any Time. **PAGE 35**

REGULATORY AUTHORITY

Division of Oil and Gas

The Department of Mines and Minerals, Division of Oil and Gas is responsible for:

- Regulating the bonding, permitting, drilling, casing, operating and plugging of all wells in Kentucky.
- Protecting the correlative rights of mineral owners.
- Conserving and protecting the crude oil and natural gas reserves of Kentucky.
- Insuring fresh water aquifers and mineable coal seams are protected from unreasonable damage due to production of crude oil and natural gas.

Statute-KRS Chapter 353

Division of Water

The Department for Environmental Protection, Division of Water is responsible for:

- Preserving the water resources of Kentucky.
- Prevention, abatement and control of all water pollution.
- Regulating water pollution from oil and gas facilities.

Statute-KRS Chapters 146, 151 and 224

Division of Waste Management

The Department of Environmental Protection, Division of Waste Management is responsible for:

- Insuring that waste management activities within Kentucky are conducted in a manner to protect human health and the environment.
- Regulating hazardous waste, solid waste, special waste, abandoned sites, underground storage tanks and remediation of chemical and petroleum releases to the environment.

Statute-KRS Chapter 224

Regulatory Authority

Public Service Commission

The Public Service Commission is responsible for:

- Inspecting and safety management of, natural gas transmission within the state and utility owned lines, compressor stations, meters, regulators and other pipeline facilities operated by oil and gas companies and natural gas utilities in Kentucky.
- Providing inspection and approval for farm taps.
- Responding to reported gas line leaks and potential hazards relating to state regulated pipelines.
- Regulating the rate utilities charge consumers for natural gas usage.
- Insuring the quality of gas for consumers.

Public Service Commission responds to reported gas line leaks, potential hazards relating to pipelines as well as dictate the rate utilities charge consumers for natural gas usage.

Statute-KRS Chapter 278

State Fire Marshal's Office

The Kentucky State Fire Marshal is responsible for:

- Inspecting to insure safe storage and handling of all flammable and combustible liquids near oil or gas wells and related production facilities.

Statute-KRS Chapter 227

Underground Injection Control Section

The U.S. Environmental Protection Agency, Underground Injection Control Section is responsible for:

- Preventing contamination of groundwater supplies from underground injection.
- Regulating Class II wells which are injection and/or disposal wells associated with the production of oil and natural gas.

Federal Regulation-40 CFR 100 to 149

I. PRE-DRILLING

Bonding

Division of Oil and Gas

The Division of Oil and Gas requires a performance bond to be on file before a well is drilled or acquired from another operator. This bond is posted to insure the proper plugging and abandonment of wells and to insure the filing of well records with the Division. Should an operator fail to correct a violation, the bond may be seized by the Commonwealth of Kentucky.

- **BLANKET BOND** of $10,000 covers all wells operated by a producer and shall be on file at the Division of Oil and Gas prior to permitting or acquiring wells. Any violation against a well listed under a Blanket Bond will prohibit any future wells being permitted or transferred under that Blanket Bond. Forfeiture of any portion of a blanket bond will prohibit any additional operation.

- **INDIVIDUAL BONDS** should accompany the well permit application when it is submitted to the Division of Oil and Gas. Bonds for individual wells are based on the well's total depth as listed below:

DEPTH (FT.)	BOND AMOUNT ($)
0-500'	$ 500
501'-1,000'	$1,000
1,001'-1,500'	$1,500
1,501'-2,000'	$2,000
2,001'-2,500'	$2,500
2,501'-3,000'	$3,000
3,001'-3,500'	$3,500
3,501'-4,000'	$4,000
4,001' or Deeper	$5,000 or an amount set by the Oil and Gas Conservation Commission.

The various types of bonds accepted for both blanket and individual bonds are listed below:

- **CASH**-Certified, Cashier's or Bank check or CASH
- **SURETY**-Obtained from an insurance company with attached "Power of Attorney"
- **LETTER OF CREDIT**-Obtained from bank or other financial institution
- **CERTIFICATE OF DEPOSIT**-The Division may accept a $5,000 Certificate of Deposit in combination with $5,000 in another form for an approved blanket bond. Verification of the certificate along with the original Certificate of Deposit is filed at the time of posting of the bond.

Regulation-805 KAR 1:050
Statute-KRS 353.590
Forms-Surety, Letter of Credit, Certificate of Deposit (Forms ED-5, ED-6, ED-16 and ED-20, See Appendix B)

Well Plat

Division of Oil and Gas

Before a well is permitted, the operator shall have a map or plat of the proposed well location drawn on 8 1/2" by 14" bond or tracing paper prepared by a land surveyor registered in Kentucky. If the well is in coal producing regions of Eastern Kentucky (Appalachian Basin) or Western Kentucky (Illinois Basin) both a registered engineer and registered land surveyor shall certify the plat. A map is located in Appendix A identifying coal producing regions of Kentucky. The plat shall include and be prepared as follows:

- **Proposed well location, elevation and distance from property lines.**
- **Location of well by bearing and distance, relative to two permanent monuments that appear on a 7.5' USGS Topographic Maps.**
- **Latitude and longitude and Carter Coordinates for the proposed well location.**
- **Scale of the plat drawn on 1" equals 100', 200', 300', 400', 500', or 600'.**
- **All oil or gas producing wells within 1,000' of the proposed well.**
- **Lease boundary, surface owner, mineral royalty owner and adjacent mineral owner.**
- **Elevation as determined by instrument or calculation.**
- **Certification of the plat by the surveyor, and engineer if required, reading as follows: *"I hereby certify that the above plat is accurate and correct and satisfies the requirements of 805 KAR 1:030 to the best of my knowledge and belief,"* followed by the written signature of the person preparing the plat, mailing address, registration number and telephone number.**
- **Date of plat within one year of date of application of permit.**

After a well is permitted, the well location shall not be changed. Permitted wells which are drilled at a location other than the coordinates listed on the plat and permit are considered as wells drilled without a valid permit.

A well shall not be drilled within 150 feet of any building without a signed waiver from the building owner. The waiver shall be included with the well plat and permit application. An example of a properly prepared well plat is found in Appendix A.

Regulation-805 KAR 1:030
Statute-KRS 353.590 Section 4
Time-Plat shall be less than 1 year old when submitted with permit application

Shallow Well Definition and Spacing Requirements

Division of Oil and Gas

Oil and gas wells in Kentucky are classified as "shallow" or "deep" based on the total depth and location. Shallow wells are wells drilled to depths less than 4,000' or where the base of the Devonian Shale exceeds 4,000' in Eastern Kentucky. Minimum spacing for shallow oil and gas wells is described as follows:

- **Oil wells in non-coal areas drilled to a depth from the surface to 2,000' shall be spaced 200' from the property line and 400' from an offset well producing from the same zone.**
- **Oil wells in non-coal areas drilled to a depth between 2,000' and the deep well depth shall be spaced a minimum of 330' from the property line and 660' from an offset well producing from the same zone.**
- **Oil wells in coal areas drilled from the surface to the deep well depth must be spaced 330' from the property line and 660' from an offset well producing from the same zone.**
- **Gas wells drilled to a depth from the surface to the deep well depth must be spaced 500' from the property line and 1,000' from an offset well producing from the same zone.**

Statutes-KRS 353.510 and 353.610

Deep Well Definition and Spacing Requirements

Division of Oil and Gas

A deep well is any well drilled to a depth that exceeds 4000' or to the base of the Devonian Black Shale in Eastern Kentucky if the base of the black shale exceeds 4000'. Unit sizes for deep wells are established by the Oil and Gas Conservation Commission after a "wildcat" well has discovered a productive formation or multiple formations. A "wildcat" well is defined as a well in which there are no other deep wells of the same target formation within 25,000' of the permitted location. Once a wildcat well has found a discovery and the Commission has ordered the unit size, then other deep wells within 25000' which target the same formation must be on approved units which are also established by the Commission. If an operator wishes to permit a well that is within 25,000' of wells on established spacing, and the proposed location is not on an approved unit, then the spacing shall be as follows:

- **Deep Gas Well drilled to a depth between 4,000' and 7,000' must be located in the center of a 281 acre square unit with sides of 3,500'.**
- **Deep Gas Well drilled to a depth greater than 7,000' must be located in the center of a 574 acre square unit with sides of 5,000'.**
- **Deep Oil Well drilled to a depth between 4,000' and 7,000' must be located in the center of a 70 acre square unit with sides of 1,750'.**
- **Deep Oil Well drilled to a depth greater than 7,000' must be located in the center of a 143 acre square unit with sides of 2,500'.**

The Division of Oil and Gas requires an operator to file a CASING AND CEMENTING PLAN when a deep well is permitted. This includes a schematic of the wellbore with type, weight, grade and approximate depths of casing strings and cement type, additives and quantity used on each casing string. A Blow-Out Preventer shall also be installed with the type and brand included on the casing plan (See section on BOP for more information).

Regulations-805 KAR 1:100 Section 1-13 and 805 KAR 1:130
Form-CASING AND CEMENTING PLAN (Form ED-7, See Appendix B)
Kentucky Carter Coordinate System used to establish North-South baseline of deep well units.

Variance From Well Spacing

Division of Oil and Gas

If a proposed well is closer to an existing well or property line than the minimum distances allowed, the operator may be granted a spacing variance if the permit application includes written consent from all owners of oil and gas interests affected by the proposed well. The Director may also grant a variance after a hearing is granted to justify the spacing conditions presented by the operator.

Statute-KRS 353.620

Pooling of Oil and Gas Interests

Division of Oil and Gas

If an oil and gas lease is located in such a position which prohibits drilling of a well due to size or other conditions, the Division may order a hearing to establish pooling of contiguous tracts. A pooling order establishes the authority for drilling and producing oil or gas wells in a manner in which all owners of oil and gas interests may elect to participate in drilling, production and share in revenues based on operating interests proportional to individual owners net oil and gas interest. A pooling order includes options available to non-voluntary interest owners for participation in the pooled unit. These options include:

- **Participation at full cost.**
- **Participation on a carried basis.**
- **Surrender for a determined value.**
- **Execute a lease to the well operator.**

Statute-KRS 353.630

Well Permit

Division of Oil and Gas

An APPLICATION FOR PERMIT shall be filed with the Division of Oil and Gas before a well is **drilled, deepened** or **re-opened** for production of natural gas, crude oil, water supply for enhanced recovery, or injection into a reservoir for the purpose of enhanced recovery. A permit is also required to drill stratigraphic test holes or operate any well under violation in which the previous well operator's bond has been forfeited. The permit application is to include a fee of $300 made payable to the "Kentucky State Treasurer," three copies of the well plat and if an individual bond is used, submit bond with application. Applicant should insure the following information on the application is as follows:

- **Well operator's name on application shall be identical to name listed on bond.**
- **Well operator shall provide permanent street address (P. O. Box numbers are not acceptable).**
- **Person signing application shall be officer, or partner, of the company and title of person shall be typed or clearly written.**
- **Information on permit application (such as well number, elevation, Carter Coordinates and lease name) shall correspond to information on well plat.**

All blanks shall be filled in completely or the application will be returned.

When the permit is issued, the well shall be spudded within one year of the date issued or the permit will expire. Wells drilled after a permit has expired are in violation. Samples may be requested on any well permit. If a permit has been stamped "Samples required," refer to the Drill Sample Section on Page 14.

Cancellation of permits before expiration requires the operator to contact the Lexington office by letter, requesting the permit be canceled. The inspector will inspect the location and notification shall be sent to the operator once the permit has been canceled. The operator should cancel a permit as soon as possible after the decision is made not to drill the well.

Statutes-KRS 353.570, 353.580 and 353.590
Form-APPLICATION FOR PERMIT (Form ED-1, See Appendix B)
Fee-$300
Time-Permit valid for 1 year from issue date.

Well Permit Underlain by Coal Seams

Division of Oil and Gas

If the proposed well is underlain by coal seams leased to, or currently being mined by an individual or company, the well operator shall identify the person or company in Section 12 on the permit application. The well operator shall send a copy of the permit application and well plat, by registered or certified mail, to the company or companies operating those seams. The Division of Oil and Gas shall hold the permit application for 15 days to allow the coal company to evaluate the well location's impact on future mining plans. If the coal company objects to the location, the Division will schedule a

hearing and notify the well operator and coal company. Based on information presented, the well location will be approved or moved to an alternate location as near to the original location as possible. The Division may waive the 15 day period if the coal company notifies the Division in writing. Information and mine maps are available at the Department of Mines and Minerals.

Statute-KRS 353.050

Well Permit in Gas Storage Area

Division of Oil and Gas

If a proposed well is located within a gas storage protection zone, the applicant shall identify the storage field operator in Section 13 of the permit application. Applicant shall submit a copy of the permit application and well plat to that operator when the permit application is mailed to the Division of Oil and Gas. The Division of Oil and Gas shall hold the application for five days to allow the storage field operator to evaluate the proposed well's impact on the storage reservoir. If the gas storage operator does not file an objection within that five day period, the permit will be issued. If an objection is filed, the Division shall conduct a hearing and establish the manner in which the well is to be drilled.

Any well penetrating a gas storage reservoir shall be drilled in such a manner to effectively "case off" the storage reservoir and prevent the intrusion of oil, gas or water into the reservoir and protect the reservoir from a blow-out or waste of gas during drilling, completion or plugging. Information on the location of storage fields can be obtained at the Division of Oil and Gas and the Kentucky Geological Survey.

Regulation-805 KAR 1:080

Well Permits on Severed Mineral Tracts

Division of Oil and Gas

Proposed wells on Severed Mineral Tracts requires the operator to submit a PLAN TO PREVENT EROSION OF AND SEDIMENTATION FROM A WELL SITE with the permit application. This plan shall include the following:

- **A brief description of the construction and excavation required in building the access road, well site and drilling pit.**
- **The proposed vegetation mixtures to be used for reclamation.**
- **An 8 1/2" by 14" diagram of the area to be disturbed drawn to a scale of 1"=400' containing the surface owner lease boundary, access road, well site, pit location, buildings, water wells, gas lines and storage facilities. The operator may use an enlarged area of a 7.5' USGS Topographic Quadrangle rather than constructing a separate drawing.**

The surface owner's notarized signature is required before the permit application is processed. If he refuses to sign, the well operator shall provide a copy of the certified mail receipt verifying Form ED-10 was received by the surface owner. The General Counsel of the Department of Mines and Minerals will issue a letter requesting participation in a mediation hearing. If the General Counsel receives a request from the surface owner to participate in the mediation, then an Order Scheduling Mediation is

issued notifying the surface owner and well operator. Both parties must pay a $100 mediation fee to participate in mediation. If the surface owner refuses mediation, the mediator will recommend the well operator's reclamation proposal and the permit will be processed.

If the surface owner cannot be located, the operator shall publish a notice of intended activity in a local newspaper over two publishing periods and once in a statewide newspaper.

Regulation-805 KAR 1:170 (New Regulation)
Statute-KRS 353.5901
Form-PLAN TO PREVENT EROSION OF AND SEDIMENTATION FROM A WELL SITE (Form ED-10, See Appendix B)
Fee-$100 Mediation Fee (If Required) Assessed to Surface Owner and Operator.

Stream Crossings, Wetlands, Wild Rivers, Discharges to Streams

Division of Water

The installation of pipelines, bridges and/or culverts in a stream introduces obstructions to that stream's flow. The placement of fill, construction of a pond or dam or any other activity that would introduce an obstruction to a stream or impact the floodplain, requires a floodplain permit or a letter stating an exemption has been granted. Before installation, the Kentucky Division of Water, Floodplain Management Section and the local Floodplain Coordinator should be contacted. Stream obstructions may be of a temporary nature and the season of use determines whether a permit is needed rather than a letter of exemption. The guidelines and a diagram for a typical low water crossing are listed in Appendix B.

Floodplain activities involving one acre or more of a wetland or along 200 linear feet of a blue line stream, as designated on a USGS Topographic Map, will require a permit from the U. S. Army Corps of Engineers and the Division of Water. The Division of Water recommends that the applicant hold a pre-application meeting with all concerned agencies and appropriate regional offices which are listed in Appendix A.

Some segments of the Waters of the Commonwealth and their adjoining land areas are designated by the General Assembly as wild river corridors. Wild river corridors are covered under management plans, developed to protect the special features of each river area. A CHANGE OF USE PERMIT or the approval of the Natural Resources and Environmental Protection Cabinet Secretary is required for any activity that has the potential to adversely affect a wild river corridor. The cabinet shall be notified in advance of that activity so that the activity's need for a Change of Use Permit can be determined.

In a wild river corridor, the following would need to be addressed for the activities of oil and/or gas exploration and production:

- **Road construction.**
- **Utility right-of-way.**
- **Area of disturbance shall not exceed 60 by 100'.**
- **Pits constructed to hold drilling fluids or brine are to be located beyond areas prone to flooding and constructed according to Holding Pit requirements.**

- **Written notification to the Division of Water shall be provided for the planned dates of drilling.**
- **No produced water shall be discharged into the surface or groundwaters within a Wild River Corridor.**
- **Dust control measures shall be taken to prevent dust particles from entering into surface water.**
- **Pipelines shall follow access roads and shall not be routed across a wild river.**
- **Produced water shall be in a closed tank and have a minimum 30 day storage capacity and fluids shall be removed before they reach two-thirds the tank's capacity.**

The Division of Water recommends that a pre-application meeting with all concerned individuals and agencies be scheduled, check Appendix A for the appropriate regional office. Wild river corridors and their dates of designations are listed in Appendix A and the Change of Use Permit Application form in Appendix B. USGS topographic maps are available showing the boundaries of the wild river corridors. Contact the Wild Rivers Program, Division of Water, Department for Environmental Protection, 14 Reilly Road, Frankfort, Kentucky 40601, or call (502) 564-3410 if you have any questions.

Regulations-401 KAR 4:060, 401 KAR 4:100 through 4:140, 401 KAR 5:029 Section 2, and 401 KAR 5:031
Statutes-KRS 146.250, 146.270, 146.280, 146.290, 146.350, 146.990, 151.125,151.140, 151.250, 224.10-100 and 224.70-110
Federal-Clean Water Act, Section(s) 401 and 404
Form-Permit to Construct Across or Along a Stream, Change of Use Permit (See Appendix B)

Twin Wells

Division of Oil and Gas

When an operator applies for a well permit which will be "twinned" near an existing well, the existing well's permit number and producing formation shall be identified in Section 20 of the permit application along with steps taken to ensure the proposed twin well does not produce from the same zone as the existing well. In addition, the following information shall be presented on the "twin well" plat:

- **The geologic zones to be produced in each well shall be identified on the well plat and the distances between them indicated.**
- **All wells shall be identified by permit number (if available) and well numbers.**

A completed well plat containing information on twin wells is included in Appendix B.

Statute-KRS 353.610 Section 2
Form-WELL PLAT

Directional or Horizontal Wells

Division of Oil and Gas

The well operator shall submit a permit application with a cover letter requesting a permit to drill a horizontal or directional well. In addition to information required on a conventional well plat, the plat shall also include:

- **The proposed target location with respective Carter Coordinates.**
- **The proposed drill path or course of the well with distance and bearing.**
- **Identification of the Intersection Length (Horizontal distance between point at which well penetrates top of target formation and end point within that formation).**
- **A dashed line shall be drawn around intersection length to avoid conflicts with spacing requirements.**

The well operator shall submit to the Division three copies of a cross-section of the proposed wellbore prepared by the contractor responsible for the directional control mechanism. The cross-section shall include:

- **The kick-off point or depth at which deviation is started.**
- **Known coal seams to be intersected.**
- **Proposed producing formation(s).**
- **Proposed target formation.**

A CASING AND CEMENTING PLAN shall be prepared detailing the casing size, type, weight/ft., grade and depth to be used along with cement class, weight, additives and quantity used on each casing string. A Blow-Out Preventer is to be used in the event high pressure is encountered during drilling; information on the brand and type of BOP is required on Form ED-7 (See section on BOP for more information). The operator shall also file an OPERATOR CERTIFICATION OF FORMATION OFFSET AND VERTICAL DEPTH which lists tops and bottoms of formations and coal seams penetrated with the lateral offset (in feet) from the well site and the true vertical depth of those zones. Any coal operator or owner adversely affected by directional drilling shall be supplied with copies of the pre-drill well plat and cross-section diagram before drilling and directional surveys and copies of wellbore cross-sections within ten days after drilling.

The well operator shall notify the oil and gas inspector at least 48 hours prior to spudding a directional well. When filing well records or providing the inspector with information, the operator should differentiate between true vertical depth and measured depth as measured depth will exceed true vertical depth due to curvature of the wellbore. Within ten days after the well has been drilled the operator shall provide the Division with copies of directional surveys, three copies of cross-sections of the wellbore with drill path of the borehole, coal seams, target formation(s) and kick-off point.

Regulation-805 KAR 1:140
Statute-KRS 353.550
Form-WELL PLAT
CROSS-SECTION OF WELLBORE (Prepared by Directional Survey Contractor).
CASING and CEMENTING PLAN (Form ED-7, See Appendix B)
OPERATOR CERTIFICATION OF FORMATION OFFSET and VERTICAL DEPTH (Form ED-8, See Appendix B)

II. DRILLING

Spudding-Drilling

Division of Oil and Gas

Before drilling operations begin, the operator shall notify the oil and gas inspector (identified on the permit) at least one day prior to spudding. A copy of the permit shall be kept at the well site during drilling operations. Casing requirements for the protection of fresh water zones and mineable coal seams are detailed later in this manual. When drilling is completed, the operator shall supply the inspector with the total depth, size and amount of casing strings with cement quantities, and completion status of the well.

The operator shall file a WELL LOG AND COMPLETION REPORT within 90 days after total depth is reached. If the well is to be plugged immediately after drilling, the operator shall obtain plugging instructions from the inspector (refer to section on Plugging of Wells in the ABANDONMENT and CLOSURE chapter of this manual).

Statute-KRS 353.660
Form-WELL LOG AND COMPLETION REPORT (Form ED-3, See Appendix B)

Blow-Out Preventer Requirements

Division of Oil and Gas

If a deep or directional well is being drilled, a blow-out preventer (BOP) with a working pressure of 1,500 psi and test pressure of 3,000 psi, may be required to prevent the uncontrolled flow of high-pressure gas or formation fluids from the wellbore to the surface or into lower-pressured subsurface zones. The BOP must be designed to:

- **Close the well at the surface.**
- **Control the release of formation fluids.**
- **Permit pumping into the wellbore.**
- **Allow movement of the drill pipe**.

On "deep" wells, the BOP shall be installed prior to the depth required for the well to be classified as a deep well, preferably after surface or intermediate casing is cemented. The BOP should be tested before the casing shoe is drilled out and test results kept at the well site for review by the inspector. Information on the type, brand, working and test pressures are to be included on Form ED-7, which is required for deep and directional wells. The Director may waive the use of a BOP if the operator presents geologic and reservoir data from adjacent wells of the target formation showing pressure measurements do not require the use of a BOP.

Regulations-805 KAR 1:130 Section 3 and 1:140
Statutes-KRS 353.520 and 353.550
Form-CASING AND CEMENTING PLAN (Form ED-7, See Appendix B)

Emergency Situations

Division of Oil and Gas

The inspector, and inspector supervisor are to be notified immediately in the event of an accident or situation occurring at a wellsite which may endanger the environment, public and/or employee safety or natural resources of the Commonwealth (see Appendix A for Inspector Directory). This includes blow-outs, release of H_2S, NORM exposure, well fires, oil spills and gas leaks. Under direction from the inspector and other regulatory agencies, the well operator must take corrective measures to insure minimal health and environmental damage.

Well operators are encouraged to use "best management practices" when producing oil and gas to reduce danger and perform periodic risk assessment to evaluate safety practices.

Statute-KRS 353.500

Drilling Pits

Division of Water

Drilling pits shall be constructed to have the capability and the capacity to contain drilling fluids so that contamination of the waters of the Commonwealth do not occur. Spills or releases having the potential of degrading the environment or impacting human health and safety must be reported to the Environmental Response Team at (502) 564-2380 or 1-800-928-2380. For drilling and workover activities, the following need to be addressed:

- **A pit must be constructed which will contain all the cuttings and fluids anticipated for the area and depth to be drilled. Adequate freeboard (distance of fluid level in pit to upper rim) should be maintained and checked regularly during drilling. If necessary, a secondary pit should be constructed in such a manner as to contain or prevent overflow.**
- **Containment structures should be placed to contain all spilled fuel, crude oil and drilling fluids.**
- **Consideration given to the type of material used in the construction of the pit to prevent groundwater contamination and leakage.**

Within thirty (30) days following completion of drilling activities, the pits shall be closed. Waste shall be removed from the pit and disposed of in accordance with Kentucky laws and regulations. All visible contamination must be removed from the pit during closure. The appropriate waste disposal method is dependent upon the waste's components (make-up). The pit area shall be backfilled, graded and revegetated. The vegetative cover shall be capable of preventing soil erosion.

Pits in place longer than thirty (30) days shall be considered as "Holding Pits" and shall meet their requirements (See Holding Pits). However, the Director of the Division of Water may, with good cause, extend the pit's life up to a maximum of ninety (90) days. A written request seeking that extension should be submitted before the day of completion.

Regulation-401 KAR 5:090 Section 10
Statutes-KRS 151.125, 224.10-100 and 224.70-110

Storage of Drilling Fluids

Division of Waste Management

Oil production brine pits and drilling mud pits that are regulated by the Division of Water are also regulated by the Division of Waste Management as permit-by-rule sites. For permit-by-rule sites, the operator does not need to submit any paperwork to the Division, but the operator must avoid any activity that would cause environmental problems, such as surface water or groundwater pollution. If permit-by-rule sites do cause environmental problems, the operator is subject to fines and possible imprisonment, in accordance with applicable statutes.

Regulations-401 KAR Chapter 30, 401 KAR 31:030 and 45:060
Statute-KRS 224.50-760

Handling and Disposal of Trash

Division of Waste Management

Trash, including any discarded paper, soft drink cans, trees, brush, and other waste material, must be hauled off-site for recycling or disposal in an approved landfill. These materials must not be placed in the pit or otherwise disposed of on-site, unless a permit is obtained from the Division of Waste Management. To locate recyclers and the landfills nearest you, contact the appropriate Division of Waste Management field office (See Appendix A). A list of approved landfills is in Appendix A. Some specific waste provisions are as follows:

- **BURNING- Except for land clearing debris (trees and brush), waste must not be burned. When burning land and clearing debris, the operator must comply with requirements of the Division for Air Quality (502-573-3382) and with any local ordinances (contact your local courthouse to determine whether there are any local ordinances on burning).**
- **ROAD OILING- Road oiling must not occur. Used oil must be burned in a space heater in accordance with hazardous waste regulations, or it must be taken to a collection center to be recycled or burned for energy recovery. To locate a collection center in your area, contact the Kentucky Division of Energy (1-800-282-0868). Refer to "Disposal of Tank Bottom Sediments" on page 18.**
- **TIRES- Waste tires may be temporarily stored on-site, if they are covered with a tarp or are otherwise managed to prevent the entrapment of water. If you accumulate more than 100 waste tires, which would be rare at an oil and gas operation, you must register with the Division of Waste Management and comply with the waste tire control program. As with other solid waste, tires must not be burned, and they must be taken to a permitted landfill or recycler.**
- **LEAD ACID BATTERIES- Used lead acid batteries must be taken to a wholesaler or retailer of new batteries, a battery recycling facility, a secondary lead smelter, or a collection center that delivers to a recycler or smelter. Broken batteries are considered hazardous wastes and spill residue must be restored and contained.**
- **SINKHOLES- Waste must never be put in or next to a sinkhole.**
- **STREAMS- Waste must not be placed in or next to a stream.**

Regulations-401 KAR 30:031 and 401 KAR 31:010
Statutes-KRS 224.40-100, 224.40-305, 224.50-410, 224.50-413, 224.50-826, and 224.50-832

Protection of Fresh Water Zones

Division of Oil and Gas

The well operator is required to circulate cement to surface in the annular space between casing and wellbore to protect fresh water zones from contamination with crude oil, natural gas and brine fluids. When the well is being drilled, surface or intermediate casing strings, whichever are set through the fresh water zone, shall extend at least 30 feet below the deepest known fresh water and cemented to surface. If the well is to be plugged, recoverable casing shall be cemented to the surface or pulled. The approximate deepest fresh water zone is identified on the permit. Any questions should be directed to the inspector.

Regulation-805 KAR 1:020
Statute-KRS 353.520

Drilling Through Coal Seams

Division of Oil and Gas

Wells penetrating mineable coal seams shall be drilled in such a manner as to protect the seam from oil and natural gas pressure, or water being produced from deeper zones. Surface or intermediate casing strings shall extend at least 30' below the deepest mineable coal with cement circulated to surface. Areas where multiple coal seams are present shall be "cased-off" in a similar manner. Casing set to protect coal seams shall remain in place for the life of the well. If a well penetrates a seam which has been "mined-out," a liner may be set or cement baskets on a casing string may be installed. If a liner is installed, it shall be set 20' below the coal seam and extend to at least 20' above the seam. Casing shall then be installed through the liner and the annular space between the casing and liner cemented. The preferred method would be to install a cement basket at the top of the seam.

Statutes-KRS 353.080 and 353.100

Drill Samples-Generation and Storage

Division of Oil and Gas

The Kentucky Geological Survey's Well Sample Library maintains catalogues of drill cuttings of wells strategically located throughout Kentucky. If the samples are requested by the Survey, the well permit will be stamped accordingly. The operator shall deposit the samples at the nearest collection facility provided by the Survey. See Appendix A for a listing of collection facilities.

Statute-KRS 353.660

Drilling Deeper than Permitted Depth

Division of Oil and Gas

If an operator drills a well deeper than the permitted depth listed on the permit, the following steps are required:

- **The operator shall notify the inspector or inspector supervisor the next working day.**
- **The operator shall amend the permit to the current depth of the well within ten days.**
- **The operator shall submit additional bonding to reflect the depth within ten days (only for individual well bonds).**
- **The depth shall not cause the well to be in violation of spacing requirements discussed earlier in this manual.**

Regulation-805 KAR 1:120
Statute-KRS 353.590 Section 6

III. COMPLETION-OPERATION

Well Completion-Filing of Well Records

Division of Oil and Gas

Within 90 days after a well has reached total depth, the well shall be completed as a producing well or dry hole and the operator shall file a WELL LOG AND COMPLETION REPORT with the Division of Oil and Gas. The completion form shall be completed in its entirety or it will be returned to the operator.

Copies of electrical or geophysical logs (if run) shall be submitted with the completion report. If the well is plugged, a PLUGGING AFFIDAVIT shall be submitted identifying the depths and quantity of cement plugs, types and depths of other plugs (brush, bridge, etc.), casing pulled and casing left in the well.

All well records are forwarded to the Kentucky Geological Survey and kept on file for public access. At the request of the well operator, the Division of Oil and Gas may hold all information confidential for one year from the date received from the operator.

Statute-KRS 353.660
Form-WELL LOG AND COMPLETION REPORT (Form ED-3, See Appendix B)
PLUGGING AFFIDAVIT (Form ED-38, See Appendix B)

Disposal of Completion Fluids

Division of Waste Management

Completion fluids fall under the definition of solid non-hazardous waste. Temporary storage of these fluids is regulated as a solid waste permit-by-rule. Permit-by-rule sites do not need to submit any paperwork to the Division, but do need to comply with the environmental performance standards. Disposal of such waste is not covered by a permit-by-rule, and the applicable regulations depend on the disposal method to be employed. In order to dispose of the waste at the site by applying it to the land, a permit shall be obtained. The waste can be hauled off-site and disposed of in a permitted solid waste landfill, as long as it is allowed under the permit for that landfill.

Regulations-401 KAR Chapter 30, 401 KAR 31:030, 401 KAR 47:030 and 401 KAR 47:150

Registration of an Oil and Gas Facility

Division of Water

Within 60 days after the facility begins producing oil and/or gas, the facility shall be registered with the Division of Water. A tank battery and its associated wells, pits and other associated structures constitute one facility. Facilities not associated with a tank battery shall be registered individually.

Dry gas wells are exempt from the registration requirements, provided they are permitted with the Kentucky Division of Oil and Gas. Operators of dry gas wells having produced water are required to dispose of it by utilizing an approved method (See Produced Water Disposal).

Notification of the assigned registration number is sent to the owner/operator by certified mail. The operator is required to post a waterproof sign at each facility. The sign shall be of a size and type approved by the Director and identify the operator's name, address, phone number and the facility's registration number. The phone number listed shall be a number that can access a company representative throughout any part of a 24 hour period.

The registration number is active for the life of the oil and gas facility. It is terminated when the facility and associated structures are removed and the site reclaimed to prevent soil erosion.

Regulation-401 KAR 5:090 Section 4
Statutes-KRS 151.125, 224.10-100 and 224.70-110
Form-OIL AND GAS FACILITY REGISTRATION FORM (See Appendix B)

Storage and Piping System Compliance

State Fire Marshal's Office
Hazardous Materials Section

The storage and handling of all flammable and combustible liquid at gas or oil wells and related production facilities shall comply with the requirements of NFPA 30 and the Kentucky Fire Prevention Code.

Regulation-815 KAR 10:050
Code-NFPA 30 and the Kentucky Fire Prevention Code
Form-PERMIT FOR CONSTRUCTION OF ABOVE GROUND STORAGE TANKS FOR PETROLEUM OR HAZARDOUS SUBSTANCE (See Appendix B)
Fee-$50.00

"DANGER" Signs Posted on Storage Facilities

Division of Oil and Gas

The Division of Oil and Gas requires well operators to post **DANGER** signs in a prominent location on all storage facilities and tank batteries that are active or abandoned. The sign shall be approved by the Division. An approved sign may be obtained from the Kentucky Oil and Gas Association or the operator may make a similar approved sign (See Appendix A).

Regulation-805 KAR 1:160 (New Regulation)

Spill Prevention Control and Countermeasure (SPCC) Plan

Division of Water

Spill Prevention Control and Countermeasure (SPCC) Plans are required for any single above ground container with a capacity of more than 660 gallons and for two or more above ground tanks which exceed 1,320 gallons collectively. SPCC Plans require the following:

- **A bermed area around the tank(s) having the capacity to contain the fluid volume of the largest tank.**
- **A list of containment or diversionary structures (dikes, impervious liner, berms, etc.) for each tank and/or tank battery.**
- **For each tank, prediction of quantity of oil that would be spilled and direction of flow should the tank rupture or overflow.**
- **An oil spill contingency plan stating steps of action in handling an oil spill; such as, using oil booms, sorbent material and who would be notified.**
- **List of manpower, equipment and materials available to carry out the plan.**
- **Familiarize operating personnel with the plan.**

The dike or berm around the tank battery shall provide a containment area sufficient enough to hold the volume of the largest tank within the tank battery. The dike or berm shall be constructed to prevent contact of storm water runoff from the outlying area with the area it encloses. Spills, leaks or bypasses contained within the spill prevention, control and countermeasure (SPCC) of a facility need to be reported and cleaned up. These events have the potential to impact groundwater and storm water. Storm water and other fluids shall not be allowed to accumulate within the containment area; in doing so, the SPCC Plan is not sufficient. The Plan does not need to be submitted to the Division of Water for approval but, may be required for certain facilities on a case-by-case basis. The SPCC Plan shall be reviewed and certified by a Registered Professional Engineer.

Regulation-401 KAR 5:090, Section 13
Statutes-KRS 151.125, 224.10-100 and 224.70-110
Code of Federal Regulations-40 CFR Part 110 and Part 112

Underground Storage Tanks

Division of Waste Management

Regulated underground storage tanks (USTs) shall be registered with the Underground Storage Tank Branch. This includes tanks larger than 110 gallons that have ten percent or more of the tank volume including piping beneath the surface of the ground. Specific requirements for leak detection, release reporting, closure, corrective action and financial responsibility for regulated USTs are found in 401 KAR Chapter 42.

For oil and gas facilities, liquid traps or associated gathering lines directly related to oil or gas production and gathering operations are exempt from the UST regulations. Any underground or above ground storage tanks that are exempt from the UST regulations do not have to be registered or be subject to annual fees. Exempt tanks do not have to be closed unless there is a release from the tank.

(See Section III, subsection on Cleanup of Oil, Protected Fluids and Chemical Spills). The Superfund Branch handles closure of exempt tanks and petroleum releases. Forms to register USTs may be obtained from the UST Branch of the Division of Waste Management at (502) 564-6716.

Regulations-401 KAR Chapters 30 to 42
Statute-KRS 224.60-100 to 224.60-160
Forms-DEP-5024 (Registration of tank), other forms necessary for closure
Time-Notification shall be submitted within thirty (30) days of bringing tanks into use.
Fee-$30/year

Disposal of Tank Bottom Sediments (BS)

Division of Waste Management

Tank bottoms are exempt from hazardous waste requirements, provided the bottom is a direct result of drilling fluids, produced water, and other waste associated with the exploration development, or production of crude oil, natural gas, or geothermal energy.

Tank bottoms shall not be removed from the tank and burned, and they shall not be dumped or spread on the ground without a permit from the Division of Waste Management. Tank bottoms shall not be taken to a landfill unless there are no free liquids and the waste meets requirements established by the landfill. Tank bottoms should be recycled as waste oil at an approved recycler or crude oil processor (See Appendix A for a list of approved landfills).

Regulations-401 KAR Chapter 30, 401 KAR 31:030, 47:030 and 401 47:150

Transfer of Ownership/Operatorship of Oil and Gas Facility

Division of Water

The operator of the facility shall file an updated registration form when the following occurs:

- **Change in ownership/operatorship**
- **Change in the quantity of produced water**
- **Change in the treatment, storing, or disposing of produced water**

When a facility has a change of ownership/operatorship, a TRANSFER OF OWNERSHIP Form is to be submitted to the Division of Water. It is to be accompanied with an updated registration form completed by the new operator. The new operator must post a sign with his name, address, 24 hour phone number and facility's registration number.

Transfer of an oil and gas facility with the Division of Water does not relieve the operator from transferring the well associated with the facility with the Division of Oil and Gas.

Regulation-401 KAR 5:090 Section 4
Statutes-KRS 151.125, 224.10-100 and 224.70-110
Form-TRANSFER OF OWNERSHIP (See Appendix B)

Transfer of Well Ownership

Division of Oil and Gas

When a well is acquired by an operator, the well or wells shall be transferred to the successor and bonded. The original well operator is responsible for filing a WELL TRANSFER identifying the well name and number, permit number, Carter coordinates and successor operator. A fee of $25 payable to the "Kentucky State Treasurer" is assessed for each well transferred. The operator acquiring the well shall bond the well as described earlier in this manual.

Transfer of a well with the Division of Oil and Gas does not relieve the operator from transferring the oil and gas facility associated with that well with the Division of Water.

Statute-KRS 353.590
Form-WELL TRANSFER (Form ED-13, See Appendix B)
Fee-$25 per well.

Holding Pits

Division of Water

When a pit is to be used for receiving and storing produced water, then a permit is required. The permit shall be obtained before construction begins. The application shall be submitted no less than 30 days before the desired date of starting construction.

Holding pits are used for storing produced water. Holding pits are required to have:

- **An impermeable synthetic liner with a minimum thickness of 20 ml to prevent the contamination of groundwater.**
- **A two foot continuous berm to divert surface drainage and prevent any discharge from the pit.**
- **A freeboard level of one foot to assure that no discharge will occur.**

No discharge from a holding pit is allowed, unless it has coverage under a Kentucky Pollutant Discharge Elimination System (KPDES) Permit.

A holding pit permit is valid for as long as the pit is used for the purpose it was intended. When a holding pit is no longer used for its intended purpose, it shall be backfilled, graded and revegetated. Upon written approval of the director, a holding pit may remain as a permanent structure or be used for other purposes.

Statute- KRS 151.125, 224.10-100 and 224.70-110
Regulation-401 KAR 5:090, Section 9
Form-APPLICATION FOR CONSTRUCTION AND OPERATION OF A PRODUCED WATER HOLDING PIT (See Appendix B)
Fee-$100

Improperly Abandoned Wells - Temporary Abandonment Permits

Division of Oil and Gas

After a well is completed as a productive well, production shall be established within a reasonable time taking into account market conditions, pipeline access, weather, etc. If a well is not producing it shall be considered Improperly Abandoned. A non-productive well can be classified as Temporarily Abandoned (TA) after the inspector has evaluated the casing integrity, wellhead and conditions warranting the non-productive status. The operator shall complete a TEMPORARY ABANDONMENT PERMIT and submit to the Division of Oil and Gas with a copy of the WELL LOG AND COMPLETION REPORT which will be forwarded to the inspector for his evaluation. T.A. permits can be issued for up to a period of two years and can be renewed if the inspector thinks it is justified, but will require the operator to re-file the T.A. permit. Gas wells subjected to periodic shut-in periods due to market conditions are not considered Improperly Abandoned.

Statute-KRS 353.550
Form-TEMPORARY ABANDONMENT PERMIT (Form ED-12, See Appendix B).
Time-T.A. may be issued for up to 2 years.

Underground Injection (Class II) Wells

U. S. Environmental Protection Agency (EPA)
and
Kentucky Division of Oil and Gas

The U.S. E.P.A., Region Four (IV), Groundwater/Underground Injection Control (UIC) Section in Atlanta, Georgia, regulates wells in which fluid is injected under pressure (Class II Wells) in Kentucky. A permit from the E.P.A. is required for Class II wells. Injection of fluids shall be done through a tubing and packer arrangement with the packer set immediately above the injection zone. A Mechanical Integrity Test (MIT) is required on the annulus between the tubing and production casing. The MIT requires pressure of at least 300 lbs. applied on the annular space and monitored by pressure sensitive devices for at least 30 minutes. A pressure variance not to exceed 9 lbs. above or below 300 lbs. is acceptable during the 30 minute test period. For questions relating to UIC wells and to obtain regulations and forms, operators should contact the EPA at (404-347-3379).

Well operators shall file a CERTIFICATE OF COMPLETION FOR AN INJECTION WELL with the Division of Oil and Gas which contains information on the casing, tubing, type and depth of packer, injection pressure and reservoir information. This information is required to insure the protection of fresh water zones.

Regulation-805 KAR 1:020
Form-CERTIFICATE OF COMPLETION FOR AN INJECTION WEL (Form ED-23, See Appendix B)
Federal Agency-U.S. E.P.A
Regulations-40 CFR 124, 144, 146, and 147.
Form-U.I.C. PERMIT (EPA Form 7520-6, Contact USEPA, Region IV office)

Produced Water Disposal

Division of Water

Owner/operators of a facility having produced water are required to identify their method of disposal on the registration application form. The disposal of produced water shall be accomplished in a manner that will not contaminate the waters of the Commonwealth. The following are approved methods for disposing of produced water:

- **Injection into an approved, permitted or rule-authorized Class II underground injection well.**
- **Surface discharge covered under a Kentucky Pollutant Discharge Elimination System (KPDES) Permit.**
- **Transporting produced water off-site to a UIC Well.**
- **Using enhanced evaporation to evaporate produced water.**

In using the transport off-site method, the approval of the Division of Water's Director is required before doing so. There is no fee for receiving this approval. Operators seeking to use this method are to submit the APPLICATION TO DISPOSE OF PRODUCED WATER OFF-FACILITY form. This approval remains in effect, as long as the operator who received it continues to operate the facility in the manner they have filed with the Division of Water (DOW) or otherwise conditioned by the DOW.

If the produced water is considered to be hazardous material: For example, it could contain natural occurring radioactive material (N.O.R.M.). Then the carrier and their vehicle would need to be recognized by the Division of Motor Vehicle Enforcement, Department of Vehicle Regulation, Transportation Cabinet.

In using the surface discharge method, a KPDES permit is required for any discharge associated with the facility's operation. The owner/operator of the facility is required to have the KPDES permit in their name. This permit has a fee of $2,100 and covers designated points of discharge for 5 years. The operator is required to take samples of the discharges, have a laboratory analyze the samples and submit discharge monitoring report forms to show compliance with the permit's limitations. A KPDES permit shall be obtained before any discharge from the facility's operation can occur. The forms needed to apply for this permit are KPDES Form 1 and Form C. These forms have several pages and were not included in this document, however, they may be obtained from the KPDES branch of the Division of Water at (502) 564-2225, Ext. 593.

A typical KPDES permit covering discharges of produced water would have the following effluent limitations:

Effluent Characteristic	Monthly Avg.*	Daily Max.*
Total Suspended Solids (TSS)	30 mg/1	60 mg/1
Oil and Grease	10 mg/1	15 mg/1
Chlorides	600 mg/1	1200 mg/1

***mg/1**=milligrams per liter

pH shall not be less than 6.0 standard units nor greater than 9.0 standard units.

The enhanced evaporation method involves heating the produced water to the point of evaporation. Facilities with small amounts of produced water may consider this option. With this method, there are no discharges from the facility and the produced water is evaporated on site. No permits or fees are required.

Regulation-401 KAR 5:090 Sections 5,6,8 and 11
Statutes-KRS 151.125, 224.10-100 and 224.70-110
Federal Regulation-49 CFR 100 thru 177
Fee-Dependent Upon Method of Disposal Chosen.
Form-Dependent Upon Method of Disposal APPLICATION TO DISPOSE OF PRODUCED WATER OFF-FACILITY, (See Appendix B)

Use of Vacuum for Enhanced Recovery

Division of Oil and Gas

The use of vacuum units for increasing production from low pressure depleted reservoirs require the operator to notify, by registered mail all well operators within 1,000 feet of the well in which the vacuum unit is to be installed. The operator shall file an APPLICATION FOR PERMIT FOR USE OF VACUUM with the Division for each lease.

Regulation-805 KAR 1:040
Statute-KRS 353.560
Form-APPLICATION FOR PERMIT USE OF VACUUM (Form ED-9, See Appendix B)

Hazardous Waste Generation Storage and Disposal

Division of Waste Management

Any well operator who generates waste is required to determine if the waste is hazardous. Waste from oil and gas production may be classified due to ignitability, corrosivity or toxicity for metals or organics. Hazardous waste generated by well operators may include but are not limited to:

- **Used antifreeze.**
- **Unused fracturing fluids or acids.**
- **Gas plant cooling tower cleaning waste (e.g. spent glycol).**
- **Painting waste.**
- **Liquid and solid waste generated by crude oil and tank bottom reclaimers.**
- **Used equipment lubricating oils.**
- **Waste compressor oil, filters and blowdown.**
- **Used hydraulic fluids.**
- **Waste solvents (e.g. used to clean equipment and equipment parts).**
- **Waste in transportation pipeline-related pits.**
- **Caustic or acid cleaners.**
- **Radioactive tracer wastes.**

- **Vacuum or compressor discharge lines.**

Operators of oil and gas wells are generally considered "conditionally exempt small quantity waste generators" because the amount of hazardous waste generated is less than 220 lbs. per month (approximately half of a 55 gallon drum). This level of waste generators are not required to register with the Division of Waste Management but shall determine if waste is hazardous and shall store the waste in tanks or containers. Storage of hazardous waste at a well site may not exceed 220 lbs. to maintain status at this level. This level of waste generators may dispose of hazardous waste at a permitted recycling facility or a solid waste landfill approved to accept this waste. If an operator mixes hazardous waste with non-hazardous drilling waste, the mixture is considered as hazardous and the operator shall determine if the mixture will exceed the 220 lbs. for this level of waste generators.

Waste quantities ranging from 220 to 2,200 lbs. per month would classify the operator as a "small quantity generator" and operators exceeding 2,200 lbs. per month are considered "large quantity generators." Small and large quantity generators must register with the Division of Waste Management and must comply with additional storage, transportation, disposal and reporting requirements that do not apply to limited quantity generators. To obtain forms to register as a generator, contact the Hazardous Waste Branch of the Division of Waste Management at (502) 564-6716.

To avoid being classified as a small or large quantity waste generator, the well operator should:

- **Substitute whenever possible less toxic materials and initiate best management practice in the site operations.**
- **Ensure the waste generated does not exceed 220 lbs. for any calendar month.**
- **Keep hazardous and non-hazardous material separate.**

Regulations-401 KAR Chapter 30, 401 KAR Chapter 31 and 401 KAR 32:010
Statute-KRS 224.46-510
Forms-DEP-7037 (For Hazardous Waste-Exceeding 220 lbs./month)
Fee-$300 (For Hazardous Waste-Exceeding 220 lbs./month)

Groundwater Protection Plan

Division of Water

Activities with the potential to pollute groundwater are required to have a groundwater protection plan (GPP). Operators have the responsibility to identify those activities which pose a potential threat to groundwater and take steps to prevent the pollution of groundwater from those activities. A groundwater protection plan shall be prepared and implemented at each facility. The groundwater protection plan shall be submitted to the Division of Water, Groundwater Branch for review. If you have questions regarding this matter, contact the Groundwater Branch at (502) 564-3410.

Regulation: 401 KAR 5:037
Statutes: KRS 224.01-010, 224.10-100, 224.70-100 and 224.70-110

Reporting Spills, Bypasses and Leaks of Oil, Produced Fluids and Chemicals

Division of Waste Management
Division of Water

When a spill, leak or bypass occurs from a pipeline, drilling pit or container used for transporting or storing any substance that would result in soil contamination and/or contribute to the pollution of the Waters of the Commonwealth; the persons in charge of the activity shall immediately notify the Division of Water. The situation shall be reported immediately to the Environmental Response Team at (502) 564-2380 or 1-800-928-2380. The following information will be asked:

- **The responsible party.**
- **Location and point of discharge.**
- **The nature of the material discharged.**
- **Estimate the quantity of the material discharged.**
- **Estimate of probable environmental impact.**

The waters of the Commonwealth means and includes all rivers, streams, creeks, lakes, ponds, impounding reservoirs, springs, wells, marshes and all other bodies of surface or underground water, natural or artificial, situated wholly or partly within or bordering upon the Commonwealth.

For any spill or release of oil that occurs on the soil, the well operator shall report any release or spill of crude oil when the amount exceeds 25 gallons during a 24-hour period. Such releases of petroleum based products should be reported immediately to the Environmental Response Team at the number previously listed.

Even if the release is contained on soil; cleanup is required. When a release of oil, produced fluids, or chemicals occurs into the environment; groundwater can be contaminated and the ground can become unsafe for children and wildlife. The responsible party must determine the full extent of the release's effect upon the environment, take steps to correct that effect and prevent any additional effect. Any release or spill which causes or has the potential of causing a sheen on the Waters of the Commonwealth is in violation of the Clean Water Act, Section 311. Spills, leaks or bypasses contained within the spill prevention, control and countermeasure (SPCC) of a facility need to be reported and cleaned up. These events have the potential to impact groundwater and storm water runoff. Spills, releases or bypasses left in the SPCC can permeate (penetrate) into the soil contaminate groundwater and storm water. Requirements of SPCC Plans are discussed on page 15. All spills, bypasses and/or releases shall be remediated.

Regulations-401 KAR 5:090 Section 13 and 401 KAR 5:015
Statutes-KRS 151.125, 224.10-100 and 224.70-110, 224.01-400(11), 224.01-400 (18 to 21) and 224.01-405

Cleanup of Oil, Produced Fluids and Chemical Spills

Division of Waste Management
Division of Water

Any petroleum or chemicals spilled or otherwise released onto soils or into waters must be immediately cleaned up. Steps in this process include:

- **Determine the extent of the release and its effect on the environment.**
- **Correct the effect of the release on the environment.**

Characterization will generally include a thorough sampling of soils, surface water and groundwater. Information gathered in these steps are then used to select one of the following options available for corrective action:

- **Demonstrate that no action is necessary to protect human health, safety, and the environment.**
- **Manage the release in a manner that controls and minimizes the harmful effects of the release and protects human health, safety, and the environment.**
- **Restore the environment through the removal of the hazardous substance.**
- **Any of the above combinations.**

This can be accomplished in accordance with the following options: digging up contaminated soils and hauling such soils to an approved landfill, treating contaminated soils in a manner approved by the Division of Waste Management, closing the site in accordance with risk-based procedures, closing the site as a residual landfill, or by implementing other options permissive under the appropriate statute. If the release exceeds a reportable quantity (see previous section), the cleanup must be conducted under the supervision of the Division of Water or the Division of Waste Management. If the release is below a reportable quantity, the contamination must still be removed or otherwise cleaned up, but these activities usually will not need to be supervised by either division. Failure to clean up a release, even if the release was less than a reportable quantity, can subject the operator to fines and possible imprisonment. Contact the appropriate Division of Water or Division of Waste Management field office for additional information on cleanups.

Statutes-KRS 224.01-400 and 224.01-405

N.O.R.M.

Cabinet for Human Resources-Radiation Branch

Naturally Occurring Radioactive Material (N.O.R.M.) is formed when reservoir production fluids (oil and water) combine with secondary recovery fluid, downhole temperature and pressure to dissolve radioactive radium or radon within the producing formation. The radioactive material attaches to production equipment (tubing, casing, inside separators and storage tanks) in the form of scale. It is suggested that at the time of plugging a well, the equipment be scanned for N.O.R.M with an appropriate scanning device. For more information regarding scanning, monitoring or disposal, contact the Radiation Branch at (502) 564-3700.

Filing of Annual Oil and Gas Production

Division of Oil and Gas

Oil and natural gas annual production information shall be supplied to the Division of Oil and Gas on or before April 15th for the previous year's production. For gas or combination oil and gas wells, the following well information is required: Permit Number, Purchaser Number (Assigned by Purchasing Company), Lease Name, Producing Formation - If more than one, list as "Commingled" and list all producing zones, Produced Gas - Gas measured at wellhead or pro-rated based on pick-ups or open flow tests, Net Gas Sales - Actual gas sold, may be different from Produced Gas due to line loss or compressor usage) and Gas Well Status (Producing or Shut-In). Crude oil production can be reported by individual well or lease basis. When reporting oil production by lease the purchaser lease number used by the oil purchaser shall be included. A listing of permit numbers for wells on each lease shall be attached to the form making reference to the purchaser lease number.

Regulation 805 KAR 1:180 (New Regulation)
Statute-KRS 353.205 and 355.550
Form-ANNUAL REPORT OF MONTHLY PRODUCTION (Form ED-17, See Appendix B)

Underground Mining Activity Near a Well

Department of Mines and Minerals

Underground mining activity within 500 feet of a producing or plugged well requires the mining company to identify the well location, permit number and operator on an APPLICATION TO MINE WITHIN 500 FEET OF AN OIL OR GAS WELL and submit to the Department of Mines and Minerals. The mining company also sends a copy of Form OG-500 to the well operator. Upon receipt, the well operator may file an objection with the Department of Mines and Minerals within 15 days if, in the well operator's opinion, mining activity will adversely affect wellbore integrity.

Statute-KRS 352.510
Form-APPLICATION TO MINE WITHIN 500 FEET OF AN OIL OR GAS WELL (Form OG-500, See Appendix B)

Farm Tap Service

Public Service Commission

The operator of a gas pipeline company is required to provide service (farm tap) to a person who owns property on which the company's gas well or gas gathering pipeline is located, or to a person whose property and point of desired service is located within one-half (1/2) air mile of the gas pipeline company's gas well or gas gathering pipeline. The company is responsible for providing the meter and service tap, including saddle and first shutoff valve. The prospective customer (applicant) must provide all other equipment and material required for service.

In Appendix A the type of information the company must provide the applicant, specifies the installation methods and materials required. Prior to the company initiating service, the Public Service Commission shall cause the tap and applicant's service line to be inspected. If the company charges a rate for gas service, it shall have a tariff on file with the Public Service Commission.

In providing farm tap service, the P.S.C. does not require the gas producer or gas pipeline company to maintain a fixed or specific gas pressure; nor is the gas pipeline company restricted from abandoning any gas well or gas gathering pipeline.

Regulation-807 KAR 5:026
Statute-KRS 278.485

Gas Production or Gas Gathering Pipelines

Public Service Commission

The Public Service Commission does not assert jurisdiction over gas production or gas gathering pipelines. However, if a gathering pipeline is located in a Class 3 location (area with 46 or more buildings or area where building is within 100 yards of pipeline - See Glossary for more complete definition), it is subjected to the Public Service Commission's safety regulations. A gathering pipeline is defined as a pipeline that transports gas from a current production facility to a transmission line or main.

Regulations-807 KAR 5:022 Sec. 1(3) and Sec. 1(1)(f)
Statute-KRS 278.010(3) (b) and (c)

Quality of Gas

Public Service Commission

The Public Service Commission requires that all gas supplied to customers contain no more than:

- **A trace of hydrogen sulfide**
- **Thirty grams of total sulphur per 100 cubic feet; or**
- **Five grams of ammonia per 100 cubic feet.**

Each utility must also establish and maintain a standard heating value (BTU content) for its gas, which shall be included in the utilities tariff on file with the Public Service Commission. Utilities should consult Regulation 807 KAR 5:022, Section 15 and 16 for additional requirements regarding the purity and BTU content of its gas.

Utilities and gas pipeline companies serving customers under Statute 278.485 are exempt from these requirements.

Regulation 807 KAR 5:022 Sec. 1(2)(a); 15; and 16

Gas Storage

Public Service Commission

The Public Service Commission regulates the aboveground facilities of a gas storage operation which are used to inject or withdraw gas. Such facilities include, but are not limited to: meters, regulators and related facilities for measuring the amount of gas and regulating its pressure; and the design, construction and operation of pipelines used to deliver gas to and from storage. Depending

upon their location and use, gathering pipelines connected to a gas storage operation may be exempt from the Public Service Commission's authority.

A person who wishes to operate a gas storage operation must receive prior approval from the Public Service Commission before constructing and operating aboveground facilities, including pipelines, for a gas storage operation. The operator should include in the filing with the Public Service Commission the relevant information pertaining to the storage field itself required by the Department of Mines and Minerals, Division of Oil & Gas.

Regulation-807 KAR 5:022, Sec. 1(1)(a) (1)(5)
Statute-KRS 278.010 (3)(b) and (c), 278.504

IV. ABANDONMENT AND CLOSURE

Plugging of Wells

Division of Oil and Gas

The Division of Oil and Gas regulates plugging of all wells in Kentucky. Before plugging operations begin, the well operator shall contact the oil and gas inspector to obtain plugging instructions and establish a time and date for plugging. The well operator shall provide the inspector with a record of the formations (driller's log), depths of all casing, depths of coal seams and fresh/saline water zones. If the well penetrates a mineable coal seam, the operator shall notify, by registered mail, operators of the coal seam of intention to plug and abandon at least five (5) days prior to plugging. The operator shall use a dump bailer or pump through tubing for placing cement in the well. Important intervals which shall be isolated with minimum cement plugs are listed below:

- **Coal Seams: Cement plug to extend from 40' below deepest mineable seam to the surface.**
- **Fresh Water Zones: Cement plug to extend at least 15' below zone to surface.**
- **Producing Formation(s): Cement plug at least 15' in length placed above each producing zone or perforated interval.**
- **"Shot" Intervals: Cement plug shall be set in a stable portion of wellbore at least 20' above top of shot zone.**

The wellhead shall be cut off below ground level for cultivation unless conditions are such that there is a need for a permanent monument or vent pipe which should be subject to the approval of the Division. Within 30 days after plugging, the well operator shall file a PLUGGING AFFIDAVIT with the Division documenting the plugging procedure.

If the well is to be used as a water well by the landowner, the well will be plugged up to a point below the fresh water zone. The landowner shall file a letter with the Division requesting the use of the well for domestic water supply. The landowner shall also file with the Division of Water a completion report filled out by a certified water well driller. The Division of Oil and Gas shall not release the bond until the Division of Water has accepted the certified completion report.

Regulations-805 KAR 1:060 Wells Not Drilled through Coal Seams.
805 KAR 1:070 Wells Drilled through Coal Seams.
Statute-KRS 353.560, 353.120
Form-PLUGGING AFFIDAVIT (Form ED-38, See Appendix B)

Site Closure

Division of Waste Management
Division of Water

Abandonment of a facility is not an acceptable closure method. A facility is defined to be any well, tank, pit, structure, equipment or improvement used in the exploration, drilling, or production of oil or gas and used for treating, storing, or disposing of produced water. A tank battery and its associated wells, pits and other associated structures represents one facility. The owner/operator shall close the facility by doing the following:

- **Plug the well(s) in accordance with the Division of Oil and Gas.**
- **Dispose of produced fluids in a manner approved by the Division of Water. (See the section entitled Produced Water Disposal.**
- **Dispose of tank bottom sediments by solidifying and hauling to a permitted landfill or by taking to a recycler. For regulated underground storage tanks (UST), closure must be done in accordance with UST regulations.**
- **Remove above and underground tanks.**
- **Remove all wastes and contaminated soils in a manner approved by the Division of Waste Management (See section on Clean-up of Oil, Produced Water and Chemical Spills).**
- **Backfill the pits with clean material.**
- **Reclaim the area to prevent soil erosion.**

Facilities registered with the Division of Water will be considered active until the following additional items are completed:

- **Submission of copies of well plugging affidavits to the Division of Water.**
- **Site inspection for closure by Division of Water.**

Regulation-401 KAR 5:090, Section 4, 401 KAR Chapter 30-48
Statutes-KRS 151.125, 224.01-400, 224.01-405, 224.10-100, 224.40-100, 224.40-305, 224.60-135 and 224.70-110

Well Site Reclamation on Severed Mineral Tracts

Division of Oil and Gas

Well site reclamation is required on all severed mineral leases after the well has been properly plugged and shall be performed in accordance with the plan submitted at the time of permit application. (Refer to the section on Pre-drilling, entitled Well Permits on Severed Mineral Tracts for details in requirements of a restoration plan). An inspector will make an on-site inspection of the reclaimed location approximately one year after the area is restored to allow ample time for vegetation to be established. If no problems are observed, the operator's bond for the well will be released after the inspector files his report with the Division.

Regulation-805 KAR 1:170 (New Regulation)
Statutes-KRS 353.5901 and 353.590 Section 5
Form-PLAN TO PREVENT EROSION OF AND SEDIMENTATION FROM A WELL SITE (Form ED-10, See Appendix B).

Bond Release

Division of Oil and Gas

A bond shall be released after the well has been properly plugged and a Plugging Affidavit, Well Log and Completion Report and electric logs, if run, are submitted to the Division of Oil and Gas. A bond shall also be released if well(s) have been transferred to another operator and re-bonded by the successor operator.

Bonds can only be released by a written request from the operator or from the insurance company.

Regulation-805 KAR 1:050
Statute-KRS 353.590(5)

Bond Forfeitures

Division of Oil and Gas

A bond may be forfeited by the Division of Oil and Gas for any violation of oil and gas statutes or regulations. Bond forfeiture proceedings may begin if a well operator does not correct a violation within 45 days after receiving official notification from the Division. Written requests for extensions to correct violations may be considered if they are received before the 45 day period expires.

Statute-KRS 353.590(7)

V. INSPECTION AND ENFORCEMENT

Division of Oil and Gas Inspection-Enforcement Authority

Division of Oil and Gas

Division of Oil and Gas inspectors have the authority to inspect any well site at any time. If a violation is observed, the operator will be notified by certified mail of the type of violation and corresponding statute. The operator will then have 45 days to contact the inspector and correct the violation. If the operator fails to correct the violation, the Division may forfeit the operator's bond. Operators should maintain a current address with the Division at all times. Failure to maintain a current address will not allow for an extension of time to correct a violation.

Civil penalties, which include imprisonment and fines assessed by the Circuit Court of the county in which the violation occurs, may also be assessed against anyone who violates provisions of statutes relating to drilling, operation and plugging of oil and gas wells. A list of commonly cited violations can be found in Appendix A.

Statute-KRS 353.200, 353.990, 353.991 and 353.992

Division of Water and Division of Waste Management Inspection-Enforcement Authority

Division of Water
Division of Waste Management

The agencies of the Department of Environmental Protection may inspect any oil and gas facility and shall provide written notification of any violation to the operator. Following the findings of any violation, the Cabinet may start enforcement action to bring the condition or activity into compliance, and any other applicable remedy including civil penalties. Civil penalties include fines up to $25,000 per day per violation and imprisonment for up to 5 years.

Regulations-401 KAR 5:090 Section 12 and 401 KAR Chapter 40
Statutes-KRS 224.10-100, 224.10-410 and 224.99-010

Kentucky Public Service Commission

Enforcement Authority

The Public Service Commission is provided with the authority to assess penalties on a utility, or any officer, agent or employee of a utility, when any provision of applicable statutes or regulation established pursuant to KRS Chapter 278 are willfully violated. Penalties against an individual shall not exceed $2500 for each offense, or criminal penalty of imprisonment for no more than 6 months, or both. A utility is subject to penalties no less than $25.00 nor more than $2500 for each offense.

Authority is granted to assess a penalty not to exceed $10,000 on any person for each violation of the Commission's regulations governing the safety of pipeline facilities or the transportation of gas, as these terms are defined in the Natural Gas Pipeline Safety Act of 1968.

Statutes-KRS 278.990 and KRS 278.992

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GLOSSARY OF TERMS

Abandoned well: A well or hole which has never been used, or which in the opinion of the Division of Oil and Gas, will no longer be used for the production of oil or gas or for the injection or disposal of fluid.

Barrel: Forty-two (42) U.S. gallons.

Class II Wells: Wells which inject fluids: (A) Which are brought to the surface in connection with conventional oil or natural gas production and may be commingled with waste waters from gas plants which are an integral part of production operations, unless those waters are classified as a hazardous waste at the time of injection. (B) For enhanced recovery of oil or natural gas. (C) For storage of hydrocarbons which are liquid at standard temperature and pressure.

Correlative Rights: The reasonable opportunity of each person entitled thereto to recover and receive without waste the oil and gas in and under his tract or tracts, or the equivalent thereof.

Deep Well: Any well drilled and completed below the depth as defined as a shallow well. See definition of Shallow Well.

Drilling Pit: An earthen excavation for the collection of fluids associated with the drilling, construction, completion, acidizing, or fracturing of an oil or gas well.

Dry Gas: A gas well producing one (1) barrel or less of produced water at maximum production conditions during a given twenty-four (24) hour period.

Farm Tap Service: Natural gas consumption by a property owner located within one-half mile of a well or gas gathering pipeline.

Gas: All natural gas, including casinghead gas, and all other hydrocarbons not defined as "oil."

Gathering: The collection of natural gas from the well to the point of entry into either an Intrastate or Interstate pipeline.

Facility: Any well, tank, pit, structure, appurtenance or improvement used in the exploration, drilling, or production of oil or gas or used in the exploration, drilling, or production of oil or gas or used for treating, storing or disposing of produced water.

Field: The general area which is underlaid or appears to be underlaid by at least one (1) pool; and "field" includes the underground reservoir containing oil or gas or both. "Field" and "pool" mean the same thing when only one (1) underground reservoir is involved; however, "field," unlike "pool," may relate to two (2) or more pools.

Management Plan: The individual plan adopted by the Natural Resources and Environmental Protection Cabinet as the official document guiding the management, public use, and protection of an area designated under the Wild Rivers System.

Hazardous Waste: A waste designated as hazardous under 401 KAR Chapter 31.

Holding Pit: An earthen excavated depression designed to receive and store produced water at a facility.

Kentucky Pollutant: **Discharge Elimination System (KPDES)**: The Kentucky program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits to discharge and imposing and enforcing pre-treatment requirements. The KPDES regulations are 401 KAR 5:050 to 5:080.

Oil: Natural crude oil or petroleum and other hydrocarbons, regardless of gravity, which are produced at the well in liquid form by ordinary production methods and which are not the result of condensation of gas after it leaves the underground reservoir.

Operator: Any owner of the right to develop, operate and produce oil and gas from a pool and to appropriate the oil and gas produced therefrom, either for himself or for himself and others; in the event that there is no oil and gas lease in existence with respect to the tract in question, the owner of the oil and gas rights therein shall be considered as "operator" to the extent of seven-eighths (7/8) of the oil and gas in that position of the pool underlying the tract owned by such owner, and as "royalty owner" as to one-eighth (1/8) interest in such oil and gas; and in the event the

oil is owned separately from the gas, the owner of the right to develop, operate, and produce the substance being produced or sought to be produced from the pool shall be considered as "operator" as to such pool. Operator also refers to any person who operates an oil & gas facility.

Person: An individual, trust, firm, joint stock company, corporation (including a government corporation), partnership, association, federal agency, state agency, city, commission, political subdivision of the Commonwealth, or any interstate body.

Produced Water: Any and all water and pollutants and combination thereof resulting, obtained, or produced from the exploration, drilling, or production of oil or gas.

Pollutant: Dredged spoil, solid waste, incinerator residue, sewage sludge, garbage, chemical, biological or radioactive materials, heat, wrecked or discarded equipment, rock, sand, soil, industrial, municipal or agricultural waste, and any substance resulting from the development, processing, or recovery of any natural resource which may be discharged into water.

Pool: An underground reservoir containing a common accumulation of oil or gas or both. Each productive zone of a general structure which is completely separated from any other zone in the structure.

Register: To file forms with the appropriate agency, in some cases agencies, which contains information such as: to oil and gas well geographic location, name of lease on which well(s) are located, production, produced water production, methods used for treating, storing, or disposing of produced water, and any other information deemed necessary by that agency.

Shallow well: Any well drilled and completed at a depth less than four thousand (4,000) feet except, in the case of any well drilled and completed east of longitude line 84 degrees and 30 minutes (84° 30'); shallow well means any well drilled and completed at a depth less than four thousand (4,000) feet or above the base of the lowest member of the Devonian Brown Shale (Olentangy Shale, commonly referred to as White Slate), whichever is the deeper in depth.

Solid Waste: A waste that is not a hazardous waste or a special waste.

Special Waste: A waste designated as special under KRS 224.50-760, including gas and oil drilling muds and oil production brines.

Stripper Well: Any well producing ten (10) barrels or less per day of oil.

Tank Battery: An installation where oil is collected from wellheads and separated from produced water.

Underground Injection: The subsurface emplacement of fluids by well injection but does not include the underground injection of natural gas for storage purposes.

Utility: A gas utility is any person except a city, who owns, controls or operates any facility for the production, manufacture, storage, distribution, sale, or furnishing of natural or manufactured gas, to or for the public for compensation; or the transporting or conveying of gas, crude oil or other fluid substance by pipeline to or for the public for compensation.

Water or Waters of the Commonwealth: Includes any and all rivers, streams, creeks, lakes, ponds, impounding reservoirs, springs, wells, marshes, and all other bodies of surface or underground water, natural or artificial, situated wholly or partly within or bordering upon the Commonwealth or within its jurisdiction.

Well: A borehole drilled, or proposed to be drilled, for the purpose of producing natural gas or petroleum, or one through which natural gas or petroleum is being produced, or a borehole drilled or proposed to be drilled for the purpose of injecting any water, gas, or other fluid therein or one into which any water, gas, or other fluid is being produced.

Workable or Mineable Coal Seam: A coal bed being operated commercially, a coal bed that the Department of Mines & Minerals decides can be operated commercially and the operation of which can reasonably be expected to commence within not more than ten (10) years, or a coal bed which, from outcrop indications or other definite evidence, proves to the satisfaction of the Commissioner of the Department of Mines & Minerals to be workable, and which, when operated, will require protection if wells are drilled through it.

KENTUCKY REGULATORY OFFICES

DEPARTMENT OF MINES & MINERALS
DIVISION OF OIL AND GAS
1025 Capital Center Drive
P. 0. Box 2244
Frankfort, KY 40601
(502) 573-0147

PUBLIC SERVICE COMMISSION
730 Schenkel Lane
P. 0. Box 615
Frankfort, KY 40601
(502) 564-3940

DEPARTMENT OF HOUSING, BUILDINGS & CONST.
DIVISION OF HOUSING PROTECTION
STATE FIRE MARSHAL'S OFFICE
1047 US 127 South, Suite 1
Frankfort, KY 40601
(502) 564-3626

DEPARTMENT FOR HEALTH SERVICES
RADIATION BRANCH
275 East Main
Frankfort, KY 40601
(502) 564-3970

KENTUCKY GEOLOGICAL SURVEY
UNIVERSITY OF KENTUCKY
228 Mining and Minerals Resources Building
Lexington, KY 40506-0107
(606) 257-5500

DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
14 Reilly Road
Frankfort, KY 40601
(502) 564-3410
Emergency Response (800) 928-2380

DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WASTE MANAGEMENT
14 Reilly Road
Frankfort, KY 40601
(502) 564-6716

DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF AIR QUALITY
830 Schenkel Lane
Frankfort, KY 40601
(502) 573-3382

DEPARTMENT FOR NATURAL RESOURCES
DIVISION OF FORESTRY
627 Comanche Trail
Frankfort, KY 40601
(502) 564-4496

DEPARTMENT FOR NATURAL RESOURCES
DIVISION OF ENERGY
663 Teton Trail
Frankfort, KY 40601
(502) 564-7192

DISASTER AND EMERGENCY SERVICES
State EOC Bldg., Boone Center
Frankfort, KY 40601
(502) 654-8682

FEDERAL REGULATORY OFFICES

ENVIRONMENTAL PROTECTION AGENCY - REGION IV OFFICE
Water Management Division Groundwater/Drinking Water Branch
Groundwater & UIC Section
61 Forsyth Street
Atlanta, GA 30303-3104
(404) 562-9461

U.S. DEPARTMENT OF ENERGY
1000 Independence Avenue, S.W.
Washington, D.C. 20585
(202) 586-5600

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
Jackson District Office
411 Briarwood Drive
Suite 404
Jackson, MS 39206
(601) 977-5402

U. S. ARMY CORPS OF ENGINEERS-DISTRICT OFFICES

MEMPHIS DISTRICT
B-202 Clifford Davis Federal Building
167 N. Main
Memphis, TN 38103-1894
(901) 544-3471
Fax (901) 544-3266

HUNTINGTON DISTRICT
502 8th Street
P. O. Box 212
Huntington, WV 25701-2070
(304) 529-5210
Fax (304) 529-5085

NASHVILLE DISTRICT
P. O. Box 1070
Nashville, TN 37202
(615) 736-5181
Fax (615) 736-7145

LOUISVILLE DISTRICT
Regulatory Branch
P. O. Box 59
Louisville, KY 40201-0059
(502) 582-5452
Fax (502) 582-5072

KENTUCKY DIVISION OF OIL AND GAS FIELD INSPECTORS

Frankfort Main Office

Michael Steen
1025 Capital Center Drive
P.O. Box 2244
Frankfort, KY 40601
Office (502) 573-0147
Fax (502) 573-01528

COUNTIES
Anderson, Boone, Bourbon, Boyle, Bracken, Bullitt, Campbell, Carroll, Fayette, Franklin, Gallatin, Grant, Harrison, Henry, Jefferson, Jessamine, Kenton, Mason, Mercer, Nelson, Nicholas, Oldham, Owen, Pendleton, Robertson, Scott, Shelby, Spencer, Trimble, Washington, Woodford

Conley Rice
Rt 2, Box 265
Monticello, KY 42633
Home (606) 348-6407

COUNTIES
Clinton, McCreary, Pulaski, Wayne

Western Kentucky Region

Attn: Cy Britt - Supervisor
2565 Jones Road
Hanson, KY 42413
Office (502) 824-7523
Home (502) 322-3217

COUNTIES
Ballard, Caldwell, Calloway, Carlisle, McLean, Graves, Hickman, Hopkins, Livingson, Lyons, Marshall, McCracken, Trigg

Bert Combs, Jr.
P. O. Box 267
Dixon, KY 42409
Home (502) 639-6897

COUNTIES
Crittenden, Henderson, McLean, Union, Webster

Curtis Hardison
Route 3
Greenville, KY 42345
Office (502) 338-0240
Home (502) 338-3166

COUNTIES
Christian, Logan, Muhlenberg, Todd

James W. Hazel
2243 Woodland Drive
Owensboro, KY 42301
Home (502) 771-4243

COUNTIES
Daviess, Hancock, McLean

Greg Welsh
171 Duff Lane
Beaver Dam, KY 42320
Home (502) 274-0776

COUNTIES
Breckinridge, Butler, Meade, Ohio

South-Central Kentucky Region

Attn: Jerry Gray-Supervisor
811 Eastside Drive
Horse Cave, KY 42749
Office (502) 651-1562
Home (502) 786-2451

COUNTIES
Edmonson, Grayson, Hardin, Hart, Larue

Ralph Sharp
200 Ralph Sharp Road
Kettle, KY 42752
Home (502) 433-5178

COUNTIES
Cumberland, Metcalfe

Johnny Ray Tooley
3729 Radio Station Road
Tompkinsville, KY 42167
Home (502) 487-5165

COUNTIES
Allen, Barren, Monroe, Simpson, Warren

Robert R. Yates
P. O. Box 457
Columbia, KY 42728
Home (502) 384-3406

COUNTIES
Adair, Casey, Garrard, Green, Lincoln, Marion, Russell, Taylor

KENTUCKY DIVISION OF OIL AND GAS FIELD INSPECTORS

Eastern Kentucky Region

Attn: Marvin L. Combs-Supervisor
140 Elk Fork Road
Hazard, KY 41701
Office (606) 435-6079
Home (606) 785-5151
Fax (606) 435-6078

COUNTIES
Knott
Perry

Michael Burnett
P. O. Box 762
Beattyville, KY 41311
Office (606) 464-4350
Home (606) 464-4692

COUNTIES
Breathitt
Clark
Elliott
Estill
Lee
Madison
Magoffin
Menifee
Montgomery
Morgan
Powell
Wolfe

Jerry Finley
P. O. Box 1318
London, KY 40743
Office (606) 546-5035
Home (606 878-7559
Fax (606) 545-9704

COUNTIES
Bell
Jackson
Knox
Laurel
Rockcastle
Whitley

Jack Deskins
P. O. Box 2126
Pikeville, KY 41502
Office (606) 433-7742
Home (606 878-7559

COUNTIES
Floyd
Martin
Pike

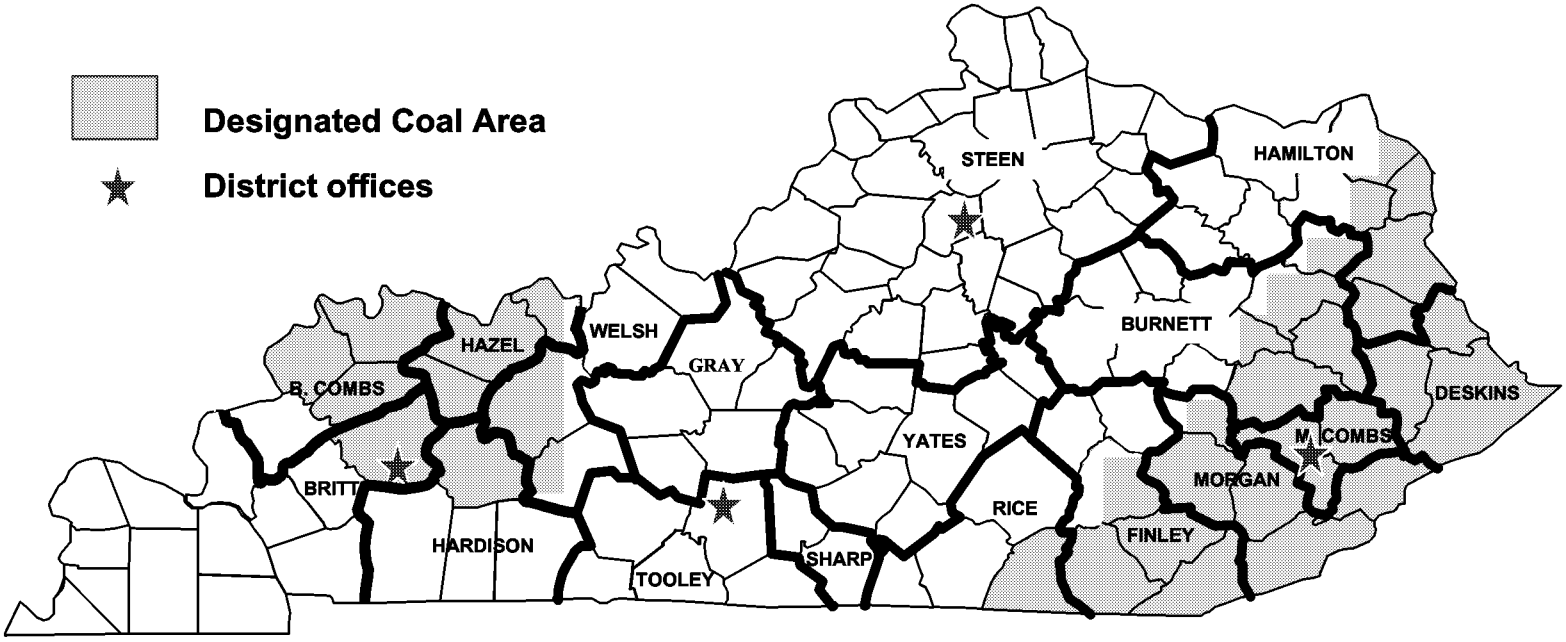
Kerry Morgan
HC 77, Box 727
Essie, KY 40827
Home (606) 374-4688

COUNTIES
Clay
Harlan
Leslie
Letcher
Owsley

Clarence Doug Hamilton
P. O. Box 166
Wittensville, KY 41274
Home (606) 297-6906

COUNTIES
Bath
Boyd
Carter
Fleming
Greenup
Johnson
Lawrence
Lewis
Rowan

KENTUCKY DIVISION OF OIL AND GAS INSPECTOR'S COUNTIES



STATE SPACING REQUIREMENTS

KRS 353.610 Provides for:

Coal Area: Oil well spacing at depths less than 4000' require 330' from all property lines and 660' between wells. Gas well spacing at depths less than 4000' require 500' from all property lines and 1000' between well.

Non-coal Area: Oil well spacing at depths less than 2000' require 200' from all property lines and 400' between wells. Oil well spacing at depths greater than 2000' but less than 4000' require 330'' from all property lines and 660' between wells. Gas well spacing for all wells at depths less than 4000' require 500' from all property lines and 1000' between wells.

For well spacing, either oil or gas, at depths greater than 4000' or, in the case of a well located east of longitude line 84 30' drilled to 4000' or to the base of the Devonian Shale whichever is deeper, refer to Deep Well Regulation 805 KAR 1:100.

KENTUCKY DIVISION OF WATER REGIONAL OFFICES

Bowling Green Regional Office
Attn: Robert Adams- Supervisor
1508 Weston Avenue
Bowling Green, KY 42104
(502) 746-7475

Counties:

Allen	Grayson	Simpson
Barren	Hart	Warren
Butler	Logan	
Edmonson	Ohio	

Columbia Regional Office
Attn: Sara Gold- Supervisor
102 Burkesville Street
Columbia, KY 42728
(502) 384-4734

Counties:

Adair	LaRue	Pulaski
Boyle	Lincoln	Russell
Casey	Marion	Taylor
Clinton	Metcalfe	Washington
Cumberland	Monroe	Wayne
Green	Nelson	

Florence Regional Office
Attn: Kevin Flowers-Supervisor
7964 Kentucky Drive, Suite #8
Florence, KY 41042
(606) 292-6411

Counties:

Boone	Gallatin	Owen
Bracken	Grant	Pendleton
Campbell	Henry	Trimble
Carroll	Kenton	

Frankfort Regional Office
Attn: Fred Claus-Supervisor
643 Teton Trail, Suite B
Frankfort, KY 40601
(502) 564-3358

Counties:

Anderson	Fayette	Jessamine	Nicholas	Woodford
Bourbon	Franklin	Madison	Powell	
Clark	Garrard	Mercer	Robertson	
Estill	Harrison	Montgomery	Scott	

Hazard Regional Office
Attn: Gene Blair-Supervisor
233 Birch Street, Suite 1
Hazard, KY 41701
(606) 435-6022

Counties:

Breathitt	Lee	Perry
Floyd	Letcher	Pike
Johnson	Magoffin	Wolfe
Knott	Martin	

London Regional Office
Attn: James Sproles- Supervisor
85 State Police Road
State Regional Office Bldg.
London, KY 40741-9008
(606) 878-0157

Counties:

Bell	Knox	Owsley
Clay	Laurel	Rockcastle
Harlan	Leslie	Whitley
Jackson	McCreary	

Louisville Regional Office
Attn: Mike Mudd-Supervisor
312 Whittington Parkway
Suite 205
Louisville, KY 40222-4295
(502) 595-4218

Counties:

Breckinridge	Meade
Bullitt	Oldham
Hardin	Shelby
Jefferson	Spencer

Madisonville Regional Office
Attn: Donald Hayes-Supervisor
Madisonville State Office Building
625 Hospital Drive
Madisonville, KY 42431-1683
(502) 824-7529

Counties:

Caldwell	Hancock	Muhlenberg
Christian	Henderson	Todd
Crittenden	Hopkins	Union
Daviess	McLean	Webster

Morehead Regional Office
Attn: Lonnie Castle-Supervisor
Mabry Bldg, KY 32 South
Morehead, KY 40351
(502) 784-6635

Counties

Bath	Fleming	Mason
Boyd	Greenup	Menifee
Carter	Lawrence	Morgan
Elliott	Lewis	Rowan

Paducah Regional Office
Attn: Jeff Cummins-Supervisor
4500 Clarks River Road
Paducah, KY 42003
(502) 898-8468

Counties:

Ballard	Graves	McCracken
Calloway	Hickman	Marshall
Carlisle	Livingston	Trigg
Fulton	Lyon	

KENTUCKY DIVISION OF WASTE MANAGEMENT REGIONAL OFFICES

Bowling Green Regional Office
Attn: Kerry McDaniel- Supervisor
1508 Weston Avenue
Bowling Green, KY 42104
(502) 746-7475

Counties:

Allen	Grayson	Simpson
Barren	Hart	Warren
Butler	Logan	
Edmonson	Ohio	

Columbia Regional Office
Attn: Cathi Blair- Supervisor
102 Burkesville Street
P O Box 335
Columbia, KY 42728
(502) 384-4735

Counties:

Adair	LaRue	Pulaski
Boyle	Lincoln	Russell
Casey	Marion	Taylor
Clinton	Metcalfe	Washington
Cumberland	Monroe	Wayne
Green	Nelson	

Florence Regional Office
Attn: Debby Angel-Supervisor
7964 Kentucky Drive, Suite #8
Florence, KY 41042
(606) 292-6411

Counties:

Boone	Gallatin	Owen
Bracken	Grant	Pendleton
Campbell	Henry	Trimble
Carroll	Kenton	

Frankfort Regional Office
Attn: Sam Lofton-Supervisor
643 Teton Trail, Suite B
Frankfort, KY 40601
(502) 564-3358

Counties:

Anderson	Fayette	Jessamine	Powell
Bourbon	Franklin	Madison	Robertson
Clark	Garrard	Mercer	Scott
Estill	Harrison	Nicholas	Woodford

Hazard Regional Office
Attn: Rebecca Noble-Supervisor
233 Birch Street
Hazard, KY 41701
(606) 435-6022

Counties:

Breathitt	Lee	Martin	Wolfe
Floyd	Leslie	Owsley	
Johnson	Letcher	Perry	
Knott	Magoffin	Pike	

London Regional Office
Attn: Cathi Blair- Supervisor
85 State Police Road
State Regional Office Bldg.
London, KY 40741-9008
(606) 878-0157

Counties:

Bell	Knox	Whitley
Clay	Laurel	
Harlan	McCreary	
Jackson	Rockcastle	

Louisville Regional Office
Attn: Lesley Henney-Supervisor
312 Whittington Parkway
Suite 201
Louisville, KY 40222-4925
(502) 595-4254

Counties:

Breckinridge	Meade
Bullitt	Oldham
Hardin	Shelby
Jefferson	Spencer

Madisonville Regional Office
Attn: Bill Bowen-Supervisor
Madisonville State Office Building
625 Hospital Drive
Madisonville, KY 42431
(502) 824-7532

Counties:

Caldwell	Hancock	Muhlenberg
Christian	Henderson	Todd
Crittenden	Hopkins	Union
Daviess	McLean	Webster

Morehead Regional Office
Attn: Karen Glancy-Supervisor
Mabry Bldg, KY 32 South
Morehead, KY 40351
(606) 784-6634

Counties

Bath	Fleming	Mason	Rowan
Boyd	Greenup	Menifee	
Carter	Lawrence	Montgomery	
Elliott	Lewis	Morgan	

Paducah Regional Office
Attn: Margie Williams-Supervisor
4500 Clarks River Road
Paducah, KY 42003
(502) 898-8468

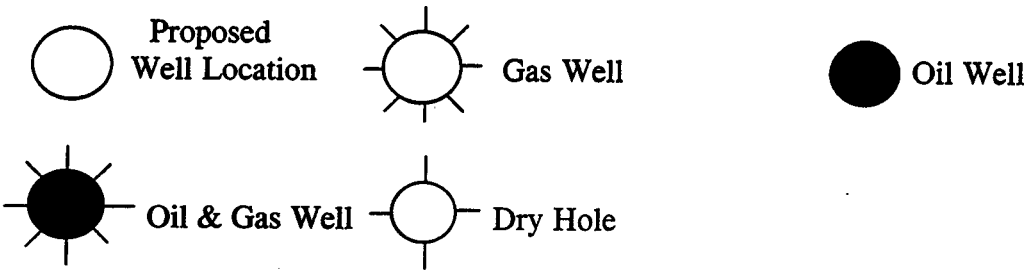
Counties:

Ballard	Graves	McCracken
Calloway	Hickman	Marshall
Carlisle	Livingston	Trigg
Fulton	Lyon	

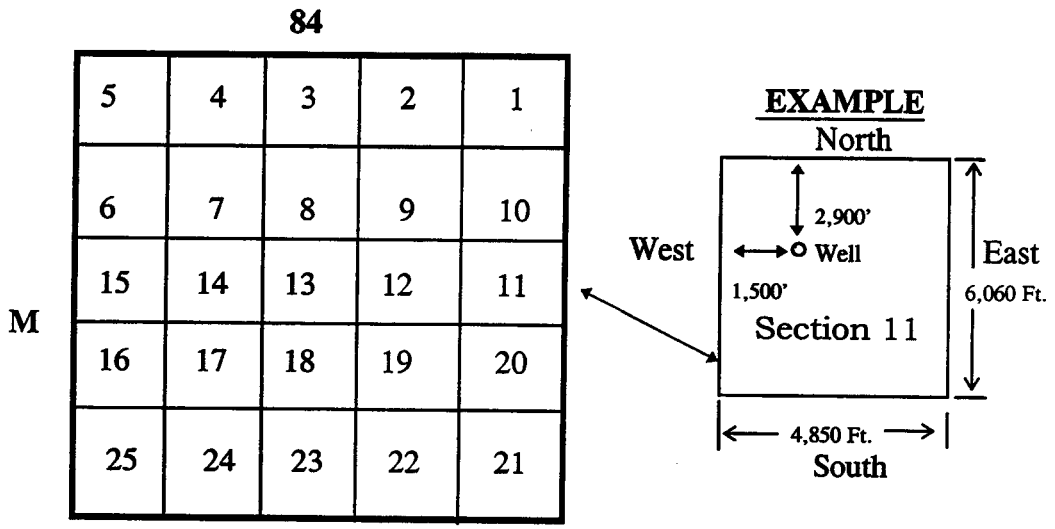
KENTUCKY WILD RIVERS

River and Date Designated	County	Length (miles)	Corridor Acreage	Endpoints (Landmarks and River Miles)	Drainage Basin
Bad Branch 1986	Letcher	4.0	1,325	Headwaters to KY 932	Cumberland
Big South Fork Cumberland River 1972	McCreary	10.2	2,450	TN State Line to Blue Heron (Mile 55.2 to Mile 45.0)	Cumberland
Cumberland River 1972	McCreary Whitley	16.1	3,300	Summer Shoals to Lake Cumberland (Mile 574.6 to Mile 558.5)	Cumberland
Green River 1972	Edmonson Hart	26.0	6,500	East Boundary of Mammoth Cave National Park to Lock and Dam No. 6 at Brownsville (Mile 207.7 to Mile 181.7)	Green
Little South Fork Cumberland River 1974	McCreary Wayne	10.4	1,400	KY 92 to Lake Cumberland (Mile 14.5 to Mile 4.1)	Cumberland
Martins Fork 1974	Harlan	3.9	680	Boundary of Cumberland Gap National Historic Park to KY 987 (Mile 31.3 to Mile 27.4)	Cumberland
Red River 1972	Wolfe Menifee	9.1	1,025	KY 746 to Swift Camp Creek (Mile 68.6 to Mile 59.5)	Kentucky
Rock Creek 1974	McCreary	18.0	6,150	TN State Line to White Oak Cr. (Mile 21.9 to Mile 3.9)	Cumberland
Rockcastle River 1972	Rockcastle Laurel Pulaski	15.9	3,350	KY 1956 at Billows to Lake Cumberland	Cumberland
TOTALS		**114.O**	**26,380**		

WELL SYMBOLS



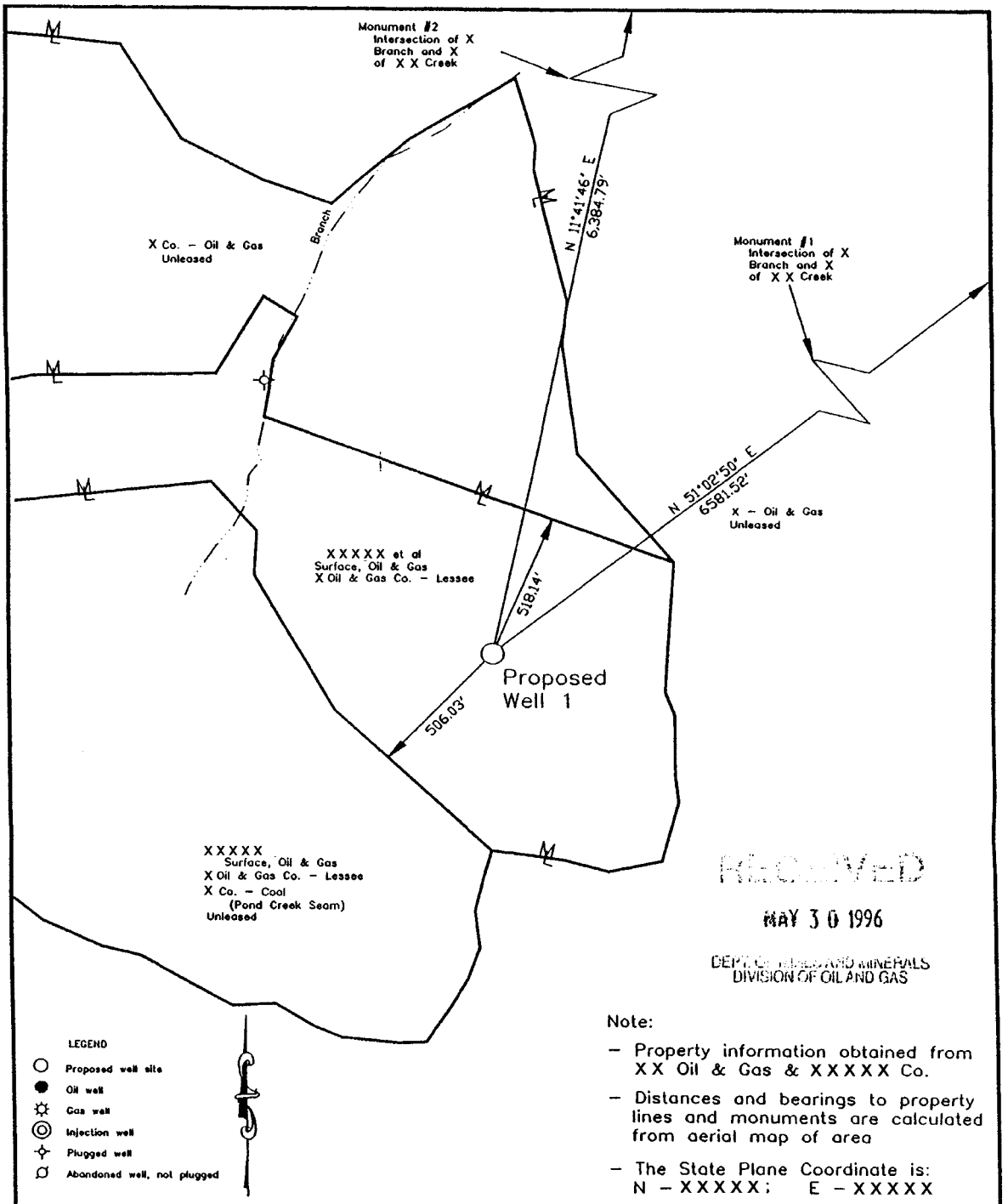
CARTER COORDINATE MAPPING SYSTEM



DEFINITION:

7.5' Topographic maps have 1 minute (1') marks along the boundary. Wells in Kentucky are located by the Carter Coordinate system which is measured (in feet) from the 1 minute (1') section boundaries. The coordinate system traverses Kentucky in a grid pattern with 5 minute (5') sections comprised of 25 smaller 1 minute sections. The south-to-north 5 minute boundary ranges from the letters "A through Z and AA though GG". The west-to-east 5 minute boundary ranges from "0 to 91". Dimensions of the smaller 1 minute sections are 6,060 feet (north-south) by 4,850 feet (west-east). Wells are measured from the section boundary.

Above referenced example has well located in **Section 11-M-84 2,900' FNL (From North Line) X 1,500' FWL (From West Line).**



RECEIVED
MAY 30 1996
DEPT. OF NATURAL RESOURCES AND MINERALS
DIVISION OF OIL AND GAS

Note:

- Property information obtained from XX Oil & Gas & XXXXX Co.
- Distances and bearings to property lines and monuments are calculated from aerial map of area
- The State Plane Coordinate is: N – XXXXX; E – XXXXX

COMPANY XXXXX ADDRESS XXXXX

FARM XXXXX WELL NO. 1 ELEV.(MSL) 1330.11'

COUNTY Pike DISTRICT QUADRANGLE XXXXX

LATITUDE X° X' X" LONGITUDE X° X' X"

CARTER COOR. F.N.L. X F.S.L. F.E.L. X F.W.L. SEC X LETTER N NO. X

NEW LOCATION [XXX] DRILL DEEPER [ ] ABANDONMENT [ ]

I HEREBY CERTIFY THAT THE ABOVE PLAT IS ACCURATE AND CORRECT AND SATISFIES THE REQUIREMENTS OF 805 KAR .1:030 TO THE BEST OF MY KNOWLEDGE AND BELIEF.

SIGNATURE REGISTRATION NO.

NAME DATE

WELL LOCATION MAP

FILE NO.

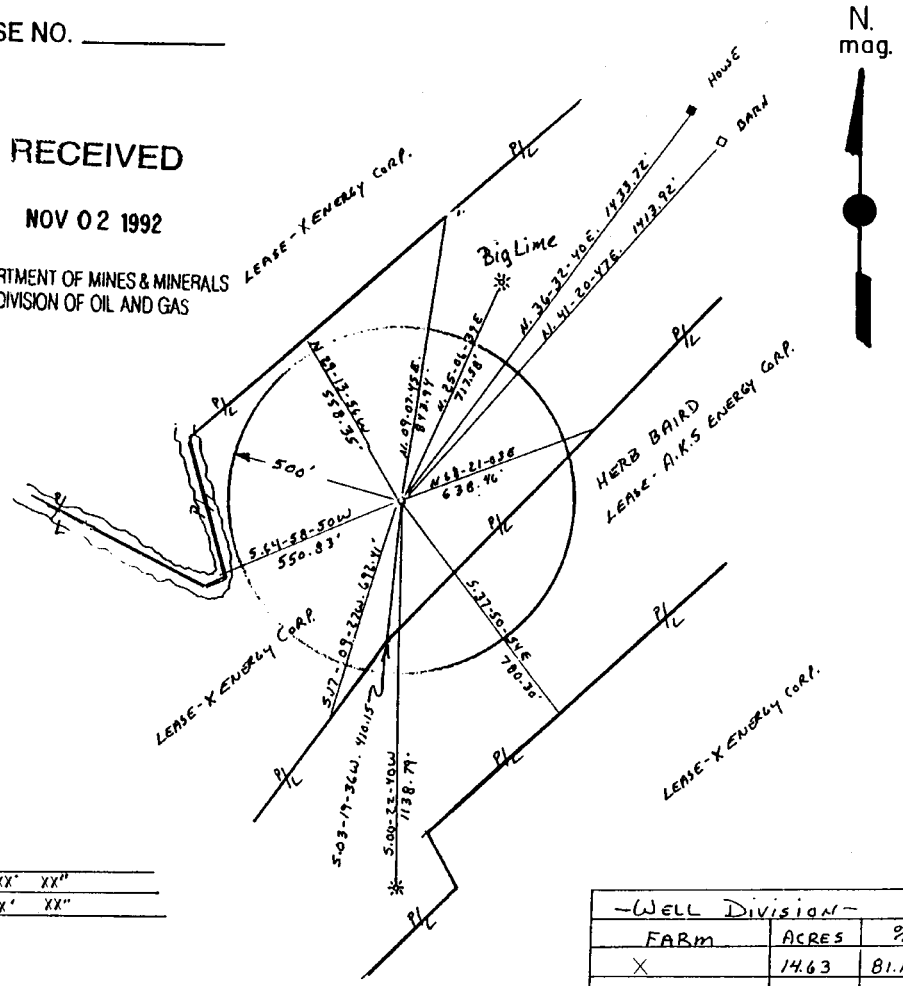
FILE NO. DRW. NO. DATE SCALE 1" = 400'

LEASE NO. _____

RECEIVED

NOV 02 1992

DEPARTMENT OF MINES & MINERALS
DIVISION OF OIL AND GAS



LAT. = XX° XX' XX"
LONG. = XX° XX' XX"

-WELL DIVISION-		
FARM	ACRES	%
X	14.63	81.14
X	3.40	18.86
TOTAL	18.03	100 %

OPERATOR X
FARM X
COUNTY X
WELL NO. X
ELEVATION 980.0 by inst.
QUADRANGLE XX
SCALE 1" = 400'

CARTER COORD.

X = X = X
sec. letter no.

F.N.L. X
F.S.L. —
F.E.L. —
F.W.L. X

I HEREBY CERTIFY THAT THE ABOVE PLAT IS ACCURATE AND CORRECT AND SATISFIES THE REQUIREMENTS OF 805 KAR 1:030 TO THE BEST OF MY KNOWLEDGE AND BELIEF.

_____ DATE _____

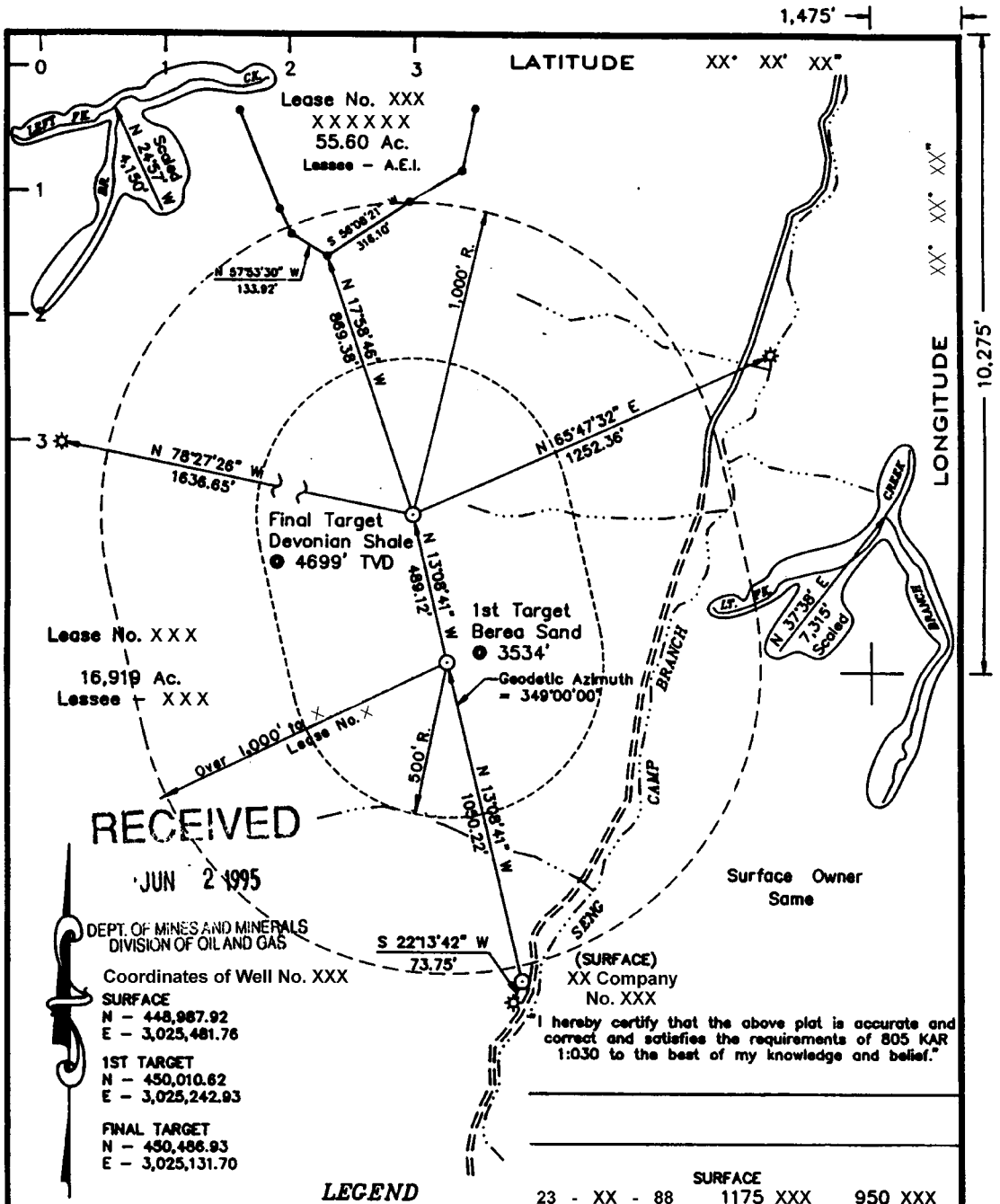
LEGEND

- PROPOSED WELL SITE
- OIL WELL
- INJECTION WELL
- GAS WELL
- PLUGGED WELL
- ABANDONED WELL, NOT PLUGGED
- BARN
- HOUSE
- CHURCH
- CREEK, BRANCH, OR WATERWAY
- ROADWAY

STATE OF KENTUCKY REGISTERED LAND SURVEYOR

STATE OF KENTUCKY REGISTERED PROFESSIONAL ENGINEER

PREPARED BY



"I hereby certify that the above plat is accurate and correct and satisfies the requirements of 805 KAR 1:030 to the best of my knowledge and belief."

SURFACE		
23 - XX - 88	1175 XXX	950 XXX
1ST TARGET		
23 - XX - 88	125 XXX	715 XXX
FINAL TARGET		
18 - XX - 88	365 XXX	600 XXX

Company XXXXX
Address XXXXX
Farm XXXXX
Tract _____ Acres XXXXX Lease No. XXXXX
Well (Farm) No. XXXDIR Serial No. XXXXX
Elevation (Trig.) XXXX.XX
Quadrangle XXXX
County XXXXX District _____
Engineer XXXXX
Engineer's Registration No. XXXX
File No. _____ Drawing No. XXXX - XXX - X
Date 05-26-95 Scale 1" = 400'

STATE OF KENTUCKY
DEPARTMENT OF MINES
OIL AND GAS DIVISION
LEXINGTON

WELL LOCATION MAP

FILE NO. _____

+ Denotes location of well on United States Topographic Maps, scale 1 to 24,000, latitude and longitude lines being represented by border lines as shown.

- Denotes one inch spaces on border line of original tracing.

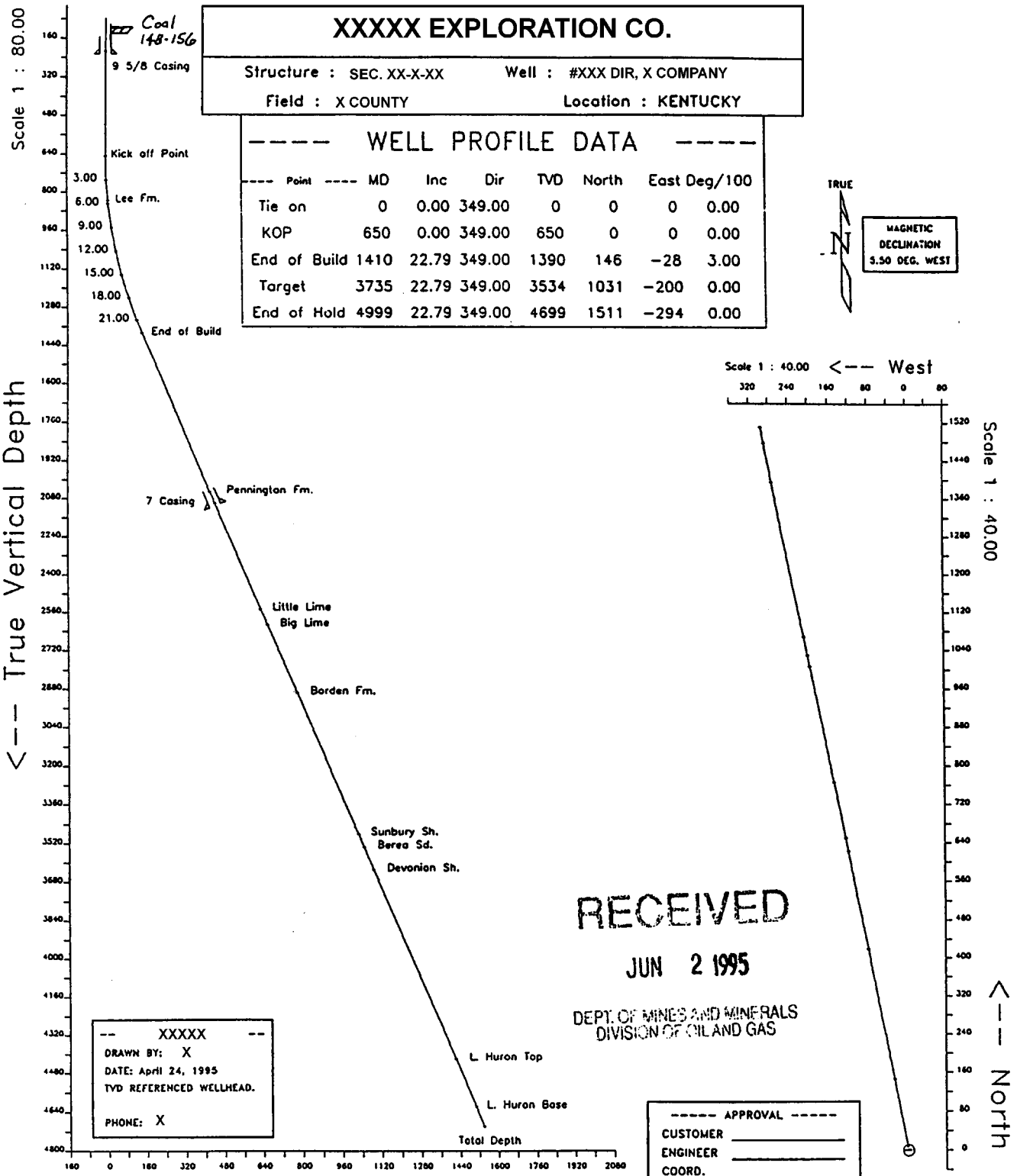
XXXXX EXPLORATION CO.

Structure : SEC. XX-X-XX Well : #XXX DIR, X COMPANY

Field : X COUNTY Location : KENTUCKY

WELL PROFILE DATA

Point	MD	Inc	Dir	TVD	North	East	Deg/100
Tie on	0	0.00	349.00	0	0	0	0.00
KOP	650	0.00	349.00	650	0	0	0.00
End of Build	1410	22.79	349.00	1390	146	-28	3.00
Target	3735	22.79	349.00	3534	1031	-200	0.00
End of Hold	4999	22.79	349.00	4699	1511	-294	0.00



RECEIVED
JUN 2 1995
DEPT. OF MINES AND MINERALS
DIVISION OF OIL AND GAS

Scale 1 : 80.00
Vertical Section on 349.00 azimuth with reference 0.00 N, 0.00 E from SLOT #1

LISTING OF APPROVED LANDFILLS IN KENTUCKY

Barren County
City of Glasgow
126 East Public Square
P O Box 278
Glasgow, KY 42124-2078
(502) 651-3338 (Office)
(502) 678-4302 (Landfill)

Boone County
Bavarian Trucking Company
4837 Madison Pike
Independence, KY 41051
(606) 485-4416 (Off & Landfill)

Boyd County
Cooksey Brothers Disposal Co, Inc
15400 Ellington Run
Ashland, KY 41102
(606) 928-9633 (Off & Landfill)

Daviess County
212 Saint Ann Street
Room 202
Owensboro, KY 42303
(502) 685-8424 (Office)
(502) 229-4484 (Landfill)

Estill County
Waste Management of KY, LLC
7501 Grade Lane
Louisville, KY 40219-3440
(502) 969-2355 (Office)
(502) 723-5552 (Landfill)

Franklin County
Browning Ferris Ind. Of KY, Inc
2157 Highway 151
Frankfort, KY 40601
(502) 227-7336 (Office)
(502) 227-7257 (Landfill)

Grant County
Epperson Waste Disposal
P O Box 117
Williamstown, KY 41097
(606) 824-5466 (Office)
(606) 223-3824 (Landfill)

Graves County
Jones Sanitation, Inc
P O Box 26
Hickman, KY 42050
(502) 247-9023 (Office)

Greenup County
Green Valley Environmental Group
2343 Alexandria Drive, Suite 400
Lexington, KY 40504
(606) 223-3824 (Office)
(606) 928-0239 (Landfill)

Jefferson County
Waste Management of KY, LLC
7501 Grade Lane
Louisville, KY 42019-3440
(502) 969-2355 (Office)
(502) 966-0272 (Landfill)

Laurel County
Laurel Ridge Landfill, Inc
P O Box 1364
Corbin, KY 40702
(606) 864-4391 (Off & Landfill)

Lincoln County
Tri K Landfill, Inc
P O Box 435
1905 Highway 3249
Stanford, KY 40484
(606) 365-7806 (Off & Landfill)

Logan County
Southern Sanitation Co.
P O Box 537
Russellville, KY 42276-0537
(502) 726-9016 (Off & Landfill)

Marshall County
LWD Sanitary Landfill
P O Box 327
Calvert City, KY 42029-0327
(502) 395-8313 (Off & Landfill)

Montgomery County
Rumpke of Kentucky, Inc
10795 Hughes Road
Cincinnati, OH 45251
(513) 851-0122 (Office)
(606) 498-6798 (Landfill)

Nelson County
Nelson County Fiscal Court
1025 Airport Road
Bardstown, KY 40004
(502) 348-1800 (Office)
(502) 348-1877 (Landfill)

Ohio County
Ohio County Fiscal Court
Courthouse
P O Box 146
Hartford, KY 42347-0146
(502) 298-4400 (Office)
(502) 298-7501 (Landfill)

Pendleton County
Rumpke of Kentucky, Inc
10795 Hughes Road
Cincinnati, OH 45251
(513) 851-01223 (Office)
(606) 472-7011 (Landfill)

Pike County
Pike County Fiscal Court
P O Box 1229
Pikeville, KY 41501
(606) 353-7304 (Office)

Rowan County
Local Sanitation Services, Inc
P O Box 484
Morehead, KY 40351-0484
(606) 784-6544 (Off. & Landfill)

Spencer County
Williams Landfill, Inc
Route 3, Box 229 Kings Church
Taylorsville, KY 40071
(502) 239-6038 (Office)
(502) 239-2117 (Landfill)

Trimble County
Laidlaw Waste Systems, Inc
9001 Airport Freeway
Suite 500
N Richland Hills, TX 76180
(817) 485-9629 (Office
(502) 743-5436 (Landfill)

Union County
Addington Environmental, Inc
771 Corporate Drive
Suite 1000
Lexington KY 40503
(606) 223-3284 (Office)
(502) 822-4289 (Landfill)

Whitley County
Tri-County Sanitary Landfill, Inc
Route 8
P O Box 245-A
Corbin, KY 40701
(502) 528-8608 (Landfill)

Contact the Division of Waste Management at (502) 564-6716 for up-to-date listing of landfills.

GUIDELINES FOR SUBMITTING WELL SAMPLES

To ensure that credit is received for submitting requested well samples, please follow these instructions carefully.

(1) Fill out all information on the tag of each sample bag completely and legibly, in permanent ink (ball point pen). Information written with felt-tip pen or pencil is easily washed off, making it impossible to identify samples. As an extra precaution, place a copy of the drilling permit in the box with the sample set. If samples are not properly identified, no credit can be given for submitting sample sets.

(2) Place the samples in feed sacks, burlap bags, or a strong cardboard box. Please do not put sample sets in plastic trash bags; this causes the sample bags to rot and split open, making the samples useless. Please do not overfill the sacks, making them difficult to handle.

(3) Individual sample bags should be completely filled and tied into manageable bundles of 10 to 20 bags each. Please do not tie knots in the strings of the individual sample bags.

(4) Samples should be complete for each well requested, with continuous samples from surface to total depth.

(5) Samples may be dropped off at the Kentucky Geological Survey's Well Sample and Core Repository in Lexington or at any of the designated collection stations located throughout the state.

If you have any questions concerning these instructions or about the locations of sample collection stations, please call the KGS Well and Core Repository.

LOCATIONS OF SAMPLE COLLECTION STATIONS

LEXINGTON **
Kentucky Geological Survey
Well Sample & Core Repository
554 Forbes Road
(606) 255-2439

PIKEVILLE
Allen Supply & Machine Shop
106 South Mayo Trail
(606) 432-1044

HAZARD
Hazard Village Shopping Center
West end of shopping center next to
vehicle impoundment area
U.S. Highway 80
(606) 436-3323

ALBANY
Clinton Oil Field Supply Company
U. S. Highway 127 10 miles north of Albany
(606) 387-7533

GLASGOW
Page Brothers Supply Company
Kentucky Street
(502) 651-8706

HENDERSON
Ken's Pump & Supply Company, Inc
1531 South Green Street
(502) 827-1872

OWENSBORO
Owensboro Supply Company
731 East 18th Street
(502) 683-8311

GREENVILLE
Wildcat Pipe & Supply Company
U. S. Highway 62 West
(502) 338-0911

**Location will change May 1, 1997. Call (606) 257-5500 for more information.

LOCATIONS OF WELL SAMPLE COLLECTION STATIONS

IMPORTANT

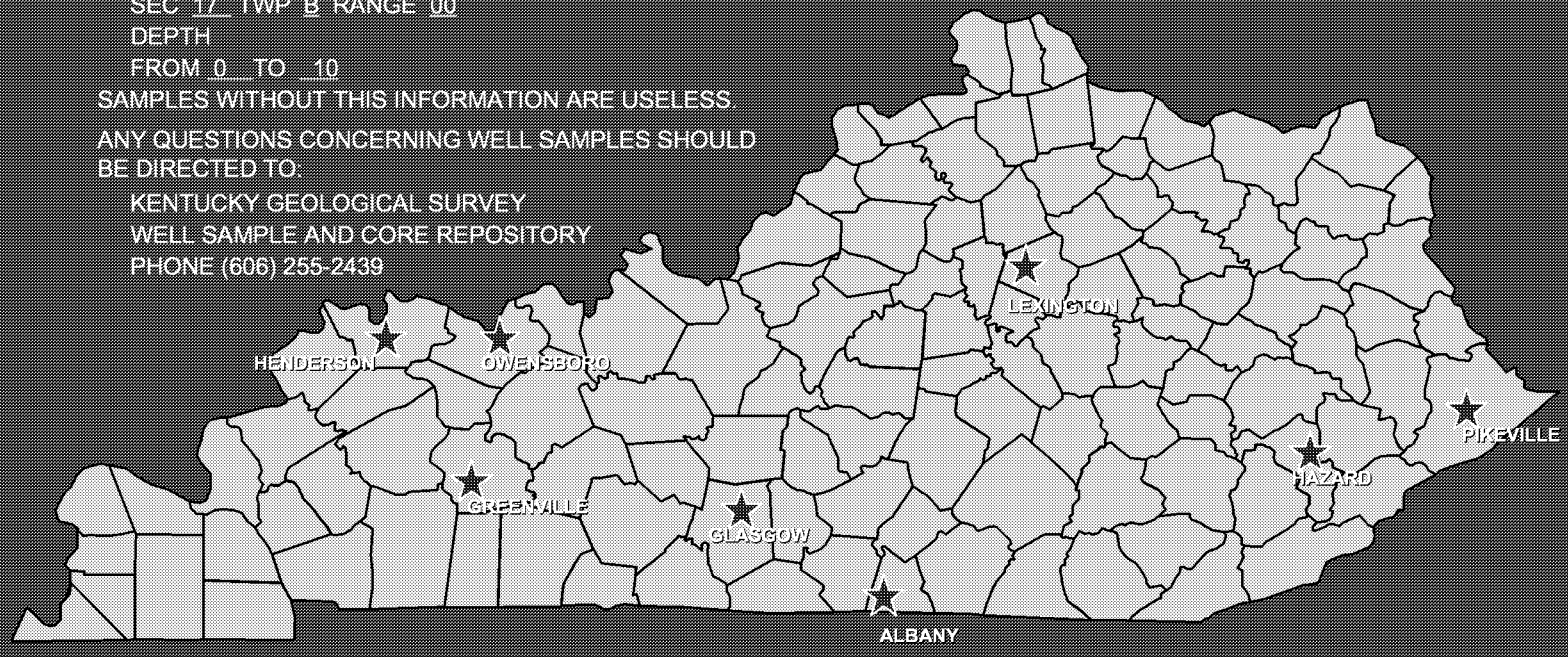
ALL SAMPLES MUST BE PROPERLY IDENTIFIED AND LABLED WITH THE FOLLOWING INFORMATION:

COMPANY: KY OIL CO.
LEASE NAME: JOHN DOE WELL NO: 1
SEC 17 TWP B RANGE 00
DEPTH
FROM 0 TO 10

SAMPLES WITHOUT THIS INFORMATION ARE USELESS.

ANY QUESTIONS CONCERNING WELL SAMPLES SHOULD BE DIRECTED TO:

KENTUCKY GEOLOGICAL SURVEY
WELL SAMPLE AND CORE REPOSITORY
PHONE (606) 255-2439



SEE REVERSE FOR DETAILED LOCATIONS OF COLLECTION STATIONS AND SAMPLE SUBMITTAL GUIDELINES

Example Of A Danger Sign Required in 805 KAR1:160

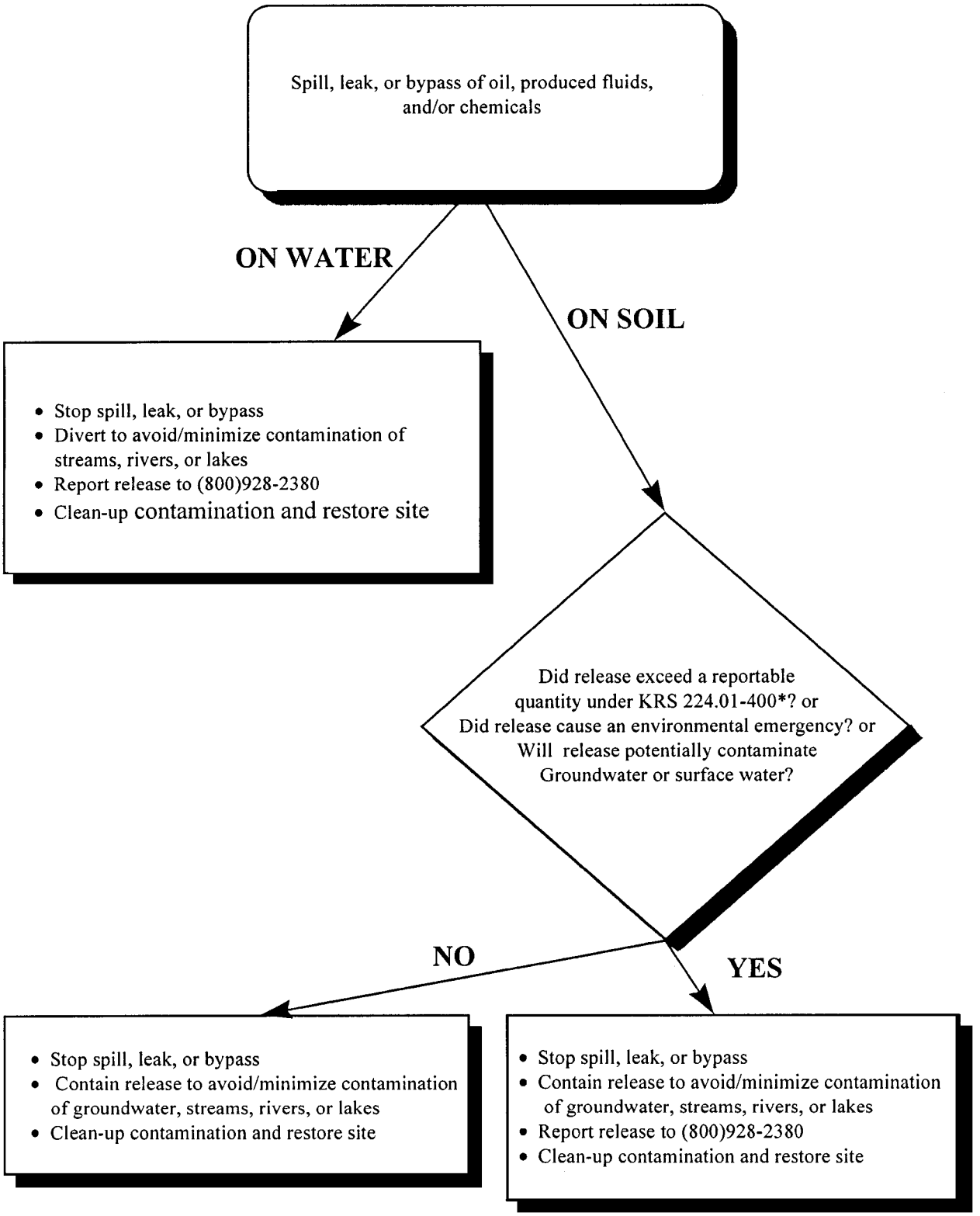
An operator shall prepare or have a safety sign printed similar to the one shown below and with the following dimensions.

1. The sign shall be approximately 17"x 28" inches.
2. The word **DANGER** shall have letters approximately 3 to 4 inches in height.
3. The NFPA numbers shall have a height of approximately ½ to 1 inch.
4. The words "PETROLEUM CRUDE OIL", "EXTREMELY FLAMMABLE LIQUID AND VAPOR", "MAY CAUSE FLASH FIRES" and "NO TRESPASSING" shall have letters approximately ½ to 1 inch in height.
5. The words "NO SMOKING AND OPEN FLAME" shall have letters approximately 1 to 1 ½ inches in height. A no smoking symbol with a cigarette in a circle with a cross through shall be on each side of the words "NO SMOKING AND OPEN FLAME".

The following coloration shall be required:

1. The NFPA number one (1) shall be colored black and be in a blue square and the number three (3) shall be colored black and be in a red square and the number zero (0) shall be colored black and be in a yellow square.
2. The NFPA number instead of being in a colored square may be the color of the square in the same respective position as it's square.
3. The background color of white works well with NFPA colors and numbers.
4. The background color shall contrast with all the foreground letters and numbers to enable them to be clearly seen.

The following is an example of the sign:



* The reportable quantity for oil (including lubricants and other petroleum products) is 25 gallons, except for diesel fuel the reportable quantity is 75 gallons

DIVISION OF OIL AND GAS
Common Cited Violations

KRS 353.150-Failure of operator to not close well within a reasonable time not exceeding three (3) months after well completion to prevent escape of oil, gas or salt water from wellhead.

KRS 353.160-Failure to prevent escape of gas when it is apparent waste could have been prevented, operator usually cited due to negligence. In the case of gas being vented or flared to produce oil, the operator shall make a "good faith" effort to conserve as much gas as reasonably possible.

KRS 353.180-Pull Pipe without Plugging Well. Operator shall plug well if casing is removed from an oil or gas well.

KRS 353.205-Failure to Report Oil and/or Gas Production. Operator shall supply Division of Oil and Gas with annual production by April 15, for previous year's production.

KRS 353.500-Failure to Conduct Operations Safely. Operator shall produce wells in a safe manner to prevent damage to property, employees and general public.

KRS 353.520 Section 2-D and 805 KAR 1:020-Failure to protect freshwater zones and/or mineable coal seams by not properly cementing casing to surface.

KRS 353.550-Improperly Abandoned. Wells shall be in production or are considered Improperly Abandoned. Gas wells shut-in due to market conditions are not included.

KRS 353.560 (3)-Operating a Vacuum without a Permit. Operator shall file permit to use vacuum on reservoir to enhance oil production.

KRS 353.570-Drilling Without a Permit. Wells drilled, deepened or re-opened for the production of natural gas, crude oil or for water injection into a formation to enhance production requires operator to obtain a well permit.

KRS 353.590-Operating without Proper Bonding. Operator shall post blanket or individual bond on well before drilling or acquiring well from another operator.

KRS 353.590 (6)-Failure to Transfer Well to Successor Operator. Bonded operator shall file Well Transfer forms with Division of Oil and Gas to transfer well to another operator.

KRS 353.5901-Failure to Reclaim Well Location on Severed Minerals. Wells on severed mineral tracts shall be reclaimed 1 year after termination of operations, reclamation shall conform to procedure on "Plan to Prevent Erosion of and Sedimentation From A Well Site."

KRS 353.610-Improper Spacing of Well. Proposed wells shall adhere to spacing from existing wells and property lines. See "Shallow and Deep Well" spacing requirements in manual.

KRS 353.651-Drilling Deeper than 4,000 Ft.-Below 4,000 ft. is considered "Deep" well, with exception to area where Devonian Shale productive interval exceeds 4,000 ft. east of longitude 84 degrees 30 minutes. Deep wells shall conform to deep well spacing.

KRS 353.656-Failure to Post "DANGER" Signs. Operator shall post Danger signs on prominent location on all oil storage tank batteries and facilities.

KRS 353.660-Failure to File Well Records-Operator shall file "Well Log and Completion Report" and electric logs with the Division of Oil and Gas within 90 days after drilling. If well is plugged, a "Plugging Affidavit" is also required.

DIVISION OF WATER
Common Cited Violations

401 KAR 5:015-Failure to report a spill/bypass, such as an unreported oil spill, spill of produced water, and spill from a drilling pit.

KRS 224.01-400-Failure to report and cleanup any spill that creates an environmental emergency. Improper or inadequate cleanup of a spill would result in remedial action taken to restore the environment.

401 KAR 5:031-An event where the waters of the Commonwealth have incurred degradation. For example, the spill or release of crude oil, brine (produced water) or drilling fluids to a stream.

401 KAR 5:055-Failure to obtain a Kentucky Discharge Elimination System (KPDES) permit before discharging produced water or drilling fluids.

401 KAR 5:065-Failure to comply with the KPDES permit or program requirements and standards. Example: analysis of the discharge shows non-compliance with the KPDES permit's conditions or failing to submit Discharge Monitoring Report (DMR) forms. Also, in cases where a discharge violates water quality standards.

401 KAR 5:090, Section 4-Failure to register an oil/gas facility within sixty (60) days after production begins. Failure to post a sign identifying the facility's registration number, operator's name, address, phone number and if applicable, the KPDES permit number. Failure to notify the Division of Water of a change in owner/operatorship of the facility and/or changes in the method of storing and disposing of the produced water.

401 KAR 5:090, Section 13-Failure to implement and/or maintain an adequate Spill Prevention and Countermeasure (SPCC) plan. For example, a tank battery without a dike or berm around it and it not having the capability to retain volume of the largest tank within that battery.

401 KAR 5:090, Section 10-Unauthorized use of a pit. For example, a drilling pit being used as a holding pit without obtaining a construction and operational permit for this use.

401 KAR 5:090 Section 6-Failure to obtain approval from the Director of the Division of Water to transport produced water off site prior to doing so.

401 KAR 5:090 Section 5-Failure to dispose of produced water under an approved method, so that water quality standards are not violated.

KRS 151.250 and 401 KAR 4:060-Activities cited are: placement of fill material in the 100-year floodplain, the construction of a bridge, installation of a culvert, or a stream alteration without a permit.

DIVISION OF WASTE MANAGEMENT
Common Cited Violations

401 KAR 30:031- Violation of environmental performance standards.

401 KAR 32:010 - Failure to determine if a waste the operation generates is a hazard waste.

KRS 224.01-400(1) THROUGH (11)- Failure to report releases above a reportable quantity.

KRS 224.01-400(18)- Failure to remediate all releases, even those that are below a reportable quantity.

KRS 224.01-405- Failure to perform appropriate corrective action in response to a petroleum release.

KRS 224.40-100(1)- Failure to transport to or dispose of waste at any site or facility other than one for which a permit for waste disposal has been issued by the Division of Waste Management.

KRS 224.40-100(2)- Using or creating an open dump.

KRS 224.40-305- Establishing, constructing, operating, maintaining, or permitting the use of a waste site or facility without a permit.

THE ANSWER SHEET

Dec. 1995

Issue/Question	Number	Extension	Contact
Abandoned Drums/Oil Tanks	564-2380	150	Bill Burger
Abandoned Mine Lands	564-2141		Steve Hohmann
Abandoned Vehicle Recovery	564-6716	243	Bill Wilson
Above-ground Storage Tanks	564-3626		State Fire Marshall
Acid Rain	573-3382	343	Lynda Sherrard
Admiral Certificates	564-5525	63	Cindy Schafer
Adopt-a-Highway Program	564-4890		Transportation Cabinet
Agricultural District Program	564-3080		Steve Coleman
Agricultural Equipment Revolving Fund	564-3080		Rita Puckett
Agricultural Water Quality Authority	564-3080		Steve Coleman
Air Quality Permits	573-3382	455	Allan Elliott
Air Releases (vapors, fumes, odors)	573-3382	305	Mark Ritter
Air Quality Index (800-AIR-IN-KY)	573-3382	443	Larry Garrison
Air Public Education/Information	573-3382	416	Lillie Cox
Alternative Fuels	564-7192 or 800/282-0868		Geoffrey Young
Ambient Groundwater Monitoring Network	564-3410	443	David Leo
Arson Reporting	800/25-ARSON		
Asbestos	573-3382	421	Parker Moore
Best Management Practices			
Forestry	564-4496		Larry Lowe
Water	564-3410	179	David Rome
		495	Corrine Wells
Conservation	564-3080		Steve Coleman
Bioassay	564-3410	497	Charles Roth
Biodiversity			
Forestry	564-4496		Mark Matuszewski
Nature Preserves	573-2886		Robert McCance
Bird Roosts	564-4856		Dept. of Fish & Wildlife
Blackwater Release	564-3410	177	Sam Lester
Boat Titles	564-2737		Transportation Cabinet
Boil Water Notices	564-3410	177	Sam Lester
			Roger Conn
Burning Restrictions			
Air	573-3382	305	Mark Ritter
Forestry	564-4496		Bernie Andersen
Clean Air for Kentucky Education Program	573-3382 or 800/928-0047		Lillie Cox
Clean Air Act	573-3382	367	Ken Hines

Issue/Question	Number	Extension	Contact
Clean Air Act Ombudsman	564-3350 or 800/926-8111		Rose Marie Wilmoth
Clean Community Program	564-6716	238	Joy Morgan
Clean Vessel Act	564-3410	177	Sam Lester
Clean Water Act	564-3410	438	Charles Collier
Comparative Risk	564-5525	65	Nancy Fouser
Complaints			
Air	573-3382	305	Mark Ritter
Waste	564-6716	277	Carol Sole
Water	564-3410	461	Donna Drury
Composting	564-6716	271	Mark Crim
Conservation Districts	564-3080		Steve Coleman
Conservation (Soil) Education	564-3080		Martin Bess
Dam Failure	564-3410		Jim Marchant
			Tony Childers
Emergency Situations Only	564-2380	150	Bill Burger
Dam Safety	564-3410		Jim Marchant
			Leon Smothers
Dead Animals on Road	564-6998		Dept. of Fish & Wildlife
DEP Scholarship Program	564-2150	115	Glenda Abrams
Dioxins/PCBs	564-3410	497	Charles Roth
Drinking Water	564-3410	543	Vicki Ray
Drought Response	564-3410	181	Kathy Collins
			Leon Smothers
Dry Cleaners' Information	573-3382	343	Lynda Sherrard
Ecosystem Management	564-4496		Cary Perkins
Employment (NREPC)	564-2042	44	Trinta Cox
Endangered & Threatened Species	573-2886		Nature Preserves Comm.
Energy Conservation	564-7192 or 800/282-0868		Div. Of Energy
Energy Education	564-7192 or 800/282-0868		Div. Of Energy
Energy Grant Opportunities	564-7192 or 800/282-0868		Betty Yates
Energy Poster	564-7192 or 800/282-0868		
Energy, Renewable (solar, geothermal, etc.)	564-7192 or 800/282-0868		Geoffrey Young
Energy Shortages	564-7192 or 800/282-0868		Greg Guess
Environmental Education Council	564-5937		Jane Wilson
Environmental Quality Commission	564-2150		Leslie Cole
Environmental Response Team	564-3410	150	Bill Burger
Environmental Services-Laboratory Testing	564-6120		William Davis
Environmental Trends/Conditions	564-2150		Leslie Cole
Fish Kills	564-3410	177	Sam Lester
Fish & Wildlife Camps	564-4762		Dept. of Fish & Wildlife

Issue/Question	Number	Extension	Contact
Fish Consumption Advisories	564-3410	433	Mike Mills
Flood Insurance	564-3410	424	Donna Hall
Floodplain Management	564-3410		Keith Crim
			Leon Smothers
Forests	564-4496		Ron Meyer
Forest Health	564-4496		Bernie Andersen
Forestry Education	564-4496		Ron Meyer
Forest Fire Laws	564-4496		Bernie Andersen
Forest Products Council	564-4496		Larry Lowe
Forest Product Utilization	564-4496		Larry Lowe
Forest Stewardship	564-4496		Cary Perkins
Freedom of Information/Open Records			
Dept. for Environmental Protection	564-2150		Alex Barber
Dept. of Natural Resources	564-2184		Joe Dietz
Dept. for Surface Mining	564-6940		Irven Pope
Office of Legal Services	564-5576		Brenda Lowe
			Iris Skidmore
Freon	573-3382	389	Monica Hale Kehrt
Game Farm (tours of)	564-4762		Dept. of Fish &
			Wildlife
Geographic Information Systems			
Statewide	573-1460		Doug Robinson
			OGIS
Cabinet	564-5174	705	Ken Bates
Groundwater	564-3410	458	Peter Goodman
Groundwater Protection Plans	564-3410		Beverly Oliver
		458	Peter Goodman
Groundwater Withdrawal Permits	564-3410	181	Kathy Collins
Hazardous Waste	564-6716	246	Mike Welch
Hazardous Waste Incinerators	564-6716	246	Mike Welch
Highway Wildflower Program	564-4556		Transportation
			Cabinet
Hearings	564-7312		Barbara Foster
Houseboat Discharge (Boat MSDs)	564-3410	177	Sam Lester
Houseboat Discharge			
(Marina Pumpout Stations)	564-4762		Dept. of Fish &
			Wildlife
Hunting & Fishing Licenses Permits	564-4336		Dept. of Fish &
			Wildlife
Incinerators (municipal, medical & industrial)	573-3382	308	Roger Cook
Indoor Air	573-3382	389	Monica Hale Kehrt
Karst Groundwater Problems	564-3410	443	David Leo
Kentucky River Authority	564-2886		Hugh Archer
Land, Air & Water Publication Editor	564-5525	66	Faun S. Fishback
Land, Air & Water (Mailing List)	564-5525	63	Cindy Schafer
Landfarming Certification	564-6716	260	Sharon Watkins
Landfill Operator Certification	564-6716	260	Sharon Watkins

Issue/Question	Number	Extension	Contact
Livestock Waste Treatment	564-3080		Steve Coleman
Locks & Dams (KY River)	564-2866		KY River Authority
Maxey Flats	564-6716		Jan Jasper
Naturally Kentucky Posters	564-5525	63	Cindy Schafer
Nature Preserves	573-2886		Joyce Bender
Noncoal Permitting & Licensing Enforcement (Clay, Sand, Gravel)	564-2340	508	Roy McQueary
Nonpoint Source Program	564-3410	495	Corrine Wells
Nonpoint Source Section 319(h) Grants	564-3410	495	Corrine Wells
Nonpoint Source Education	564-3410	179	David Rome
Oil and Gas	502/573-0147		Mines & Minerals
Oil and Gas Licensing	564-3410	593	Dan Juett
Ombudsman	564-3350	721	Pamla Wood
Outdoor Classroom Information	564-5525	63	Cindy Schafer
Paint Disposal	573-3382	343	Lynda Sherrard
Parks (State)	564-2172		Dept. of Parks
	800/255-7275		Info & Reservations
Pesticides	564-4696		Agriculture
Press/Reporter Contacts			
Air	573-3382	303	Eva Smith-Carroll
Waste	564-6716	200	Annette Hayden
Water	564-3410	552	Maleva Chamberlain
Radiation	564-7398		Human Resources
Radon	564-4856		Human Resources
Recycling	564-6716	232	Charlie Peters
Reclamation	564-2340		Mark Thompson
Risk Assessments	564-2150	501	Al Westerman
Rocks and Geology	606/257-5500		KY Geological Survey
Septic Tanks	564-3970		Health Services
Sewers	564-3410		Bennie McWain
		437	Bruce Scott
Small Operators Assistance Program	564-2356	702	J.R. Hamm
Soil Erosion & Water Quality Cost Share Program	564-3080		Steve Coleman
Soil & Water Conservation Commission	564-3080		Steve Coleman
Spill Control	564-3410	150	Bill Burger
Solid Waste	564-6716	239	George Gilbert
State of the Environmental Report	564-2150		Leslie Cole
Stormwater Runoff	564-3410		Doug Allgeier
		437	Bruce Scott
Stream & River Water Quality	564-3410	474	Tom VanArsdall
Stream Construction	564-3410		Keith Crim

Issue/Question	Number	Extension	Contact
			Ron Dutta
			John Bottom
Stream Dredging	564-3410	485	John Dovak
Superfund Sites (State)	564-6716		Bob Padgett
(Federal)	564-6716		Rick Hogan
Surface Coal Mining (Operation & Rec.)	564-2340	503	Keith Smith
Surface Coal Mining Complaints	564-2340	531	Judy Tipton
Surface Coal Mining Enforcement Records	564-2340	533	Dixie Mullins
Surface Coal Mining Blaster Certification	564-2340	512	Janet Lea
Surface Coal Mining Bond Maintenance	564-2340	523	Connie Downey
Surface Coal Mining Penalty Assessment and Enforcement	564-2340	418	Jerri Wallace
Swimming Advisories	564-3410	439	Gary Beck
Swimming Pools	564-4856		Human Resources
Timber Management	564-4496		Cary Perkins
Tire Dumps	564-6716		Dave Morgan
Toxic Release Inventory	564-2150	123	Gayla Stewart
Tree Farm Program	564-4496		Cary Perkins
Tree Seedlings	564-4496		Ron Meyer
Vehicle Emission Testing	573-3382	311	David Gore
Urban Forestry	564-4496		Diana Olszowy
Underground Storage Tanks	564-5981		Petroleum Storage
			Tank Commission
	564-6716	249	Doyle Mills
Used Oil Recycling	800/282-0868		Div. Of Energy
Waste & Recycling Education	564-6716	200	Annette Hayden
Wastewater State Revolving Fund	564-3410	540	Kay Hines
Wastewater Treatment	564-3410	519	Mike Tipton
Wastewater Treatment Operator Certification & Training	564-3410	362	Lisa Detherage
Water Treatment & Distribution Operator Certification & Training	564-3410	362	Lisa Detherage
Wastewater Discharge Permits	564-3410	437	Bruce Scott
Water Conservation	564-3410	181	Kathy Collins
			Leon Smothers
			Dionne Fields
Water Patrol	564-3074		Col. Donovan Smith
Water Public Education/Information	564-3410	552	Maleva Chamberlain
Water Quality Certification	564-3410	485	John Dovak
Water Shortage	564-3410	181	Kathy Collins
Water Supply	564-3410		Hassein Rakhshan
			Roger Conn

Issue/Question	Number	Extension	Contact
Water Supply Planning	564-3410		Hassein Rakhshan
			Mostafa Nikou
Water Toxicity Testing	564-3410	497	Charles Roth
Water Withdrawal	564-3410	181	Kathy Collins
			Dionne Fields
Watershed Conservancy District	564-3080		Steve Coleman
Water Watch Program	564-3410	473	Ken Cooke
Water Well Drilling	564-3410	597	Chester Bojanowski
Wellhead Protection Program	564-3410	458	Peter Goodman
Wetlands	564-3410	183	Jeff Grubbs
Wild Rivers Program	564-3410	520	Morgan Jones
Wildlife	564-4406		Dept. of Fish & Wildlife
Wire Burning	573-3382		Don Wills
Zebra Mussels	564-3410	437	Bruce Scott

LIST OF MATERIALS FOR PLASTIC SERVICE LINE

REQUIRED BY APPLICANT FOR GAS SERVICE UNDER KRS 278.485

Item	Description
1.	1 – 1" heavy brass stopcock, or 1" ball valve
2.	1 – 1" street ell, heavy black steel
3.	2 – 1" ground joint union, heavy black steel
4.	Drip tank, minimum test pressure 600 psig, includes ½" stopcock and plug
5.	1" medium pressure regulator, spring type, 200 psig inlet to 10-25 psig outlet, minimum working pressure 600 psig, internal relief capabilities optional
6.	1 " low pressure regulator, spring type, 10-25 psig inlet to 8 oz. outlet, minimum working pressure 100 psig, must be equipped with automatic cutoff and manual reset, internal relief capabilities optional
7.	1 – 1" tee, black steel
8.	1 – 1" x ¼" bushing, black steel
9.	1 – ¼" plug, black steel
10.	1 – 1" standard brass stopcock
11.	1 – 1¼" x 5' pipe threaded on one end, new black steel
12.	2 – 1¼" 90° compression ells
13.	1¼" approved plastic gas pipe with tracer wire
14.	1¼" x 36" steel pipe, threaded on both ends
15	1 – 1¼" standard brass stopcock

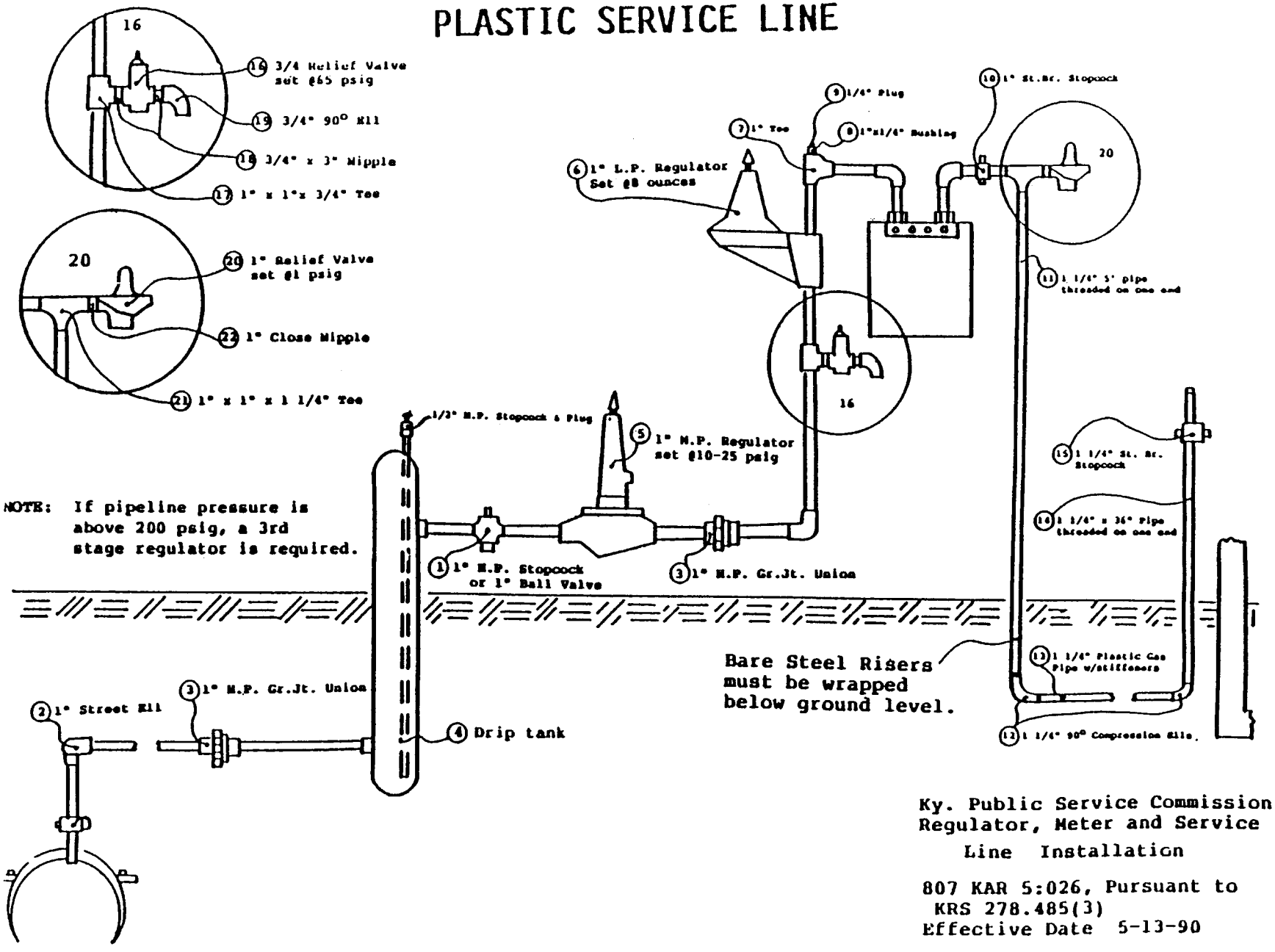
Other parts needed for assembly

6 – 1" x 3" nipples, heavy black steel
5 – 1" x 6" nipples, heavy black steel
2 – 1" x 12" nipples, heavy black steel
2 – 1" x 2" nipples, heavy black steel
4 – 1" 90° ells, heavy black steel

Relief Valve Assembly List if Regulators
Are Not Equipped With Internal Relief Capabilities

16.	¾" pressure relief valve, spring loaded, set to relieve at 65 psig
17.	1 – 1" x ¾" tee, heavy black steel
18.	2 – ¾" x 3" nipple, heavy black steel
19.	1 – ¾" 90° ell, heavy black steel with bug screen
20.	1" pressure relief valve, spring loaded with screened vent, set to relieve at 1 psig
21.	1 – 1" x 1" x 1¼" tee, black steel
22.	1 – 1" close nipple, heavy black steel

PLASTIC SERVICE LINE



NOTE: If pipeline pressure is above 200 psig, a 3rd stage regulator is required.

Ky. Public Service Commission
Regulator, Meter and Service
Line Installation

807 KAR 5:026, Pursuant to
KRS 278.485(3)
Effective Date 5-13-90

LIST OF MATERIALS FOR COATED STEEL SERVICE LINE

REQUIRED BY APPLICANT FOR GAS SERVICE UNDER KRS 278.485

Item	Description
1.	1 – 1" heavy brass stopcock, or 1" ball valve
2.	1 – 1" street ell, heavy black steel
3.	2 – 1" ground joint union, heavy black steel
4.	Drip tank, minimum test pressure 600 psig, includes 1/2" stopcock and plug
5.	1" medium pressure regulator, spring type, 200 psig inlet to 10-25 psig outlet, minimum working pressure 600 psig, internal relief capabilities optional
6.	1" low pressure regulator, spring type, 10-25 psig inlet to 8 oz. Outlet, minimum working pressure 100 psig, must be equipped with automatic cutoff and manual reset, internal relief capabilities optional
7.	1 – 1" tee, black steel
8.	1 – 1" x ¼" bushing, black steel
9.	1 – ¼" plug, black steel
10.	1 – 1" standard brass stopcock
11.	1 – 1¼" x 12"nipple, threaded on one end, new black steel
12.	1 – 1¼" insulating coupling
13.	1 – 1¼" x 40" pipe, threaded on one end, new black steel
14.	1 – 1¼" street ell, black steel
15.	1¼" coated steel pipe
16.	1¼" x 36" steel pipe, threaded on both ends
17.	1 – 1¼" standard brass stopcock
18.	1 – 1¼" standard ground joint insulating union, black steel

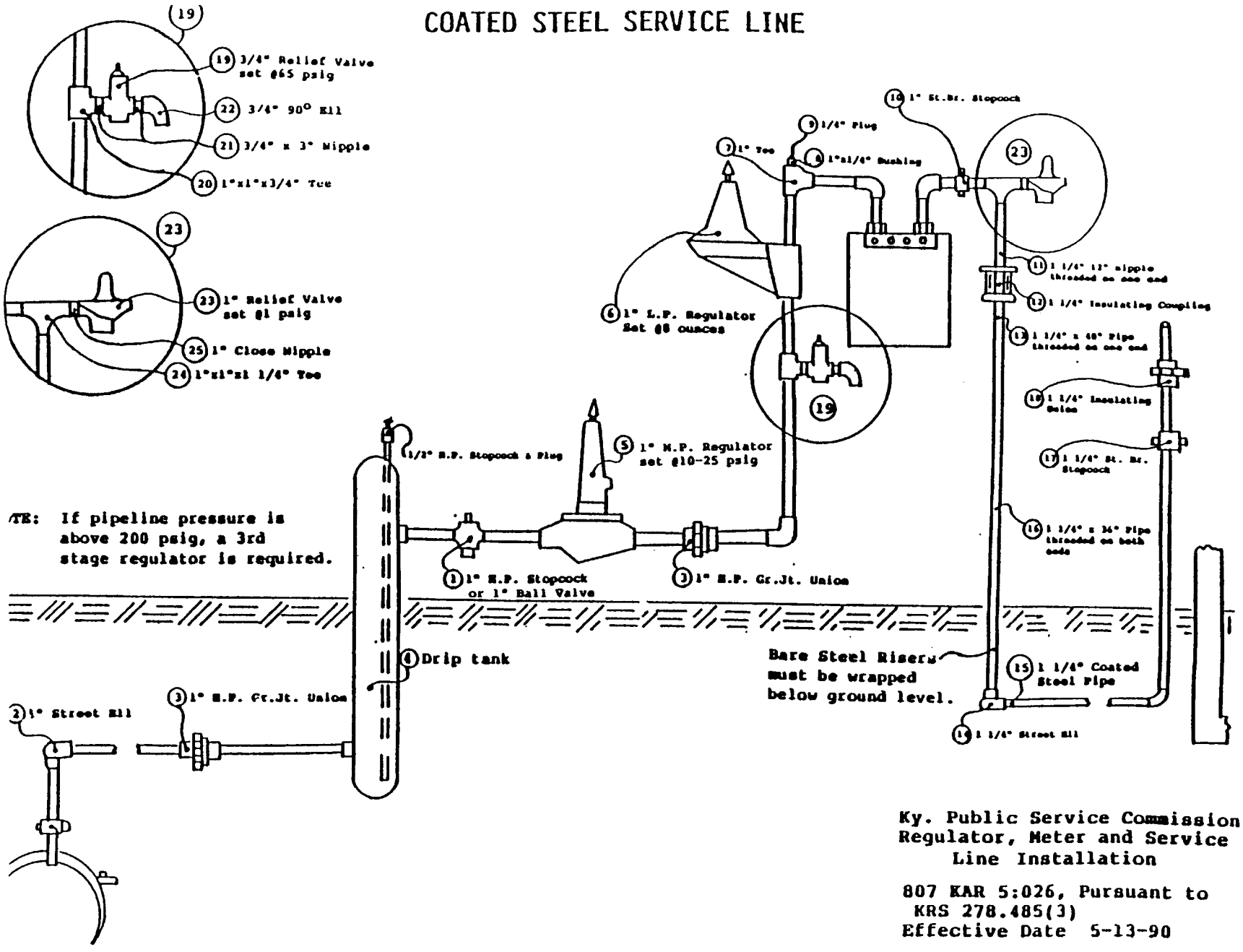
Other parts needed for assembly

6 – 1" x 3" nipples, heavy black steel
5 – 1" x 6" nipples, heavy black steel
2 – 1" x 12" nipples, heavy black steel
2 – 1" x 2" nipples, heavy black steel
4 – 1" 90° ells, heavy black steel
2 – 1¼" 90° ell, black steel

Relief Valve Assembly List if Regulators
Are Not Equipped With Internal Relief Capabilities

19.	¼" pressure relief valve, spring loaded, set to relieve at 65 psig
20.	1 – 1" x 1" x ¾" tee, heavy black steel
21.	2 – ¾" x 3" nipple, heavy black steel
22.	1 – ¾" 90° ell, heavy black steel with bug screen
23.	1" pressure relief valve, spring loaded with screened vent, set to relieve at 1 psig
24.	1 – 1" x 1" x 1¼" tee, black steel
25.	1 – 1" close nipple, heavy black steel

COATED STEEL SERVICE LINE



TE: If pipeline pressure is above 200 psig, a 3rd stage regulator is required.

Ky. Public Service Commission
Regulator, Meter and Service
Line Installation

807 KAR 5:026, Pursuant to
KRS 278.485(3)
Effective Date 5-13-90

APPENDIX B

Division of Oil & Gas Blanket Surety Bond 607
Division of Oil & Gas Surety Bond 608
Division of Oil & Gas Letter of Credit 609
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Division of Oil & Gas Casing and Cementing Plan 612
Oil & Gas Well Cementing 613
Oil & Gas Well Casing Information 614
Division of Oil & Gas Application for Permit 615
Division of Oil & Gas Plan to Prevent Erosion and Sedimentation from a Well Site 617
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Division of Oil & Gas Affidavit of Well Log and Completion Report 630
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Division of Oil & Gas Temporary Abandonment Permit 648
Division of Oil & Gas Certificate of Injection Well 649
Division of Water Application to Dispose of Produced Water Off-Facility 650
Division of Oil & Gas Permit for Use of a Vacuum 652
Division of Oil & Gas Annual Production Report & Instructions 653
Division of Oil & Gas Instructions for Annual Production Report 655
Division of Oil & Gas Application to Mine Within 500 Feet of a Well 656

Bond No. _____

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF MINES AND MINERALS
DIVISION OF OIL AND GAS

BLANKET SURETY BOND
COVERING WELLS TO BE DRILLED, DEEPENED, RE-OPENED OR TEMPORARILY ABANDONED

KNOW ALL MEN BY THESE PRESENTS:

That we _____
_____, as principal
and _____
a corporation, as surety, authorized to do business in this Commonwealth, are held and firmly bound unto the Commonwealth of Kentucky, Department of Mines and Minerals, in the penal sum of $_____ lawful money of the United States, for which payment, well and truly made, we jointly and severally bind ourselves, our personal representatives, our heirs, executors, administrators or successors, and assigns.

The condition of this obligation is such that whereas the above bounden principal proposes to drill, deepen, reopen or temporarily abandon wells in this Commonwealth; under the provisions of KRS Chapter 353; if the above bounden principal shall comply with the laws of this Commonwealth and the rules, regulations and orders of the Department of Mines and Minerals, with reference to the proper plugging of said wells, and filing with the Department all records required by the Department, in the event that said wells do not produce oil or gas in commercial quantities, or cease to produce oil or gas in commercial quantities, then this obligation is void; otherwise, the same shall be and remain in full force and effect.

The duration of this bond shall be from the time filed with the Department until the Director of Oil and Gas Conservation, upon being satisfied that the owner or operator has plugged the wells in accordance with the law and the rules and regulations of the Department of Mines and Minerals, and that all logs, plugging affidavits, or other pertinent information required by KRS Chapter 353 and the rules and regulations and orders of the Department have been filed, releases the bond.

IN WITNESS WHEREOF, we have hereunto set our hands and affixed our seals this _____ day of _____, 19_____.

_____
Principal

_____
Surety

by _____

(When principal or surety executes this bond by agent, power of attorney or other, evidence of such authority must be attached).

Bond No. _____

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF MINES AND MINERALS
DIVISION OF OIL AND GAS

SURETY BOND
COVERING WELLS TO BE DRILLED, DEEPENED, RE-OPENED OR TEMPORARILY ABANDONED

KNOW ALL MEN BY THESE PRESENTS:

That we _____
_____, as principal
and _____
a corporation, as surety, authorized to do business in the Commonwealth, are held and firmly bound unto the Commonwealth of Kentucky, Department of Mines and Minerals, in the penal sum of $ _____ lawful money of the United States, for which payment, well and truly made, we jointly and severally bind ourselves, our personal representatives, our heirs, executors, administrators or successors, and assigns.

The conditions of this obligation is such that whereas the above bounden principal proposes to:
Carter Coordinates _____ FNL/FSL _____ FEL/FWL Section _____ Letter _____ Number _____
Drill ( ) Deepen ( ) Reopen ( ) Temporarily Abandon ( ) a well in this Commonwealth known as the _____ (farm) No. _____ located in ___ _____ County; under the provisions of KRS Chapter 353; if the above bounden principal shall comply with the laws of this Commonwealth and the rules, regulations and orders of the Department of Mines and Minerals, with reference to the proper plugging of said well, and filing with the Department all records required by the Department, in the event that said well does not produce oil or gas in commercial quantities, or cease to produce oil or gas in commercial quantities, then this obligation is void; otherwise, the same shall be and remain in full force and effect.

The duration of this bond shall be from the time filed with the Department until the Director of Oil and Gas Conservation, upon being satisfied that the owner or operator has plugged the well in accordance with the law and the rules and regulations of the Department of Mines and Minerals, and that all logs, plugging affidavits, or other pertinent information required by KRS Chapter 353 and the rules and regulations and orders of the Department have been filed, releases the bond.

IN WITNESS WHEREOF, we have hereunto set our hands and affixed our seals this _____ day of _____, 19 _____.

When bond is released,
return to:

_____
_____
_____

_____
Principal

_____
Surety
by _____

(When principal or surety executes this bond by agent power of attorney or other evidence of such authority must be attached.)

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF MINES AND MINERALS
DIVISION OF OIL AND GAS
PO BOX 2244
FRANKFORT, KY 40601

ISSUER
_____ NAME
_____ ADDRESS
_____
_____ PHONE
_____ CONTACT

IN REFERENCE TO:

LETTER OF CREDIT NUMBER _____
DATED _____
AMOUNT _____
ISSUED BY _____
ACCOUNTANT PARTY-OPERATOR _____

WE ENCLOSE THE ORIGINAL OF THE ABOVE-REFERENCED LETTER OF CREDIT OPENED IN YOUR FAVOR.

WE CONFIRM THE CREDIT AND HEREBY UNDERTAKE THAT ALL DRAFT(S) OR OTHER DEMANDS DRAWN IN COMPLIANCE WITH TERMS OF THE ORIGINAL CREDIT AND ANY OTHER CONDITIONS STATED THEREIN, SHALL BE HONORED.

BY: _____
TITLE: _____

ED-16 (REV.2-99)

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF MINES AND MINERALS
DIVISION OF OIL AND GAS
P. O. BOX 2244
FRANKFORT, KY 40601

IRREVOCABLE LETTER OF CREDIT NO.:_____
DATE: _____

Dear Department:

We hereby open our irrevocable letter of credit in your favor for the account of _____ _____as operator , to cover wells drilled, deepened, reopened or transferred to the above- named principal, for the sum of _____dollars ($ _____) available by your draft or other demand on us at sight.

This letter of credit constitutes collateral security for performance of the above-named operator's obligations under KRS 353.590.

This Letter of Credit shall be subject to terms contained herein and shall cover all wells as security until plugged with the Department's approval and all records required by the Department are properly filed or all wells covered by this letter as security are transferred to a successor operator with bond as provided in KRS 353.590 or the operator posts a substitute bond to replace this letter of credit subject to the Department's approval.

All drafts drawn under this Letter of Credit are to be endorsed thereon and shall bear the clause "Drawn under _____ Letter of Credit No._____." This Letter of Credit is effective as of _____ and shall expire on _____ but such expiration date shall be automatically extended for a period of one year and each successive expiration date, unless at least 120 days before the current expiration date, we notify both you and the operator by certified mail that we have decided not to extend this Letter of Credit beyond the current expiration date. In the event you are so notified, any unused portion of the credit shall be available upon presentation of your sight draft for 120 days after the date of receipt by you as shown on the signed return receipt.

We hereby agree with you that all drafts drawn under and in compliance with the terms of this Letter of Credit shall be duly honored upon presentation to us, and we shall remit the amount of the draft by certified check payable to the "Kentucky State Treasurer" in accordance with your instructions.

We shall give notice within fifteen (15) days to the operator and the Director, Division of Oil and Gas, of any notice received or action filed alleging our insolvency or bankruptcy, or alleging any violations of regulatory requirements which could result in suspension or revocation of our charter or license to do business.

Except as otherwise expressly stated herein, this Credit is subject to the uniform Customs and Practice for Documentary Credits (1983 Revision), International Chamber of Commerce, Publication no. 400.

Yours very truly,

_____
Authorized Signature Title

VERIFICATION OF CERTIFICATE OF DEPOSIT

State Form

SEND TO: DEPARTMENT OF MINES AND MINERALS
DIVISION OF OIL AND GAS
PO BOX 2244
FRANKFORT, KY 40601

Gentlemen:

This is to advise you that the undersigned, pursuant to obligations set forth in KRS 353.590, does hereby assign, transfer to and pledge with the Department of Mines and Minerals all right, title and interest of the undersigned in and to the Certificate of Deposit issued by or carried with

Bank Name	
Address	
City and State	Zip Code

and identified as Certificate of Deposit # _____, in the face amount of $ _____, except that interest on the certificate is the property of the assignor.

This assignment constitutes collateral security for performance of the assignor's obligations under KRS 353.590.

The undersigned appoints the Director for the Division of Oil and Gas, Department of Mines and Minerals as the true and lawful attorney of the undersigned to demand, collect, and receive all amounts, excluding interest, which shall become due under the certificate of deposit and to endorse the certificate of deposit for payment or negotiation and to endorse any commercial paper given in payment of the certificate of deposit. The Director may permit automatic renewal of the certificate of deposit on any maturity date.

The undersigned warrants that the Certificate of Deposit is contemporaneously with the execution hereof being delivered to the Director; that the Certificate of Deposit is genuine and is in all respects what it purports to be; that the undersigned is the owner thereof free and clear of all liens and encumbrances; and that the undersigned has full power, right and authority to execute and deliver this assignment.

Signature	Date Signed	If Corporation, Title
Signature	Date Signed	If Corporation, Title

SIGNATURE GUARANTEE AND UNDERTAKING BY THE FINANCIAL INSTITUTION

The signature(s) of the assignor(s) appearing above (were) made in the presence of the Undersigned Officer of the Financial Institution in the above collateral assignment and is (are) herewith guaranteed by it.

This institution shall save and hold harmless the Department of Mines and Minerals and the State of Kentucky from all loss, claims, and litigation which it may suffer in consequence of its action in reliance upon and pursuant to the above assignment.

Financial Institution	By
Title	Date Signed

The Director of the Division of Oil and Gas, Department of Mines and Minerals herewith acknowledges receipt of the above assignment and agrees to act thereunder.

Director, Division of Oil and Gas, Department of Mines and Minerals	Date Signed

ED-20 (REV. 2-99)

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF MINES AND MINERALS
DIVISION OF OIL AND GAS
PO BOX 2244
FRANKFORT, KY 40601
PHONE (502) 573-0147

Casing and Cementing
Plan as Required for
Permit per 805 KAR 1:130
and 805 KAR 1:140

WELL OPERATOR (APPLICANT) _____
(MUST BE IDENTICAL TO NAME ON BOND)

MINERAL OWNER (LESSOR) _____

COUNTY _____ WELL NUMBER _____ ELEVATION _____

CARTER COORDINATES _____ FNL/FSL _____ FEL/FWL, SEC. _____ LETTER _____ NUMBER _____

CASING INFORMATION

TYPE	OD SIZE	WT/FT GRADE NEW OR USED	DEPTH

CEMENT INFORMATION

CASING	HOLE SIZE	SACKS	CLASS	WEIGHT	ADDITIVES

BLOW-OUT PREVENTER INFORMATION

BRAND	TYPE	WORKING PRESSURE	TEST PRESSURE

SCHEMATIC SHOWING HOLE SIZE & DEPTH OF EACH CASING STRING

I CERTIFY THAT THE ABOVE INFORMATION IS TRUE, ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

OPERATOR _____ DATE SIGNED _____

The Director of the Division of Oil and Gas, Department of Mines and Minerals, hereby approves of this Casing and Cementing Plan for the above-referenced location.

DIRECTOR _____ DATE SIGNED _____

Form ED-7 (ORG. 8-91) (REV. 2-99)

OIL & GAS WELL CEMENTING

Typical Wellbore (Not to Scale)

Surface Casing String - Set through fresh water zones and coal seams.
9 5/8" Casing (32.3 LB/FT) Length-250 FT.-Hole Size 12 ¼"
Cement to Surface: 250 X .3132 cu.ft./ft.=78.3 cu.ft.
***Convert Cubic Feet to Sacks:** 78.3 cu.ft./1.18 cu.ft./sack=66.367 sacks
Convert Cubic Feet to Barrels: 78.3 X .1781=13.9 Barrels

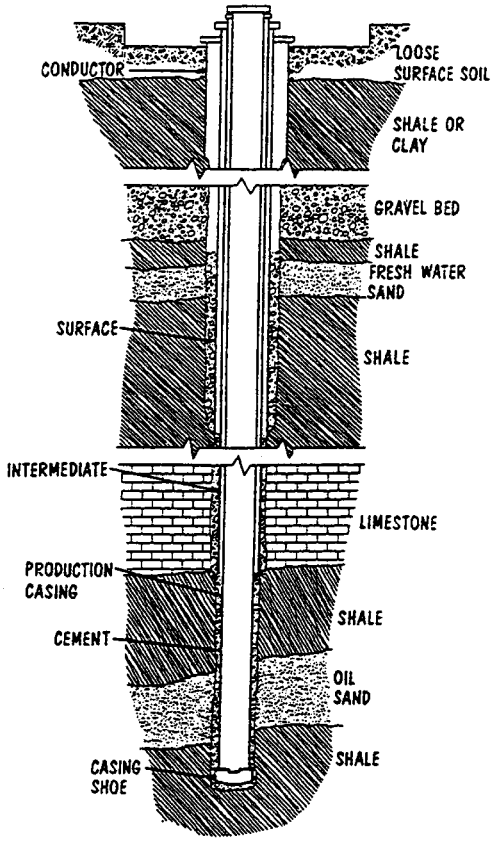
Intermediate Casing String - Set to isolate water and shallow producing zones.
7" Casing (20 LB/FT) Length-1800 FT.-Hole Size 8 ¾"
Cement back to base of 9 5/8": 1800'-250'=1550' 1550 X .1783 cu.ft./ft.=276 cu.ft.
***Convert Cubic Feet to Sacks:** 276 cu.ft./1.18 cu.ft./sack=233.94 sacks
Convert Cubic Feet to Barrels: 276 X .1781=49.16 Barrels

2 3/8" Production Tubing

Production Casing String - Set through producing zone and perforated.
4 ½" Casing (10.5 LB/FT) Length-3750 FT.-Hole Size 6 ¼"
Cement up to 2800': 3750'-2800'=950' 950 X .1026 cu.ft./ft.=97.47 cu.ft.
***Convert Cubic Feet to Sacks:** 97.47 cu.ft./1.18 cu.ft./sack=82.6 sacks
Convert Cubic Feet to Barrels: 97.47 X .1781=17.36 Barrels

* To convert cubic feet to sacks divide cement yield into cubic feet. To calculate sacks the cement blend, weight, yield, and water is required (supplied by cementing service company). Class A Cement w/3% $CaCl_2$ has a yield of 1.18 cu.ft./sack.
NOTE: Data for annular volume between casing and/or open hole is required for cement calculations and is found in oilfield cementing handbook. Contact cementing service company to obtain handbook.

Represents cement in annular space between casing and open hole.



—Types of casing.

OIL & GAS WELL CASING INFORMATION

-Types and functions of casing strings used in wells

Type of Casing	*Sizes*	*Function*
Conductor *Cement-* API Class A-C-G or H with accelerator	Ranges from 16- to 30- inch. driven or set from 40 to 1500 foot depths	1. Stabilized cellar and protects rig foundation 2. Restrains unconsolidated formations 3. Confines circulating fluids 4. Helps prevent water flows and loss of circulation
Surface Same as Conductor	Ranges from 7- to 16-inch, set from few feet to 4500 foot depths	1. Helps prevent contamination of fresh-water zones 2. Connection for blow-out preventer and well head 3. Support for deeper casing and tubing string 4. Confines shallow zones and helps prevent loss of circulation
Intermediate *Cement-* API Class A-C-G or H containing bentonite Lower casing with high strength cement	Ranges from 7- to 11 ¾ inch.	1. Helps prevent hole sloughing or enlargement while drilling deeper 2. Protects production strings from corrosion 3. Confines well if mud weight becomes inadequate to restrain high formation pressure 4. Protects loss of drill string in key seat or "sticky" holes 5. Helps prevent loss of circulation.
Production *Cement-* Designed for weight control (hydrostatic). Lower casing with high strength cement	Ranges from 2 $^{3}/_{8}$ inch to 9 $^{5}/_{8}$ inch and extends through zone of production	1. Protects hole during life of well 2. Isolates and helps prevent fluid migration 3. Helps provide well control should tubing fail 4. Protects downhole equipment 5. Allows selective production of oil or gas.
Liner Same as production casing	5- to 7-inch are most common sizes; extends through productive zones	1. Same as for production casing 2. Limits need for running full string of casing

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF MINES AND MINERALS
DIVISION OF OIL & GAS
P O BOX 2244
FRANKFORT, KY 40601
PHONE – (502) 573-0147

FOR OFFICE USE ONLY
RECORD NO:_____
FEE:_____
BOND:_____
PLAT:_____
FWD:_____
SAMPLES:_____
PERMIT NO:_____
RESTRICTED AREA:_____

APPLICATION FOR PERMIT

TYPE OR PRINT

1. TO DRILL ☐ , DEEPEN☐ _____,REOPEN☐_____, A WELL
PREVIOUS PERMIT NO. PREVIOUS PERMIT NO.

2. WELL OPERATOR (APPLICANT)_____
(MUST BE IDENTICAL TO NAME ON BOND)

3. PERMANENT ADDRESS_____ ZIP_____ PHONE_____
STREET CITY STATE

4. ADDRESS FOR MAILING PERMIT_____

5. MINERAL OWNER (LESSOR)_____
(ATTACH ADDITIONAL SHEETS AS NEEDED)

ADDRESS:_____ZIP_____PHONE_____

COUNTY_____ WELL NUMBER_____LEASE EXPIRATION DATE_____

6. CARTER COORDINATES_____FNL FSL,_____FEL FWL, SEC_____LETTER_____NUMBER_____

7. ELEVATION BEFORE GRADING_____ELEVATION AFTER GRADING IF DIFFERENT_____

ELEVATION CHANGES MUST BE FILED WITH THIS OFFICE PRIOR TO PLUGGING THE WELL.

8. NAME OF DEEPEST GEOLOGIC FORMATION TO BE TESTED _____max depth to permit_____

9. THIS PROPOSED WELL IS TO BE DRILLED FOR THE FOLLOWING PURPOSE

A. OIL - PRIMARY ☐	D. WATER SUPPLY ☐	G. SALT WATER DISPOSAL☐
B. GAS - PRIMARY☐	E. ENHANCED RECOVERY INJECTION ☐	H. STRATIGRAPHIC TEST ☐
C. GAS STORAGE ☐	F. ENHANCED RECOVERY PRODUCTION☐	I. OBSERVATION ☐

10. A. IS THIS WELL TO BE COMPLETED IN A RESERVOIR WHICH HAD INJECTION WELLS IN EXISTENCE PRIOR TO THE EFFECTIVE DATE OF 805 KAR 1: 1 1 0. YES ☐ NO ☐

B. THE OPERATOR OF A PROPOSED INJECTION WELL MUST OBTAIN A PERMIT TO DRILL (THIS APPLICATION) AND A SEPARATE PERMIT TO INJECT. THE PERMIT TO INJECT SHALL SATISFY THE REQUIREMENTS OF 805 KAR 1:110.

11. WILL THIS WELL PENETRATE COAL BEARING STRATA? YES ☐ NO ☐ IF YES, COMPLETE BOX BELOW

12. IS THE COAL OWNED, OPERATED OR LEASED BY ANY PERSON OTHER THAN THE OIL OR GAS LESSEE OR LESSOR? YES ☐ NO ☐

COAL OWNER AND ADDRESS:_____

THE UNDERSIGNED APPLICANT HAS SENT A COPY OF THIS APPLICATION AND THE WELL LOCATION PLAT BY REGISTERED OR CERTIFIED MAIL TO ALL COAL OWNERS AND OPERATORS NAMED HEREIN ON THE SAME DATE THAT THIS APPLICATION WAS MAILED TO THE DEPARTMENT.

13. WILL THIS WELL BE DRILLED WITHIN THE AREA OF A GAS STORAGE FIELD AS DEFINED BY THE DIVISION OF OIL AND GAS REGULATION 805 KAR 1:080? YES ☐ NO ☐

GAS STORAGE OPERATOR AND ADDRESS: _____

THE UNDERSIGNED APPLICANT HAS SENT A COPY OF THIS APPLICATION AND THE WELL LOCATION PLAT BY REGISTERED OR CERTIFIED MAIL TO THE GAS STORAGE OPERATOR NAMED HEREIN ON THE SAME DATE THAT THIS APPLICATION WAS MAILED TO THE DEPARTMENT.

14. SURFACE OWNER_____ ADDRESS_____
(IF DIFFERENT FROM MINERAL OWNER)

15. SURFACE OWNERS NOTIFICATION OF INTENT TO DRILL.
METHOD OF NOTIFICATION: ☐ CERTIFIED MAIL (COPY OF LETTER AND RETURN RECEIPT ATTACHED)
☐ PERSONAL DELIVERY (DATE_____)(COPY OF NOTIFICATION ATTACHED)

16. DRILLING CONTRACTOR_____
ADDRESS_____
PHONE NUMBER_____

17. U.S.G.S. QUADRANGLE_____
NAME MAP DATE

FORM ED-1 (REV. 2-99)

OVER

18. IS THIS PROPOSED WELL LOCATED ON, OR WILL IT BE NECESSARY TO CROSS LAND WHICH IS CURRENTLY UNDER PERMIT OR BOND BY A COAL OPERATOR AS REQUIRED BY KRS CHAPTER 350 ? YES ☐ NO☐
IF YES, LIST THE NAME AND ADDRESS OF CURRENT BONDED OPERATOR _____

_____

_____

HAS THE APPLICANT MET AND CONFERRED WITH, OR OFFERED TO MEET AND CONFER WITH THE BONDED OPERATOR? YES ☐ NO ☐

19. IS THIS PROPOSED WELL A POOLED OR UNITIZED WELL? YES ☐ NO☐

IF YES, BY WHAT AUTHORITY DOES THE APPLICANT HAVE TO POOL OR UNITIZED THIS PROPOSED WELL?

_____

_____

_____

20. IS THIS PROPOSED WELL A TWIN WELL TO AN EXISTING WELL OR WELLS YES ☐ NO ☐

IF YES, WHAT IS THE PERMIT NUMBER(S) FOR THE EXISTING WELL(S)?_____

WHAT IS THE PRODUCING FORMATION AND INTERVAL OF THE EXISTING WELL(S)?_____

_____

DESCRIBE THE MEASURES TO BE TAKEN TO ENSURE THAT THE TWIN WELLS WILL NOT PRODUCE FROM THE SAME

RESERVOIR_____

_____

_____

_____

21. IS THIS PROPOSED WELL A HORIZONTAL OR DEVIATED WELL? YES ☐ NO ☐
IF YES, INDICATE THE LOCATION OF THE ENDPOINT OF THE WELLBORE BELOW.
CARTER COORDINATES _____FNL FSL, _____FEL FWL , SEC. _____ LETTER_____, NUMBER_____

WHAT IS THE ESTIMATED TOTAL LENGTH OF THE WELLBORE?_____

22. IF A CORPORATION, INDICATE STATE OF INCORPORATION_____

IS CORPORATION REGISTERED WITH KENTUCKY SECRETARY OF STATE? YES☐ NO ☐

23. **THE UNDERSIGNED HEREBY SWEARS OR AFFIRMS THAT THE FOREGOING FACTS GIVEN IN THIS APPLICATION ARE TRUE AS THEREIN SET FORTH.**

DATED THIS _____DAY OF _____A.D. 19_____

24. **THE APPLICANT ACKNOWLEDGES THAT OTHER LOCAL, STATE AND FEDERAL LAWS MAY APPLY TO A WELL DRILLED AT THIS LOCATION.**

25. **IF A CORPORATION, SIGNATORY MUST BE AN OFFICER OF THE COMPANY OR PROVIDE POWER OF ATTORNEY TO EXECUTE DOCUMENTS.**

IF A PRIVATE INDIVIDUAL, SIGNATORY MUST BE SAME OR PROVIDE POWER OF ATTORNEY TO EXECUTE DOCUMENTS.

_____
SIGNATURE OF APPLICANT TITLE

_____
PRINT OR TYPE NAME OF APPLICANT

SWORN TO AND SUBSCRIBED BEFORE ME THIS_____DAY OF_____19_____

_____
NOTARY PUBLIC

MY COMMISSION EXPIRES:_____

26. **ALL APPLICATIONS MUST BE NOTARIZED. FILE THIS APPLICATION ALONG WITH A PERMIT FEE OF $300.00 AND ONE (1) ORIGINAL AND TWO (2) COPIES OF THE WELL LOCATION PLAT. ALL BLANKS MUST BE COMPLETED. INCOMPLETE APPLICATIONS WILL BE REJECTED.**

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF MINES AND MINERALS
DIVISION OF OIL AND GAS
P. O. BOX 2244
FRANKFORT, KY 40601
PHONE (502) 573-0147

PLAN TO PREVENT EROSION OF AND SEDIMENTATION FROM A WELL SITE

Operator Name _____ County _____
Surface Owner Name,
Address and Phone No. _____
_____
_____

Well No. _____

A narrative description of the location of all areas to be disturbed, including the location of roads, gathering lines, the well site, tanks and other storage facilities:
(Must be typed)

Describe steps to be taken to prevent erosion of and sedimentation from the well site and all disturbed areas, including roads:
(Must be typed)

Proposed Revegetation Treatment:

Fertilizer and Soil Amendments	Seed or Trees Planted (Type and Amount/Acre)
Area I	
Area II	

Additional sheets may be attached for your convenience.

FORM #ED-10 (Org.. 2-27-97) (REV. 2-99) OVER

Attach: Drawing(s) of the road, well location and proposed area involved, drawn over an enlarged section of the U.S.G.S. 1=24,000 topographic map (enlarged to approximately 1"=400') on an 8 X 14 sheet of paper using the applicable symbols from the following legend:

LEGEND

Stream	Diversion
Road	Spring
Existing Fence --X--X--X--X	Drain pipe with size in inches
Planned Fence -/-/-/-/-/-/	Waterway
Open Ditch	Cross Drain
Rock	Artificial Filter Strip
North Arrow N	
Buildings	Pit: Cut Walls
Water Wells	Pit:: Compacted Fill Walls
Tanks	Area for Land Application
Drill Site	of Pit Waste
Gathering Lines	Storage Facilities

The undersigned hereby swears or affirms that the foregoing information and attachments in this plan to prevent erosion of and sedimentation from the well site and all disturbed areas, including roads, are true to the best of my knowledge and belief.

Dated this _____ day of _____, 19 _____.

If a corporation, signatory shall be an officer of the company or provide Power of Attorney to execute documents. If a private individual, signatory shall be the same as the applicant or provide Power of Attorney to execute documents.

_____ _____

Signature of operator Title

_____

Print or Type Name

Sworn to and subscribed before me this _____ day of _____, 19 _____.

_____

Notary Public

My Commission Expires: _____

Surface Owner Agreement

(Surface Owner Signature Below, Shall Be Notarized)

I have reviewed the application and the information submitted with this form, and agree to the well operator's operations and reclamation proposal as set forth herein. I understand that the execution of this document in no way affects compensation for surface damages as described in KRS 353.595(6) or other contractual agreement.

_____ _____

Signature of severed mineral surface owner Date

_____

Print or type name of severed mineral surface owner

Sworn to and subscribed before me this _____day of _____, 19 _____.

_____

Notary Public

My Commission Expires: _____

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES & ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER

APPLICATION FOR PERMIT TO CONSTRUCT ACROSS OR ALONG A STREAM

Chapter 151 of the Kentucky Revised Statutes requires approval from the Division of Water prior to any construction or other activity in or along a stream that could in any way obstruct flood flows.

1. **OWNER:** _____
   Give name of person(s), company, governmental unit, or other owner of proposed project.
   MAILING ADDRESS: _____
   _____
   _____
   TELEPHONE: _____

2. **AGENT:** _____
   Give name of person(s) submitting application, if other than owner.
   ADDRESS: _____
   _____
   _____
   TELEPHONE: _____

3. **ENGINEER:** _____
   P.E. NUMBER: _____

4. **DESCRIPTION OF CONSTRUCTION:** _____
   Give specifications and type of the proposed construction and tell purpose of the project.
   _____
   _____
   _____
   _____
   _____
   _____
   _____
   _____
   _____

5. **LOCATION OF CONSTRUCTION:** _____
   Give county name, directions from nearest town, stream name and mile, latitude, longitude, etc.
   _____
   _____
   _____
   _____
   _____
   _____
   _____

6. ESTIMATED BEGIN CONSTRUCTION DATE: _____

7. ESTIMATED END CONSTRUCTION DATE: _____

8. THE APPLICANT *MUST* ADDRESS PUBLIC NOTICE.

(a) PUBLIC NOTICE HAS BEEN GIVEN FOR THIS PROPOSAL BY THE FOLLOWING MEANS:

___ PUBLIC NOTICE IN NEWSPAPER HAVING GREATEST CIRCULATION IN AREA (provide copy)

___ PROPERTY OWNER AFFIDAVITS (contact Division of Water for requirements)

(b) ___ I REQUEST WAIVER OF PUBLIC NOTICE BECAUSE (contact Division of Water for requirements):

_____

_____

9. I HAVE CONTACTED THE FOLLOWING CITY OR COUNTY OFFICIALS CONCERNING THIS PROJECT (Give name and title of person(s) contacted and provide copy of any approval city or county may have issued):

_____

_____

10. LIST OF ATTACHMENTS: _____

List plans, profiles, or other drawings and data submitted. A map should always be provided.

_____

_____

_____

11. I CERTIFY THAT THE "OWNER" OWNS OR HAS EASEMENT RIGHTS ON ALL PROPERTY ON WHICH THIS PROJECT WILL BE LOCATED OR ON WHICH RELATED CONSTRUCTION WILL OCCUR (including, for dams, the area that would be impounded during the design flood): _____ (Initial here).

12. REMARKS: _____

_____

_____

_____

I hereby request approval for construction across or along a stream as described in this application and any accompanying documents. To the best of my knowledge, all of the information provided is true and correct.

Signature: _____

Owner or Agent sign here (Agent should provide copy of Power of Attorney)

Date: _____

SUBMIT APPLICATION AND ATTACHMENTS TO:

Division of Water
Water Resources Branch
Floodplain Management Section
14 Reilly Road
Frankfort, Kentucky 40601

Rev. 8/96 dms

Commonwealth of Kentucky
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
Department for Environmental Protection
Division of Water

INSTRUCTIONS TO APPLICANTS FOR APPROVAL OF CONSTRUCTION IN A FLOODPLAIN

Chapter 151 of the Kentucky Revised Statutes and related regulations require approval by the Natural Resources and Environmental Protection Cabinet prior to the construction or reconstruction of any dam, embankment, levee, dike, bridge, fill or other obstruction in the floodplain of any stream in the Commonwealth. In order to comply with this statute, anyone who proposes such an activity ***must submit to this Cabinet an application and one (1) set of such plans, drawings, and specifications as are necessary*** for a determination of the proposed project's compliance with state laws and regulations and of the effects of the project on the floodway and the flooding of the stream. The application and other information shall be sent to:

Floodplain Management Section
Division of Water
14 Reilly Road
Frankfort, Kentucky 40601
Telephone: (502) 564-3410

The applicant is responsible for proper design, engineering and construction of the proposed project. The Cabinet's approval of the plans does not relieve the applicant from any liability related to construction, operation, or maintenance of the project.

Each application shall be made on the standard form available from, and in the manner specified by, the Cabinet's Division of Water. [NOTE: The application shall not be considered complete until all information required by the Division has been properly submitted.] The application shall be made in the name of the owner, but may be submitted by an authorized agent of the owner. (If submitted by the agent, a Power of Attorney or other authorization by the owner should be included with the application.) The owner must own or have easement or other rights to all property on which the project is to be located, including all areas that are to be entered onto or disturbed by the construction process (for dams, this applies also to the area that would be inundated during an occurrence of the appropriate design flood). KRS 151.260 requires that all plans and specifications submitted with the application be ***prepared by a professional engineer licensed to practice in Kentucky unless this requirement is waived by the Division.*** In order to facilitate handling and storage, the information accompanying the application should be on ***standard size sheets between 8 X 10 inches and 17 X 22 inches (24 X 36 inches for dams).*** The following listing identifies the types of information generally required for the Division's analysis. In some cases additional information as specified by the Division may be required.

1. **General:** All plans submitted must prominently display at least the following information regarding the proposed project: Name of the project, date, scale, name of stream, direction of flow, purpose and intended use, scheduling of activities, and location. Photographs of the proposed construction site looking both upstream and downstream at each cross-section and other points of interest are generally useful and may be required. All elevations shall be given with respect to mean sea level. Also, a north arrow shall be provided where applicable. A public notice will be required unless waived by the Division, see Section #9 on the following Page.

2. **Bridges or Fills:** A properly completed Stream Construction Permit Application Data Sheet; a map showing the location of the proposed project and showing the stream far enough upstream and downstream to determine the approach and discharge flow conditions above and below the site (500 feet minimum); a section of USGS quadrangle map indicating general location of the project; the drainage area and the method of determining the design flow; the ***finished floor elevations of all houses located within 1000 feet of the project;*** field-surveyed cross-sections (referenced to MSL) of the stream at the site of the project showing conditions both before and after construction and extended to at least the elevation of the extreme flood of record plus three feet, preferably at intervals of not more than one hundred (100) feet; additional cross-sections every one hundred (100) feet for five hundred (500) feet upstream and downstream--the final required number and spacing of cross-sections shall be based on whatever is necessary to determine the effects of the proposed construction on the flow and flooding of the stream, but in general no fewer than four sections shall be provided in each direction. Cross-sections shall be presented with left and right appearing as they would for an observer looking downstream. See typical cross-section detail requirements below.

3. **Dams:** A properly completed Dam Construction Permit Application Data Sheet; the project location (provide portion of USGS quadrangle map); the hazard classification determined by the design engineer to be appropriate (justification for the classification may be required by Division of Water); plans and specifications of sufficient detail to show spillways and other hydraulic and structural features to afford a basis for judgement as to the safety of the structure. In the case of class "B" or class "C" dams (as defined by Division of Water regulations), the Division will require complete design plans in accordance with the minimum design criteria set forth in 401 KAR 4:030. (Copies of this regulation are available from the Division.) [NOTE: The owner must own or have adequate easement rights for the property on which the dam is to be constructed and on the entire reservoir area (up to the level of the appropriate design flood).]

4. **Channel Relocations:** A properly completed Stream Construction Permit Application Data Sheet; a project location map (preferably USGS quadrangle map); *the finished floor elevations of all houses located within 1000 feet of the project;* surveyed cross-sections referenced to mean sea level, of both proposed and existing channel with left and right appearing as they would for an observer looking downstream; the cross-sections should extend to at least the height of the extreme flood of record with sections taken at the upstream and downstream ends of the relocation, and sufficient sections taken in between to adequately portray changes in stream gradient and geometry, preferably at intervals of not more than one hundred (100) feet; no fewer than three cross-sections should be submitted; at least one cross-section should be submitted for the channel one hundred (100) feet downstream of the proposed relocation. See typical cross-section requirements in #8 below.

5. **Pipeline Stream Crossings (for crossings that are not covered under 401 KAR 4:050):** A properly completed Stream Construction Permit Application Data Sheet; a location map (preferably USGS); a profile along the pipe; the diameter of pipe; the material and the weight of pipe in pounds per linear foot, and the weight and type of anchorage; and all data requested under Bridges or Fills presented above.

6. **Aerial Crossings:** A properly completed Stream Construction Permit Application Data Sheet; a location map (preferably USGS); a profile along crossing showing supports, water surface elevation, and distance above water at closest point.

7. **Fixed Docks, Piers, Wharves, Water Intakes, etc:** A properly completed Stream Construction Permit Application Data Sheet; a location map (preferably USGS); the elevation of docks, top of structure, extreme high water, and normal pool; and the distance that the structure will project into stream.

8. **Cross-Section Requirements (see typical drawing):**

   (1) All cross-sections shall be obtained by field survey. All sections shall be taken perpendicular to stream flow presented with left and right appearing as they would for an observer looking downstream.

   (2) The horizontal scale shall be such that one inch (1") represents no more than two hundred feet (200'). The vertical scale shall be such that one inch (1") represents no more than twenty feet (20'). This requirement may be waived by the Division upon the request of the applicant if another scale is determined more appropriate.

   (3) The cross-sections shall be designated by horizontal stationing with station 0 + 00 designating the most downstream section, 1 + 00 indicating a section one hundred (100) feet upstream, and so on (see sketch representing typical plan view).

9. **Public Notice Information:**

As part of the stream construction permit issuance procedure, the applicant must provide notice to all parties who might be affected by the construction for which a permit has been requested. Public notice may be provided by either of the following methods:

(1) Publishing a notice in the newspaper or newspapers having greatest circulation in the area of the proposed construction. The notice shall provide at least (a) the name of the applicant, (b) the location, the nature and the extent of the proposed construction, and (c) a statement indicating that any comments and objections are to be directed to the Division of Water. The notice shall prominently display address and telephone number of the Division of Water's Floodplain Management Section, which are given at the beginning of these instructions. The notice shall run for a period of three (3) consecutive days or printings of the newspaper. However, if the newspaper is published weekly, two (2) consecutive printings may be allowed upon request of the applicant. Proof of public notice through the newspaper must be provided to the Division. The public notice shall be at least three column inches in size, but must in all cases be large enough that all of the information required is readable.

(2) Submitting affidavits from all parties who reside, own property, or have other legitimate property interests in the affected areas. The affidavit must contain a complete description of the proposed construction; a place for concerned parties to sign indicating that they have read the statement and that they understand that a permit application is being submitted or has been submitted to the Division; and the Division's address and telephone number with explanation that comments and objection are to be directed to this agency. All affidavits shall be submitted to the Division of Water, Water Resources Branch for review.

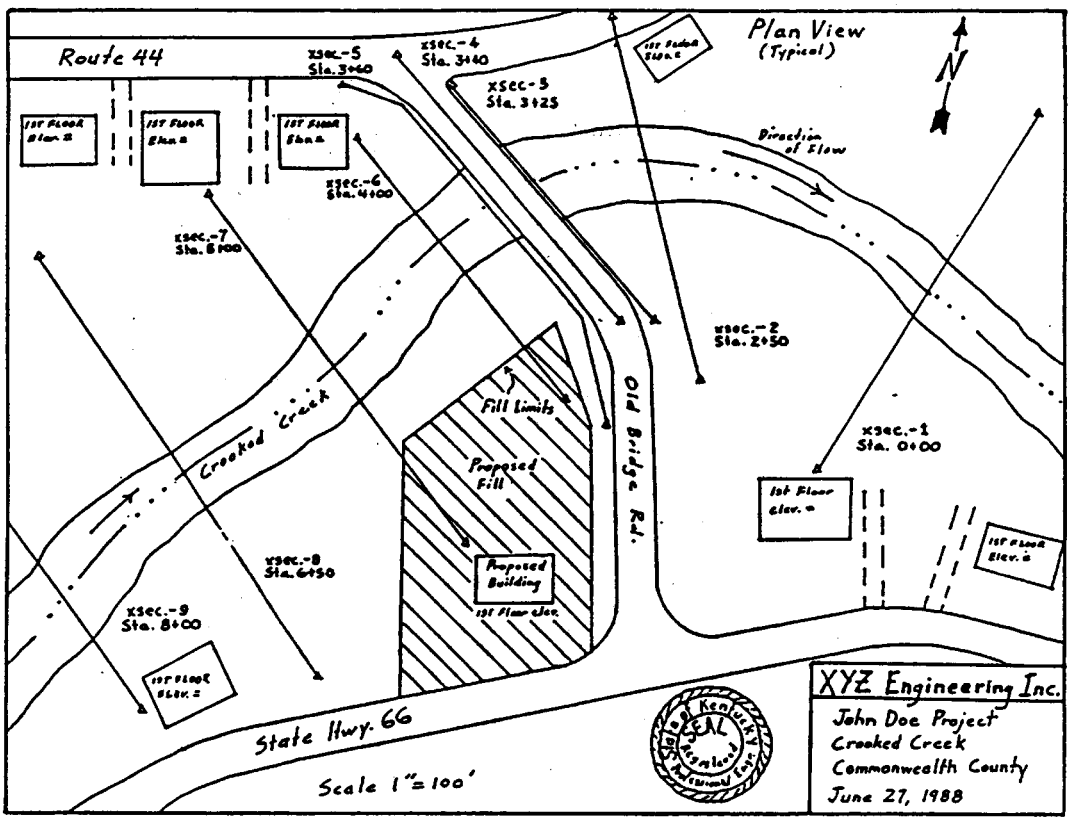
Under certain circumstances, where flooding impacts are negligible, the Division may waive the public notification requirement. If desired, the Division can provide more detailed information regarding the circumstances under which such a waiver might be issued.

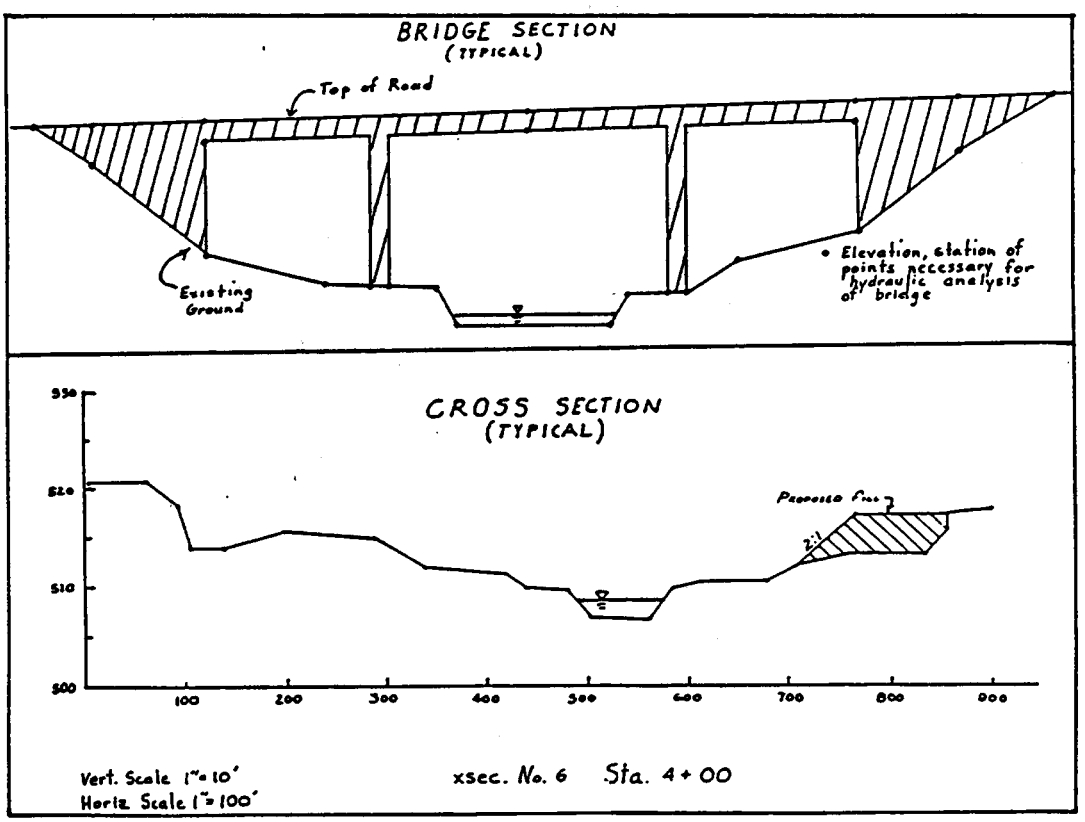
EXAMPLE OF PUBLIC NOTICE

—Public Notice—

Notice is hereby given that (NAME AND ADDRESS), has filed an application with the Natural Resources and Environmental Protection Cabinet to (BRIEF DESCRIPTION OF CONSTRUCTION). The property is located (LOCATION DESCRIPTION, INCLUDE MILES FROM NEAREST TOWN OR MAJOR ROAD INTERSECTION AND NAME OF STREAM). Any comments or objections concerning this application shall be directed to: Kentucky Division of Water, Water Resources Branch, 14 Reilly Road, Frankfort Office Park, Frankfort, Kentucky 40601. Phone: (502) 564-3410.

rev. 5/95
dms


Plan View
(Typical)
N
Route 44
xsec.-5
Sta. 3+60
xsec.-4
Sta. 3+40
xsec.-3
Sta. 3+25
Direction of Flow
xsec.-6
Sta. 4+00
xsec.-7
Sta. 5+00
xsec.-2
Sta. 2+50
xsec.-1
Sta. 0+00
Fill Limits
Proposed Fill
Old Bridge Rd.
Crooked Creek
Proposed Building
xsec.-8
Sta. 6+50
xsec.-9
Sta. 8+00
State Hwy. 66
Scale 1" = 100'
XYZ Engineering Inc.
John Doe Project
Crooked Creek
Commonwealth County
June 27, 1988


BRIDGE SECTION
(TYPICAL)
Top of Road
Existing Ground
• Elevation, station of points necessary for hydraulic analysis of bridge
CROSS SECTION
(TYPICAL)
930
820
810
800
100
200
300
400
500
600
700
800
900
Proposed Fill
2:1
Vert. Scale 1" = 10'
Horiz. Scale 1" = 100'
xsec. No. 6 Sta. 4+00

7088,REV.9/91

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
Department for Environmental Protection
Division of Water
18 Reilly Road, Frankfort, Kentucky 40601

KENTUCKY WILD RIVERS PROGRAM
Change of Use Permit
APPLICATION

NAME OF WILD RIVER _____

A. APPLICANT INFORMATION

Name: _____

Address: _____

Telephone: _____

Does Applicant own fee title to property affected by the proposed land use change? _____yes _____no

Does Applicant own the mineral rights of the affected property? _____yes _____no

Does Applicant have a lease or contract authorizing the proposed land use change? _____yes _____no

Attach lease or contract to this application form.

B. LEASEE/OPERATOR INFORMATION (If different from Applicant)

Name_____

Address_____

City_____State_____

Zip Code_____Phone_____

C. LANDOWNER INFORMATION (If different from Applicant)

Name_____

Address_____

City_____State_____

Zip Code_____Phone_____

D. TYPE OF LAND USE CHANGE (check those which apply):

_____ Selective Timber Cut

_____ Oil/gas Wells

_____ Underground Mining

_____ Agriculture

_____ Construction

E. LOCATION OF LAND USE CHANGE

County_____

U.S.G.S. Quadrangle Map_____

Latitude_____

Longitude_____

River Mile-point_____

F. EXISTING LAND USE (estimate acreage of each)

_____ acres of Forest

_____ acres of Wetland

_____ acres of Farmland

_____ acres of Residential/urban

_____ acres of Mining/Industrial

G. EXTENT OF LAND USE CHANGE

Total acreage affected: _____

Total miles of river front affected: _____

Total acreage surface disturbance: _____

Total acreage timber removal: _____

Average daily water use required: _____

H. PERMITS. Below list all permits obtained to conduct the land use change:

Permit Number	Issuing Agency

Attach copies of all permits to this application form.

I. DESCRIPTION OF LAND USE CHANGE

Date land use will begin: _____

Date land use will conclude: _____

Effective dates of lease or contract (if applicable): _____

Distance (in feet) of land use change from wild river: _____

Average slope (degrees) of affected land: _____

Soil types (list type nearest to wild river first): _____

_____

Attach Land Use Plan to this application form.

J. STATEMENT OF CONFIRMATION

I hereby agree that the information provided on this application form is accurate to the best of my knowledge, and I will comply fully with all terms and conditions attached to the Change of Use Permit issued in my name by the Natural Resources and Environmental Protection Cabinet.

Signature: _____ _____

Applicant Date

For Agency Use Only

Date Received: _____ *Received By:* _____

Date Site Inspection: _____ *Inspector(s):* _____

Date Public Hearing: _____ *Location:* _____

Date Comment Period Ends: _____ *Comments:* _____

RETURN THIS FORM TO: Wild Rivers Program, Division of Water, Department for Environmental Protection, 18 Reilly Road, Frankfort, KY 40601, or call (502) 564-3410 if you have any questions about completing this application form.

Permit Application No. _____

WILD RIVERS CHANGE OF USE PERMIT APPLICATION
Land Use Plan for Oil and Gas Production

GENERAL PERMIT REQUIREMENTS. KRS 146.290 requires that a landowner obtain a permit prior to conducting a resource removal within a Wild River corridor designated pursuant to KRS 146.220. A permit to authorize oil and gas production contains performance standards and guidelines to protect the scenic and environmental quality of the designated river corridor.

For aesthetic, water quality and fish and wildlife purposes, no clearing of vegetation or other surface disturbance should occur within 100 feet of the banks of a Wild River. No discharge into surface waters of oil, brine water or other substances used in or resulting from the exploration, drilling and production of oil and gas will be permitted within a Wild River corridor. In most cases, storage or holding tanks should be located outside of the corridor. Construction and all activities involving the use of heavy equipment should be conducted during the dry season, generally June 1 to October 31. Blowout prevention equipment should be used on drilling rigs. Other site-specific permit conditions will be determined when the completed permit application is reviewed.

A. GENERAL OPERATION PLAN

1. Attach a U.S. Geological Survey topographic map (scale:1 inch = 500 ft.) showing the planned locations and routes of each of the following:
   a. Access roads and stream crossings
   b. Wells
   c. Tank battery
   d. Equipment holding areas
   e. Collection or holding pits and ponds
   f. Collecting lines and pipelines

2. Provide estimates, to the best of your knowledge, of the following:
   a. Total acreage to be cleared around each well: _____.
   b. Number of trees per acre to be cut, if any: _____.
   c. Number and size of collection or holding pits: _____.
   d. Number and size of tanks in battery: _____.
   e. Length and width of access roads to be constructed or improved: _____.
   f. Total length of collecting lines and pipelines: _____.
   g. Number and acreage of equipment holding areas: _____.

3. Indicate how often the operation facilities will be inspected by the leasee or his representatives:

4. List all chemicals to be used, including cleaning acids, pesticides, etc., and describe the planned methods of application for each:

B. PROTECTION OF SOIL, WATER AND VISUAL QUALITY

1. Briefly describe the methods that will be used to control soil erosion on each of the following:
   a. Access roads

b. Well benches

c. Equipment holding areas

2. Briefly describe planned methods for protecting fish habitat and water quality at stream and drainage crossings (i.e.,use of culverts, temporary bridges, etc.):

3. Briefly describe planned methods for keeping logging debris and other organic matter out of surface waters:

4. Briefly describe planned methods for minimizing the visual impact of the new land use as viewed from the wild river:

C. SPILL PREVENTION AND CONTROL COUNTERMEASURE PLAN

Attach a Spill Prevention and Control Countermeasure (SPCC) Plan (required under 40 CFR Part 112). Describe in detail planned methods for preventing, containing and cleaning up accidental leaks or spills of oil or brine water, explosions, fires or other environmental hazards. Include a description of the tank battery, lining of holding pits, method to separate oil and brine, prevention of vandalism of tanks and placement of pipelines. Attach additional sheets if necessary.

D. RECLAMATION

Describe planned methods for restoring the affected area to its present appearance and condition at the conclusion of the new land use, including plans for revegetation and stabilization of disturbed areas.

NAME AND TELEPHONE NUMBER OF PERSON TO CONTACT FOR MORE INFORMATION:

RETURN THIS FORM TO: Wild Rivers Program, Division of Water, Department for Environmental Protection, Frankfort Office Park, Frankfort, KY 40601.

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF MINES AND MINERALS
DIVISION OF OIL AND GAS
PO BOX 2244
FRANKFORT, KY 40601
PHONE (502) 573-0147

Operator Certification
of Formation Offset
and Vertical Depth

Operator Name _____ Permit Number _____

Mineral Owner (Lessor) _____ Well Number _____

Carter Coordinate _____ FNL FSL _____ FEL FWL Sec._____ Letter _____ Number _____

Lateral offset in feet from the wellsite to the top of the formation and the bottom (target) of the formation and the true vertical depth:

FORMATION NAME	LATERAL OFFSET TOP OF FM.	TRUE VERTICAL DEPTH TOP OF FM.	LATERAL OFFSET BOTTOM OF FM. OR TARGET	TRUE VERTICAL DEPTH BOTTOM OF FM. OR TARGET

Lateral offset to coal seam(s) and true vertical depth if drilling directionally or horizontally through a coal seam:

LATERAL OFFSET TOP OF COAL SEAM	TRUE VERTICAL DEPTH TOP OF COAL SEAM	LATERAL OFFSET BOTTOM OF COAL SEAM	TRUE VERTICAL DEPTH BOTTOM OF COAL SEAM

I CERTIFY THAT THE INFORMATION ON THIS FORM IS ACCURATE AND TRUE TO THE BEST OF MY KNOWLEDGE.

OPERATOR SIGNATURE _____ TITLE _____

DATE _____

FORM ED-8 (ORG. 8-91) (REV. 2-99)

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF MINES AND MINERALS
DIVISION OF OIL AND GAS
PO BOX 2244
FRANKFORT, KY 40601 PHONE: (502) 573-0147

AFFIDAVIT OF WELL LOG AND COMPLETION REPORT
AS REQUIRED BY LAW

(TYPE OR PRINT IN INK)

OPERATOR'S PHONE:_____

WELL IDENTIFICATION

PERMIT NO._____

OPERATOR_____

FARM NAME_____WELL NO._____

TYPE OF OPERATION
TWIN..... ☐
REOPEN..... ☐
NEW WELL..... ☐
WORKOVER..... ☐
DEEPENING..... ☐

LOCATION
COUNTY_____

SEC._____, LTR._____, NO._____
FNL FEL
_____FSL, _____FWL

ELEVATION_____(GROUND)_____(D.F.)(K.B.)

OPERATIONAL DATES

COMMENCED_____ COMPLETED_____

PLACED IN OPERATION_____

PLUGGED_____ SHUT-IN_____

DRILLING CONTRACTOR

NAME_____

ADDRESS_____

_____

WATER ENCOUNTERED
(FRESH, SALT, SULFUR)

TYPE	FROM	TO

COMMENTS_____

_____

GEOPHYSICAL LOGS RUN (AS REQUIRED BY KRS 353.550(2))

(ELECTRICAL, INDUCTION, SONIC, GAMMA RAY, NEUTRON, DENSITY, ECT.)

TYPE	FROM	TO

TOTAL DEPTH DRILLED_____
(AS REQUIRED BY KRS 353.570)

CASING DATA

CASING OUTSIDE DIAMETER	HOLE DIAMETER	DEPTH	CEMENT NO. SKS.	PULLED YES/NO

CEMENT YIELD IN CUBIC FEET/SACK =_____

COMMENTS_____

TYPE OF COMPLETION (CHECK ONE)

DRY HOLE ☐
OIL ☐
GAS..... ☐ DOMESTIC GAS..... ☐
(SHUT-IN OR PRODUCING)

ENHANCED RECOVERY: SERVICE WELL:

WATER INJECTION..... ☐ WATER SUPPLY..... ☐
GAS INJECTION..... ☐ SALT WATER DISPOSAL.... ☐

GAS STORAGE OBSERVATION..... ☐

INJECTION-EXTRACTION..... ☐ OTHER..... ☐

OTHER DESCRIBE_____

WELL TREATMENT **TYPE OF FRAC.**
SHOT

TYPE SHOT_____

SHOT INTERVAL_____

SHOT AMOUNT_____

COMPLETION INTERVAL PERFORATIONS OR OPEN HOLE

FORMATION_____ INTERVAL_____

FORMATION_____ INTERVAL_____

TREATMENT

TYPE TREATMENT_____

ACID AMOUNT_____BBLS. _____BBLS.
2ND STAGE

TOTAL FLUID_____BBLS. _____BBLS.
2ND STAGE

TOTAL NITROGEN_____SCF

TOTAL SAND_____LBS

ADDITIONAL CEMENTING

SQUEEZE CEMENT_____SKS. _____TOP

_____INTERVAL

PLUG BACK_____SKS. _____TOP

_____INTERVAL

INITIAL TEST VOLUMES

OIL: NATURAL_____B/D _____DATE

AFTER TREATMENT_____B/D _____DATE

GAS: NATURAL_____MCF _____DATE

AGAINST BACKPRESSURE OF _____PSI

SHUT-IN PRESSURE_____AFTER_____HOURS

AFTER TREATMENT_____MCF_____DATE

AGAINST BACKPRESSURE OF_____PSI

SHUT-IN PRESSURE_____AFTER_____HOURS

LIST DST'S, CORES, FILL-UP TESTS AND OTHER SPECIALIZED TESTS

FORMATION NAME	INTERVAL

THIS FORM MUST BE COMPLETED AND FILLED FOR EVERY PERMIT IMMEDIATELY AFTER COMPLETION OF THE WELL. RE-OPENED WELLS NEED NOT INCLUDE A DRILLER'S LOG. HOWEVER, THE FRONT SIDE OF THIS FORM MUST BE COMPLETED. INCOMPLETE FORMS WILL BE REJECTED.

FORM ED-3 (REV. 2-99) ALL PREVIOUS FORMS ARE OBSOLETE OVER

FORMATION RECORD

FROM	TO	ROCK TYPE (DESCRIBE ROCK TYPES AND OTHER MATERIALS PENETRATED AND RECORD OCCURRENCES OF OIL, GAS AND WATER FROM SURFACE TO TOTAL DEPTH)	FROM	TO	ROCK TYPE (DESCRIBE ROCK TYPES AND OTHER MATERIALS PENETRATED AND RECORD OCCURRENCES OF OIL, GAS AND WATER FROM SURFACE TO TOTAL DEPTH)

AFFIDAVIT

_____, OPERATOR OF THE WELL CAPTIONED AS

PERMIT NUMBER _____DOES HEREBY SWEAR THAT THE DEPTH OF THE WELL

IS ACCURATE AND CORRECT AND DOES NOT EXCEED THE **PERMITTED DEPTH** OF _____ .

SIGNATURE OF OPERATOR _____

TITLE DATE

SWORN TO AND SUBSCRIBED BEFORE ME THIS _____ DAY OF _____,19 _____

_____

NOTARY PUBLIC

MY COMMISSION EXPIRES: _____

FORM ED-3 (REV. 2-99)

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF MINES & MINERALS
DIVISION OF OIL AND GAS
P. O. BOX 2244
FRANKFORT, KY 40601 PHONE (502) 573-0147

(TYPE OR PRINT IN INK)

AFFIDAVIT TO TIME AND MANNER OF PLUGGING AND FILLING WELL
AS REQUIRED BY LAW

_____
NAME AND ADDRESS OF LAST OPERATOR

_____
NAME AND ADDRESS OF ORIGINAL OPERATOR

_____
NAME AND ADDRESS OF COAL OPERATOR

PERMIT NO._____, ELEVATION_____, COUNTY_____, TOTAL DEPTH_____

CARTER COORDINATES_____FNL FSL, _____FEL FWL, SEC. _____, LETTER_____, NUMBER_____

FARM OWNER (LESSOR) _____ WELL NUMBER _____

AFFIDAVIT TO BE MADE IN TRIPLICATE, ONE COPY TO BE MAILED TO THE DEPARTMENT OF MINES AND MINERALS, ONE COPY TO BE RETAINED BY THE WELL OPERATOR AND THE THIRD TO BE MAILED BY REGISTERED MAIL TO EACH COAL OPERATOR NAMED AT THEIR RESPECTIVE ADDRESSES.

AFFIDAVIT

STATE OF KENTUCKY,

COUNTY OF _____} SS:

_____, **OPERATOR OF THE ABOVE CAPTIONED WELL DOES HEREBY SWEAR THAT THE PLUGGING OF SAID WELL WAS COMPLETED ACCORDING TO INSTRUCTIONS FROM THE OIL AND GAS INSPECTOR AND ACCORDING TO CHAPTER 353 OF THE KENTUCKY REVISED STATUTES ON _____. 19_____, RECORD OF WHICH IS LISTED BELOW OR SHOWN ON THE BACK OF THIS FORM.**

(PLUG DESCRIPTION)

PLUGGED: FROM _____ TO _____ WITH _____

FROM _____ TO _____ WITH _____

FROM _____ TO _____ WITH _____

FROM _____ TO _____ WITH _____

FROM _____ TO _____ WITH _____

FROM _____ TO _____ WITH _____

FROM _____ TO _____ WITH _____

FROM _____ TO _____ WITH _____

INDICATE BELOW THE SIZE AND INTERVAL OF ALL CASING LEFT IN THE WELL AND IF AND WHERE IT WAS SHOT OFF.

CASING SIZE _____, INTERVAL _____, SHOT OFF AT _____ BOTTOM OF CASING AT _____

CASING SIZE _____, INTERVAL _____, SHOT OFF AT _____ BOTTOM OF CASING AT _____

CASING SIZE _____, INTERVAL _____, SHOT OFF AT _____ BOTTOM OF CASING AT _____

IF CASING WAS NOT LEFT IN THE WELL, INDICATE THE BORE HOLE SIZE AND INTERVAL.

BORE HOLE SIZE_____ INTERVAL_____

BORE HOLE SIZE_____ INTERVAL_____

STATE WHETHER OR NOT OTHER STEEL OR JUNK WAS LEFT IN THE WELL AND DESCRIBE: _____

_____
(OPTIONAL) SIGNATURE OF CONTRACTOR RESPONSIBLE FOR ABOVE PLUGGING TITLE

_____
(REQUIRED) SIGNATURE OF OPERATOR RESPONSIBLE FOR ABOVE PLUGGING TITLE

SWORN TO AND SUBSCRIBED BEFORE ME THIS _____DAY OF _____, 19_____

_____
NOTARY PUBLIC

MY COMMISSION EXPIRES:_____

ALL BLANKS MUST BE COMPLETED. INCOMPLETE AFFIDAVITS WILL BE REJECTED.
FORM ED-38 (REV. 2-99)

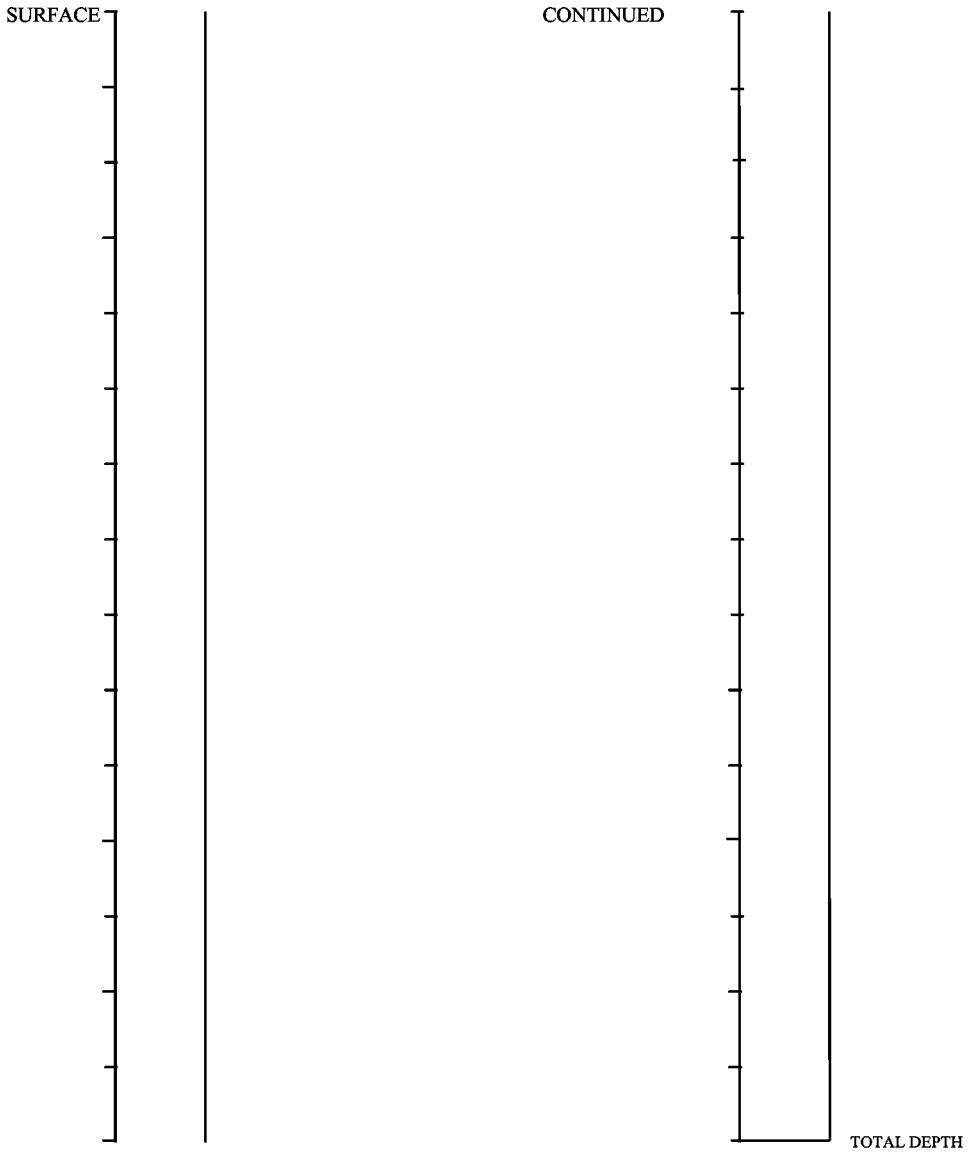
OVER

CEMENT TABLE

HOLE SIZE	2"	3"	4"	5"	6 ½"	8"	8 ½"	8 ¾"	10"	12"	16"
NO. FT. FILLED PER SACK OF CEMENT*	45'	20'	11'	7'	4'	2 ¾'	2 ½'	2 1/3'	2'	1'	½'

* 1 CUBIC FOOT PER SACK

GRAPHICALLY SHOW BELOW THE LOCATION AND INTERVAL OF ALL PLUGS INSTALLED.



IF THE WELL IS TO BE LEFT AS A DOMESTIC WATER WELL, PLUG ACCORDING TO THE INSPECTORS INSTRUCTIONS, COMPLETE THIS FORM ON BOTH SIDES AND HAVE THE FOLLOWING AFFIDAVIT SIGNED BY THE REAL ESTATE OWNER.

AFFIDAVIT

I,_____, THE OWNER OF THE REAL ESTATE ON WHICH THIS WELL WAS DRILLED, DESIRE THAT THE WELL BE LEFT OPEN FROM THE FRESH WATER ZONE TO THE SURFACE FOR USE AS A WATER WELL AND DO HEREBY ACCEPT THE FULL RESPONSIBILITY FOR SAID WATER WELL. THE OIL OPERATOR REMAINS RESPONSIBLE FOR ALL PLUGS BELOW THE FRESH WATER ZONE

_____ _____

SIGNATURE OF OWNER OR HIS AGENT DATE

FORM ED-38 (REV. 2-99)

STOP!! DO NOT ATTEMPT TO COMPLETE THIS FORM UNTIL YOU HAVE CAREFULLY READ THE INSTRUCTIONS

Type of Registration **(check one)**:

☐ New

☐ Update

☐ Update Involving Transfer of Ownership

1. Registration No.: _____
(agency use only)

2. a. Owner's Name: _____

   b. Owner's Mailing Address: _____

   c. City: _____ State: _____ Zip Code: _____

   d. Telephone No.: ( ) _____

   e. Business Form: ☐ Partnership ☐ KY Corporation ☐ Non-KY Corp ☐ Solepropreitor

3. Manager's/Pumper's Name: _____

   Telephone Number: ( ) _____

4. Lease Name: _____

5. Tank Battery Location and Size:

   a. Carter Coordinates: Section: _____ Letter: _____ No.: _____

   Feet from North Line _____ or Feet from South Line _____

   Feet from East Line _____ or Feet from West Line _____

   b. County: _____ Highway: _____

   c. Number and storage capacity of tanks: _____

   d. SPCC containment provided ☐ Yes ☐ No

6. Production Associated With This Tank Battery

   a. Total wells connected to battery: _____

   b. Number of production wells: _____

   List Department of Mines and Minerals Well Permit #_____

   c. Amount of oil produced: _____ bbls/day

   Amount of gas produced: _____ mcf/day

   d. Amount of produced water made: _____ bbls/day

(continued)

7. Produced Water Disposal Method **(check one)**

a. ☐ Enhanced Recovery Well ☐ Discharge to a Surface Stream or Pit

☐ Disposal Well ☐ Evaporation (describe) _____

☐ Transported Off-Site for Disposal

☐ Other (describe) _____

☐ KPDES Permit No.: _____

b. If the disposal method is a well, what is the name of the receiving formation and the EPA UIC Permit # _____.

c. If the disposal method involves a discharge to a surface stream, what is the distance to and name of the receiving stream _____.

8. Provide photocopy of USGS topo map with the location(s) of the Tank Batterie(s) marked.

9. Signature _____ Title _____

Please Print Name _____ Date _____

OIL AND GAS PRODUCERS PRODUCED WATER DISPOSAL REGISTRATION FORM
COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER

Regulation 401 KAR 5:090, Section 4 (Control of Water Pollution From Oil and Gas Facilities), requires all oil and gas operators to register their facilities with the Division of Water. Those operators who have submitted registration forms previously are not required to submit these forms unless there has been a change in the information submitted.

INSTRUCTIONS
COMPLETE A REGISTRATION FORM FOR EACH TANK BATTERY
PLEASE PRINT OR TYPE

1. Registration No.: Do not write in this space, this number will be assigned by Division of Water Office personnel.

2. Owner's Name, Mailing Address and Telephone No.: Give the complete name, mailing address, and telephone number of the operator.

3. Manager's/Pumper's Name and Telephone No.: Give the complete name and telephone number of the manager or pumper.

4. Lease Name: Give the current lease name.

5. Tank Battery Location: Give the Carter Coordinate location and the county of this tank battery.

6. Production Associated With This Battery: Give the total number of wells and the number of production wells associated with this tank battery. Give the amounts of oil (in barrels per day), gas (in thousand cubic feet per day) and produced water (in barrels per day) processed at this tank battery.

7. Produced Water Disposal Method: Check the box which best describes your disposal method.

   Enhanced Recovery Well: Produced water is discharged through a well into the production zone to aid in the recovery of oil or gas.

   Disposal Well: Produced water is discharged through a well into a zone other than the production zone for disposal.

   Transported Off-Site for Disposal: Produced water is removed from the tank battery by way of a tank truck or pipeline for disposal at another site.

   Discharge to a Surface Stream or Pit: Produced water is placed in a pit which has a discharge to a surface stream, and/or produced water directly discharges into a surface stream.

   Evaporation: Produced water is placed in a pit which has no surface discharge or enhanced evaporation, please describe.

8. USGS Topographic Map: Please provide photocopy of map spotting location(s) of Tank Batteries(s).

9. Signature: The person who is responsible for the operation of this tank battery shall sign this form and indicate their title.

If more forms are required, please contact the Division of Water at (502) 564-3410.

Return the completed forms to the following address:

Industrial Section
KPDES Branch
Division of Water
14 Reilly Road, Frankfort Office Park
Frankfort, Kentucky 40601

Department for Environmental Protection
Division of Water, KPDES Branch
14 Reilly Road, Frankfort Office Park
Frankfort, Kentucky 40601

TRANSFER OF OWNERSHIP

PURSUANT TO 401 KAR 5:090, SECTION 4

TRANSFERRED TO:	*TRANSFERRED FROM:*
OPERATOR _____	OPERATOR _____
ADDRESS _____	ADDRESS _____
_____	_____
IF CORPORATION, NAME PRINCIPAL REPRESENTATIVE	IF CORPORATION, NAME PRINCIPAL REPRESENTATIVE
_____	_____

Enclose a Completed Updated Registration Form for Each Facility Listed

LEASE NAME	COUNTY	REGISTRATION NUMBER

CERTIFICATION:

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND I AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS DOCUMENT. I BELIEVE THAT THE INFORMATION IS TRUE, ACCURATE, AND COMPLETE. IN ORDER FOR THE DIVISION OF WATER TO ACCEPT THIS DOCUMENT, SIGNATURES OF BOTH THE BUYER AND THE SELLER ARE REQUIRED. IF YOU ARE UNABLE TO OBTAIN THE SIGNATURE OF THE SELLER, SOME OTHER VERIFICATION OF THE TRANSACTION, SUCH AS A COPY OF THE ASSIGNMENT WILL BE ACCEPTABLE.

_____ _____
SIGNATURE OF PURCHASER DATE

_____ _____
SIGNATURE OF SELLER DATE

APPLICATION FOR PERMIT TO INSTALL ABOVEGROUND STORAGE TANKS FOR PETROLEUM PRODUCTS OR HAZARDOUS SUBSTANCES

AIG Tanks

For Office Use Only
Revised Form on: December 17, 1996

Permit No.: _____

Approved By: _____

Date Approved: _____

Amount Paid: _____

Installation Site

NAME OF BUSINESS/COMPANY (D/B/A)

STREET ADDRESS

CITY STATE ZIP CODE

( ) TELEPHONE NUMBER COUNTY

CONTACT PERSON FEDERAL TAX ID NUMBER

Owner of Tanks

OWNER/OPERATOR/COMPANY NAME

STREET ADDRESS

CITY STATE ZIP CODE

( ) TELEPHONE NUMBER COUNTY

Installation Contractor

NAME OF CONTRACTOR

COMPANY NAME

STREET ADDRESS

CITY STATE ZIP CODE

( ) TELEPHONE NUMBER

Type of Facility

☐ Commercial ☐ Private Use ☐ Government

☐ Heating Oil ☐ Bulk Plant

☐ Other (Please Specify): _____

PLEASE RETURN COMPLETED APPLICATION TO THE ADDRESS LISTED BELOW:

Department of Housing, Buildings and Construction
State Fire Marshal's Office - Hazardous Materials Section
Attention: Dale Mancuso
1047 U.S. Highway 127 South, Suite 1
Frankfort, Kentucky 40601-4337
Telephone Number: (502) 564-3626

Tank Type Codes:				
	01 UL 142	04 ASME	07 API 12D	10 Sti 921
	02 UL 80	05 API 650	08 API 12F	11 Other
	03 UL 2085	06 API 12B	09 DOT	

1. **Tank Information:**

NOTE: ***Tank numbers shall correspond with the tank numbers on the accompanying site plan.***

TANK #1: ☐ GAL ☐ BBL

CAPACITY (GALLONS) | TANK TYPE CODE | APPROXIMATE AGE OF TANKS

PRODUCT STORED

☐ Vertical ☐ Horizontal ☐ Compartmented

TANK #2: ☐ GAL ☐ BBL

CAPACITY (GALLONS) | TANK TYPE CODE | APPROXIMATE AGE OF TANKS

PRODUCT STORED

☐ Vertical ☐ Horizontal ☐ Compartmented

TANK #3: ☐ GAL ☐ BBL

CAPACITY (GALLONS) | TANK TYPE CODE | APPROXIMATE AGE OF TANKS

PRODUCT STORED

☐ Vertical ☐ Horizontal ☐ Compartmented

TANK #4: ☐ GAL ☐ BBL

CAPACITY (GALLONS) | TANK TYPE CODE | APPROXIMATE AGE OF TANKS

PRODUCT STORED

☐ Vertical ☐ Horizontal ☐ Compartmented

TANK #5: ☐ GAL ☐ BBL

CAPACITY (GALLONS) | TANK TYPE CODE | APPROXIMATE AGE OF TANKS

PRODUCT STORED

☐ Vertical ☐ Horizontal ☐ Compartmented

TANK #6: ☐ GAL ☐ BBL

CAPACITY (GALLONS) | TANK TYPE CODE | APPROXIMATE AGE OF TANKS

PRODUCT STORED

☐ Vertical ☐ Horizontal ☐ Compartmented

Material safety data sheets must accompany this application if the products to be stored are other than gasoline, diesel fuel, fuel oil, kerosene or lubricating oils.

a) From the tanks, what are the distances to nearest important buildings? _____ feet

b) From the tanks, what are the distances to property lines? _____ feet

c) Will the tanks be near any L.P. containers? ☐ Yes ☐ No

If yes, how far away will they be? _____ feet

d) What type of spillage control facilities will be used?

☐ Dike ☐ Double -wall Tank ☐ Remote Impoundment

e) What will be the capacity of the spillage control facilities? _____ gallons

f) What are the dimensions of each tank?

TANK #1

_____ . _____ ft. x _____ . _____ ft.
LENGTH/HEIGHT DIAMETER

TANK #2

_____ . _____ ft. x _____ . _____ ft.
LENGTH/HEIGHT DIAMETER

TANK #3

_____ . _____ ft. x _____ . _____ ft.
LENGTH/HEIGHT DIAMETER

TANK #4

_____ . _____ ft. x _____ . _____ ft.
LENGTH/HEIGHT DIAMETER

TANK #5

_____ . _____ ft. x _____ . _____ ft.
LENGTH/HEIGHT DIAMETER

TANK #6

_____ . _____ ft. x _____ . _____ ft.
LENGTH/HEIGHT DIAMETER

1. **Tank Information (continued):**

g) What will the fill connection diameter be for each tank (indicate inches)?

Tank #1	TANK #2	TANK #3	TANK #4	TANK #5	TANK #6
☐☐	☐☐	☐☐	☐☐	☐☐	☐☐

h) What are the diameters of the working vents (indicate inches)?

Tank #1	TANK #2	TANK #3	TANK #4	TANK #5	TANK #6
☐☐	☐☐	☐☐	☐☐	☐☐	☐☐

i) What are the diameters of the emergency vents - if equipped (indicate inches)?

Tank #1	TANK #2	TANK #3	TANK #4	TANK #5	TANK #6
☐☐	☐☐	☐☐	☐☐	☐☐	☐-

If the tanks do not have emergency vents, are they designed with a weak roof to shell seam?
☐ Yes ☐ No

j) Will a valve be installed as close to the tank as practical if a connection is made to the liquid area of the tank? ☐ Yes ☐ No

k) If class I liquids are to be stored, will the vent pipe outlets be at least twelve (12) feet above adjacent ground level? ☐ Yes ☐ No

l) If the liquid being stored is other than a class I liquid, will the vent pipe outlet be above the fill connection? ☐ Yes ☐ No

m) If class IA liquids are being stored, will the tanks be equipped with pressure/vacuum venting devices?
☐ Yes ☐ No

n) If the tank is over 1,000 gallons capacity, will overfill prevention be provided? ☐ Yes ☐ No

o) If the liquid being stored is a class I or class II liquid, will the fill connection terminate within six (6) inches of the tank bottom? ☐ Yes ☐ No

p) Will *"no smoking"* signs be provided in the area of the tanks? ☐ Yes ☐ No

q) If the tanks are located at a public facility, will they be enclosed in a chain link fence at least six (6) feet high? ☐ Yes ☐ No

r) Will the tank outlets be equipped with some sort of anti-siphon device located as close as practical to the tank? ☐ Yes ☐ No

s) If the storage tank supplies a day tank, will the day tank be provided with return piping that is a continuous run without traps or sags and that is of a larger diameter than the supply piping?
☐ Yes ☐ No

t) If the fill connection point is other than at tank top, will a check valve be provided to prevent back-flow from the system? ☐ Yes ☐ No

u) Will the tanks be protected from vehicular damage if placed in a traffic area? ☐ Yes ☐ No

- **Aboveground Piping:**

a) Will the aboveground piping be substantially supported and protected against physical damage and excessive stresses? ☐ Yes ☐ No

b) Will the aboveground piping be provided with pressure relief devices that discharge to a suitable location? ☐ Yes ☐ No

c) Will the aboveground piping meet the requirements of ANSI B31, American National Standard Code for Pressure Piping? ☐ Yes ☐ No

- **Underground Piping:**

a) Delivery Method: ☐ Pressurized ☐ Suction

b) Type: ☐ Steel ☐ FRP ☐ Approved Non-Metallic

c) Will FRP and non-metallic piping be listed for use with alcohols and other oxygenated fuels? ☐ Yes ☐ No

d) Will flexible connections be provided at every change of direction from the vertical to the horizontal, and vice versa? ☐ Yes ☐ No

e) Type of flexible connections: ☐ Swing Joints ☐ Approved Flexible Connectors

f) Depth of piping: _____ inches

g) Is secondary containment provided for product piping? ☐ Yes ☐ No

h) Will pipe sealant be compatible with product to be used? ☐ Yes ☐ No

i) Indicate type of bedding and backfill around piping: ☐ Sand ☐ Pea Gravel ☐ Crushed Rock

j) FRP piping to be properly installed per manufacturer's specifications: ☐ Yes ☐ No

k) Type of steel pipe used: ☐ Galvanized ☐ Black

l) Indicate degree of slope on piping (inches per foot): ☐ Level or ☐ ⅛ ☐ ¼ ☐ ½

m) If suction piping is used, indicate location of check valve: ☐ Tank ☐ Pump/Dispenser

n) If pressurized pipe is used, will approved leak detectors be used: ☐ Yes ☐ No

Type: ☐ Mechanical ☐ Electronic

o) Indicate method of cathodic protection for steel piping: ☐ Anode ☐ Impressed Current

p) Indicate method of sacrificial anode attachment to piping: ☐ Cadweld ☐ Thermite Weld ☐ Mechanical Clamp

3. **Underground Piping (Continued):**

q) Steel pipe to be used for product or vent lines: ☐ Schedule 40 ☐ Schedule 80

r) Steel couplings for product or vent lines will be: ☐ Schedule 40 ☐ Schedule 80

s) Method of leak detection for piping: ☐ Tightness Testing
☐ Ground Water Monitoring ☐ Vapor Monitoring ☐ Interstitial Monitoring

4. **Pumps/Dispensers:**

a) Where will the pump/dispensers be located in relation to the tanks? ☐ Tank Top
☐ 5 to 49 Feet ☐ 50 Feet and Greater ☐ Directly Adjacent to the Dike Wall

b) Will all dispensers be at least:

Twenty (20) feet from fixed source of ignition? ☐ Yes ☐ No
Ten (10) feet from property lines? ☐ Yes ☐ No
Five (5) feet from any building opening? ☐ Yes ☐ No

c) Will heating fuel dispensers be located on a different island gasoline dispensers? ☐ Yes ☐ No

d) Will each end of a dispenser island be protected with metal crash post barriers at least thirty (30) inches in height? ☐ Yes ☐ No

e) Will shear valves be properly installed on pressurized piping runs? ☐ Yes ☐ No

f) Will the pumps and dispensers be UL listed? ☐ Yes ☐ No

g) Will some sort of emergency shut-off device be provided more than twenty (20) feet, but less than one hundred (100) feet from the dispensing area? ☐ Yes ☐ No

h) Will all wiring be installed in accordance with NFiPA 70, the National Electrical Code?
☐ Yes ☐ No

i) Will the wiring be certified by a certified electrical contractor? ☐ Yes ☐ No

5. **Bulk Plants:**

a) Please indicate the distance from the load rack to nearest building, property line, and storage tanks:
_____ Feet to Building _____ Feet to Property Line _____ Feet to Storage Tanks

b) If the rack is a top loading type, will the final fuel control valve be of the self-closing type?
☐ Yes ☐ No

c) If the rack is a bottom load configuration, will an automatic overfill prevention system be provided?
☐ Yes ☐ No

d) In the load/un-load area, will an emergency drainage system be provided that will direct leakage or spillage to a safe location? ☐ Yes ☐ No

Fee Schedule

KRS 198B requires a fee for plan review services. A charge of $50.00 for the first tank and $25.00 for each additional tank is required for this specialized review. **The required fee must accompany your application for permit.** Your check or money order should be made payable to the *"Kentucky State Treasurer"*. The name and location of the project must be indicated on the check or money order.

I, the undersigned, do hereby agree that this installation shall comply with all applicable requirements of the State Fire Marshal's Office promulgated in 815 KAR 10:050 and all other applicable standards as required. All answers in this application are true and accurate to the best of my knowledge.

_____ _____

Contractor (Signature) Date

Did you enclose your plan review fee? ☐ Yes ☐ No Amount: $ _____ .00

Note: Site plan, specifications and check or money order shall accompany this document for approval.

Approval by the State Fire Marshal's Office

Approval of plans to install, subject to final inspection and testing. System shall not be used or products dispensed prior to notification of local State Fire Marshal representative.

_____

Senior Deputy State Fire Marshal
Office of the State Fire Marshal
Hazardous Materials Section

This storage tank system was tested on _____ with satisfactory results.

Pursuant to KRS 227.300, REG. 815, and KAR 10:050 the above listed installation is found to have substantially complied with the Kentucky "*Standards of Safety*".

_____

Field Inspector
Office of the State Fire Marshal
Hazardous Materials Section

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF MINES & MINERALS
DIVISION OF OIL AND GAS
P. O. BOX 2244
FRANKFORT, KY 40601
PHONE (502) 573-0147

OFFICE USE ONLY
TR LEDGER #_____
OPERATOR NUMBER:_____
BOND NUMBER:_____
TRANSFER FEE: $25.00/WELL
TOTAL NUMBER OF WELLS ON THIS LEASE TO BE TRANSFERRED:_____
TOTAL AMOUNT REMITTED ON THIS FORM:_____

WELL TRANSFER

PRESENT OPERATOR:_____

ADDRESS:_____

_____

PHONE NO._____

TOTAL NUMBER OF WELLS ON THIS LEASE TO BE TRANSFERRED:_____

LEASE NAME:_____

TRANSFERRED TO: _____

OPERATOR:_____

ADDRESS:_____

_____

PHONE NO._____

IF CORPORATION, NAME OF PRINCIPAL OFFICER:

_____

COUNTY:_____

WELL NO.	CARTER COORDINATE SPOT LOCATIONS	PERMIT NO.

ATTEST: I, THE UNDERSIGNED, SUCCESSOR IN TITLE TO THE WELLS LISTED ABOVE OR ON THE ATTACHED SHEETS, REQUEST THE DIVISION OF OIL AND GAS, DEPARTMENT OF MINES AND MINERALS TO TRANSFER AND PLACE THESE WELLS UNDER MY BOND. THEREBY, I AM ASSUMING COMPLETE RESPONSIBILITY FOR THEM UNDER KRS CHAPTER 353 AND THE RULES AND REGULATIONS PROMULGATED THEREUNDER.

_____ DATE

_____ SIGNATURE OF PURCHASER

ACKNOWLEDGED_____
SIGNATURE OF SELLING OPERATOR

INSTRUCTIONS: USE A SEPARATE FORM FOR EACH LEASE. ATTACH A SEPARATE LIST, IF THERE ARE MORE WELLS THAN CAN BE LISTED ON THIS SHEET. MAKE CHECKS PAYABLE TO "THE KENTUCKY STATE TREASURER."

FORM ED-13 (REV. 2-99)

Commonwealth of Kentucky
Natural Resources and Environmental Protection Cabinet
Department for Environmental Protection
Division of Water

APPLICATION FOR CONSTRUCTION AND OPERATION OF A PRODUCED WATER HOLDING PIT - 401 KAR 5:090, SEC. 9

(Instructions for completing and submitting this form on back.)

Please Print or Type

1. Registration No.

2. Operator's Name: _____
   Mailing address: _____
   City: _____ State: ____ Zip Code: _____
   Telephone Number: ( ) _____

3. Lease Name: _____

4. Construction Specifications:
   (a) Dimensions: _____
   (b) Liner Composition: _____
   (c) Liner Thickness: _____
   (d) Height of Berm: _____

5. Operation Specifications: *(See instructions on back)*

6. Closure Specifications: *(See instructions on back)*

7. Permit Fee: Certified check or money order for one hundred dollars ($100.00) is *(check one)*
   ☐ enclosed
   ☐ will submit within 30 days of billing

8. *I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.*

Name and Official Title: _____
(Please print or type)

Telephone Number: ( ) _____

Signature: _____ Date Signed _____

INSTRUCTIONS

(This form is to be completed and submitted with all necessary attachments at least 20 days prior to the start of construction of a holding pit. Submit two (2) copies of the application package to the Division of Water District Office for the area in which your pit will be located. See attached map.)

1. Registration Number: Write the seven digit number assigned to this facility. If you have not registered or cannot locate the registration number, please call (502) 564-3410 extension 446.

2. Operator's Name, Mailing Address, and Telephone Number: Give the complete name, mailing address, and telephone number of the facility operator.

3. Lease Name: Give the name of the lease and the county in which it is located.

4. Construction Specifications:
   (a) Dimensions: Give the length, width , and depth of the pit in feet,
   (b) Liner Composition: Give the type of liner used (hypalon, polyurethane, etc.),
   (c) Liner Thickness: Give the thickness of the liner in mils,
   (d) Height of Berm: Give the height of the berm in feet.

5. Operation Specifications: The following should be attached to the application:
   1) a diagram (at least 8.5" x 11" and no larger than 11" x14") showing location of surface water diversion structures and their dimensions, and
   2) a narrative describing how minimum freeboard will be maintained and how material will be disposed.

6. Closure Specifications: Attach a narrative describing the type of material that will be used as backfill, final contours, proposed vegetative cover, and how wastes will be disposed.

7. Permit fee: Self explanatory. Make check or money order payable to Kentucky State Treasurer.

8. Certification: Self-explanatory.

DEPARTMENT OF MINES AND MINERALS
DIVISION OF OIL AND GAS
P. O. BOX 2244
FRANKFORT, KY 40601
Phone (502) 573-0147

TEMPORARY ABANDONMENT PERMIT

PERMIT NO._____

OPERATOR:_____

ADDRESS:_____

LEASE (FARM):_____ WELL NO._____

LOCATION:_____FNL FSL _____FEL FWL _____SEC. _____LTR. _____NO.

COUNTY:_____TOTAL DEPTH:_____

CASING SIZE:_____ CASING DEPTH:_____

CASING CEMENTED WITH_____ BAGS OF CEMENT: FROM_____ TO_____

CASING IS SEALED AT TOP BY:_____

THE REASON FOR A REQUEST FOR TEMPORARY ABANDONMENT IS:_____
_____
_____
_____

THE LEASE ON THIS PROPERTY EXPIRES:_____

THE AMOUNT OF TIME NEEDED FOR THIS TEMPORARY ABANDONMENT PERMIT:_____

I, THE OPERATOR OF THE ABOVE NAMED LEASE, HEREBY CERTIFY THAT THE ABOVE INFORMATION IS TRUE AND ACCURATE ON THIS DATE, AND REQUEST A TEMPORARY ABANDONMENT PERMIT BE APPROVED.

_____
OPERATOR'S SIGNATURE TITLE
(IF AN INDIVIDUAL) (IF A CORPORATION, THE SIGNEE MUST GIVE A POSITION TITLE.)

THIS TEMPORARY ABANDONMENT PERMIT IS APPROVED AND SHALL EXPIRE:_____

_____
INSPECTOR, DIVISION OF OIL AND GAS

FORM ED-12 (REV. 2-99)

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF MINES AND MINERALS
DIVISION OF OIL AND GAS
PO BOX 2244
FRANKFORT, KY 40601
PHONE 502 573-0147

CERTIFICATE OF COMPLETION FOR AN INJECTION WELL

1) Permit No. _____(A copy of well location plat must be attached)
2) Operator (name and address) _____
3) Lease Name _____ Well No. _____
4) Carter Coordinate _____fnl/fsl _____fwl/fel sec_____ letter _____ no. _____
5) County _____ Elevation _____ Total Depth _____
6) The casing program for the above identified well is as follows:

Casing Size	New or Used	No. Sacks Cement	Cement Column - Top to Bottom
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

7) Injection shall be accomplished through tubing and packer as described below.

Size of Tubing	Type of Packer	Packer Depth
_____	_____	_____
_____	_____	_____
_____	_____	_____

8) Was cement bond log run? YES / NO If yes, attach one copy.
9) Maximum anticipated injection pressure at well head _____ psi.
10) Maximum anticipated injection volume _____(bbls) (cu.ft.) per day.
11) The injection zone is known as the (geological name) _____, and this formation occurs in this well from _____ to _____.
12) a. The _____ size casing has been cemented to a depth of _____ and the perforated interval
is from _____ to _____ with _____ number of perforations.
b. The injection interval is through an open hole and porous strata below the injection interval has not been drilled or is plugged back with a column of cement from _____ to _____.
13) Describe in detail the monitoring method for the annulus between the injection tubing and the next string of casing. Identify the type of instrument to be used and the time interval between observations by a responsible party. Records of monitoring must be kept on file by the operator and available to the Division of Oil and Gas Conservation upon request. (Use additional pages if needed.)

14) I, the operator of the above identified well, certify that the above information is accurate and correct and I further certify that I have run the following mechanical integrity test(s) of the installation to insure there are no leaks in the system. (Describe each test fully) (Use additional pages if needed) (Test Pressures must exceed the maximum anticipated injection pressure listed on line 9 by at least 100 psi)

Certified by _____ (operator's signature only)
date _____ name of signee _____

FORM ED-23

KENTUCKY DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
APPLICATION TO DISPOSE OF PRODUCED WATER OFF-FACILITY

(Please Print or Type)

I. **Producing Facility**

Registration Number _____ Lease Name _____

Operator Name _____

Address _____

Barrels of water produced per day _____

Barrels of produced water being transported (bbls/day) _____

II. **Hauler**

Name _____ Phone Number ( ) _____

Address _____

Vehicle License _____, _____, _____

Vehicle Description _____

If by pipeline _____ distance _____ diameter

III. **Disposal Site**

Registration Number _____ Lease Name _____

Operator Name _____

Address _____

Location (Carter Coordinates) _____ (County) _____

Method of Final Disposal (choose at least one)

_____ Enhanced Recovery

UIC Permit # _____ (if available)

_____ Disposal Well

UIC Permit # _____

_____ No Discharge System (describe) _____

_____

IV. **Signature** _____ **Date** _____

Name and Title _____

INSTRUCTIONS

I. Producing Facility

Registration Number: Write the seven digit number assigned for the tank battery from which the produced water will be transported. If you have not registered or can not locate the registration number, please call (502) 564-3410.

Lease Name: Give lease name of facility from which the produced water will be transported.

Operator's Name, Address, and Telephone Number: Give the complete name, mailing address, and telephone number of the facility operator.

Barrels of Water Produced Per Day: Give amount of water that is produced per day (example: ? barrels/month or gallons/day, etc.).

II. Hauler

Hauler's Name, Address, and Telephone Number: Give the complete name, mailing address, and telephone number of the transporter.

Transport Vehicle Information: (a) **License Number**: If more than one vehicle is to be used, list all numbers (use separate sheet, if necessary). (b) **Description**: Give the year, make, and capacity of the transport vehicle(s). Or specify alternate method of transportation such as pipelines, etc.

III. Disposal Site

Registration Number: Write seven digit number assigned for the tank battery to which the produced water will be transported. If you have not registered or can not locate the registration number, please call (502) 564-3410.

Lease Name: Give lease name of facility to which the produced water will be transported.

Disposer's Name, Address, and Telephone Number: Give the complete name, mailing address, and telephone number of the disposer.

Location: Give the county name and the Carter Coordinates of the disposal site. If not in Kentucky, please indicate which state.

Final Method of Disposal: Mark final method of disposal (a) **Enhanced Recovery**: Give the Underground Injection Control (UIC) permit number of the disposal facility, if available. Use the Department of Mines and Minerals, Division of Oil and Gas injection well permit number if UIC permit number is not available. (b) **Disposal Well**: Refer to instructions for (a), enhanced recovery. (c) **No Discharge System**: Give a brief description of the no discharge system.

IV. Signature: The person who is responsible for the operation that generates the produced water shall sign this form. **Date, Name and Title**: Self-explanatory.

Send the completed application to the Industrial Wastewater Section, KPDES Branch, Division of Water, 14 Reilly Road, Frankfort Office Park, Frankfort, Kentucky 40601. Transport of produced water can not occur until approval has been granted by the Division of Water.

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF MINES AND MINERALS
DIVISION OF OIL AND GAS
PO BOX 2244
FRANKFORT, KY 40601
PHONE (502) 573-0147

APPLICATION FOR PERMIT FOR USE OF VACUUM

OPERATOR: _____

ADDRESS: _____

LEASE NAME: _____

COUNTY: _____

Well No.	Carter coordinate spot locations	Permit No.

Are there any producing wells on premises within one thousand feet of the above listed wells owned by an operator other than yourself? _____

Offset operators to whom notice has been given:

_____
_____
_____
_____
_____
_____

Type of unit to be installed: _____
_____

Formation to which vacuum is to be applied: _____

I hereby certify the above information is correct to the best of my knowledge.

_____
signature of applicant

Instructions: Use a separate application form for each lease. Only one copy need be filed. If Carter coordinate locations cannot be furnished the wells may be shown on a 7 ½ minute topographic map and attached to this application. The map will be returned upon request.

FORM ED-9 (REV 2-99)

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF MINES AND MINERALS
DIVISION OF OIL AND GAS
PO BOX 2244
FRANKFORT, KY 40601 PHONE (502) 573-0147

ANNUAL REPORT OF MONTHLY PRODUCTION FOR NATURAL GAS AND/OR CRUDE OIL

YEAR:_____

OPERATOR NAME: _____

ADDRESS: _____

REPORT GAS WELLS BY WELL; OIL WELLS BY WELL OR BY LEASE. IF REPORTING OIL PRODUCTION BY LEASE, ATTACH A LIST CONTAINING THE PURCHASER NUMBER AND ALL PERTINENT NUMBERS. THE PURCHASER NUMBER IS ASSIGNED TO THE LEASE BY THE PURCHASER FOR PRODUCTION PAYMENT. THE REPORTING OF PRODUCED GAS IS OPTIONAL.

PERMIT #: _____ PURCHASER #: _____ IF BY LEASE, NUMBER OF WELLS_____

FARM NAME: _____ COUNTY_____

PRODUCTION FORMATION(S):_____

	PRODUCED GAS (MCF)	NET SALES GAS (MCF)	NET SALES OIL (BBLS)	STATUS PR	STATUS SI
JAN					
FEB					
MAR					
APR					
MAY					
JUN					
JUL					
AUG					
SEP					
OCT					
NOV					
DEC					
TOTAL					

PERMIT #: _____ PURCHASER #: _____ IF BY LEASE, NUMBER OF WELLS_____

FARM NAME: _____ COUNTY_____

PRODUCTION FORMATION(S):_____

	PRODUCED GAS (MCF)	NET SALES GAS (MCF)	NET SALES OIL (BBLS)	STATUS PR	STATUS SI
JAN					
FEB					
MAR					
APR					
MAY					
JUN					
JUL					
AUG					
SEP					
OCT					
NOV					
DEC					
TOTAL					

PERMIT #: _____ PURCHASER #: _____ IF BY LEASE, NUMBER OF WELLS_____

FARM NAME: _____ COUNTY_____

PRODUCTION FORMATION(S):_____

	PRODUCED GAS (MCF)	NET SALES GAS (MCF)	NET SALES OIL (BBLS)	STATUS PR	STATUS SI
JAN					
FEB					
MAR					
APR					
MAY					
JUN					
JUL					
AUG					
SEP					
OCT					
NOV					
DEC					
TOTAL					

***NOTE:* OPERATOR'S SIGNATURE IS REQUIRED ON THE BACK SIDE OF THIS FORM.**

FORM ED-17 (ORG. 11/12/97) (REV. 2-99)

PERMIT #: _____ PURCHASER #: _____ IF BY LEASE, NUMBER OF WELLS_____
FARM NAME: _____ COUNTY_____
PRODUCTION FORMATION(S):_____

	PRODUCED GAS (MCF)	NET SALES GAS (MCF)	NET SALES OIL (BBLS)	STATUS PR	STATUS SI
JAN					
FEB					
MAR					
APR					
MAY					
JUN					
JUL					
AUG					
SEP					
OCT					
NOV					
DEC					
TOTAL					

PERMIT #: _____ PURCHASER #: _____ IF BY LEASE, NUMBER OF WELLS_____
FARM NAME: _____ COUNTY_____
PRODUCTION FORMATION(S):_____

	PRODUCED GAS (MCF)	NET SALES GAS (MCF)	NET SALES OIL (BBLS)	STATUS PR	STATUS SI
JAN					
FEB					
MAR					
APR					
MAY					
JUN					
JUL					
AUG					
SEP					
OCT					
NOV					
DEC					
TOTAL					

PERMIT #: _____ PURCHASER #: _____ IF BY LEASE, NUMBER OF WELLS_____
FARM NAME: _____ COUNTY_____
PRODUCTION FORMATION(S):_____

	PRODUCED GAS (MCF)	NET SALES GAS (MCF)	NET SALES OIL (BBLS)	STATUS PR	STATUS SI
JAN					
FEB					
MAR					
APR					
MAY					
JUN					
JUL					
AUG					
SEP					
OCT					
NOV					
DEC					
TOTAL					

THE UNDERSIGNED HEREBY SWEARS OR AFFIRMS THAT THE FOREGOING INFORMATION GIVEN ON THIS REPORT IS TRUE AS HEREIN SET FORTH.

DATED THIS _____ DAY OF _____, 19_____

_____
SIGNATURE OF OPERATOR TITLE

_____
PRINT OR TYPE SIGNATURE

FORM ED-17 (REV. 2-99)

INSTRUCTIONS FOR COMPLETING "THE ANNUAL REPORT OF MONTHLY PRODUCTION"

OPERATORS MUST **DATE** AND **SIGN** THE BACK OF THE PRODUCTION FORM WHEN COMPLETED. PRODUCTION DATA FOR THE PREVIOUS YEAR IS TO BE FILED IN THE LEXINGTON OFFICE OF THE DIVISION OF OIL AND GAS BY APRIL 15.

NATURAL GAS:

NATURAL GAS PRODUCTION SHALL BE REPORTED ON A PER WELL BASIS.

PERMIT NUMBER:	COMPLETE WITH THE PERMIT NUMBER ISSUED BY THE DIVISION OF OIL AND GAS.
PURCHASER NUMBER:	NUMBER ASSIGNED BY THE PURCHASING COMPANY.
FARM NAME:	COMPLETE WITH INDIVIDUAL WELL NAME AND WELL NUMBER.
PRODUCING FORMATION:	IF COMMINGLED AND NOT METERED SEPARATELY, THEN LIST AS "COMMINGLED" AND LIST THE PERTINENT FORMATIONS.
PRODUCED GAS:	ACTUAL GAS PRODUCED. INDICATE THE AMOUNT OF GAS METERED OR PRO-RATED AT THE WELL HEAD ON A MONTHLY BASIS.
NET GAS SALES:	ACTUAL GAS SOLD. INDICATE THE AMOUNT OF GAS SOLD INTO THE LINE OF FIRST PURCHASE. COULD BE DIFFERENT FROM PRODUCED GAS DUE TO LINE LOSS ANDCOMPRESSOR USAGE.
STATUS:	CHECK EITHER "PRODUCING" OR "SHUT-IN" FOR THE MONTH REPORTED.

COMBINATION GAS/OIL WELL:

SAME AS NATURAL GAS REPORTING BUT INCLUDE THE OIL SALES ON A MONTHLY BASIS.

CRUDE OIL:

CRUDE OIL PRODUCTION MAY BE REPORTED BY INDIVIDUAL WELL OR BY LEASE. WHEN REPORTING BY LEASE, IDENTIFY THE PURCHASER(LEASE) NUMBER USED BY THE CRUDE OIL PURCHASER. PERMIT NUMBERS WHICH CORRESPOND TO THE PURCHASER(LEASE) NUMBER SHALL BE LISTED ON A SEPARATE SHEET OF PAPER AND ATTACHED TO THE PRODUCTION FORM.

EXAMPLE
PURCHASER(LEASE) NUMBER: 12345 PERMIT NUMBERS: 85000, 85001, 85002.

DEPARTMENT of MINES AND MINERALS

P. O. Box 2244, Frankfort, KY 40601

Application To Mine Within 500 Feet of an Oil or Gas Well

For Office Use Only

Mines & Minerals Permit Number

_____

Mine Licensee:_____ State File Number:_____

Mine Name or Number:_____ Address:_____

Strata overlying mine at well location (in feet):_____Ft.

Coal Seam:_____ Seam thickness (in inches):_____In.

Method of Survey:_____

Dept. of Mines & Minerals District Office:_____

No coal shall be mined from the _____X _____foot square block of coal shown to be left centered about the well on the map accompanying the application.

NOTE: Attach an 8 1/2" X 11" copy of a U.S.G.S. 7.5 minute topographic map with the accurate location of the well spotted on the map copy and identification of the topographic map.

Attach a certified map showing the well location.

Reviewed by:_____ Date:_____ _____Date: _____

Mines & Minerals District Supervisor **Commissioner-Mines & Minerals**

Original Well Operator:_____ Current Well Operator:_____

Original Oil/Gas Lease Name:_____ Current Lease Name:_____

Well Operator Number:_____ **Division of Oil & Gas Permit Number:**_____

Carter Coordinate Well Location

As listed by the Well Operator:	As surveyed by the Mine Licensee:
Sec:_____ Letter:___ Number:_____	Sec.:_____ Letter:___ Number:_____
_____FNL _____FEL	_____FNL _____FEL
_____FSL _____FWL	_____FSL _____FWL

Current Well Status:

☐ Producing ☐ Plugged and Abandoned ☐ Abandoned (Not producing or plugged)

In accordance with KRS 352.510, I have forwarded simultaneously to the well operator and to the Department of Mines and Minerals, by certified or registered mail, a copy of the maps and plans required by law to be filed and kept up to date, showing on the copy of the map or plan the mine workings and projected mine workings beneath the tract of land and within five hundred (500) feet of its outer boundaries. I further understand that the well operator may, within fifteen (15) days from his receipt of the copy of the map, file specific objections in writing to the mining operations and that no action on this application shall therefore be taken by the Department within that fifteen (15) day period.

_____ _____

Signature of mine operator or engineer Date

Information below to be completed by Division of Oil & Gas

Well Type: ☐ **Oil Well** ☐ **Gas Well** ☐ **Combination (Oil & Gas)** ☐ **Injection**

Well Completion Date:_____ County:_____

Total Depth:_____Ft. Producing Formation(s):_____

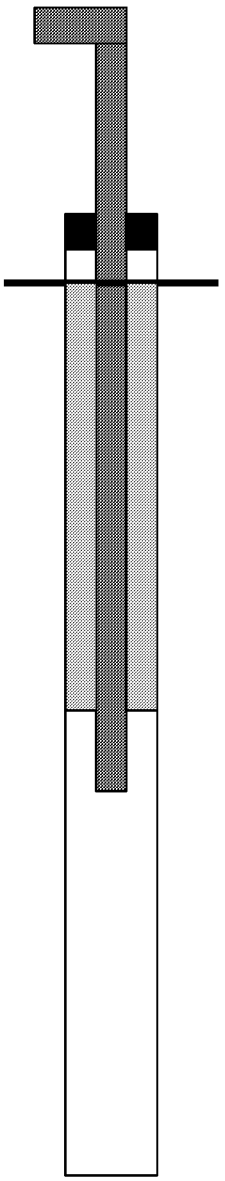
Reviewed By:_____ Date:_____

Oil & Gas Regional Supervisor

FORM - OG500 (REVISED 3/97)

COMMONWEALTH OF KENTUCKY

CLASS II INJECTION WELL OPERATOR'S MANUAL



Prepared by:

Division of Oil and Gas

Division of Water

U.S. Environmental Protection Agency

Representatives of the Oil and Gas Industry

UNDERGROUND INJECTION CONTROL PROGRAM

AS ADMINISTERED BY

EPA United States Environmental Protection Agency

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For information on this and other energy related projects contact:

US Department of Energy
National Technology Petroleum Office
PO Box 3628
Tulsa, OK 74101
(918) 699-2000

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FOREWORD

We wish to acknowledge and express our deep appreciation to the following team members who participated in the preparation of this manual. They include the following: Brian Gilpin and Marvin Combs from the Division of Oil and Gas (DOG), Dan Juett from the Division of Water (DOW), and John Gabbard from the Kentucky Oil & Gas Association, Bill Mann, Brian Thames, Ken Harris, Scott Hoskins, and Larry Meyer from the United States Environmental Protection Agency (EPA) Region 4.

We would also like to thank the U.S. Department of Energy for their financial support of this effort. It is our firm belief that the development of this document shall serve as a useful tool for achieving compliance and fostering further exploration efforts in the Commonwealth of Kentucky. The Department of Energy should be commended for their support and encouragement of this and other similar projects.

Rick Bender, Director
Division of Oil and Gas

Mike Sanders, Geologist
Author

INTRODUCTION

This handbook is intended to serve as a guide and reference for oil and gas well operators who wish to operate Class II injection wells in the Commonwealth of Kentucky under the federal Underground Injection Control (UIC) program. The UIC program was mandated by the Safe Drinking Water Act of 1980. A Class II well is any well used for injection or disposal of produced water from oil and gas wells, or for injection of fluids to increase recovery of oil and gas. Kentucky's UIC Class II program is currently being regulated by the United States Environmental Protection Agency (EPA). The EPA has regulated the UIC program in Kentucky since June 25, 1984.

The contents of this manual are presented in the order that a typical oil and gas operator would follow to permit, to operate, and to plug and abandon an injection well. A simplified step-by-step checklist is included which also follows this process from beginning to end.

Several recommendations have been presented in this manual that are not EPA requirements under the law, but have been included to help operators avoid future problems.

The appendices, at the back of this manual, contain a glossary of terms, directories of state and federal agencies involved in the UIC program, copies of the forms you will need to permit and operate a UIC well, and other useful information. EPA has provided some completed permit applications, and samples of their correspondence with operators during the permitting and completion process. These should be helpful guides for you to understand the type of information EPA expects from operators.

This handbook was prepared with the help of representatives from Kentucky regulatory agencies and the United States Environmental Protection Agency Region 4, with a grant from the U.S. Department of Energy.

If you wish to permit a UIC Class II well in Kentucky, or if you have questions about Kentucky's injection well program, contact the EPA Region 4 offices in Atlanta, Georgia. See Appendix A at the back of this manual for the address and phone number.

This manual is presented as a general reference and illustrates those practices conforming to the EPA UIC Class II program. It is beyond the scope of this manual to cite every applicable state and federal regulation and statute, and thus this manual is not intended to take the place of one's responsibility to know and understand all applicable regulations and statutes. Statutes and regulations in this manual are not provided in their complete form. The reader is encouraged to read the full text of each statute and regulation and seek counsel if and when necessary for clarification as to the applicability of each.

SIMPLIFIED STEP-BY-STEP CHECKLIST (☑) PROCEDURE FOR PERMITTING AND OPERATING A CLASS II WELL IN KENTUCKY

Section I. Getting Started & Permitting

Prepare a Game Plan. Permitting of a UIC well takes several months. Other production wells within the ¼ mile area of review (AOR) are involved in the permitting process. It is recommended that the operator prepare an overall game plan that incorporates all wells in the field to determine the most effective secondary recovery pattern or the most effective disposal option. In addition, many old wells that fall within the AOR may need improvements to their casing and cement in order to comply with the EPA requirements.

A proposed injection well should not be located in close proximity to faults or fractures. The presence of these geologic features could be grounds for denial of your permit application.

Obtain a UIC Class II well permit (EPA Form 7520-6) with the EPA for each proposed new injection well or for the conversion of any existing producing well into an injection well along with attachments A, B, C, E, G, H, M, Q, R, and U. Financial resources for plugging the well must be available in the form of an approved financial instrument. **Obtain a well permit** with the Division of Oil & Gas (DOG) for each proposed new injection well. Follow the same permitting and bonding procedures for any production well. If an existing production well is to be converted to an injection well, a new DOG permit is not required if the well is bonded and operated under the existing operators' name.

Section II. New Well Construction and Well Conversion

Notify Division of Oil and Gas inspector (name and phone number is on the DOG permit) 24 hrs. before spudding.

Set casing and cement as specified in Attachment M of the permit application or as specified in EPA permit under "Well Specific Conditions". Casing and cementing must also meet the minimum requirements specified on your permit with the DOG.

Follow all DOG, DOW, and Division of Waste Management (DWM) regulations as required for the drilling or reworking of any production well. See "Oil and Gas Well Operator's Manual".

Set tubing and packer as specified in EPA permit under "Well Specific Conditions".

Keep cement records as invoiced and keep a copy of any geophysical logs run. These records shall be submitted to EPA to document correct well construction.

File Completion Report (EPA Form 7520-10) along with the attachments A, B, C, D, and E described on the back of the form to the EPA upon completion and equipping the injection well. Send by certified mail return receipt requested.

File Certificate of Completion (DOG Form ED-23) with the Division of Oil & Gas for newly drilled injection wells and for well conversions.

File Affidavit of Well Log and Completion Report (DOG Form ED-3) with the Division of Oil & Gas for newly drilled injection wells within 90 days of completion.

Section III. Mechanical Integrity Test (MIT)

A MIT is required for every new injection well or newly converted injection well prior to injection. A MIT is required every 5 years thereafter or if the packer is unseated during a workover or upon accident.

A MIT is required for all "standard injection wells" every 5 years or if the packer is unseated during a workover or upon accident. A "standard injection well" has been cased and cemented and injection takes place through tubing and packer. "Non-standard injection wells" must have a MIT test every 2 years unless specified differently in the permit. A "non-standard" well injects through a single string of casing, and is not equipped with tubing and packer. These non-standard wells were injection wells prior to June 25, 1984.

Notify EPA 30 Days in advance of each proposed mechanical integrity test. The EPA will arrange for a representative to witness the test.

Each MIT will require the packer to be set as specified by EPA. The annular space must be loaded with an approved fluid, and a minimum of 300 pounds of pressure must be applied to the annulus for 30 minutes with less than 3 % loss or gain in pressure. (3% of 300 pounds is 9 pounds) EPA has approved alternative methods of MITs. Contact the EPA for details.

Section IV. Well Operation and Reporting

INJECTION MAY NOT BEGIN until all the conditions of the permit have been satisfied and approved by the EPA.

Corrective actions as specified in the permit for wells within the Area of Review must be completed and approved by the EPA prior to injection.

Only fluids and gasses brought to surface in connection with conventional oil and gas production may be injected. Fresh water and other approved secondary recovery fluids may also be injected as specified by the permit.

- ❒ **Injection must occur through** tubing and packer for all newly drilled or converted wells. Wells that have been in operation before June 1984 may still inject down casing if authorized by EPA to do so.

- ❒ **Injection must cease** if mechanical integrity is lost.

- ❒ **Monitor Enhanced Recovery Wells monthly (or more frequently as required by EPA)** – record the maximum and average injection pressure, annulus pressure, and cumulative volume in barrels. These figures must be submitted on an annual report to the EPA.

- ❒ **Monitor Disposal Wells (Commercial or Non-commercial) weekly** – record the average and maximum injection pressure, annulus pressure, and cumulative volume in barrels. These figures must be submitted on an annual report.

- ❒ **Each year submit to EPA** the "Annual Disposal/Injection Well Monitoring Report" (EPA Form 7520-11). For injection wells in operation before June 25, 1984 the report is due every October. For all other injection wells, the report must be submitted each year on the 28th of the month following the anniversary of the effective date of the permit.

- ❒ **Obtain injection fluid analysis** every 12 months or whenever changes are made to injection fluid or as required by EPA. A copy of the analysis should be sent to EPA on the same date as your annual monitoring report described above.

- ❒ **Retain all injection well monitoring records** for three (3) years. However, it is recommended that all records be maintained for the life of the well.

- ❒ **Alternatives to injection** of produced fluids include surface discharge (KPDES permit from DOW is required) or transport off site to an approved injection well (produced water disposal form submitted to DOW is required).

Section V. Permit Transfers

- ❒ **Application to Transfer Permit** is required by EPA (EPA Form 7520-7). A written agreement between the old and new owner containing a date for transfer of ownership and liability shall be attached along with a submission of financial responsibility for acquiring company. This requirement is the same for "Rule Authorized" wells and permitted wells.

- ❒ **Well Transfer Permit** required by DOG, $25 fee per well. (DOG Form ED-13)

- ❒ **Transfer of Ownership** form required by DOW registered facilities and KPDES permits

- ❒ **Bond releases to the seller** shall occur once the acquiring company's bonds are in place and financial responsibility has been demonstrated.

Section VI. Emergency Notification Procedures

Notify EPA if monitoring indicates a significant change in injection pressure or annulus pressure.

Notify EPA if there is noncompliance with a permit condition or if a malfunction occurs.

Give Oral Report to EPA within 24 hours from time operator is aware of a problem including the loss of mechanical integrity. Call (404)-562-9743.

Give Written Report to EPA within 5 days from time operator is aware of a problem including a plan to fix the problem.

Contain and clean-up oil spills, leaks, discharges or releases of pollutants immediately. For reportable spills notify Environmental Response Team 1-800-928-2380.

Section VII. Abandonment and Closure

Notify EPA within 30 days after injection is terminated. Plugging is to be done within one year of termination of injection.

Plugging and abandonment should follow the plan approved in the permit. If any change to the plan is desired by the operator, a new plan on Form 7520-14 must be submitted to EPA.. Send or fax a letter to EPA requesting that a well be plugged. All P&A plans must be approved prior to plugging.

Notify DOG inspector to be sure that the plan meets DOG requirements.

It is recommended that tubulars be checked for N.O.R.M. (naturally occurring radioactive material). The survey should be done while tubing is still in place. If N.O.R.M is found, the EPA must be notified within 45 days of the planned plugging. Contact EPA for disposal instructions.

File plugging affidavit with the Division of Oil and Gas.

Remove equipment upon closure of lease activities and contact Division of Water for inactivation of registration.

Request release of bond upon completion of site closure, or upon transfer of wells to another operator with DOG and with EPA.

REGULATORY AUTHORITY

EPA Underground Injection Control Program

The U.S. Environmental Protection Agency Underground Injection Control Program is responsible for:

- Preventing contamination of groundwater supplies from underground injection or other activities.
- Regulating Class II wells which are injection and/or disposal wells associated with the production of oil and natural gas.

Federal Regulation-40 CFR 124 and 144 through 148

Division of Oil and Gas

The Department of Mines and Minerals, Division of Oil and Gas is responsible for:

- Regulating the bonding, permitting, drilling, casing, operating and plugging of all wells in Kentucky.
- Protecting the correlative rights of mineral owners.
- Conserving and protecting the crude oil and natural gas reserves of Kentucky.
- Insuring fresh water aquifers and mineable coal seams are protected from unreasonable damage due to production of crude oil and natural gas.

Statute-KRS Chapter 353

Division of Water

The Department for Environmental Protection, Division of Water is responsible for:

- Preserving the water resources of Kentucky.
- Prevention, abatement and control of all water pollution.
- Regulating water pollution from oil and gas facilities.

Statute-KRS Chapters 146, 151 and 224

Division of Waste Management

The Department for Environmental Protection, Division of Waste Management is responsible for:

- Insuring that waste management activities within Kentucky are conducted in a manner to protect human health and the environment.
- Regulating hazardous waste, solid waste, special waste, abandoned sites, underground storage tanks and remediation of chemical and petroleum releases to the environment.

Statute-KRS Chapters 224

SECTION I. GETTING STARTED AND PERMITTING

What is a UIC Class II Well?

All owners and operators of oil and gas facilities in Kentucky who desire to inject produced water or other approved non-hazardous fluids from their production operations into the subsurface are subject to regulation by the EPA under the Federal Safe Drinking Water Act. Injection wells used for this purpose are classified as Class II injection wells by the EPA. All Class II injection wells must be permitted by the EPA prior to spudding any injection well or converting any producing well into an injection well.

Class II wells are used:

1) for the disposal of non-hazardous fluids which are brought to the surface in connection with oil and gas production and treatment

2) to inject fluids for enhanced recovery of oil and natural gas

3) for the storage of hydrocarbons which are liquid at standard temperature and pressure

Class II wells are not used:

1) for the disposal of hazardous fluids

2) for injection and withdrawal of natural gas in storage fields

New Class II Injection Wells and Rule Authorized Wells

The EPA has regulated the UIC program in Kentucky since June 25, 1984. Kentucky had hundreds of injection wells in operation at that time, and the EPA granted a blanket permit for those wells. They became known as "Rule Authorized" wells. Each of these wells did not receive its own individual permit, but each well had to pass a mechanical integrity test. Each well must be re-tested every five years if injection is through tubing and packer, and every two years if injection is down casing.

A new injection well drilled or converted after June 25, 1984 must have its own UIC permit. This manual will focus on permitting and operating these "new" wells. However, those differences for "Rule Authorized" wells will be noted throughout the manual.

Preparing a Class II Permit Application
EPA – REGION 4

All operators must obtain a UIC Class II permit from the EPA for each well that disposes of produced fluids from oil and gas wells, injects fluids (liquids or gasses) to enhance recovery of oil and gas, or disposes non-hazardous fluids generated from oil and gas activities. Before an injection well is drilled or a producing well is converted into an injection well, a UIC permit must be obtained. Multiple injection wells may be permitted at one time through an area permit application. Contact EPA for further details on this procedure.

Some examples of completed permit applications are located in Appendix of this manual. They have been provided by the EPA to guide you in preparing your own UIC Class II permit application.

Remember that a permit will be processed faster if you supply the permit reviewer with an application that is complete.

A typical Kentucky Class II disposal well or enhanced recovery well permit application consists of a completed front page of EPA Form 7520-6 and the attachments described below:

- **Front Page Form 7520-6** – Complete the front page. Under the section of the form titled: "Class and Type of Well", use the code letter "D" for a disposal well application, or "R" for an enhanced recovery application. **No fees are required for this application**.

- **Attachment A** – Area of Review (AOR) – New Wells & Conversions:
The area of review is a circle with a ¼ mile radius around the location of the proposed injection well. A sentence that states "the area of review is a ¼ mile radius around the proposed injection well" will satisfy the requirement for this attachment.

- **Attachment B** – Maps of Wells and Area of Review – New Wells & Conversions:
This attachment should be a photocopy of a USGS 7 ½ quadrangle **topographic map**. The scale of this photocopy shall be a minimum of 1"=2000', however, larger scales are recommended. EPA's instructions for completing Attachment B suggest that the photocopy should cover a large enough area to extend one mile beyond the property boundary on which the proposed injection well is located. The following information should be included with the topographic map:

1) The name and location of the proposed injection well.

2) A circle with a ¼ mile radius drawn around the proposed injection well.

   It is recommended that the entire AOR be located within property under control of the permittee. An injection well permit can be revoked if a third party drills within the AOR and does not properly case and cement the well.

3) The locations of all producing wells, injection wells, and dry holes should be spotted within the AOR. The names of the wells, their permit numbers, and Carter Coordinates should be listed. See Appendix C for an example of this attachment.

4) Drinking water supplies and drinking water wells within ¼ mile (1320') from the lease where the proposed well is located. This would include surface springs and other bodies of water. Only information of public record is required.

5) **A list of all Surface Landowners and their addresses within the AOR**
Each landowner will be notified by the EPA about your pending UIC permit.

6) Location of suspected faults within the AOR (refer to **USGS geologic quadrangle map)**.

7) Location of mines and quarries within the AOR

8) Provide a lease map, if one is available, with well spots. This is very helpful to the permit reviewer and will speed up the permit process.

If operators do not have their own records, then copies of information of public record are acceptable to complete this attachment.

- **Attachment C** – Corrective Action Plan and Well Data

The purpose for this attachment is to provide the permit reviewer with the information available about those wells within the AOR, which penetrate the proposed injection zone. The information will help the reviewer determine what action may be required of the operator to rework those wells to keep fluid from migrating into USDWs.

List each well, producing, injection, or abandoned, which is located within the AOR and penetrates the injection zone. Attach copies of the completion reports and plugging reports, if available, which are on file at the Kentucky Geological Survey, in Lexington or which may be in your possession. Only wells drilled deep enough to reach the injection zone are necessary for this attachment. However, an operator should list every well and its total depth within the AOR to speed up the permit process.

For improperly plugged wells that are located within the AOR and penetrate the injection zone, a corrective action plan must be submitted. The plan must detail the way by which improperly plugged wells will be re-entered and plugged to prevent the movement of fluids from injection operations into the USDWs.

Wells that lack records may need to be logged and/or plugged. Many permit denials are based on bad records.

If you are not sure you need a corrective plan, then submit all available records to the permit reviewer. EPA will then determine what corrective actions will be needed. Those corrective actions required for fixing the defective wells will be described in a section of your permit titled "Special Conditions".

- **Attachment E** – Name and Depth of USDWs

Submit the geologic name and depth of all formations that are underground sources of drinking water (USDWs). If the water in a formation has total dissolved solids of less than 10,000 mg/l, then the formation is a USDW. If USDWs have not been identified for your area, they may be calculated from electric logs. At a minimum, submit logs with your application so the EPA can do the calculation. USGS geologic quadrangles are helpful to identify water resources. EPA can assist you to identify the USDWs.

If your application is for the conversion of a producing well to an injection well, submit geophysical logs from the well if available. If logs are not available, submit logs from a nearby well. If your application is for a well that is to be drilled as an injection well, submit logs from a nearby well. These logs should show the formations that are underground sources for drinking water (USDWs), the proposed injection zone, and the formation that serves as the cap rock (confining zone) above the injection zone.

If geophysical logs are not available, submit drillers' logs.

- **Attachment G** – Geological Data on Injection and Confining Zones

Submit data on the injection and confining zone. The rock formation that will receive the injected fluids is the injection zone. The confining zone is a rock formation above the injection zone that will keep injected fluids from escaping upward into formations capable of supplying drinking water. EPA will accept USGS maps and information from KGS to help supply this information. Previously published field studies are very helpful. Include the lithology of the rock (rock type), geological name, thickness, and fracture pressure (the pressure that will crack open a formation). Include reports from previous fracture treatments in the proposed injection zone from this well or nearby wells if they are available.

- **Attachment H** – Operating Data

Submit a proposed daily injection volume in barrels. Submit the proposed average and maximum injection pressure. Describe the type of annular fluid that will fill up the space between the tubing and casing. Typical annular fluids consist of fresh water or brine water with some chemicals added to slow down corrosion of the casing and stop the formation of bacteria.

Describe the source or sources of your injection fluid. Include a chemical analysis of the injected fluid. Take a sample of your injection fluid and have a water lab analyze it for total dissolved solids (TDS), specific gravity, and pH.

- **Attachment M** – Construction Details

Submit a well diagram of the proposed injection well. The diagram should show the above ground and below ground construction of the well. Include the casing size and depth and cement displaced on each string. An example well diagram is shown in Appendix C.

- **Attachment Q** – Plugging and Abandonment Plan (proposal).

Submit a plan that shows the type and placement of cement plugs in the well, and a cost estimate. Use the EPA cost guidelines as shown below. Use EPA Form 7520-14 for your plan.

EPA would prefer to see a plug from top to bottom, but this proposal can be modified at a later date.

If plugs are to be spotted in the wellbore, be advised that each plug must set up and be tagged before a second plug can be spotted. This procedure could be more expensive due to increased rig time.

EPA Estimated Cost to Depth Guidelines

Well Depth*	Cement Top Behind Casing**		
	At Surface	Below Surface	
< 500'	$2300	$3000	
501'-1000'	$3000	$3900	
1001'-1500'	$3700	$5000	
1500'-2000'	$4800	$6500	*Refers to Plug Back Depth
>2000'	$5800	$7400	**Production Casing String

- **Attachment R** – Necessary Resources – Financial Responsibility Requirements

EPA requires that operators have enough money set aside to plug each injection well. Operators have the option to obtain a minimum of three bids. In lieu of acquiring bids, the amount of money required will be the cost estimate on Attachment Q calculated from the EPA estimated cost guidelines shown above. This money must be pledged to plug the well. Several types of financial instruments and trust agreements are available which are acceptable to the EPA. Since many small operators have limited financial resources, they may not qualify for some of these financial instruments. EPA will work with your bank directly to help you get this attachment satisfied.

EPA has prepared forms for each type of financial instrument and trust agreement. Copies of these forms are provided in Appendix B. Several EPA approved financial instruments are listed below in order from the easiest to the most difficult to obtain and meet EPA approval.

Option 1. Obtain an Irrevocable Letter of Credit from your bank with a Stand By Trust Agreement. Your bank may require some form of financial backing such as a certificate of deposit. With this financial arrangement, the operator will be allowed to use any interest that accumulates. This is the most common financial arrangement used by operators.

Option 2. Set up a fully funded trust with your bank. Your bank may require some form of financial backing such as a certificate of deposit. With this financial arrangement, all interest earned is kept within the trust.

Option 3. Obtain a Surety Performance Bond by an insurance company and execute a Stand By Trust Agreement.

Option 4. Prepare a Financial Statement and Chief Financial Officer's Letter. Include an Independent Auditor's Verification Statement. This option is typically reserved for Fortune 500 companies. The financial statements must be updated each year with the EPA.

EPA has provided sample forms for these financial instruments. **The permitting process will be shortened if these sample forms are used**. Provide photocopies of CD's with application.

- **Attachment U** – Nature of Business

Submit a brief description about your business. Example language is as follows: "XYZ Oil Company is involved in exploration, production, and marketing crude oil and natural gas."

- **Class II Permit Application Exhibits**

The appendix to the application should include copies of the maps, diagrams, and reports described in the attachments.

EPA Permit Review and Response

After the application is received, the EPA will perform a technical review of your permit application. They will check for completeness, so it is highly recommended that your permit application include all of the attachments listed above. Any parts that are missing will cause unnecessary delays. Once the permit has been reviewed and determined to be complete, the EPA will issue a draft permit to the operator and will issue a public notification of the draft permit. The review and drafting of the permit by the EPA will take a minimum of 30 days. There will be a 30-day public comment period. The public notice goes out to all landowners within the AOR, and individuals and organizations on the EPA public notice mailing list. The operator will receive the draft permit, a statement of basis, and a copy of the public notice. The cover letter will advise that the operator will have 25 days to comment on the draft permit. Typing errors and other errors are usually fixed at this time. The operator will be notified of any public comment that might cause a change in the permit requirements. If the draft permit is altered significantly, additional public notice may be necessary. The operator is not responsible to supply this public notification.

Example permits and related correspondence is provided in Appendix C.

Common Reasons Permit Applications are Denied

Permit rejections are often the result of one or more of the following:

1. The permit application is not complete.

2. The proposed well is located in a geologically faulted area.

3. The operator is unable to meet the financial responsibility requirement.

Modifications: Permits will be issued on the basis of submitted data. The permit will specify certain requirements. A permit modification will be needed if the operator must change the original requirements. Examples of such changes include new sources of the injected water and/or increases in injection pressure above the permitted limits.

Permit Application – Kentucky Division of Oil & Gas

If an operator intends to drill an injection well, then a permit must also be obtained from the Division of Oil and Gas prior to the spudding. The DOG permit application requirements for drilling an injection well are the same as for any other oil or gas well. Procedures for obtaining a permit can be found in the Oil and Gas Well Operators Manual. Copies of this manual may be obtained from the Division of Oil and Gas in Lexington, Kentucky.

If an operator intends to convert an existing production well into an injection well, the operator will not need a new permit, however the well must be under the operator's bond, and must be listed with the Division.

SECTION II. NEW WELL CONSTRUCTION AND WELL CONVERSION

Construction Requirements

The EPA classifies a "new" UIC well as any well drilled as an injection well or converted from producing well to an injection well after June 25, 1984. New wells must be constructed in certain ways in order to be permitted as injection wells under the UIC Class II program. These construction requirements are:

- All new wells must have their casing cemented in place to protect drinking water formations and to isolate the injection zone. For newly drilled wells, the casing must be cemented from the surface to below the lowermost drinking water formation. The grade of casing and quality of cement must be sufficient to protect the drinking water formations, isolate the injection zone, and last for the life of the well. The simple rule of thumb is that your casing and cementing must be capable of passing the MIT.

- Casing should be set and cemented in place as close to your injection zone as possible.

- During drilling and completion, the EPA defers to DOG authority for BOP's, sample requirements, etc.

- If cement does not return to surface during the process of cementing well casing, a cement bond log maybe required to be run.

- Copies of geophysical well logs must be submitted to the EPA if they are run. Running geophysical logs is not a requirement of the EPA. However, it is highly recommended that these logs be run. The logs will help the operator complete the well and inject into the proper injection zone.

Tubing and Packer

- All injection for new Class II wells must be through tubing and packer. Good quality tubing and a tension packer must be run in the well. If the injected fluid is corrosive, it is suggested that internally coated or fiberglass tubing be used.

- A tubing head should be placed on top of the casing so the annular space between the tubing and casing can have pressure applied to it for mechanical integrity testing. The tubing head will allow the annular space to be monitored for pressure changes during the life of the well.

- Packers must always be set in casing to within 100° of the injection zone.

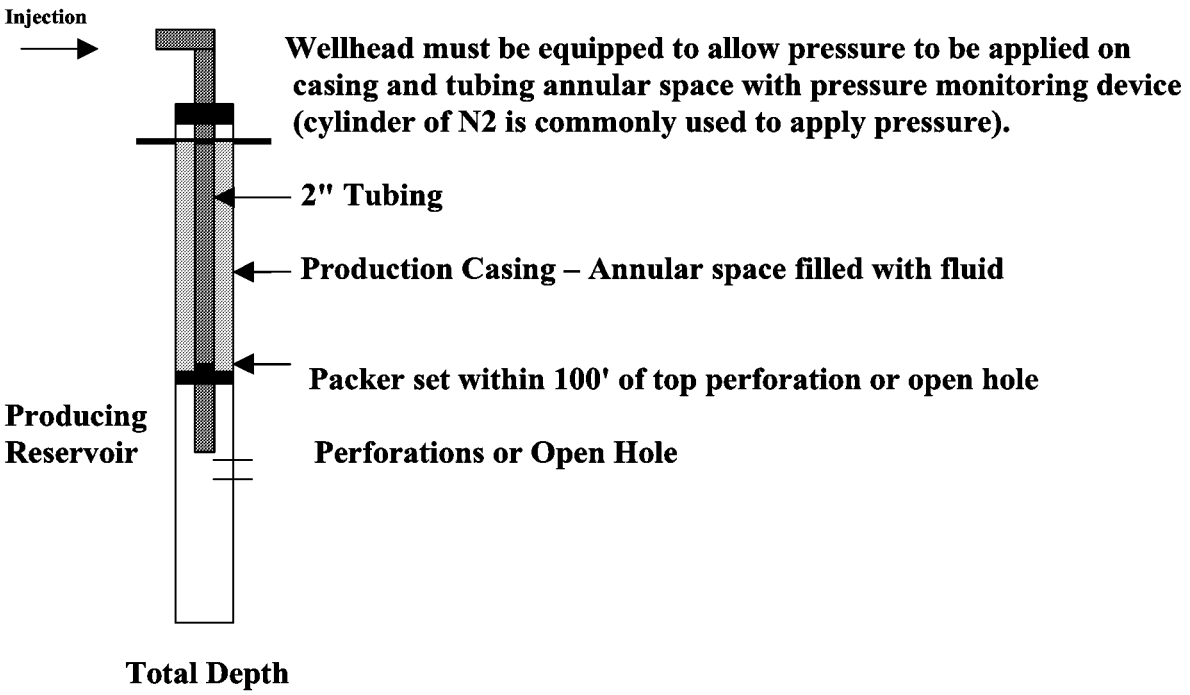
- The annular space between the tubing and casing should be filled with water or other fluid as approved by the EPA. The required pressure on this fluid at the surface should remain at 0 psig. A pressure gauge that reads both positive and negative pressure should be used to monitor this space.

SECTION III. MECHANICAL INTEGRITY TEST (MIT)

What is a Mechanical Integrity Test?

A Mechanical Integrity Test, or MIT, is a pressure test performed on every injection well to determine that no significant fluid is leaking through the well casing, tubing or packer into formations which may be sources of drinking water. The MIT is designed to test the entire system including the tubing, packer, and well head. The test is performed by applying pressure to the space between the casing and the tubing for a period of 30 minutes. If a pressure drop is observed that causes the well to fail the test, then the casing, tubing or packer, or wellhead has developed a leak. The leak must be fixed and the test retaken.

Wellbore Diagram



MIT Test Procedure

1. Give forty-five (45) day advance notice to EPA so an inspector can be scheduled. EPA will send out a certified letter to the operator with the time and date of the test. The letter will have contacts and phone numbers.

2. Insure the packer is properly set in casing at the depth specified in the permit. Fill annular space with fluid. Air should be totally displaced.

3. Check all valves, secure tubing, and insure all leaks are repaired.

4. With inspector on location, apply pressure on tubing annular space (usually with nitrogen-N2). Oxygen should not be used because of safety concerns.

5. Apply a minimum 300-pound pressure on tubing annulus for **30 minutes**. The EPA representative will monitor pressure variations at the time of the test. Pressure changes cannot exceed 3% above or below the applied pressure (9 pounds per 300 pounds of applied pressure).

When Are MITs Required?

MITs are required:

1. Before any new well or newly converted well is placed into service

2. After any workover that resets the packer

3. For any well where the packer becomes unseated

4. Every 5 years for active standard injection wells (injection through tubing and packer)

5. Every 2 years for non-standard wells (old rule authorized wells that inject through production casing)

6. Every 2 years for idle or temporary abandoned wells. These wells have remained fully equipped and could be started back up with the flip of a switch but have been shut-in for 2 years

7. Every 2 years for abandoned wells with tubing and packer removed. A plug may be set and the casing is pressured up to 300 pounds.

8. Prior to a conversion from injection to production, a well must pass an MIT.

SECTION IV. WELL OPERATION AND REPORTING

When Can Injection Begin?

Injection can not begin until the construction of the well has been completed according to Attachment M of the permit application, the MIT has been performed and passed, and the "Completion Report for Brine Disposal, HC Storage, or Enhanced Recovery Wells" has been sent to the EPA. All corrective action within the AOR must also have been performed. Upon review of all of these requirements and approval by EPA, the operator may begin injection.

Preparing a Completion Report for Brine Disposal, HC Storage, or Enhanced Recovery Wells

Upon successful construction and testing of the permitted injection well, the operator must fill out EPA Form 7520-10, the "Completion Report for Brine Disposal, HC Storage, or Enhanced Recovery Wells". Include with this form the following attachments listed on the back of the form:

- **Attachment A** is a drawing of the surface and subsurface construction of the well. The construction should follow the plans presented in "Attachment M" of the permit application.

- **Attachment B** – describe the methods and result of the mechanical integrity test

- **Attachment C** – provide information on any logs, tests, or cores taken on any USDW, confining zone, or injection zone.

- **Attachment D** – provide information on the progress of the corrective action taken on defective wells in the area of review. The "Special Conditions" section of the permit will list the requirements for fixing the defective wells.

- **Attachment E** – provide a copy of the Kentucky Division of Oil & Gas completion report and a copy of all logs run on the well.

The completion report and the attachments should be sent to EPA Region 4 by certified mail, return receipt requested. The EPA will send a notice to the operator within 13 days of the receipt of the completion form, of its review of the report, and whether the operator has satisfied the conditions of the permit. These conditions include passing the MIT and completing all of the necessary corrective action. If the review is favorable, the operator will receive authorization to start injection.

If the MIT has passed and the corrective action completed, but the operator has not received notice or authorization by the EPA within 13 days of its receipt of the completion report, the operator can assume the conditions of the permit have been met, and injection can begin.

Operations

Only fluids brought to the surface in connection with oil and gas production may be injected. Other permitted fluids would include make-up water for secondary recovery, and fluids used in other enhanced recovery operations which inject polymer, CO_2, gas, or air. When in doubt, contact the EPA.

If mechanical integrity is lost, injection must cease, the operator must correct the problem and have a MIT performed on the well before injection may resume.

All records for the well must be kept a minimum of three (3) years.

Sampling Requirements

Operators of Class II injection wells must monitor the amount of fluid injected and the pressure at which the fluid is injected on a regular basis. For enhanced recovery wells, the average and maximum injection pressure, the total volume of fluid in barrels or MCF (thousand cubic feet), and the minimum and maximum casing pressure, should be measured and recorded on a monthly basis. For disposal wells, these measurements need to be taken and recorded on a weekly basis. The measurements can be taken at a common manifold for injection wells in the same field.

An injection fluid analysis should be taken within 12 months from the date the permit was issued, and every 12 months thereafter, or if significant changes in fluid composition occur. Adding water from a new producing formation might constitute a significant change in composition. If there is a significant change, contact EPA. The analysis must measure pH, total dissolved solids, and specific

gravity. The analysis must also include the names and chemical composition of all chemicals used for well stimulation, and any additives or inhibitors used to prevent scaling, corrosion, and bacterial growth. The EPA may require measurements for other chemicals in the injected fluid.

The annular space between the casing and tubing should be monitored for each injection well. If the pressure rises or lowers by 15 psig, the operator shall provide an explanation to the EPA and take steps to correct the problem. If the problem is not corrected in 48 hours, injection must stop unless the EPA allows it to continue.

Reporting Requirements

An "Annual Disposal/Injection Well Monitoring Report", EPA Form 7520-11, must be submitted each year on the 28th of the month following the anniversary of the effective date of the permit. "Rule Authorized" well reports are due every October. The report consists of the pressure and volume measurements taken and recorded by the operator as described in the "Sampling Requirement" section above.

Copies of this and other reports that are required by the EPA should be sent to the following address:

U.S. Environmental Protection Agency – Region 4
Ground Water & UIC Section
Atlanta Federal Center
61 Forsyth Street
Atlanta, Georgia 30303-3104

Workovers

The operator must notify the EPA within 90 days of any well workover, logging, or testing that may reveal downhole conditions. The operator should submit a "Well Rework Record", EPA Form 7520-12 documenting the activity within thirty days following the completion of the rework. If the packer becomes unseated during the workover, a MIT must be conducted. Notify EPA 30 days in advance of the test, and follow the same procedures as described in the Section III on MITs. **Injection must be halted until the well passes the MIT**.

Division of Oil & Gas Requirements

The Kentucky Division of Oil and Gas requires that an "Affidavit of Well Log and Completion Report", form ED-3, be submitted within 90 days from the date a newly drilled injection well is completed. In addition the operator must submit a "Certificate of Completion for an Injection Well" form ED-23. This form will require information on the tubing, packer, setting depth, injection pressure, and monitoring procedure.

If the injection well is converted from an existing production well, only the "Certificate of Completion for an Injection Well" needs to be submitted.

Disposal Alternatives – Division of Water

The Kentucky Natural Resources and Environmental Protection Cabinet and its Division of Water (DOW) regulates the disposal of produced water by methods other than through an operator's permitted UIC Class II well.

Operators have the option of taking their produced water offsite to a disposal facility. DOW has a one page form, titled "Application to Dispose of Produced Water Off-Facility" for this purpose. This is a one time filing for water being transported from a single facility offsite to an approved UIC injection facility. If ownership or conditions change at the receiving facility, the form may need to be resubmitted.

Operators also have the option of disposing produced water by surface discharge. An operator would need to obtain a KPDES permit from DOW to do so.

For additional information on these disposal options, refer to the Oil and Gas Well Operator's Manual.

SECTION V. PERMIT TRANSFERS

Injection wells may be transferred to other operators, however those transfers need to be approved by the EPA, the DOG, and the DOW.

Before any transfer of ownership is allowed, the EPA must be notified, and an "Application to Transfer Permit EPA Form 7520-7" must be completed. A lease assignment and/or sale agreement must also be submitted. The new operator must establish financial responsibility with the EPA before the transfer will be approved. Once the transfer has been approved, the liability will change to the new operator, and the EPA will release the previous owner from financial responsibility. Upon receipt of transfer approval, the new operator may begin to operate the injection well(s). The modified permit that shows the change of ownership will be mailed to the new operator.

The new operator is responsible for maintaining the same MIT and monitoring report schedule that the previous owner followed.

Change of ownership is not complete until the DOG & DOW transfers have taken place. The DOG requires that each well be listed on its "Well Transfer" form #ED-13. A $25 fee for each well must accompany the form. In addition, the new operator must bond each well with the DOG. Once the new owner's bond is in place, the previous owner's bond may be released.

The DOW also requires a "Transfer of Ownership" form to be completed. In addition, each tank battery must be registered in the new owner's name. A registration form must be filled out and signed by the new owner for each facility.

Though not a requirement it is always a good idea for the new operator to get all of the data and records possible from the previous operator.

SECTION VI. EMERGENCY NOTIFICATION PROCEDURES

The EPA must be notified if any malfunction or emergency occurs at a permitted facility. The operator must notify the EPA:

1. If an operator determines a malfunction has occurred
2. When monitoring indicates a contaminant may endanger the USDW
3. When noncompliance with a permit condition occurs

An oral report must be given within 24 hours from the time the operator becomes aware there is a problem. For notification call: 404-562-9743.

A written report must be given within 5 days from the time the owner becomes aware there is a problem.

The operator must contain and clean-up any spills, leaks, discharges, or releases of pollutants immediately. For reportable spills, notify Kentucky's Environmental Response Team at 1-800-928-2380.

SECTION VII. ABANDONMENT AND CLOSURE

The plugging of your Class II well must be coordinated with both DOG and EPA.

Contact the EPA in Atlanta and submit a plugging plan on EPA Form 7520-14 if your plan is different from the original plugging plan on Attachment Q in your permit application. EPA will notify the operator that the plan has been approved and will notify the local EPA inspector.

The most acceptable plan from EPA's standpoint is setting a continuous cement plug from top to bottom. If separate plugs are desired to be set, the plan may be more complicated to coordinate with Division of Oil & Gas inspector. Also, each plug will have to set up and be tagged before the next plug is set.

The EPA inspector and DOG inspector may be on sight during plugging. The DOG inspector must be informed of the plugging date so he may be present.

After the well is plugged, EPA inspector will provide documentation to the Atlanta office. However, the operator is encouraged to send a copy of the plugging report to the EPA permit section to help expedite the bond release. The EPA bond will then be released back to the operator.

Submit a plugging affidavit with the Division of Oil & Gas to receive a bond release.

APPENDIX A

Glossary of Terms 685

Kentucky Regulatory Offices 687

MIT Inspector 687

Federal Regulatory Offices 688

Glossary of Terms

Aquifer – a geologic formation capable of yielding a significant amount of water to a well or spring.

Class II Wells – wells which inject fluids

A) which are brought to the surface in connection with conventional oil or natural gas production and may be commingled with waste waters from gas plants which are an integral part of production operations, unless those waters would be classified as hazardous waste at the time of injection.

B) for enhanced recovery of oil or natural gas; and

C) for storage of hydrocarbons which are liquid at standard temperature and pressure.

New Class II Wells – wells constructed or converted after the effective date of the UIC program

Confining bed – impermeable rock adjacent to one or more aquifers

Confining zone – a geologic formation, group of formations, or a part of a formation that is capable of limiting fluid movement above an injection zone.

Contaminant – any physical, chemical, biological, or radiological substance or matter in water.

Disposal well – a well used for the disposal of waste into a subsurface stratum

EPA – the United States Environmental Protection Agency

Fault – a surface or zone of rock fracture along which there has been displacement

Fluid – material or substance which moves or flows whether in a semisolid, liquid, sludge, gas or any other form or state

Formation – a body of rock characterized by a degree of lithologic homogeneity which is prevailing, but not necessarily tabular and is mapable on the earth's surface or in the subsurface

Fresh water – "underground source of drinking water"

Ground Water – water below the land surface in a zone of saturation

Injection well – a well into which fluids are injected

Lithology – the description of rocks on the basis of their physical and chemical characteristics

Make-Up Water – fresh water plus additives added to produced water to increase injection volume for enhanced recovery.

Owner/Operator – the owner or operator of any facility or activity subject to regulation under the UIC program

Packer – a device lowered into a well to produce a fluid-tight seal within the casing or wellbore

Permit – an authorization issued by the EPA to implement UIC program requirements.

Plugging – the act or process of stopping the flow of water, oil or gas into or out of a formation through a borehole or well penetrating that formation

Pressure – the total load or force per unit area acting on a surface

Regional Administrator – the Regional Administrator of Region 4 of the U.S. Environmental Protection Agency

Underground Source of Drinking Water – an aquifer or its portion

a) (1) that supplies any public water system
   (2) that contains a sufficient quantity of ground water to supply a public water system
   (3) is currently supply drinking water for human consumption
   (4) that contains fewer than 10,000 mg/l total dissolved solids; and
b) which is not an exempted aquifer

USDW – underground source of drinking water

Well – a bored, drilled, or driven shaft, or dug hole whose depth is greater than the largest surface dimension

Well Injection – the subsurface emplacement of fluid through a well

Well Workover – any reentry of an injection well; including but not limited to, the pulling of tubular goods, cementing & casing repairs

Kentucky Regulatory Offices

Division of Oil and Gas
1025 Capital Center Drive
PO Box 2244
Frankfort, Kentucky 40601

(502) 573-0147

Division of Water
14 Reilly Road
Frankfort, Kentucky 40601

(502) 546-2225

MIT Inspector:

David Hays
TSA, Inc.
598 College Street
Winchester, Kentucky 40391

(606) 737-3641

Federal Regulatory Offices

U.S. Environmental Protection Agency – Region 4
Ground Water & UIC Section
Atlanta Federal Center
61 Forsyth Street
Atlanta, Georgia 30303-3104

(404) 562-9743

APPENDIX B

Forms

Underground Injection Control Permit Application 691

Financial Responsibility Forms 697

Bank Irrevocable Letter of Credit 699
Standby Trust Agreement 702
Trust Agreement 711
Surety Performance Bond 721
Chief Financial Officer's Letter 725
Auditor's Verification of Chief Financial Officer's Letter 729

Completion Report for Brine Disposal, HC Storage, or Enhanced Recovery Wells
EPA Form 7520-10 730

Certificate of Completion for an Injection Well – DOG Form ED-23 731

Plugging and Abandonment Plan – EPA Form 7520-14 732

Application to Transfer Permit – EPA Form 7520-7 733

Well Rework Record – EPA Form 7520-12 734

Annual Disposal / Injection Well Monitoring Report – EPA Form 7520-11 735

Form Approved. OMB No. 2040-0042. Expires 6-30-98

EPA

United States Environmental Protection Agency

Underground Injection Control Permit Application

(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)

I. EPA ID Number		
	T/A	C
U		

Read Attached Instructions Before Starting

For Official Use Only

Application approved mo	day	year	Date received mo	day	year	Permit Number	Well ID	FINDS Number

II. Owner Name and Address			III. Operator Name and Address		
Owner Name			Operator Name		
Street Address		Phone Number	Street Address		Phone Number
City	State	ZIP CODE	City	State	ZIP CODE

IV. Commercial Facility	V. Ownership	VI. Legal Contact	VII. SIC Codes
☐ Yes ☐ No	☐ Private ☐ Federal ☐ Other	☐ Owner ☐ Operator	

VIII. Well Status *(Mark "x")*

☐ A. Operating	Date Started mo	day	year	☐ B. Modification/Conversion	☐ C. Proposed

IX. Type of Permit Requested *(Mark "x" and specify if required)*

☐ A. Individual	☐ B. Area	Number of Existing Wells	Number of Proposed Wells	Name(s) of field(s) or project(s)

X. Class and Type of Well *(see reverse)*

A. Classes(es) (enter codes(s)	B. Type(s) (enter codes(s)	C. If class is "other" or type is code 'x,' explain	D. Number of wells per type (if area permit)

XI. Location of Well(s) or Approximate Center of Field or Project

Latitude			Longitude			Township and Range									**XII. Indian Lands (Mark 'x')**
Deg	*Min*	*Sec*	*Deg*	*Min*	*Sec*	*Sec*	*Twp*	*Range*	*1/4 Sec*	Feet From	Line	Feet From	Line		☐ Yes ☐ No

XIII. Attachments

(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)
For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A--U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.

XIV. Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

A. Name and Title *(Type or Print)*	B. Phone No. *(Area Code and No.)*
C. Signature	D. Date Signed

EPA Form 7520-6 (Rev. 8-91)

Well Class and Type Codes

Class I	Wells used to inject waste below the deepest underground source of drinking water
Type "I"	Nonhazardous industrial disposal well
"M"	Nonhazardous municipal disposal well
"W"	Hazardous waste disposal well injecting below USDWs
"X"	Other Class I wells (not included in Type "I," "M," or "W")
Class II	Oil and gas production and storage related injection wells.
Type "D"	Produced fluid disposal well
"R"	Enhanced recovery well
"H"	Hydrocarbon storage well (excluding natural gas)
"X"	Other Class II wells (not included in Type "D," "R," or "H")
Class III	Special process injection wells.
Type "G"	Solution mining well
"S"	Sulfur mining well by Frasch process
"U"	Uranium mining well (excluding solution mining of conventional mines)
"X"	Other Class III wells (not included in Type "G," "S," or "U")
Other Classes	Wells not included in classes above.
	Class V wells which may be permitted under §144.12
	Wells not currently classified as Class I, II, III, or V.

Attachments to Permit Application

Class	Attachments
I new well	A, B, C, D, F, H — S, U
existing	A, B, C, D, F, H — U
II new well	A, B, C, E, G, H, M, Q, R; optional — I, J, K, O, P, U
existing	A, E, G, H, M, Q, R — U; optional — J, K, O, P, Q
III new well	A, B, C, D, F, H, I, J, K, M — S, U
existing	A, B, C, D, F, H, J, K, M — U
Other Classes	To be specified by the permitting authority

INSTRUCTIONS - Underground Injection Control (UIC) Permit Application

PAPERWORK REDUCTION ACT NOTICE

Public reporting burden for this collection of information is estimated at an average of 255 hours for Class I wells, 16 hours for Class II wells, and 200 hours for Class III wells per application, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460, and to the Office of Management and Budget, Paperwork Reduction Project, Washington, DC 20503.

This form must be completed by all owners or operators of Class I, II, and III injection wells and others who may be directed to apply for permit by the Director.

I. EPA I.D. NUMBER - Fill in your EPA Identification Number. If you do not have a number, leave blank.

II. OWNER NAME AND ADDRESS - Name of well, well field or company and address.

III. OPERATOR NAME AND ADDRESS - Name and address of operator of well or well field.

IV. COMMERCIAL FACILITY - Mark the appropriate box to indicate the type of facility.

V. OWNERSHIP - Mark the appropriate box to indicate the type of ownership.

VI. LEGAL CONTACT - Mark the appropriate box.

VII. SIC CODES - List at least one and no more than four Standard Industrial Classification (SIC) Codes that best describe the nature of the business in order of priority.

VIII. WELL STATUS - Mark Box A if the well(s) were operating as injection wells on the effective date of the UIC Program for the State. Mark Box B if wells(s) existed on the effective date of the UIC Program for the State but were not utilized for injection. Box C should be marked if the application is for an underground injection project not constructed or not completed by the effective date of the UIC Program for the State.

IX. TYPE OF PERMIT - Mark "Individual" or "Area" to indicate the type of permit desired. Note that area permits are at the discretion of the Director and that wells covered by an area permit must be at one site, under the control of one person and do not inject hazardous waste. If an area permit is requested the number of wells to be included in the permit must be specified and the wells described and identified by location. If the area has a commonly used name, such as the "Jay Field," submit the name in the space provided. In the case of a project or field which crosses State lines, it may be possible to consider an area permit if EPA has jurisdiction in both States. Each such case will be considered individually, if the owner/operator elects to seek an area permit.

X. CLASS AND TYPE OF WELL - Enter in these two positions the Class and type of injection well for which a permit is requested. Use the most pertinent code selected from the list on the reverse side of the application. When selecting type X please explain in the space provided.

XI. LOCATION OF WELL - Enter the latitude and longitude of the existing or proposed well expressed in degrees, minutes, and seconds or the location by township, and range, and section, as required by 40 CFR Part 146. If an area permit is being requested, give the latitude and longitude of the approximate center of the area.

XII. INDIAN LANDS - Place an "X" in the box if any part of the facility is located on Indian lands.

XIII. ATTACHMENTS - Note that information requirements vary depending on the injection well class and status. Attachments for Class I, II, III are described on pages 4 and 5 of this document and listed by Class on page 2. Place EPA ID number in the upper right hand corner of each page of the Attachments.

XIV. CERTIFICATION - All permit applications (except Class II) must be signed by a responsible corporate officer for a corporation, by a general partner for a partnership, by the proprietor of a sole proprietorship, and by a principal executive or ranking elected official for a public agency. For Class II, the person described above should sign, or a representative duly authorized in writing.

Attachments to be submitted with permit application for Class I, II, III and other wells.

A. AREA OF REVIEW METHODS - Give the methods and, if appropriate, the calculations used to determine the size of the area of review (fixed radius or equation). The area of review shall be a fixed radius of ¼ mile from the well bore unless the use of an equation is approved in advance by the Director.

B. MAPS OF WELL/AREA AND AREA OF REVIEW - Submit a topographic map, extending one mile beyond the property boundaries, showing the injection well(s) or project area for which a permit is sought and the applicable area of review. The map must show all intake and discharge structures and all hazardous waste treatment, storage, or disposal facilities. If the application is for an area permit, the map should show the distribution manifold (if applicable) applying injection fluid to all wells in the area, including all system monitoring points. Within the area of review, the map must show the following:

Class I

The number, or name, and location of all producing wells, injection wells, abandoned wells, dry holes, surface bodies of water, springs, mines (surface and subsurface), quarries, and other pertinent surface features, including residences and roads, and faults, if known or suspected. In addition, the map must identify those wells, springs, other surface water bodies, and drinking water wells located within one quarter mile of the facility property boundary. Only information of public record is required to be included in this map;

Class II

In addition to requirements for Class I, include pertinent information known to the applicant. This requirement does not apply to existing Class II wells;

Class III

In addition to requirements for Class I, include public water systems and pertinent information known to the applicant.

C. CORRECTIVE ACTION PLAN AND WELL DATA - Submit a tabulation of data reasonably available from public records or otherwise known to the applicant on all wells within the area of review, including those on the map required in B, which penetrate the proposed injection zone. Such data shall include the following:

Class I

A description of each well's types, construction, date drilled, location, depth, record or plugging and/or completion, and any additional information the Director may require. In the case of new injection wells, include the corrective action proposed to be taken by the applicant under 40 CFR 144.55.

Class II

In addition to requirement for Class I, in the case of Class II wells operating over the fracture pressure of the injection formation, all known wells within the area of review which penetrate formations affected by the increase in pressure. This requirement does not apply to existing Class II wells.

Class III

In addition to requirements for Class I, the corrective action proposed under 40 CFR 144.55 for all Class III wells.

D. MAPS AND CROSS SECTION OF USDWs - Submit maps and cross sections indicating the vertical limits of all underground sources of drinking water within the area of review (both vertical and lateral limits for Class I), their position relative to the injection formation and the direction of water movement, where known, in every underground source of drinking water which may be affected by the proposed injection. (Does not apply to Class II wells.)

E. NAME AND DEPTH OF USDWs (CLASS II) - For Class II wells, submit geologic name, and depth to bottom of all underground sources of drinking water which may be affected by the injection.

F. MAPS AND CROSS SECTIONS OF GEOLOGIC STRUCTURE OF AREA - Submit maps and cross sections detailing the geologic structure of the local area (including the lithology of injection and confining intervals) and generalized maps and cross sections illustrating the regional geologic setting. (Does not apply to Class II wells.)

G. GEOLOGICAL DATA ON INJECTION AND CONFINING ZONES (Class II) - For Class II wells, submit appropriate geological data on the injection zone and confining zones including lithologic description, geological name, thickness, depth and fracture pressure.

H. OPERATING DATA - Submit the following proposed operating data for each well (including all those to be covered by area permits): (1) average and maximum daily rate and volume of the fluids to be injected; (2) average and maximum injection pressure; (3) nature of annulus fluid; (4) for Class I well, source and analysis of the chemical, physical, radiological and biological characteristics, including density and corrosiveness, of injection fluids; (5) for Class II wells, source and analysis of the physical and chemical characteristics of the injection fluid; (6) for Class III wells, a qualitative analysis and ranges in concentrations of all constituents of injected fluids. If the information is proprietary, maximum concentrations only may be submitted, but all records must be retained.

I. FORMATION TESTING PROGRAM - Describe the proposed formation testing program. For Class I wells the program must be designed to obtain data on fluid pressure, temperature, fracture pressure, other physical, chemical, and radiological characteristics of the injection matrix and physical and chemical characteristics of the formation fluids.

For Class II wells the testing program must be designed to obtain data on fluid pressure, estimated fracture pressure, physical and chemical characteristics of the injection zone. (Does not apply to existing Class II wells or projects.)

For Class III wells the testing must be designed to obtain data on fluid pressure, fracture pressure, and physical and chemical characteristics of the formation fluids if the formation is naturally water bearing. Only fracture pressure is required if the program formation is not water bearing. (Does not apply to existing Class III wells or projects.)

J. STIMULATION PROGRAM - Outline any proposed stimulation program

K. INJECTION PROCEDURES - Describe the proposed injection procedures including pump, surge, tank, etc.

L. CONSTRUCTION PROCEDURES - Discuss the construction procedures (according to §146.12 for Class I, §146.22 for Class II, and §146.32 for Class III) to be utilized. This should included details of the casing and cementing program, logging procedures, deviation checks, and the drilling, testing and coring program, and proposed annulus fluid. (Request and submission of justifying data must be made to use an alternative to packer for Class I.)

M. CONSTRUCTION DETAILS - Submit schematic or other appropriate drawings of the surface and subsurface construction details of the well.

N. CHANGES IN INJECTED FLUID - Discuss expected changes in pressure, native fluid displacement, and direction of movement of injection fluid. (Class III wells only.)

O. PLANS FOR WELL FAILURES - Outline contingency plans (proposed plans, if any, for Class II) to cope with all shut-ins or wells failures, so as to prevent migration of fluids into any USDW.

P. MONITORING PROGRAM - Discuss the planned monitoring program. This should be thorough, including maps showing the number and location of monitoring wells as appropriate and discussion of monitoring devices, sampling frequency, and parameters measured. If a manifold monitoring program is utilized, pursuant to §146.23(b)(5), describe the program and compare it to individual well monitoring.

Q. PLUGGING AND ABANDONMENT PLAN - Submit a plan for plugging and abandonment of the well including: (1) describe the type, number, and placement (including the elevation of the top and bottom) of plugs to be used; (2) describe the type, grade, and quantity of cement to be used; and (3) describe the method to be used to place plugs, including the method used to place the well in a state of static equilibrium prior to placement of the plugs. Also for a Class III well that underlies or is in an exempted aquifer, demonstrate adequate protection of USDWs. Submit this information on EPA Form 7520-14, Plugging and Abandonment Plan.

R NECESSARY RESOURCES - Submit evidence such as a surety bond or financial statement to verify that the resources necessary to close, plug or abandon the well are available.

S. AQUIFER EXEMPTIONS - If an aquifer exemption is requested, submit data necessary to demonstrate that the aquifer meets the following criteria: (1) does not serve as a source of drinking water; (2) cannot now and will not in the future serve as a source of drinking water; and (3) the TDS content of the ground water is more than 3,000 and less than 10,000 mg/l and is not reasonably expected to supply a public water system. Data to demonstrate that the aquifer is expected to be mineral or hydrocarbon production, such as general description of the mining zone, analysis of the amenability of the mining zone to the proposed method, and time table for proposed development must also be included. For additional information on aquifer exemptions, see 40 CFR Sections 144.7 and 146.04.

T. EXISTING EPA PERMITS - List program and permit number of any existing EPA permits, for example, NPDES, PSD, RCRA, etc.

U. DESCRIPTION OF BUSINESS - Give a brief description of the nature of the business.

FINANCIAL RESPONSIBILITY REQUIREMENTS
Plugging and Abandonment Costs

In accordance with 40 CFR Sections 144.52(a) and 146.24(a) for permitted Class II wells or those wells for which a UIC permit is being applied for, and Section 144.28(d), for rule authorized wells, the owner or operator is required to establish and maintain financial resources to plug and abandon the injection facility in a manner prescribed by the Environmental Protection Agency (EPA). The amount of funds required by an owner or operator to satisfy EPA's financial responsibility requirements has been determined as outlined in the following paragraphs and presented in the attached schedule.

For the purpose of establishing the amount of funds necessary to properly plug and abandon an injection facility, the wells are divided into five (5) depth categories depending on whether or not the primary protective string of casing is cemented to surface. Costs developed for each category were determined by breaking operational charges into five (5) phases as follows:

(1) Rig/Pulling Unit - includes hourly rate and associated labor costs.

(2) Cement Services - includes pumping unit, tank truck, and cement costs.

(3) Site Preparation - includes backhoe costs for digging and filling pit, dozer costs for grade work, pit liner, and restoration charges.

(4) Transportation - includes tractor-trailer rates for delivery of tubing/work string to the rig.

(5) Miscellaneous - applies primarily to wells with casing not cemented to surface and includes wire line services, tool rental, bridge plug costs, hydraulic jack costs, etc.

All unit rates and estimated time charges were developed from plugging and abandonment estimates submitted to EPA from operators, job tickets and summaries from plugging and abandonment operations performed by operators to meet UIC requirements, and wells plugged and abandoned by EPA.

The total costs as presented on the attached schedule are based entirely on the premise that EPA will be required to obtain an independent contractor which will be charged with performing all phases of the plugging operation, including subcontracting for services as needed. These costs may from time to time be subject to revision as determined by EPA.

PLUGGING AND ABANDONMENT
COST SCHEDULE

Well Depth*	Cement Top Behind Casing** At Surface	Below Surface
<500'	$2300.00	$3000.00
501' - 1000'	$3000.00	$3900.00
1001' - 1500'	$3700.00	$5000.00
1501' - 2000'	$4800.00	$6500.00
>2000'	$5800.00	$7400.00

* Refers to PBTD

** Primary protective string of casing

I R R E V O C A B L E S T A N D B Y L E T T E R O F C R E D I T

U.S. Environmental Protection Agency
Underground Injection Control
Financial Responsibility Requirement

To: Regional Administrator
Environmental Protection Agency Region _____

_____
(address of EPA Regional Office)

Dear Sir or Madam:

We hereby establish our Irrevocable Standby Letter of Credit No. _____ in your favor, at the request and for the account of

_____
(legal name of owner or operator)

_____
(business address of owner or operator)

up to the aggregate amount of _____
(dollar amount in words)

U.S. dollars ($_____), available upon presentation of:

1. Your sight draft, bearing reference to this letter of credit No. _____, and

2. Your signed statement reading as follows: "I certify that the amount of the draft is payable pursuant to regulations issued under authority of the Safe Drinking Water Act."

This letter of credit is effective as of (date) _____ and shall expire on (date at least 1 year later) _____ but such expiration date shall be automatically extended for a period of (at least one year) _____ on (date) _____ and each successive expiration date, unless, at least 120 days before the current expiration date, we notify both you and (owner's or operator's name)_____ by certified mail that we have

PLEASE PREPARE FINANCIAL FORMS ON FINANCIAL INSTITUTION'S LETTERHEAD AND PROVIDE CONTACT PERSON FOR FINANCIAL INSTITUTION, ADDRESS, AND PHONE NUMBER.

decided not to extend this letter of credit beyond the current expiration date. In the event you are so notified, any unused portion of the credit shall be available upon presentation of your sight draft for 120 days after the date of receipt by both you and (owner's or operator's name)_____, as shown on the signed return receipts.

Whenever this letter of credit is drawn on under and in compliance with the terms of this credit, we shall duly honor such draft upon presentation to us, and we shall deposit the amount of the draft directly into the standby trust fund of (owner's or operator's name) _____ in accordance with your instructions.

_____	_____
(Signature)	(Date)
_____	_____
(Name)	(Title)

This credit is subject to:

( ) the most recent edition of the Uniform Customs and Practice for Documentary Credits, published by the International Chamber of Commerce,

OR

( ) the Uniform Commercial Code.

AND

( ) the operations of this bank/institution are regulated and examined by a State or Federal Agency.

S T A N D B Y T R U S T A G R E E M E N T

U.S. Environmental Protection Agency
Underground Injection Control
Financial Responsibility Requirement

TRUST AGREEMENT, the "Agreement," entered into as of _____
(date)

by and between _____
(name of owner or operator)

a _____ _____, the
(name of state) (corporation, partnership, association, or proprietorship)

"Grantor," and _____ ( ) incorporated in the State of
(name of corporate trustee)

_____ or ( ) a national bank, the "Trustee."

WHEREAS, the United States Environmental Protection Agency, "EPA," an agency of the United States Government, has established certain regulations applicable to the Grantor, requiring that an owner or operator of an injection well shall provide assurance that funds will be available when needed for plugging and abandonment of the injection well, and

WHEREAS, the Grantor has elected to obtain ( ) a surety bond ( ) a letter of credit and establish a standby trust to provide all or part of such financial assurance for the facility(ies) identified herein, and

WHEREAS, the Grantor, acting through its duly authorized officers, has selected the Trustee to be the trustee under this Agreement, and the Trustee is willing to act as trustee,

NOW, THEREFORE, the Grantor and the Trustee agree as follows:

Section 1. Definitions. As used in this Agreement:

(a) The term "Grantor" means the owner or operator who enters into this Agreement and any successors or assigns of the Grantor.

(b) The term "Trustee" means the Trustee who enters into this Agreement and any successor Trustee.

(c) "Facility" or "activity" means any underground injection well or any other facility or activity that is subject to regulation under the Underground Injection Control Program.

Section 2. Identification of Facilities and Cost Estimates. This Agreement pertains to the facilities and cost estimates identified in Schedule A (attached). (Schedule A lists, for each facility, the EPA identification number, name, address, and the current plugging and abandonment cost estimate, or portions thereof, for which financial assurance is demonstrated.)

Section 3. Establishment of Fund. The Grantor and the Trustee hereby establish a trust fund, the "Fund," for the benefit of EPA. The Grantor and the Trustee intend that no third party have access to the Fund except as herein provided. The Fund is established initially as consisting of the property, which is acceptable to the Trustee, described in Schedule B attached hereto. Such property and any other property subsequently transferred to the Trustee is referred to as the Fund, together with all earnings and profits thereon, less any payments or distributions made by the Trustee pursuant to this Agreement. The Fund shall be held by the Trustee, IN TRUST, as hereinafter provided. The Trustee shall not be responsible nor shall it undertake any responsibility for the amount or adequacy of, nor any duty to collect from the Grantor, any payments necessary to discharge any liabilities of the Grantor established by EPA.

Section 4. Payment for Plugging and Abandonment. The Trustee shall make payments from the Fund as the EPA Regional Administrator shall direct, in writing, to provide for the payment of the costs of plugging and abandonment of the injection wells covered by this Agreement. The Trustee shall reimburse the Grantor or other persons as specified by the EPA Regional Administrator from the Fund for plugging and abandonment expenditures in such amounts as the EPA Regional Administrator shall direct in writing. In addition, the Trustee shall refund to the Grantor such amounts as the EPA Regional Administrator specifies in writing. Upon refund, such funds shall no longer constitute part of the Fund as defined herein.

Section 5. Payments Comprising the Fund. Payments made to the Trustee for the Fund shall consist of cash or securities acceptable to the Trustee.

Section 6. Trustee Management. The Trustee shall invest and reinvest the principal and income of the Fund and keep the Fund invested as a single fund, without distinction between principal and income, in accordance with general investment policies and guidelines which the Grantor may communicate in writing to the Trustee from time to time, subject, however, to the provisions of this Section. In investing, reinvesting, exchanging, selling, and managing the Fund, the Trustee shall discharge his duties with respect to the trust fund solely in the interest of the beneficiary and with the care, skill, prudence, and diligence under the circumstances then prevailing, which persons of prudence, acting in a like capacity and familiar with such matters, would use in the conduct of an enterprise of a like character and with like aims, except that:

(a) Securities or other obligations of the Grantor, or any other owner or operator of the facilities, or any of their affiliates as defined in the Investment Company Act of 1940, as amended, 15 USC 80a-2.(a), shall not be acquired or held, unless they are securities or other obligations of the Federal or a State government;

(b) The Trustee is authorized to invest the Fund in time or demand deposits of the Trustee, to the extent insured by an agency of the Federal or State government; and

(c) The Trustee is authorized to hold cash awaiting investment or distribution uninvested for a reasonable time and without liability for the payment of interest thereon.

Section 7. Commingling and Investment. The Trustee is expressly authorized in its discretion:

(a) To transfer from time to time any or all of the assets of the Fund to any common, commingled, or collective trust fund created by the Trustee in which the Fund is eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other trusts participating therein; and

(b) To purchase shares in any investment company registered under the Investment Company Act of 1940, 15 U.S.C. 80a-1 et seq., including one which may be created, managed, underwritten, or to which investment advice is rendered or the shares of which are sold by the Trustee. The Trustee may vote such shares in its discretion.

Section 8. Express Powers of Trustee. Without in any way limiting the powers and discretions conferred upon the Trustee by the other provisions of this Agreement or by law, the Trustee is expressly authorized and empowered:

(a) To sell, exchange, convey, transfer, or otherwise dispose of any property held by it, by public or private sale. No person dealing with the Trustee shall be bound to see to the application of the purchase money or to inquire into the validity or expediency of any such sale or other disposition;

(b) To make, execute, acknowledge, and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;

(c) To register any securities held in the Fund in its own name or in the name of a nominee and to hold any security in bearer form or in book entry, or to combine certificates representing such securities with certificates of the same issue held by the Trustee in other fiduciary capacities, or to deposit or arrange for the deposit of any securities issued by the United States Government, or any agency or instrumentality thereof, with a Federal Reserve bank, but the books and records of the Trustee shall at all times show that all such securities are part of the Fund;

(d) To deposit any cash in the Fund in interest-bearing accounts maintained or savings certificates issued by the Trustee, in its separate corporate capacity, or in any other banking institution affiliated with the Trustee, to the extent insured by an agency of the Federal or State government; and

(e) To compromise or otherwise adjust all claims in favor of or against the Fund.

Section 9. Taxes and Expenses. All taxes of any kind that may be assessed or levied against or in respect of the Fund and all brokerage commissions incurred by the Fund shall be paid from the Fund. All other expenses incurred by the Trustee in connection with the administration of this Trust, including fees for legal services rendered to the Trustee, the compensation of the Trustee to the extent not paid directly by the Grantor, and all other proper charges and disbursements of the Trustee, shall be paid from the Fund.

Section 10. Annual Valuation. Commencing after initial funding of the trust, the Trustee shall annually, at least 30 days prior to the anniversary date of establishment of the Fund, furnish to the Grantor and to the appropriate EPA Regional Administrator a statement confirming the value of the Trust. Any securities in the Fund shall be valued at the market value as of no more than 60 days prior to the anniversary date of establishment of the Fund. The failure of the Grantor to object in writing to the Trustee within 90 days after the statement has been furnished to the Grantor and the EPA Regional Administrator shall constitute a conclusively binding assent by the Grantor, barring the Grantor from asserting any claim or liability against the Trustee with respect to matters disclosed in the statement.

Section 11. Advice of Counsel. The Trustee may from time to time consult with counsel, who may be counsel to the Grantor, with respect to any question arising as to the construction of this Agreement or any action to be taken hereunder. The Trustee shall be fully protected, to the extent permitted by law, in acting upon the advice of counsel.

Section 12. Trustee Compensation. The Trustee shall be entitled to reasonable compensation for its services as agreed upon in writing from time to time with the Grantor.

Section 13. Successor Trustee. The Trustee may resign or the Grantor may replace the Trustee, but such resignation or replacement shall not be effective until the Grantor has appointed a successor trustee and this successor accepts the appointment. The successor trustee shall have the same powers and duties as those conferred upon the Trustee hereunder. Upon the successor trustee's acceptance of the appointment, the Trustee shall assign, transfer, and pay over to the successor trustee the funds and properties then constituting the Fund. If for any reason the Grantor cannot or does not act in the event of the resignation of the Trustee, the Trustee may apply to a court of competent jurisdiction for the appointment of a successor trustee or for instructions. The successor trustee shall specify the date on which it assumes administration of the trust in a writing sent to the Grantor, the EPA Regional Administrator, and the present Trustee by certified mail 10 days before such change becomes effective. Any expenses incurred by the Trustee as a result of any of the acts contemplated by this Section shall be paid as provided in Section 9.

Section 14. Instructions to the Trustee. All orders, requests, and instruction by the Grantor to the Trustee shall be in writing, signed by such persons as are designated in the attached Exhibit A, or such other designees as the Grantor may designate by amendment to Exhibit A. The Trustee shall be fully protected in acting without inquiry in accordance with the Grantor's orders, requests, and instructions. All orders, requests, and instructions by the EPA Regional Administrator to the Trustee shall be in writing, signed by the EPA Regional Administrators of the Regions in which the facilities are located, or their designees, and the Trustee shall act and shall be fully protected in acting in accordance with such orders, requests, and instructions. The Trustee shall have the right to assume, in the absence of written notice to the contrary, that no event constituting a change or a termination of the authority of any person to act on behalf of the Grantor or EPA hereunder has occurred. The Trustee shall have no duty to act in the absence of such orders, requests, and instructions from the Grantor and/or EPA, except as provided for herein.

Section 15. Amendment of Agreement. This Agreement may be amended by an instrument in writing executed by the Grantor, the Trustee, and the appropriate EPA Regional Administrator, or by the Trustee and the appropriate EPA Regional Administrator if the Grantor ceases to exist.

Section 16. Irrevocability and Termination. Subject to the right of the parties to amend this Agreement as provided in Section 15, this Trust shall be irrevocable and shall continue until terminated at the written agreement of the Grantor, the Trustee, and the EPA Regional Administrator, or by the Trustee and the EPA Regional Administrator if the Grantor ceases to exist. Upon termination of the Trust, all remaining trust property, less final trust administration expenses, shall be delivered to the Grantor.

Section 17. Immunity and Indemnification. The Trustee shall not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of this Trust, or in carrying out any directions by the Grantor or the EPA Regional Administrator issued in accordance with this Agreement. The Trustee shall be indemnified and saved harmless by the Grantor or by the Trust Fund, or both, from and against any personal liability to which the Trustee may be subjected by reason of any act or conduct in its official capacity, including all expenses reasonably incurred in its defense in the event the Grantor fails to provide such defense.

Section 18. Choice of Law. This Agreement shall be administered, construed, and enforced according to the laws of the State of _____.
(name of state)

Section 19. Interpretation. As used in this Agreement, words in singular include the plural and words in the plural include the singular. The descriptive headings for each Section of this Agreement shall not affect interpretation or the legal efficacy of this Agreement.

IN WITNESS WHEREOF, the parties below have caused this Agreement to be executed by their respective officers duly authorized and the corporate seals to be hereunto affixed and attested as of the date first above written.

By: _____
(Signature of Grantor)

_____
(Title)

Attest: _____

_____
(Title)

(SEAL)

By: _____
(Signature of Grantor)

_____
(Title)

Attest: _____

_____
(Title)

(SEAL)

( ) This bank/institution has the authority to act as a trust and its trust activities are examined and regulated by a State or Federal agency.

CERTIFICATE OF ACKNOWLEDGMENT
FOR
STANDBY TRUST FUND AGREEMENT

STATE OF _____

COUNTY OF _____

On this _____ day of _____ , 19___ , before me

personally came _____ to me known, who,
(owner or operator)

being by me duly sworn, did depose and say that she/he resides at

_____
(address)

that she/he is _____ of _____
(title) (corporation)

the corporation described in and which executed the above instrument; that she/he knows the seal of said corporation; that the seal affixed to such instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation, and that she/he signed her/his name thereto by like order.

_____
(Notary Public)

(Seal)

S C H E D U L E A

Identification of Facilities and Cost Estimates

Schedule A is referenced in the trust agreement dated _____

by and between _____, the "Grantor," and
(name of owner or operator)

_____ the "Trustee."
(name of trustee)

EPA identification number _____

Name of facility _____

Address of facility _____

_____

Current plugging and
abandonment cost estimate _____

Date of estimate _____

EPA identification number _____

Name of facility _____

Address of facility _____

_____

Current plugging and
abandonment cost estimate _____

Date of estimate _____

SCHEDULE B

IDENTIFICATION OF FUND

Schedule B is referenced in the Standby Trust Agreement dated _____

by and between _____
(name of owner or operator)

the "Grantor" and _____
(name of trustee)

the "Trustee."

The Fund consists of: (check one and provide identification number)

( ) Irrevocable Letter of Credit No. _____

( ) Surety Performance Bond No. _____

( ) Other (describe)

T R U S T A G R E E M E N T

U.S. Environmental Protection Agency
Underground Injection Control
Financial Responsibility Requirement

TRUST AGREEMENT, the "Agreement," entered into as of _____
(date)

by and between _____,
(name of owner or operator)

a _____ _____,the "Grantor"
(name of state) (corporation, partnership association, or proprietorship)

and _____, ( ) incorporated in the
(name of corporate trustee)

State of _____ or ( ) a national bank, the "Trustee."

WHEREAS, the United States Environmental Protection Agency, "EPA" an agency of the United States Government, has established certain regulations applicable to the Grantor, requiring that an owner or operator of an injection well shall provide assurance that funds will be available when needed for plugging and abandonment of the injection well,

WHEREAS, the Grantor has elected to establish a trust to provide all or part of such financial assurance for the facility(ies) identified herein, and

WHEREAS, the Grantor, acting through its duly authorized officers, has selected the Trustee to be the trustee under this Agreement, and the Trustee is willing to act as trustee,

NOW, THEREFORE, the Grantor and the Trustee agree as follows:

Section 1. Definitions. As used in this Agreement:

(a) The term "Grantor" means the owner or operator who enters into this Agreement and any successors or assigns of the Grantor.

(b) The term "Trustee" means the Trustee who enters into this Agreement and any successor Trustee.

(c) "Facility" or "activity" means any underground injection well or any facility or activity that is subject to regulation under the Underground Injection Control Program.

Section 2. Identification of Facilities and Cost Estimates. This Agreement pertains to the facilities and cost estimates identified in Schedule A (attached). (Schedule A lists, for each facility, the EPA identification number, name, address, and the current plugging and abandonment cost estimate, or portions thereof, for which financial assurance is demonstrated.)

Section 3. Establishment of Fund. The Grantor and the Trustee hereby establish a trust fund, the "Fund" for the benefit of EPA. The Grantor and the Trustee intend that no third party have access to the Fund except as herein provided. The fund is established initially as consisting of the property, which is acceptable to the Trustee, described in Schedule B attached hereto. Such property and any other property subsequently transferred to the Trustee is referred to as the Fund, together with all earnings and profits thereon, less any payments or distributions made by the Trustee pursuant to this Agreement. The Fund shall be held by the Trustee, IN TRUST, as hereinafter provided. The Trustee shall not be responsible nor shall it undertake any responsibility for the amount or adequacy of, nor any duty to collect from the Grantor, any payments necessary to discharge any liabilities of the Grantor established by EPA.

Section 4. Payment for Plugging and Abandonment. The Trustee shall make payments from the Fund as the EPA Regional Administrator shall direct, in writing, to provide for the payment of the costs of plugging and abandonment of the injection wells covered by this Agreement. The Trustee shall reimburse the Grantor or other persons as specified by the EPA Regional Administrator from the Fund for plugging and abandonment expenditures in such amounts as the EPA Regional Administrator shall direct in writing. In addition, the Trustee shall refund to the Grantor such amounts as the EPA Regional Administrator specifies in writing. Upon refund, such funds shall no longer constitute part of the Fund as defined herein.

Section 5. Payments Comprising the Fund. Payments made to the Trustee for the Fund shall consist of cash or securities acceptable to the Trustee.

Section 6. Trustee Management. The Trustee shall invest and reinvest the principal and income of the Fund and keep the Fund invested as a single fund, without distinction between principal and income, in accordance with general investment policies and guidelines which the Grantor may communicate in writing to the Trustee from time to time,, subject, however, to the provisions of this Section. In investing, reinvesting, exchanging, selling, and managing the Fund, the Trustee shall discharge his duties with respect to the trust fund solely in the interest of the beneficiary and with the care, skill, prudence, and diligence under the circumstances then prevailing, which persons

of prudence, acting in a like capacity and familiar with such matters, would use in the conduct of an enterprise of a like character and with like aims, except that:

(i) Securities or other obligations of the Grantor, or any other owner or operator of the facilities, or any of their affiliates as defined in the Investment Company Act of 1940, as amended, 15 USC 80a-2.(a), shall not be acquired or held, unless they are securities or other obligations of the Federal or a State government;

(ii) The Trustee is authorized to invest the Fund in time or demand deposits of the Trustee, to the extent insured by an agency of the Federal or State government; and

(iii) The Trustee is authorized to hold cash awaiting investment or distribution uninvested for a reasonable time and without liability for the payment of interest thereon.

Section 7. Commingling and Investment. The Trustee is expressly authorized in its discretion:

(a) To transfer from time to time any or all of the assets of the Fund to any common, commingled, or collective trust fund created by the Trustee in which the Fund is eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other trusts participating therein; and

(b) To purchase shares in any investment company registered under the Investment Company Act of 1940, 15 U.S.C. 80a-1 et seq., including one which may be created, managed, underwritten, or to which investment advice is rendered or the shares of which are sold by the Trustee. The Trustee may vote such shares in its discretion.

Section 8. Express Powers of Trustees. Without in any way limiting the powers and discretions conferred upon the Trustee by the other provisions of this Agreement or by law, the Trustee is expressly authorized and empowered:

(a) To sell, exchange, convey, transfer, or otherwise dispose of any property held by it, by public or private sale. No person dealing with the Trustee shall be bound to see to the application of the purchase money or to inquire into the validity or expediency of any such sale or other disposition;

(b) To make, execute, acknowledge, and deliver any and all documents of transfer and conveyance and any all other instruments that may be necessary or appropriate to carry out the powers herein granted;

(c) To register any securities held in the Fund in its own name or in the name of a nominee and to hold any security in bearer form or in book entry,

or to combine certificates representing such securities with certificates of the same issue held by the Trustee in other fiduciary capacities, or to deposit or arrange for the deposit of any securities issued by the United States Government, or any agency or instrumentality thereof, with a Federal Reserve bank, but the books and records of the Trustee shall at all times show that all such securities are part of the Fund;

(d) To deposit any cash in the Fund in interest-bearing accounts maintained or savings certificates issued by the Trustee, in its separate corporate capacity, or in any other banking institution affiliated with the Trustee, to the extent insured by an agency of the Federal or State government; and

(e) To compromise or otherwise adjust all claims in favor of or against the Fund.

Section 9. Taxes and Expenses. All taxes of any kind that may be assessed or levied against or in respect of the Fund and all brokerage commissions incurred by the Fund shall be paid from the Fund. All other expenses incurred by the Trustee in connection with the administration of this Trust, including fees for legal services rendered to the Trustee, the compensation of the Trustee to the extent not paid directly by the Grantor, and all other proper charges and disbursements of the Trustee, shall be paid from the Fund.

Section 10. Annual Valuation. The Trustee shall annually, at least 30 days prior to the anniversary date of establishment of the Fund, furnish to the Grantor and to the appropriate EPA Regional Administrator a statement confirming the value of the Trust. Any securities in the Fund shall be valued at the market value as of no more than 60 days prior to the anniversary date of establishment of the Fund. The failure of the Grantor to object in writing to the Trustee within 90 days after the statement has been furnished to the Grantor and the EPA Regional Administrator shall constitute a conclusively binding assent by the Grantor, barring the Grantor from asserting any claim or liability against the Trustee with respect to matters disclosed in the statement.

Section 11. Advice of Counsel. The Trustee may from time to time consult with counsel, who may be counsel to the Grantor, with respect to any questions arising as to the construction of this Agreement or any action to be taken hereunder. The Trustee shall be fully protected, to the extent permitted by law, in acting upon the advice of counsel.

Section 12. Trustee Compensation. The Trustee shall be entitled to reasonable compensation for its services as agreed upon in writing from time to time with the Grantor.

Section 13. Successor Trustee. The Trustee may resign or the Grantor may replace the Trustee, but such resignation or replacement shall not be effective until the Grantor has appointed a successor trustee and this successor accepts the appointment. The successor trustee shall have the same powers and duties as those conferred upon the Trustee hereunder. Upon the successor trustee's acceptance of the appointment, the Trustee shall assign, transfer, and pay over to the successor trustee the funds and properties then constituting the Fund. If for any reason the Grantor cannot or does not act in the event of the resignation of the Trustee, the Trustee may apply to a court of competent jurisdiction for the appointment of a successor trustee or for instructions. The successor trustee shall specify the date on which it assumes administration of the trust in a writing sent to the Grantor, the EPA Regional Administrator, and the present Trustee by certified mail 10 days before such change becomes effective. Any expenses incurred by the Trustee as a result of any of the acts contemplated by this Section shall be paid as provided in Section 9.

Section 14. Instructions to the Trustee. All orders, requests, and instruction by the Grantor to the Trustee shall be in writing, signed by such persons as are designated in the attached Exhibit A, or such other designees as the Grantor may designate by amendment to Exhibit A. The Trustee shall be fully protected in acting without inquiry in accordance with the Grantor's orders, requests, and instructions. All orders, requests, and instructions by the EPA Regional Administrator to the Trustee shall be in writing, signed by the EPA Regional Administrators of the Regions in which the facilities are located, or their designees, and the Trustee shall act and shall be fully protected in acting in accordance with such orders, requests, and instructions. The Trustee shall have the right to assume, in the absence of written notice to the contrary, that no event constituting a change or a termination of the authority of any person to act on behalf of the Grantor or EPA hereunder has occurred. The Trustee shall have no duty to act in the absence of such orders, requests, and instructions from the Grantor and/or EPA, except as provided for herein.

Section 15. Notice of Nonpayment. The Trustee shall notify the Grantor and the appropriate EPA Regional Administrator, by certified mail within 10 days following the expiration of the 30-day period after the anniversary of the establishment of the Trust, if no payment is received from the Grantor during that period. After the pay-in period is completed, the Trustee shall not be required to send a notice of nonpayment.

Section 16. Amendment of Agreement. This Agreement may be amended by an instrument in writing executed by the Grantor, the Trustee, and the appropriate EPA Regional Administrator, or by the Trustee and the appropriate EPA Regional Administrator if the Grantor ceases to exist.

Section 17. Irrevocability and Termination. Subject to the right of the parties to amend this Agreement as provided in Section 16, this Trust shall be irrevocable and shall continue until terminated at the written agreement of the Grantor, the Trustee, and the EPA Regional Administrator, or by the Trustee and the EPA Regional Administrator if the Grantor ceases to exist. Upon termination of the Trust, all remaining trust property, less final trust administration expenses, shall be delivered to the Grantor.

Section 18. Immunity and Indemnification. The Trustee shall not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of this Trust, or in carrying out any directions by the Grantor or the EPA Regional Administrator issued in accordance with this Agreement. The Trustee shall be indemnified and saved harmless by the Grantor or by the Trust Fund, or both, from and against any personal liability to which the Trustee may be subjected by reason of any act or conduct in its official capacity, including all expenses reasonably incurred in its defense in the event the Grantor fails to provide such defense.

Section 19. Choice of Law. This Agreement shall be administered, construed, and enforced according to the laws of the State of _____.
(name of state)

Section 20. Interpretation. As used in this Agreement, words in the singular include the plural and words in the plural include the singular. The descriptive headings for each Section of this Agreement shall not affect the interpretation or the legal efficacy of this Agreement.

CERTIFICATE OF ACKNOWLEDGMENT
FOR
TRUST FUND AGREEMENT

STATE OF _____

COUNTY OF_____

On this _____ day of _____, 19___, before me

personally came _____ to me known, who,
(owner or operator)

being by me duly sworn, did depose and say that she/he resides

at _____,
(address)

that she/he is _____ of
(title)

_____, the corporation
(corporation)

described in and which executed the above instrument; that she/he knows the seal of said corporation; that the seal affixed to such instrument in such corporate seal; that it was so affixed by order of the Board of Directors of said corporation, and that she/he signed her/his name thereto by like order.

_____
(Notary Public)

(Seal)

IN WITNESS WHEREOF, the parties below have caused this Agreement to be executed by their respective officers duly authorized and the corporate seals to be hereunto affixed and attested as of the date first above written.

By: _____
(Signature of Grantor)

_____
(Title)

Attest: _____

_____
(Title)

(SEAL)

By: _____
(Signature of Trustee)

_____
(Title)

Attest: _____

_____
(Title)

(SEAL)

( ) This bank/institution has the authority to act as a trustee and its trust activities are examined and regulated by a State or Federal agency.

S C H E D U L E A

Identification of Facilities and Cost Estimates

Schedule A is referenced in the trust agreement dated _____

by and between _____,
(name of owner or operator)

the "Grantor" and _____
(name of trustee)

the "Trustee."

EPA identification number _____

Name of facility _____

Address of facility _____

_____

Current plugging and
abandonment cost estimate _____

Date of estimate _____

EPA identification number _____

Name of facility _____

Address of facility _____

_____

Current plugging and
abandonment cost estimate _____

Date of estimate _____

SCHEDULE B

IDENTIFICATION OF FUND

Schedule B is referenced in the Trust Agreement dated _____

by and between _____
(name of owner or operator)

the "Grantor" and _____
(name of trustee)

the "Trustee."

The Fund consists of: (check one and provide identification number)

( ) Irrevocable Letter of Credit No. _____

( ) Surety Performance Bond No._____

( ) Other (describe)_____

S U R E T Y P E R F O R M A N C E B O N D

U.S. Environmental Protection Agency
Underground Injection Control
Financial Responsibility Requirement

BOND COVERS THE PLUGGING OF INJECTION WELLS

Date bond executed: _____

Effective date: _____

Principal: _____
(Legal name of owner or operator)

_____
(Business address of owner or operator)

Type of organization: _____
(Individual, joint venture, partnership, or corporation)

State of incorporation: _____

Surety(ies): _____
(Name)

_____
(Business Address)

EPA identification number, name, address, and plugging and abandonment amount(s) for each injection well guaranteed by this bond. (Indicate plugging and abandonment amounts for each well. Attach separate list if necessary.)

Injection Well Information	Plugging & Abandonment Amount

Total penal sum of bond: $_____

Surety's bond number: _____

KNOW ALL PERSONS BY THESE PRESENTS, That we, the Principal and Surety(ies) hereto are firmly bound to the U.S. Environmental Protection Agency (hereinafter called EPA), in the above penal sum for the payment of which we bind ourselves, our heirs, executors, administrators, successors, and assigns jointly and severally; provided that, where the Surety(ies) are corporations acting as co-sureties, we, the Sureties, bind ourselves in such sum "jointly and severally" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, for the payment of such sum only as is set forth opposite the name of such Surety, but if no limit of liability is indicated, the limit of liability shall be the full amount of the penal sum.

WHEREAS said Principal is required, under the Underground Injection Control Regulations, as amended, to have a permit or comply with provisions to operate under rule for each injection well identified above, and

WHEREAS said Principal is required to provide financial assurance for plugging and abandonment as a condition of the permit or approval to operate under rule, and

WHEREAS said Principal shall establish a standby trust fund as is required when a surety bond is used to provide such financial assurance;

NOW, THEREFORE, the conditions of this obligation are such that if the Principal shall faithfully perform plugging and abandonment, whenever required to do so, of each injection well for which this bond guarantees plugging and abandonment, in accordance with the plugging and abandonment plan and other requirements of the permit or provisions for operating under rule and other requirements of the permit or provisions for operating under rule as may be amended, pursuant to all applicable laws, statutes, rules and regulations, as such laws, statutes, rules, and regulations may be amended,

Or, if the Principal shall provide alternate financial assurance as specified in Subpart F of 40 CFR 144, and obtain the EPA Regional Administrator's written approval of such assurance, within 90 days after the date of notice of cancellation is received by both the Principal and the EPA Regional Administrator(s) from the Surety(ies), then this obligation shall be null and void. Otherwise it is to remain in full force and effect.

The Surety(ies) shall become liable on this bond obligation only when the Principal has failed to fulfill the conditions described above.

Upon notification by an EPA Regional Administrator that the Principal has been found in violation of the plugging and abandonment requirements of 40 CFR 144, for an injection well which this bond guarantees performances of plugging and abandonment, the Surety(ies) shall either perform plugging and abandonment in accordance with the plugging and abandonment plan and other permit requirements or provisions for operating under rule and other requirements or place the amount for plugging and abandonment into standby trust fund as directed by the EPA Regional Administrator.

Upon notification by an EPA Regional Administrator that the Principal has failed to provide alternate financial assurance as specified in Subpart F of 40 CFR 144, and obtain written approval of such assurance from the EPA Regional Administrator(s) during the 90 days following receipt by both the Principal and the EPA Regional Administrator(s) of a notice of cancellation of the bond, the Surety(ies) shall place funds in the amount guaranteed for the injection well(s) into the standby trust fund as directed by the EPA Regional Administrator.

The Surety(ies) hereby waive(s) notification of amendments to plugging and abandonment plans, permits, applicable laws, statutes, rules, and regulations and agrees that no such amendment shall in any way alleviate its (their) obligation on this bond.

The liability of the Surety(ies) shall not be discharged by any payment or succession of payments hereunder, unless and until such payment or payments shall amount in the aggregate to the penal sum of the bond, but in no event shall the obligation of the Surety(ies) here under exceed the amount of said penal sum.

The Surety(ies) may cancel the bond by sending notice by certified mail to the owner or operator and to the EPA Regional Administrator(s) for the Region(s) in which the injection well(s) is (are) located, provided, however, that cancellation shall not occur during the 120 days beginning on the date of receipt of the notice of cancellation by both the Principal and the EPA Regional Administrator(s), as evidenced by the return receipts.

The Principal may terminate this bond by sending written notice to the Surety(ies); provided, however, that no such notice shall become effective until the Surety(ies) receive(s) written authorization for termination of the bond by the EPA Regional Administrator(s) of the EPA Region(s) in which the bonded injection well(s) is (are) located.

(The following paragraph is an optional rider that may be included but is not required.)

Principal and Surety(ies) hereby agree to adjust the penal sum of the bond yearly so that it guarantees a new plugging and abandonment amount, provided that the penal sum does not increase by more than 20% in any one year, and no decrease in the penal sum takes place without the written permission of the EPA Regional Administrator(s).

In WITNESS WHEREOF, The Principal and Surety(ies) have executed this Performance Bond and have affixed their seals on the date set forth above.

The persons whose signature appear below hereby certify that they are authorized to execute this surety bond on behalf of the Principal and Surety(ies) and that the wording on this surety bond is identical to the wording specified in 40 CFR 144.70(c) as such regulation was constituted on the date this bond was executed.

PRINCIPAL:	CORPORATE SURETY(IES):
_____	_____
(Name)	(Name)
_____	_____
(Address)	(Address)
_____	_____
(Signature(s))	(Signature(s))
_____	_____
(Name(s))	(Name(s))
_____	_____
(Title(s))	(Title(s))
Corporate Seal	Corporate Seal
_____	_____
State of Incorporation	State of Incorporation
$_____	$ _____
Bond Premium	Liability Limit

(For every co-surety, provide signature(s), corporate seal, and other information in the same manner as for Surety above.)

C H I E F F I N A N C I A L O F F I C E R ' S L E T T E R

U.S. Environmental Protection Agency
Underground Injection Control
Class II Injection Well Operators

This letter contains information submitted as evidence of financial responsibility for the Environmental Protection Agency's underground injection control requirements.

Submitted to: Regional Administrator
Environmental Protection Agency, Region _____

_____
(Address of EPA Regional Office)

Submitted for: _____
(Legal name of owner or operator company)

_____
(Business address of owner or operator)

Type of organization: _____
(Individual, joint venture, partnership, or corporation)

Date of incorporation: _____

State of incorporation: _____

Submitted by: _____
(Name of Chief Financial Officer)

_____
(Name of Firm)

_____
(Business Address)

I hereby certify that the financial information contained on the following pages is correct and derived from this firm's independently audited, year-end financial statements for the latest completed fiscal year ended _____.

_____ _____
(Signature of Financial Officer) (Date)

I. (Firm name) _____ is the owner or operator of Class II injection wells in the following states within EPA Region _____:

State names:_____

_____

_____

_____

_____

II. This firm guarantees the plugging and abandonment of injection wells owned or operated by the following subsidiaries:

Subsidiary name:	Subsidiary address:
_____	_____
_____	_____
_____	_____
_____	_____

III. This firm is ( ) required ( ) not required to file a Form 10-K with the Securities and Exchange Commission (SEC) for the latest fiscal year.

IV. The fiscal year of this firm ends on (month/day)_____.The financial information contained in this letter is derived from this firm's independently audited, year-end financial statements prepared in the normal course of business for the latest completed fiscal year ended (date)_____.

The name and address of the accounting firm auditing these financial statements:

_____	_____
(Name of auditing firm)	(Address of auditing firm)

V. The dollar amounts below are stated in ( ) actual ( ) thousands of dollars.

Financial Information

Balance Sheet Information:

1. Current Assets _____

2. Total Assets _____

3. Current Liabilities _____

4. Total Liabilities _____

5. Net Worth or Stockholder's Equity _____

Income Statement Information

6. Depreciation, Depletion, and Amortization _____

7. Net Income _____

Calculations

8. Total Liabilities less Current Liabilities (Item 4 - Item 3) _____

9. Depreciation, Depletion, and Amortization plus Net Income (Item 6 + Item 7) _____

10. Current Assets less Current Liabilities (Item 1 - Item 3; indicate negative numbers with parentheses) _____

11. Current Liabilities divided by Net Worth (Item 3 / Item 5; round to two decimal places) _____

12. Total Liabilities less Current Liabilities, all divided by Net Worth (Item 8 / Item 5; round to two decimal places) _____

13. Depreciation, Depletion, and Amortization plus Net income, all divided by Total Liabilities (Item 9 / Item 4; round to three decimal places) _____

14. Current Assets less Current Liabilities, all divided by Total Assets (Item 10 / Item 2; round to two decimal places, indicate negative numbers with parentheses) _____

VI. Based on the information in Part V, the company meets or does not meet the financial ratio requirements, as indicated.

	Yes	No
1. Current Liabilities / Net Worth less than 1.0 (Item V-11 less than 1.0)	_____	_____
2. Long-Term Liabilities / Net Worth less than 2.0 (Item V-12 less than 2.0)	_____	_____
3. Net Income greater than zero. (Item V-7 greater than 0)	_____	_____
4. Net Income + depreciation, depletion and amortization total / total liabilities greater than 0.10 (Item V-13 is greater than 0.10)	_____	_____
5. Working Capital / Total Assets greater than -0.10 (Item 14 greater than -0.10)	_____	_____

VII. This firm ( ) has ( ) has not received a rating by either Standard and Poor's or Moody's.

The current bond rating of most recent issuance of this firm _____

The name of the rating service _____

The date of issuance of bond _____

The name of maturity of bond _____

	Yes	No	Not Available
VIII. This firm's bond rating by Standard and Poor's is AAA, AA, A or BBB	_____	_____	_____
This firm's bond rating by Moody's is Aaa, A, or Baa	_____	_____	_____

A U D I T O R ' S V E R I F I C A T I O N O F
C H I E F F I N A N C I A L O F F I C E R ' S L E T T E R

This letter is verification of the financial information and calculations in the chief financial officer's letter submitted to the Environmental Protection Agency.

Submitted to: The Regional Administrator
Environmental Protection Agency, Region _____

_____
(Address of EPA Regional Office)

We have examined the financial officer's letter submitted by

_____ to the
(legal name of owner or operating company)

Environmental Protection Agency, dated _____.

The financial information corresponds to the data contained in the firm's audited financial statements for the fiscal year ending _____. As a result of our examination, we verify that the financial information and calculations contained in this letter are correct and accurate.

_____
(Name of accounting firm)

_____
(Business address)

_____ _____
(Signature) (Date)

_____ _____
(Name) (Title)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

EPA

COMPLETION REPORT FOR BRINE DISPOSAL, HYDROCARBON STORAGE, OR ENHANCED RECOVERY WELL

Form Approved
OMB No. 2040-0042
Approval Expires 6-30-98

NAME AND ADDRESS OF EXISTING PERMITTEE	NAME AND ADDRESS OF SURFACE OWNER

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES

N
W E
S

STATE	COUNTY	PERMIT NUMBER

SURFACE LOCATION DESCRIPTION
___ 1/4 of ___ 1/4 of ___ 1/4 of ___ 1/4 of Section___ Township___ Range___

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface Location _____ ft. from (N/S) _____ Line of quarter section

and _____ ft. from (E/W) _____ Line of quarter section

WELL ACTIVITY
- ☐ Brine Disposal
- ☐ Enhanced Recovery
- ☐ Hydrocarbon Storage

TYPE OF PERMIT
- ☐ Individual
- ☐ Area

Number of Wells _____

Estimated Fracture Pressure of Injection Zone

Anticipated Daily Injection Volume (Bbls)		Injection Interval
Average	Maximum	Feet to Feet
Anticipated Daily Injection Pressure (PSI)		**Depth to Bottom of Lowermost Freshwater Formation (Feet)**
Average	Maximum	

Type of Injection Fluid *(Check the appropriate block(s))*
- ☐ Salt Water
- ☐ Brackish Water
- ☐ Fresh Water
- ☐ Liquid Hydrocarbon
- ☐ Other

Lease Name	Well Number
Name of Injection Zone	

Date Drilling Began	Date Well Completed	Permeability of Injection Zone
Date Drilling Completed		Porosity of Injection Zone

CASING AND TUBING			CEMENT		HOLE	
OD Size	Wt/Ft — Grade — New or Used	Depth	Sacks	Class	Depth	Bit Diameter

INJECTION ZONE STIMULATION		WIRE LINE LOGS, LIST EACH TYPE	
Interval Treated	Materials and Amount Used	Log Types	Logged Intervals

Complete Attachments A — E listed on the reverse.

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE *(Please type or print)*		DATE SIGNED

EPA Form 7520-10

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF MINES AND MINERALS
DIVISION OF OIL AND GAS
PO BOX 2244
FRANKFORT, KY 40601
PHONE 502 573-0147

CERTIFICATE OF COMPLETION FOR AN INJECTION WELL

1) Permit No. _____(A copy of well location plat must be attached)
2) Operator (name and address) _____
3) Lease Name _____ Well No. _____
4) Carter Coordinate _____fnl/fsl _____fwl/fel sec_____ letter _____ no. _____
5) County _____ Elevation _____ Total Depth _____
6) The casing program for the above identified well is as follows:

Casing Size	New or Used	No. Sacks Cement	Cement Column - Top to Bottom
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

7) Injection shall be accomplished through tubing and packer as described below.

Size of Tubing	Type of Packer	Packer Depth
_____	_____	_____
_____	_____	_____
_____	_____	_____

8) Was cement bond log run? YES / NO If yes, attach one copy.
9) Maximum anticipated injection pressure at well head _____ psi.
10) Maximum anticipated injection volume _____(bbls) (cu.ft.) per day.
11) The injection zone is known as the (geological name) _____, and this formation occurs in this well from _____ to _____.
12) a. The _____ size casing has been cemented to a depth of _____ and the perforated interval is from _____ to _____ with _____ number of perforations.
    b. The injection interval is through an open hole and porous strata below the injection interval has not been drilled or is plugged back with a column of cement from _____ to _____.
13) Describe in detail the monitoring method for the annulus between the injection tubing and the next string of casing. Identify the type of instrument to be used and the time interval between observations by a responsible party. Records of monitoring must be kept on file by the operator and available to the Division of Oil and Gas Conservation upon request. (Use additional pages if needed.)

14) I, the operator of the above identified well, certify that the above information is accurate and correct and I further certify that I have run the following mechanical integrity test(s) of the installation to insure there are no leaks in the system. (Describe each test fully) (Use additional pages if needed) (Test Pressures must exceed the maximum anticipated injection pressure listed on line 9 by at least 100 psi)

Certified by _____ (operator's signature only)
date _____ name of signee _____

FORM ED-23

Form Approved. OMB No 2040-0042 Approval Expires 6-30-98

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

EPA

PLUGGING AND ABANDONMENT PLAN

NAME AND ADDRESS OF FACILITY	NAME AND ADDRESS OF OWNER/OPERATOR

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES

N

W E

S

STATE	COUNTY	PERMIT NUMBER

SURFACE LOCATION DESCRIPTION
___ 1/4 of ___ 1/4 of ___ 1/4 of ___ 1/4 of Section___ Township___ Range___

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface Location _____ ft. from (N/S) _____ Line of quarter section

and _____ ft. from (E/W) _____ Line of quarter section

TYPE OF AUTHORIZATION

- ☐ Individual Permit
- ☐ Area Permit
- ☐ Rule

Number of Wells _____

Lease Name

WELL ACTIVITY

- ☐ CLASS I
- ☐ CLASS II
  - ☐ Brine Disposal
  - ☐ Enhanced Recovery
  - ☐ Hydrocarbon Storage
- ☐ CLASS III

Well Number

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT(LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE

METHOD OF EMPLACEMENT OF CEMENT PLUGS

- ☐ The Balance Method
- ☐ The Dump Bailer Method
- ☐ The Two-Plug Method
- ☐ Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inches)							
Depth to Bottom of Tubing or Drill Pipe (ft.)							
Sacks of Cement To Be Used (each plug)							
Slurry Volume To Be Pumped (cu. ft.)							
Calculated Top of Plug (ft.)							
Measured Top of Plug (if tagged ft.)							
Slurry Wt. (Lb./Gal.)							
Type Cement or Other Material (Class III)							

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED *(If any)*

From	To	From	To

Estimated Cost to Plug Wells

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

NAME AND OFFICIAL TITLE *(Please type or print)*	SIGNATURE	DATE SIGNED

EPA Form 7520-14

Form Approved OMB No. 2040-0042 Expires 6-30-98

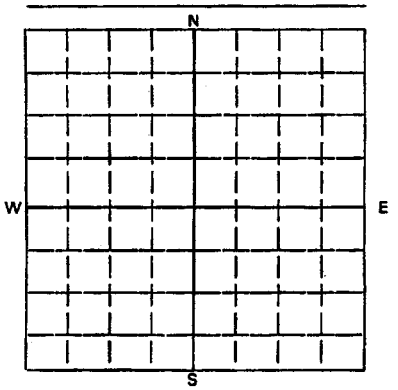
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

EPA

APPLICATION TO TRANSFER PERMIT

NAME AND ADDRESS OF EXISTING PERMITTEE	NAME AND ADDRESS OF SURFACE OWNER

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES



STATE	COUNTY	PERMIT NUMBER

SURFACE LOCATION DESCRIPTION

¼ OF ¼ OF ¼ SECTION TOWNSHIP RANGE

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface Location _____ ft. from (N/S) _____ Line of quarter section

and _____ ft. from (E/W) _____ Line of quarter section

WELL ACTIVITY	WELL STATUS	TYPE OF PERMIT
☐ Class I	☐ Operating	☐ Individual
☐ Class II	☐ Modification/Conversion	☐ Area
☐ Brine Disposal	☐ Proposed	Number of Wells _____
☐ Enhanced Recovery		
☐ Hydrocarbon Storage		
☐ Class III		
☐ Other		

Lease Number Well Number

NAME(S) AND ADDRESS(ES) OF NEW OWNER(S)	NAME AND ADDRESS OF NEW OPERATOR

Attach to this application a written agreement between the existing and new permittee containing a specific date for transfer of permit responsibility, coverage, and liability between them.

The new permittee must show evidence of financial responsibility by the submission of surety bond, or other adequate assurance, such as financial statements or other materials acceptable to the director.

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

NAME AND OFFICIAL TITLE *(Please type or print)*	SIGNATURE	DATE SIGNED

EPA Form 7520-7 (Rev. 8-91)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

EPA

WELL REWORK RECORD

NAME AND ADDRESS OF PERMITTEE	NAME AND ADDRESS OF CONTRACTOR

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES

N
W E
S

STATE	COUNTY	PERMIT NUMBER

SURFACE LOCATION DESCRIPTION

_____ ¼ OF _____ ¼ OF _____ ¼ OF SECTION ____ TOWNSHIP _____ RANGE _____

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface Location _____ ft. from (N/S) _____ Line of quarter section

and _____ ft. from (E/W) _____ Line of quarter section

WELL ACTIVITY	Total Depth Before Rework	TYPE OF PERMIT
☐ Brine Disposal ☐ Enhanced Recovery ☐ Hydrocarbon Storage	Total Depth After Rework	☐ Individual ☐ Area Number of Wells _____
Lease Name	Date Rework Commenced	Well Number
	Date Rework Completed	

WELL CASING RECORD — BEFORE REWORK

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

WELL CASING RECORD — AFTER REWORK *(Indicate Additions and Changes Only)*

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

DESCRIBE REWORK OPERATIONS IN DETAIL USE ADDITIONAL SHEETS IF NECESSARY	WIRE LINE LOGS, LIST EACH TYPE	
	Log Types	Logged Intervals

CERTIFICATION

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NAME AND OFFICIAL TITLE *(Please type or print)*	SIGNATURE	DATE SIGNED

EPA Form 7520-12

Form Approved OMB 2040-0042 Expires 6-30-98

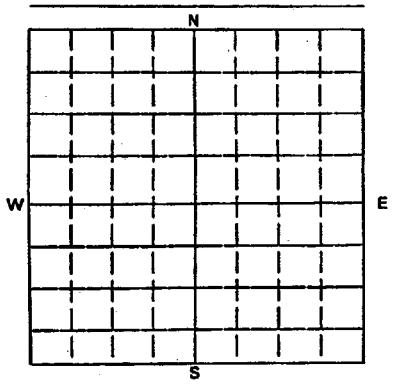
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

EPA

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

NAME AND ADDRESS OF EXISTING PERMITTEE	NAME AND ADDRESS OF SURFACE OWNER

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES



STATE	COUNTY	PERMIT NUMBER

SURFACE LOCATION DESCRIPTION

_____ ¼ OF _____ ¼ OF _____ 1/4 OF SECTION _____ TOWNSHIP _____ RANGE _____

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface Location _____ ft. from (N/S) _____ Line of quarter section

and _____ ft. from (E/W) _____ Line of quarter section

WELL ACTIVITY

☐ Brine Disposal
☐ Enhanced Recovery
☐ Hydrocarbon Storage

TYPE OF PERMIT

☐ Individual
☐ Area
Number of Wells _____

Lease Name Well Number

	INJECTION PRESSURE		TOTAL VOLUME INJECTED		TUBING — CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE *(Please type or print)*	SIGNATURE	DATE SIGNED

EPA Form 7520-11

APPENDIX C

Examples of UIC Class II Well Applications 739

Example of a Draft Permit Cover Letter 766

Example of a Permit for a New Well – Part I & Part III (Special Conditions) 768

Example of a Public Notice to Issue a Permit 776

Example of a Statement of Basis 779

Form Approved. OMB No. 2040-0042 Expires 9-30-86

4 UIC	EPA	UNITED STATES ENVIRONMENTAL PROTECTION AGENCY UNDERGROUND INJECTION CONTROL PERMIT APPLICATION *(Collected under the authority of the Safe Drinking Water Act, Sections 1421, 1422, 40 CFR 144)*	I. EPA ID NUMBER U

READ ATTACHED INSTRUCTIONS BEFORE STARTING
FOR OFFICIAL USE ONLY

Application approved mo day year	Date Received mo day year	Permit/Well Number	Comments

II. FACILITY NAME AND ADDRESS			III. OWNER/OPERATOR AND ADDRESS		
Facility Name J. Barth #1			Owner/Operator Name D. Oil Company		
Street Address Well Address			Street Address Company		
City	State	ZIP Code	City	State	ZIP Code

IV. OWNERSHIP STATUS *(Mark 'x')*	V. SIC CODES	
☐ A. Federal ☐ B. State ☒ C. Private	1300	
☐ D. Public ☐ E. Other *(Explain)*		

VI. WELL STATUS *(Mark 'x')*	Date Started mo day year		
☐ A. Operating		☒ B. Modification/Conversion	☐ C. Proposed

VII. TYPE OF PERMIT REQUESTED *(Mark 'x' and specify if required)*			
☒ A. Individual ☐ B. Area	Number of Existing wells	Number of Proposed wells	Name(s) of field(s) or project(s)

VIII. CLASS AND TYPE OF WELL *(see reverse)*			
A. Class(es) *(enter code(s))*	B. Type(s) *(enter code(s))*	C. If class is "other" or type is code 'x,' explain	D. Number of wells per type (if area permit)
II	R		

IX. LOCATION OF WELL(S) OR APPROXIMATE CENTER OF FIELD OR PROJECT																X. INDIAN LANDS *(Mark 'x')*
C	A. Latitude			B. Longitude			Township and Range									☐ Yes ☒ No
I	Deg	Min	Sec	Deg	Min	Sec	Twsp	Range	Sec	¼ Sec	Feet from	Line	Feet from	Line		

XI. ATTACHMENTS

(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)

FOR CLASSES I, II, III (and other classes) complete and submit on separate sheet(s) Attachments A — U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application:

XII. CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Title *(Type or Print)* Must be a responsible corporate officer or a presentative (authorized by that person in writing) who has responsibility for the overall operation of the facility.	B. Phone No. *(Area Code and No.)*
C. Signature	D. Date Signed

Attachment A: Area of Review

The area of review shall be of a fixed radius of no less than 1/4 mile from the well bore.

Attachment B: Maps of wells in Area of Review
See following page.

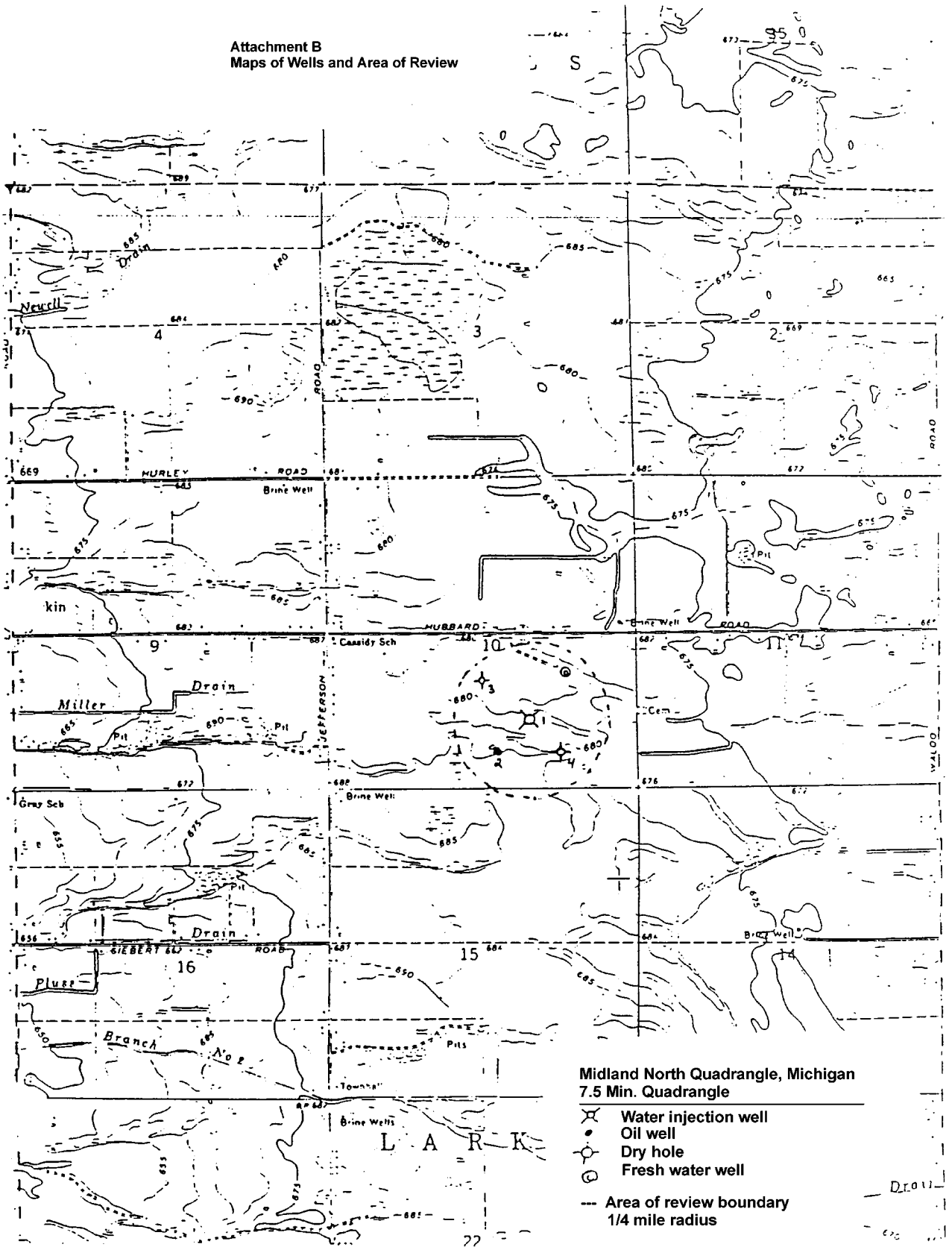
Attachment C: Corrective Action Plan

Should upward fluid migration occur through the well bore of any previously unknown, improperly plugged or unplugged well due to injection of permitted fluids, injection will be shut-in until proper plugging can be accomplished. Should any problem develop in the casing of the injection well, injection will be shut-in until such repairs can be made as to remedy the situation.

Tabulation of wells penetrating the injection zone:

	Well Name	Well Type	Operator	Date Drilled	Total Depth
1.	J. Barth #1	Conversion to injection	D. Oil Co.	12/9/81	3670'
	(Construction details are in Attachment L.)				
2.	F. Miller #1	Oil Well	D. Oil Co.	1/13/82	3600'
	8 5/8" 240, K-55 casing-set at 670' cemented with 450 Sx Class A 5 112" 14#, K-55 casing set at 3600', cemented with 450 Sx Class A Perfs 3613-59' 3544-92', Stim. 3600g 20% NEHC1				
	(Well Completion report is in appendix)				
3.	E. Brent #1	Dry hole	No Name Oil Co.	5/15/38	3559'
	(Well Completion report and plugging affidavit are in appendix)				
4.	F. Miller #2	Dry hole	D. Oil Co.	6/10/55	3600'
	(Well Completion report and plugging affidavit are in appendix)				

Attachment B
Maps of Wells and Area of Review



Attachment E: Name and Depth of USDWs

The majority of the underground sources of drinking water (USDWs) in the area occur in the glacial drift. In this area, the drift ranges in thickness from 280' to 350'. The aquifers occur as lenses of sand and gravel interbedded with the abundant clay of the drift. These lenses are generally thin (10' to 40' thick) and are more abundant in the upper 200' of the drift. Within the area, domestic water wells are generally less than 100' deep.

Immediately below the drift occurs the Grand River Formation of the Pennsylvanian Conemaugh Series. This formation is characterized by coarse sandstones including some shales, sandy shales and occasional gypsum and limestone beds. The main aquifer of the Grand River formation is limited to the lower ±110' of sand development, with the base being ±520'. The water quality for this aquifer is marginal and any aquifer below ±520' would be considered unsuitable for drinking water.

Strata below the Pennsylvanian contain greater than 10,000 ppm total dissolved solids and therefore do not qualify as USDWs. (Reference: Hydrogeologic Atlas of Michigan, Western Michigan University, 1981).

Attachment G: Geological Data on Injection and Confining Zones

Within the No Name field, the Dundee is overlain by the Bell Shale and underlain by anhydrite of the Detroit River Group. The top of the Dundee occurs at a depth of ±3550' and has an average thickness of 240'. The Dundee is composed dark gray to light brown limestones, ranging from grainstones to packstones. With the fracture gradient for the area being 1 psi/ft, (See Attachment I) the fracture pressure for the Dundee would be approximately 3550 psig.

The porosity interval, in which water will be injected, occurs +30' from the top of the Dundee and ranges in thickness from 101 to 90'. This zone is confined at the top by the 30' of tight, dark gray limestone of the Dundee and the ±60' of Bell Shale. The base of the zone is defined by the loss of porosity by the infilling of vugs with calcite and dolomite cement and is ultimately confined by the anhydrite of the Detroit River Group.

The Traverse occurs between the top of the Bell Shale and the first clean limestone below the base of the Antrim Shale. The Traverse occurs at a depth of ±2930' and has an average thickness of 550'. Lithologically, the Traverse consists of limestone and shale with minor amounts of dolomite. Two shale intervals, 30' and 4' thick, consistently occur in the upper 100' of the Traverse, while the lower 200' becomes increasingly shaly as the Traverse grades into the Bell Shale.

Attachment H: Operating Data

Injection Rates and Volumes

The proposed average injection rate is to be 100 BBLS of water per day. The maximum anticipated rate should be no greater than 500 BBLS of water per day.

Injection Pressures

Injection pressures are anticipated to be low, primarily in the 100 psig to 200 psig range. This pressure will be due primarily to friction pressure in the piping system. It is anticipated that the bottom hole pressure would never increase beyond 800 - 900 psig. This is anticipated relative to the data known on the Dundee interval. The maximum well head pressure calculated using the formula published in 40CFR §147.1153 would be (1 - .433 X 1.08) 3580' = 1983 psia. This is based on a fracture gradient of 1.0. However, it is not anticipated that this pressure will ever be reached based on core data, operating history, and experience in the field.

Nature of the Annulus Fluid

The annulus fluid which will be used is Tretolite's XC-320. This fluid is a liquid polyamine and works as a biocide and corrosion inhibitor. The anticipated ratio will be 5 gal. of XC-320 to 4200 gals of fresh water. Documents which list the general description and common treatments utilized are in the appendix. The compound is listed under E.P.A. registration number 5009-4. A positive pressure will be maintained on the annulus for purpose of monitoring mechanical integrity.

Source and Analysis of Injection Fluid

Please see attached sheet.

There are no significant problems relative to the fluids to be used for the injection stream. The fresh water makeup water will be utilized and blended with produced water for reinjection. An analysis of the produced water is provided in the appendix. The injection fluid will ultimately be composed of 7:3, fresh: produced water.

Attachment I: Formation Testing Program

1) Fluid Pressure

Bottom hole pressures have been determined from at least 5 wells in the Dundee in the No Name Field. Pressure build-ups were recorded either by Amerada Hess pressure recorders or by acoustic well sounders that determine fluid levels in wells. Reservoir pressure ranges from a high of 747 psig at the edge of the field to a low of 138 psig in the center of the east half of the field. Average reservoir pressure in the west half of the field is approximately 300 psig and average reservoir pressure in the east half of the field is approximately 200 psig. The results of Drill-Stem testing are in the appendix.

2) Fracture Pressure

The fracture gradient in the Dundee is 1 psig/ft calculated from a step-rate injectivity test. Test results and calculations are in the appendix. A fracture gradient of 1 psig/ft gives a reservoir fracture pressure of 3550 psig for the Dundee. This gives a surface injection pressure of 2013 psig for the Dundee (assuming a fresh water column of fluid).

3) Physical Characteristics

The Dundee has been cored in 3 wells in the No Name Field and porosities and permeabilities have been measured in the lab (results are in the appendix). Average porosity is 7.27% and geometric average permeability is 15.6 md. Arithmetic average permeability is 184 md. The Dundee can be described as highly vugular with a low matrix porosity. A combination of fenestral vugs, root casts, and moldic porosity as well as a small amount of porosity from fractures associated with the numerous stylolites makes up the vugular porosity while the low matrix porosity is mostly intercrystalline. A water/oil contact exists in the Dundee at -2930' (subsea). No original gas cap existed in the Dundee.

Formation Testing Program

4) Chemical Characteristics

The Dundee is a limestone. A mineralogical analysis of the Dundee in several wells was performed. The samples were ground whole and mounted for x-ray diffraction. The mineral contents were calculated as percentages of the whole sample and are shown below:

Sample	Calcite	Dolomite	Quartz	Pyrite
1	96	--	2	2
2	97	--	1	2
3	95	--	2	3
4	96	--	2	2
5	95	2	2	1

5) A copy of a water analysis report of formation fluid from the Dundee is in the appendix.

Attachment J: Stimulation Program

Stimulation Procedure
Well Converted from Producer to Injector
No Change in Open Section:

1. Run tubing and packer below open interval.

2. Spot sufficient 15% non emulsifying, iron-stabilized HCL acid mixed in suitable solvent to cover perforated interval.

3. Raise tubing and packer to a point 100' above the top perforation.

4. Reverse circulate with 1.25 times tubing volume or until all acid has been displaced from annulus and from tubing.

5. Pump 50 gallons per foot of open interval acid-solvent as in Step 2 down tubing to within 250 feet of the packer; set packer.

6. Displace 50 gal./ft. of acid-solvent as in Steps 2 and 5 to perforations.

Attachment L: Construction Details

WELL NAME: J. Barth #1

LOCATION: NE 1/4 SW 1/4 SE 1/4
Sec 10 T15N R2E

DEPARTMENT OF NATURAL RESOURCES PERMIT NUMBER:

DATE DRILLING BEGAN: 12/9/81

DATE COMPLETED: 12/17/81

DRILLING TECHNIQUE: CABLE ROTARY

TOTAL DEPTH: 3670'

COMPLETION INFORMATION: Perforations: 3566-73' 2SPF
1/13/82 Acidized 3566-73' W/ 1500 Gal 20% NEHCL
IP 16BO/1BW

CASING RECORD:	8 5/8"	24#	K-55	@656'	W/400 SX
	5 1/2"	14#	J-55	@3670'	14/500 SX

OPEN HOLE INTERVAL:

CASED HOLE PERFS: 3580-3590 2SPF

PRESENT STATUS: Pumping Electric - Producing
(will be converted to injector)

OTHER DATA:

ATTACHMENTS: See Well Sketch

7. If diverters are necessary use 8# of graded rock salt (NaC1) per perforation in as many stages as are deemed necessary. Rock salt to be mixed with gelled saturated salt (NaC1) water. If open hole in interval is to be temporarily blocked use 16# per foot of graded rock salt (NaC1).

8. Allow 30 minutes for acid to spend and swab back load and acid water.

9. Prepare well for injection.

Attachment K: Injection Procedures

1. A 1", 2-cartridge Nowata Waterfilter is located between the injection pump and the well head. The manufacturer's literature is in the appendix.

2. The selected injection pump is a Cat 318 with an injection capacity of 4 gal/minute maximum. The manufacturer's literature is in the appendix.

3. The water supply storage tank is located next to the injection well and is a 100 bbl. fiberglass tank manufactured by Biguard. Produced water and extraneous makeup water will be mixed in this tank prior to injection.

Attachment L: Construction Procedures

1) The #1 J. Barth was drilled to a depth of 3670'.

2) The well was completed as an oil well and perforated at 2 shots per foot thru casing from 3580-3590.

3) 8-5/8" inch surface casing (K-55; 24 lb. weight) was set at 656' in a 12/4" hole. No centralizers or scratchers were used.

4) No intermediate casing is run in this location.

5) The long string casing is 5 1/2" J-55 type; 14 lbs weight and was set at 3670' in a 7 7/8" hole. Eleven centralizers were used and were located at 167, 587, 1000, 1841, 2264, 2553, 2811, 2898, 3107, 3274 and 3500'.

6) No liner or "other" casing was run in this location.

7) No logs were run on the (open) surface hole before or after surface casing installation since the lithology is well known in this area.

Attachment M
Well Completion Sketch

Well	Field	Date
J.Barth #1	No - Name	7/25/84

Present Completion | Suggested Completion

16" Drive pipe @ 40'

8 5/8" 24# CSG @ 656'
CMT'D w/400 sacks
Class A CMT

2 3/8", 4.7#, 8RD EUE
Tubing @ 3500'

TOC @ 1900' CALC.

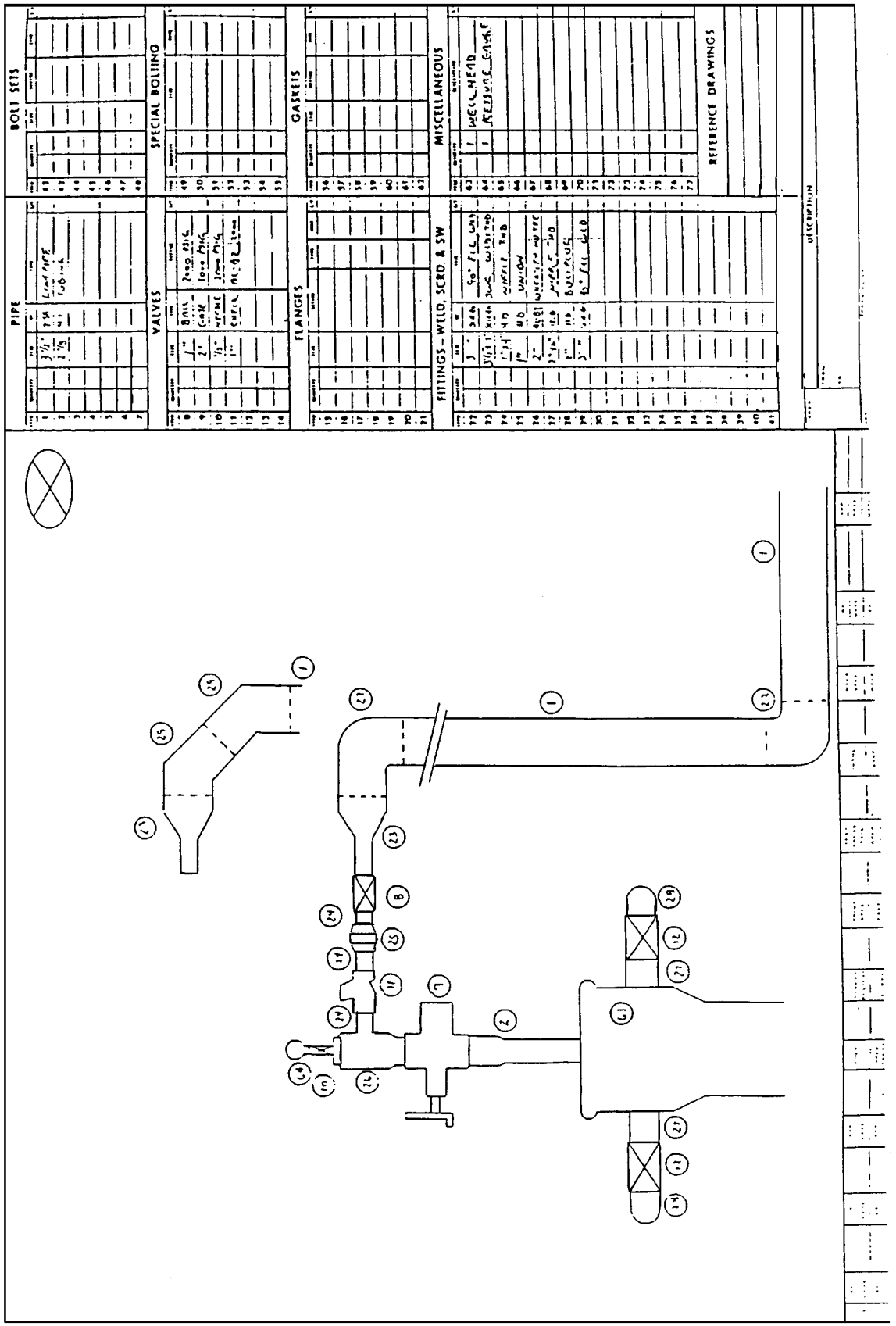
Baker MOD. AD-1 Packer
@ 3500'

PERFS: 3580' - 90'
2 SPF

5 1/2", 14# @ 3670'
CMT'D w/500 Sacks
Class A CMT

PBTD - 3668'
TD - 3670

Attachment M
Well Head Sketch



A Dual Induction - Laterolog including spontaneous potential, resistivity, and gamma ray traces was run and is included in the appendix, with formation tops marked.

No porosity log; no directional or inclination survey; and no fracture finder log were run.

A gamma ray - collar locator log was run after casing was installed. A cement bond log was run and is included with interpretation in the appendix.

8) Surface casing was cemented in place at 656' using 400 sacks of Class A cement. A copy of the service invoice is included in the appendix. Cement was circulated to completely fill the annulus behind the pipe.

The long string was cemented in place at 3670 feet using 500 sacks of Class A cement. The cement was circulated to surface and had sufficient overfill to insure a good bond. Copies of the job log and summary, etc. are in the appendix.

An annulus pressure test has been run where 500 psi was build up and held for 24 hours. The mechanical integrity of the well was maintained through the test. A copy of the strip chart run during the test is in the appendix.

9) The 2-3/8 inch tubing used (EUE and J-55 type) is 3500' in length.

10) A Baker type AD-1 Packer was set at 3500'. Manufacturer's information is available in the appendix.

Attachment M: Construction Details

An illustration of the well construction and well head equipment follows.

Attachment 0: Plans for Well failures

If a well failure is detected, the well will be shut-in until the faulty equipment is replaced and the well returned to a safe operating condition. If the failure and operation pose no environmental hazard, then nothing further will be done.

In the case of casing leaks or some other major failure, the well will be shut-in and the Department of Natural Resources and EPA will be contacted. The well will remain shut-in until the condition is corrected. This correction will involve squeezing off the leak with cement or replacing the bad casing. The well will not be returned to active status until its integrity has been determined. Any fluid produced during injection well shut-in will either be stored on site or removed by a commercial disposer depending on the amount produced.

Attachment P: Monitoring Program

This project shall be monitored throughout its entire life. All EPA monitoring guidelines and minimum reporting requirements shall be complied with.

a) a quarterly analysis and report by an independent laboratory shall be completed on the injected fluids. The sampling location shall be at the 1/2 inch needle valve at the well head.

b) the injection pressure and annulus pressure will be monitored weekly and reported monthly.

c) the flow rate will be monitored weekly and reported monthly

d) the cumulative volume shall be monitored weekly and reported monthly.

Monthly reports shall be given over to the EPA at the end of each monthly period as soon as data is received (no later than the 10th day of the following month).

Attachment Q: Plugging and Abandonment Procedure

1. Move in and rig up workover rig. Kill well as necessary with lease water.

2. Nipple up blowout preventer and test pipe rams to 1000 psi.

3. Pull out of hole with 2-3/8" tubing and packer.

4. Run in hole with cement retainer on 2-3/8" tubing. Set cement retainer ±50' above top perforation in Dundee. Establish injection rate into perforations with fresh water and squeeze perforations with 40 sacks Class "A" cement (wt 15.7 ppg; yield 1.18 cf/sk) through retainer.

5. Stab out of retainer and leave 10 sx cement on top of retainer (±86 linear feet).

6. Pull up to 750' (100' below surface casing shoe depth). Spot 25 sacks of same cement from 750-535'.

7. Pull up to 50'. Spot 10 sacks cement to surface. Pull out of hole with tubing.

8. Cut off 8-5/8" & 5-1/2" casing 4' below ground level. Weld 1/2" steel plate on 5-1/2" casing stub.

9. Backfill and clean up location.

PLUGGING AND ABANDONMENT COSTS

	$
Workover Rig (including rig move) ($120/hr)	$3600
Cementing & Service	$2200
Rentals (BOP & FW tank)	$ 650
Water Transportation	$ 350
Welder	$ 250
Supervision	$ 900
Cement Retainer	$1250
Surface Restoration	$ 500
TOTAL P&A COSTS	$9700

A signed copy of the EPA Plugging and Abandonment Plan is attached.

Attachment R:

Attached is a Surety Performance bond in the amount of estimated plugging costs, with the U.S. EPA as beneficiary. Also attached is the Standby Trust Agreement required to accompany bonds to EPA.

Attachment U: Description of Business

J.D. Oil Company is involved in the exploration, production, and marketing of crude oil and natural gas.

A list of names and addresses of all owners of record of land within 1/4 mile of the facility boundary is in the appendix.

The appendix would include:

1. Well completion reports and plugging affidavits for wells in the area of review.

2. Documents describing the annulus fluid.

3. Injection fluid analysis

4. Drill - Stem test results

5. Step-rate injectivity test results and calculations of fracture gradient.

6. Core data.

7. Formation fluid analysis

8. Manufacturer's literature on filter and pump.

9. Dual-Induction-Laterolog and cement bond log, with interpretations.

10. Cementing invoices and job log.

11. Pressure test results.

12. Manufacturer's specifications for tubing and packer.

13. Names and addresses of owners of record.

Form Approved OMB No 2040-0042 Approval expires 9-30-86

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

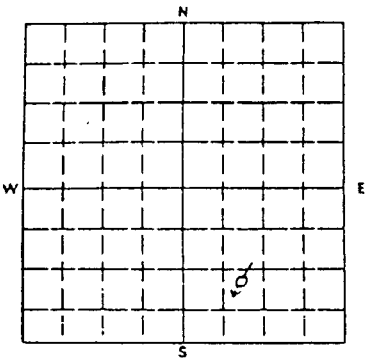
EPA

PLUGGING AND ABANDONMENT PLAN

NAME AND ADDRESS OF FACILITY
J. Barth #1
Facility Address

NAME AND ADDRESS OF OWNER/OPERATOR
D. Oil Company
Company Address

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES



STATE	COUNTY	PERMIT NUMBER
MI	Midland	

SURFACE LOCATION DESCRIPTION
NE ¼ OF SW ¼ OF SE ¼ SECTION 10 TOWNSHIP 15N RANGE 2-E

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface Location 300 ft. from (N/S) N Line of quarter section
and 300 ft. from (E/W) E Line of quarter section

TYPE OF AUTHORIZATION

- ☒ Individual Permit
- ☐ Area Permit
- ☐ Rule

Number of Wells 1

Lease Name J. Barth

WELL ACTIVITY

- ☐ CLASS I
- ☒ CLASS II
  - ☐ Brine Disposal
  - ☒ Enhanced Recovery
  - ☐ Hydrocarbon Storage
- ☐ CLASS III

Well Number #1

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT(LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
8-5/8	24#	656'	656'	12-1/4"
5-1/2	14#	3670'	3670'	7-7/8"

METHOD OF EMPLACEMENT OF CEMENT PLUGS

- ☒ The Balance Method
- ☐ The Dump Bailer Method
- ☐ The Two-Plug Method
- ☐ Other

CEMENTING TO PLUG AND ABANDON DATA	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inches)	5-1/2"	5-1/2"	5-1/2"	5-1/2"			
Depth to Bottom of Tubing or Drill Pipe (ft.)	±3500	±3500	±750'	±50'			
Sacks of Cement To Be Used (each plug)	40	10	25	10			
Slurry Volume To Be Pumped (cu. ft.)	47	12	30	12			
Calculated Top of Plug (ft.)	±3500	±3414'	±535	Surface			
Measured Top of Plug (if tagged ft.)	N/A	N/A	N/A	Surface			
Slurry Wt. (Lb./Gal.)	15.6	15.6	15.6	15.6			
Type Cement or Other Material (Class III)	Class A	Class A	Class A	Class A			

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED *(If any)*

From	To	From	To

Estimated Cost to Plug Wells
$9,700

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

NAME AND OFFICIAL TITLE *(Please type or print)*	SIGNATURE	DATE SIGNED
Same Signatory as for Permit Application		Date

EPA Form 7520-14 (3-84)

Water Injection Permit Application

TABLE OF CONTENTS

I. PERMIT APPLICATION

II. ATTACHMENTS A THROUGH U

III. APPENDICES

A. Topographic Map

B. Well Location Map

C. Well Logs

D. Water Analyses

E. Well Construction Sketch

F. Plugging and Abandonment Plans

G. Necessary Resources

Water Injection Permit Application

ATTACHMENT A: AREA OF REVIEW

Attached is a topographic map with a fixed radius of a 1/4 mile from the Class II-R water injection well. (See Appendix A)

ATTACHMENT B: MAPS OF WELLS AND AREA OF REVIEW

Please refer to the topographic map in Appendix A for the Area and Area of Review. A map showing the surrounding wells (all outside the area of review) can be found in Appendix B.

The following DO NOT fall within the Area of Review:
1) Hazardous waste, treatment or disposal facilities
2) Rivers
3) Quarries
4) Faults
5) Domestic Water Wells
6) Permanent Residences

A drainage ditch, which dries up in the summer months, passes through the Area of Review. There are no wells within the Area of Review.

ATTACHMENT C: CORRECTIVE ACTION PLAN

Should upward fluid migration occur through the well bore of any previously known or unknown, improperly plugged or unplugged wells due to injection of permitted fluids, injection will be shut-in and proper authorities notified, until proper plugging can be accomplished. Should any migration problems develop inside the casing of the injection well, injection will be shut-in immediately until repairs can be made to correct the problem. The proper authorities will also be timely notified of any such conditions.

ATTACHMENT D: MAPS AND CROSS SECTIONS OF USDW's

This application requirement does not apply to Class II wells.

ATTACHMENT E: NAME AND DEPTH OF USDW's

The lowest known USDW is XXX Sandstone the bottom of which is at a depth of 100'.

ATTACHMENT F: MAPS AND CROSS SECTIONS OF GEOLOGIC STRUCTURE OF AREA

Not required for Class II wells.

ATTACHMENT G: GEOLOGIC DATA ON INJECTION AND CONFINING ZONES

Lower Confining Zone - Not required due to no USDW's below injection zone.

Injection Zones

Cypress sandstone (Approx. 2,373'-2,463' measured depth, 2,009.5'-2,099.5' sub-sea), Borehole Compensated Density Porosity of 12-18%.

Rosiclare limestone (2,660'-2,670' & 2,678'-2,682' measured depth, 2,296.5'-2,306.5' & 2,314.5'-2,318.5' sub-sea), with Borehole Compensated Density Porosity of 10-15%.

Upper Confining Zone

Above Cypress (Approx. 2,276'-2,373' measured depth & 1,912.5'-2,009.5 sub-sea). The confining zone is the Barlow Lime through the Upper Cypress, with impermeable lime (Barlow) on top of shale, sandy shale, and shaley sand (Cypress). (See the marked Log in Appendix C)

ATTACHMENT H: OPERATING DATA

Injection Rates and Volumes
Average Expected Volume - 2,000 barrels (84,000 gallons) per day
Maximum Expected Volume - 15,000 barrels (630,000 gallons) per day

Injection Pressures

Initial injection pressure is expected to be approx. 400 psi. The maximum pressure for this well will be 806 psi from the data presented in Attachment I. Should a higher injection pressure be required or desired, a preapproved step-rate-test will be run or acidization or fracture treatment tickets will be provided to determine the formation parting pressure for establishing a higher allowable injection pressure.

Annulus Fluid
The fluid between the tubing and the casing will be a combination of 3 gallons of corrosion inhibitor and 25 bbls. of salt and/or fresh water.

Source and Analysis of Injection Fluid
A commingled water consisting of produced water from the Cypress and Rosiclare reservoirs will be injected into the Cypress and Rosiclare reservoirs. (Water Analyses are in Appendix. D.)

ATTACHMENNT I: FORMATION TESTING PROGRAM

Formation Fluid Pressure
Current formation fluid pressure in the Cypress is 816 psi.
Current formation fluid pressure in the Rosiclare is 1,738 psi.

Formation Fracture Pressure
The formation fracture pressure is 806 psi. well head calculate as follows:
(0.8-Fluid S.G.) x Depth
(0.8-0.46) x 2,373' = 806.82 psi.

Formation Water Quality
The produced water analyses can be found in Appendix D.

Porosity and Permeability
See values in Attachment G.

ATTACHMENT J: STIMULATION PROGRAM

XXXXX will be perforated and the perforations will be cleaned up with acid. If necessary, the Cypress sand may be fracture stimulated

ATTACHMENT K: INJECTION PROCEDURE

Produced water will be stored in tanks prior to its flow to a triplex pump, for pressurization, controlled by minimum and maximum fluid level and pressure switches. Following pressurization, the fluid will be transported by high pressure lines to the injection point where the volume and pressure will be monitored along with control valves to adjust the injection rate and pressure.

ATTACHMENT L: CONSTRUCTION PROCEDURE

The tubing and packer will be removed from the XXXXX. The well will be cleaned out with cable tools or a power swivel to below the existing Rosiclare perforations. The Cypress will be perforated and evaluated to determine if additional stimulation will be necessary. The Cypress will be stimulated as required. A 4 1/2" tension packer will be run on plastic lined 2" EUE and/or fiberglass tubing to within 50' of the injection zone. The annulus will be protected by corrosion inhibitors in water. An MIT will then be run in the presence of a qualified inspector followed by the well being prepared for injection.

ATTACHMENT M: CONSTRUCTION DETAILS

A. through G. in the schematic drawing in Appendix E.

H. Listed below are the specifications for the casing and tubing:

	4 1/2" Casing	2 3/8" Tubing
Collapse (psi)	4,010	8,100
Internal Yield (psi)	4,790	7,700
Axial Load (lbs.)	132,000	72,000

I. Tubing pull force will be the weight specified by the packer manufacturer above the tubing weight. (Construction details in schematic in Appendix E)

ATTACHMENT N: CHANGES IN INJECTION FLUID

Not required for Class II wells.

ATTACHMENT O: PLANS FOR WELL FAILURES

If a well failure, packer or tubing leak is detected, the well will be shut in until faulty equipment can be repaired or replaced and the well returned to a safe operating condition and an MIT run to insure mechanical integrity prior to restarting. If the failure and operation pose no environmental hazard to USDW's or ground surface then nothing further will be done. In the case of a major failure such as a casing leak, the well will be shut in and the Department of Natural Resources and US EPA will be contacted. This correction could involve squeezing off the leak with cement or running of an additional casing string. The well will not be operated until it has been determined that the problem has been corrected. Any fluids produced during shut-in will be stored in the salt water handling system or injected into other wells until they have reached their capacity at which time the water will be disposed of by a commercial disposer.

ATTACHMENT P: MONITORING PROGRAM

The well will be monitored throughout its entire life. All EPA monitoring guidelines and reporting requirements will be complied with. The monitoring point will be at the wellsite for rate and pressure observation.

1) An analysis and report by an independent laboratory shall be completed on the injection fluids whenever major changes are made to the fluid.

2) The injection pressure will be acquired by a pressure gauge, monitored weekly and reported annually.

3) The flow rate will be read from a meter, monitored weekly and reported annually.

4) The cumulative volumes will be monitored monthly and reported annually.

5) Monitoring records will be kept to show the relationship between injection rates and pressures in order to recognize a failure in the mechanical integrity of the well.

ATTACHMENT Q: PLUGGING AND ABANDONMENT PROCEDURE

1) Move in and rig up workover rig.

2) Lay down tubing and packer.

3) Run tubing to bottom and fill the well with Class A cement from bottom to surface in two or more stages*.

4) Cut 4 1/2" and 8 5/8" casing off at 3' below ground level and weld 1/2" steel plate. On top of 8 5/8" casing.

5) Backfill and clean up location.

* If the well is flowing to surface at the time of abandonment, a cast iron bridge plug(s) will be used above the flowing zone(s) so the cement can be placed as described above.

(EPA Plugging and Abandonment Form 7520-14 in Appendix F)

ATTACHMENT Q: PLUGGING AND ABANDONMENT PROCEDURE (Continued)

	Plugging and Abandonment Costs
Rig on Pulling Unit	$ 1,400.00
Pump Truck and Cement	2,000.00
Water Hauling	200.00
Trucking	150.00
Labor and Miscellaneous	2,050.00
Total P&A Costs	$ 5,800.00

ATTACHMENT R: NECESSARY RESOURCES

Necessary resources can be found in Appendix G.

ATTACHMENT S: AQUIFER EXEMPTIONS

The Cypress Sandstone and Rosiclare formations have not and will not serve as sources of drinking water in this area due to their nature as per the enclosed fluid analysis in Appendix D. The waters are of such salinity that it makes treating the waters for human consumption uneconomic and impractical at this time or in the future.

ATTACHMENT T: EXISTING PERMITS

This well has an EPA UIC ID Number of KYS XXXXX. There are no other known injection wells in the Area of Review.

ATTACHMENT U: NATURE OF BUSINESS

XXXXX Company is an oil exploration and producing company engaged in development of oil and gas reserves and operating the same as energy sources.

NOTES:
Name and address of land owner within the 1/4 mile of Area of Review:

Name	Address
Kentucky Department of Fish & Wildlife	#1 Game Farm Road Frankfort, Kentucky 40601

PIPE

1) 2" Injection Line
2) 2 3/8" Tubing
3) 1" High Pressure Hose

VALVES

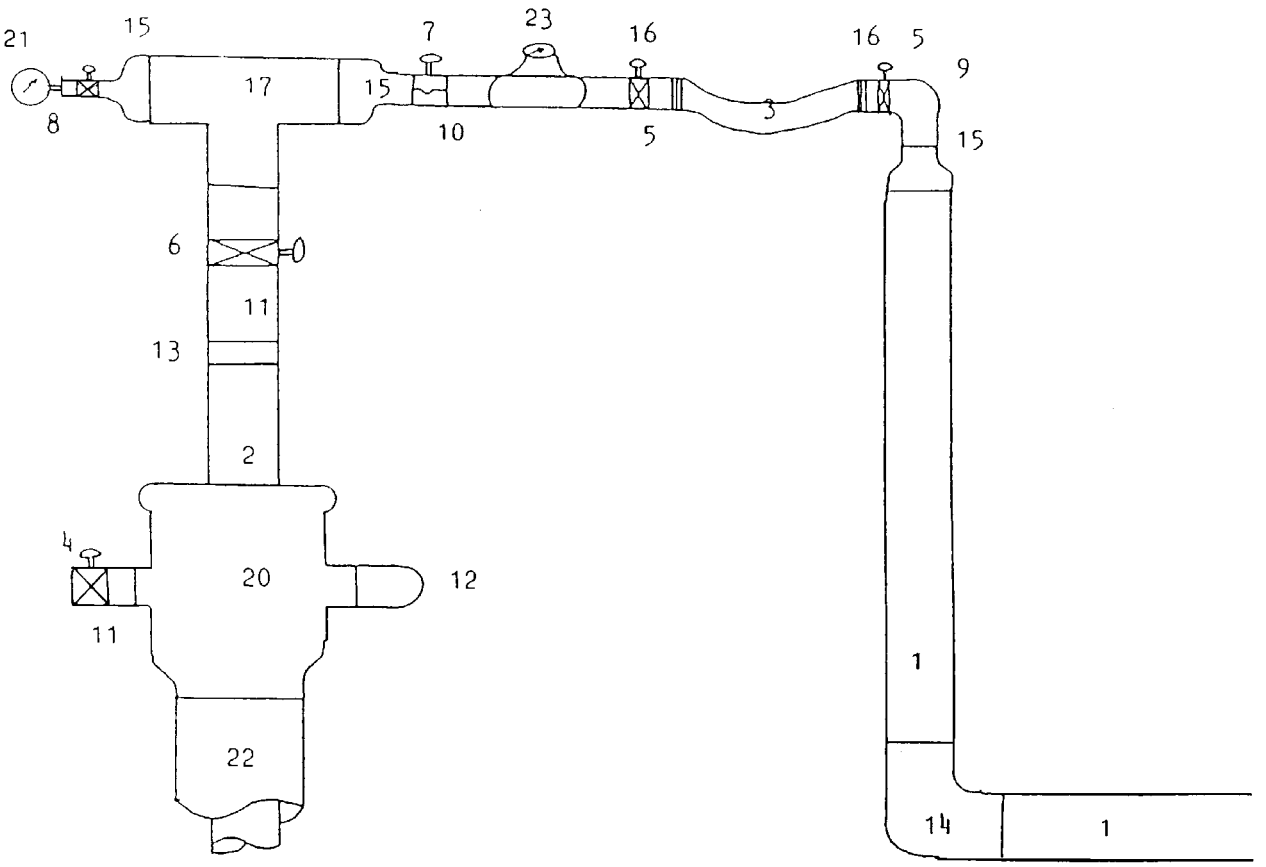
4) 2" Valve
5) 1" Valve
6) 2" Master Valve
7) Throttle Valve
8) 1/4" Valve

FITTINGS

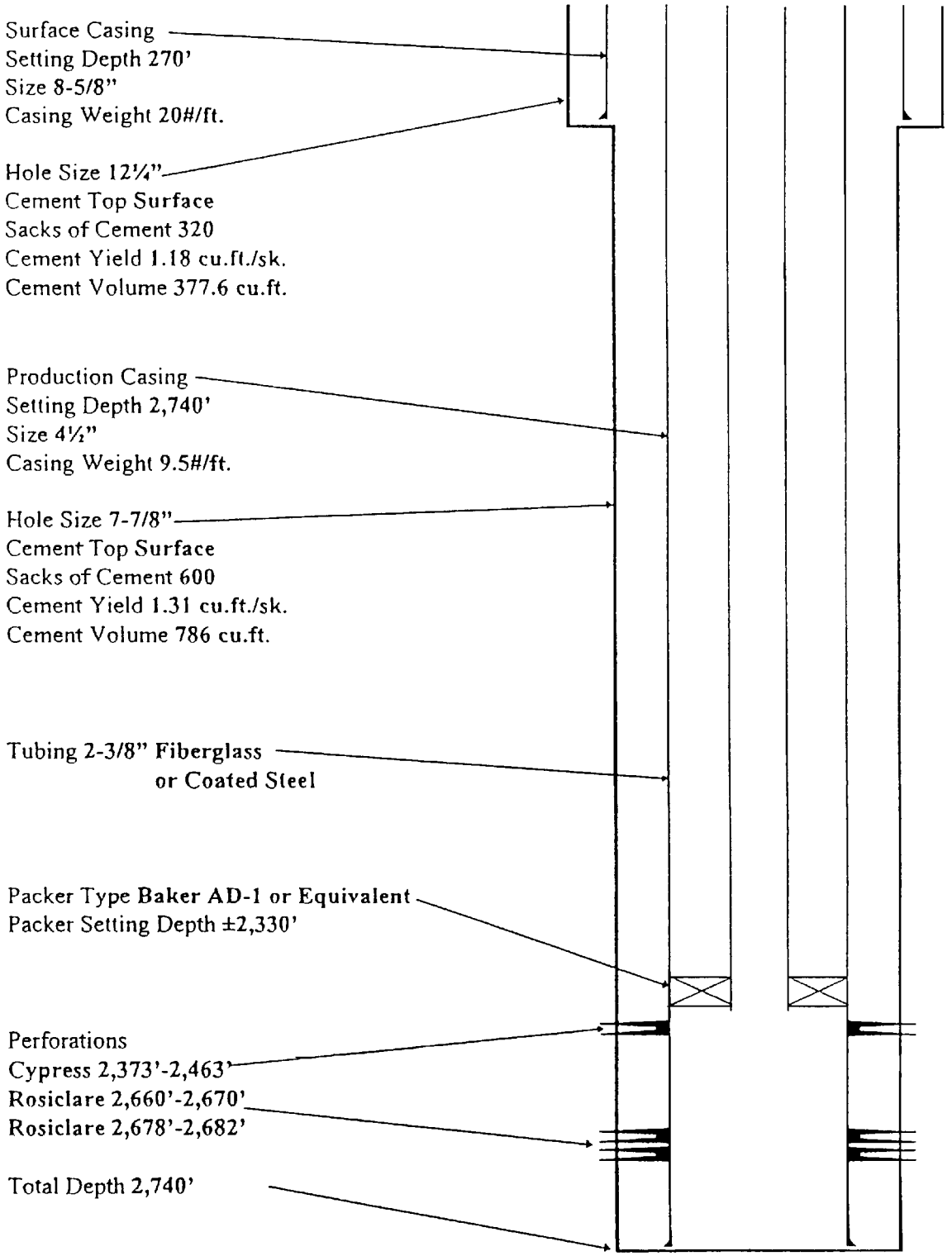
9) 1" 90° Ell
10) 1" Nipple
11) 2" Nipple
12) 2" Bull Plug
13) 2" Tubing Collar
14) 2" 90° Ell
15) 2" to 1" Swedge
16) 1" Union
17) 2" Tee

MISCELLANEOUS

20) Well Head
21) Pressure Gauge Access
22) 4½" Casing
23) Meter Run



Appendix E
Wellbore Schematic



WATER ANALYSIS REPORT

COMPANY: _____ ANALYSIS NO: 96-333

LEASE: _____ TYPE WATER: Produced

STATE: KY SOURCE: Seperator

COUNTY: Henderson WELL NAME & NO. _____

DATE SAMPLED: 09/23/96 ANAL. BY: DM DATE: 9/23/96

MIDWEST CUSTOM CHEMICALS INC., 111 Main Street Suite 203 • P.O. Box 119 • Evansville, IN 47701

ANALYSIS

				mg/l		meq/l	
1. pH	5.8						
2. H_2S	5						
3. Specific Gravity	1.061						
4. Dissolved solids	80,069						
5. Suspended solids	-						
6. Phenol Alkalinity	-	as $CaCo_3$					
7. M.O. Alkalinity	580	as $CaCo_3$					
8. Bicarbonate (HCO_3)				719	/ 61	12	HCO_3
9. Total Hardness as $CaCo_3$	13,000						
10. Calcium (Ca) as $CaCo_3$	8,600	× 0.4	=	3440	/ 20	172	Ca
11. Magnesium (Mg) as $CaCo_3$	4,400	× 0.24	=	1056	/ 12.2	87	Mg
12. Chlorides (Cl)				47,100	/ 35.5	1326	Cl
13. Sulphates (SO_4)				2,000	/ 48	42	SO_4
14 Iron total (Fe)				6			
15. Barium/Strontium				-			
16. Oxygen				2.0			
17. Carbon Dioxide							

Compound	Equiv. Wt.	× meq/l	= mg/l
$Ca(HCO_3)_2$	81.04	12	972
$CaSO_4$	68.07	42	2859
$CaCl_2$	55.50	118	6549
$Mg(HCO_3)_4$	73.17	-	-
$MgSO_4$	60.19	-	-
$MgCl_2$	47.62	87	4143
$NaHCO_3$	84.00	-	-
Na_2SO_4	71.03	-	-
NaCl	58.46	1121	65533

Ca	172		12	HCO_3
Mg	87		42	SO_4
Na	1121		1326	Cl

Meq/l

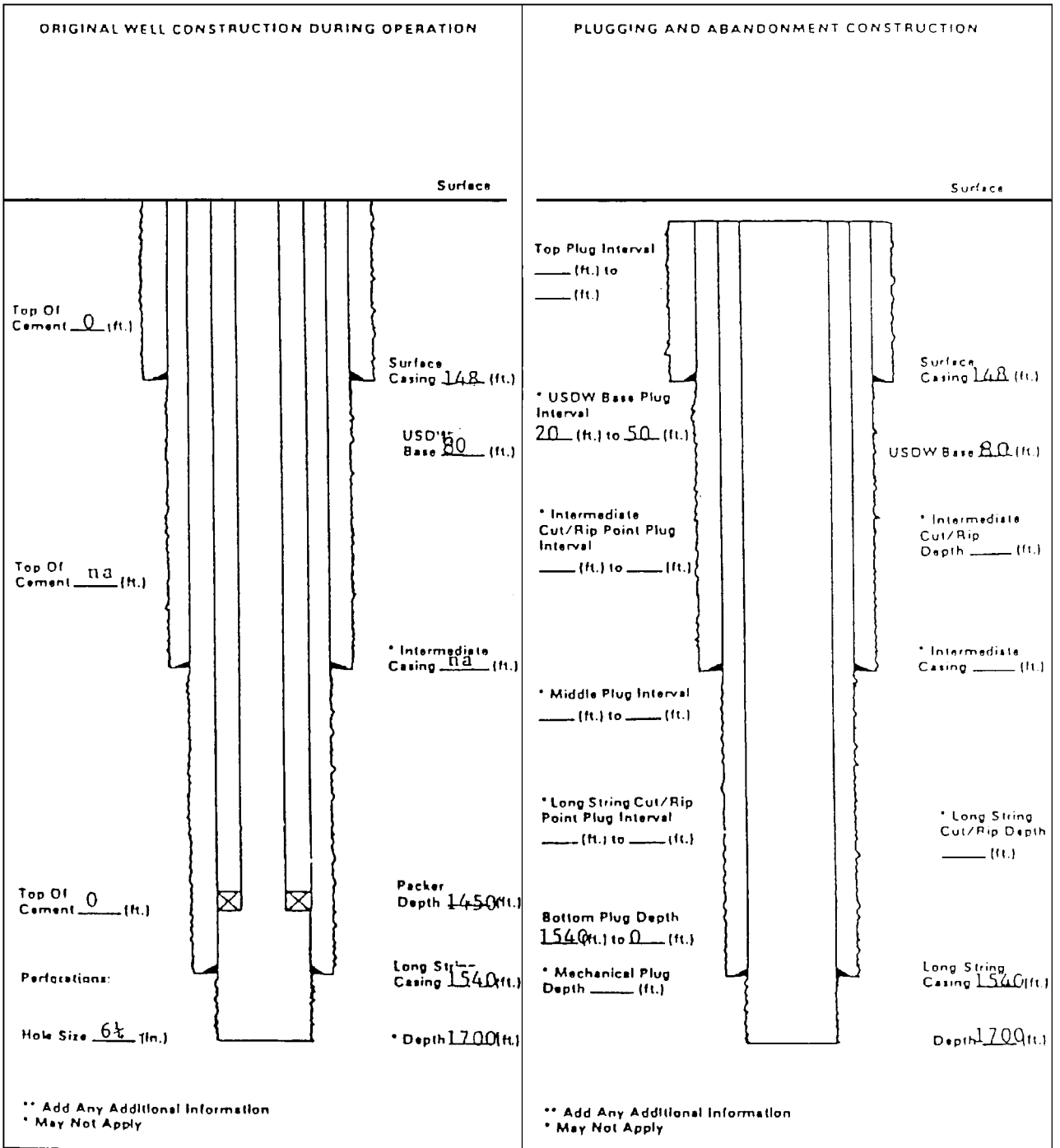
× 0.393 = Na 25754 mg/l

Ion	mg/l	factor	Ionic strength
Na	25754	$2.2E^{-5}$	.56660
Ca	3440	$5.0E^{-5}$	.17200
Mg	1056	$8.2E^{-5}$	.08659
Cl	47100	$1.4E^{-5}$	.65940
HCO_3	719	$0.8E^{-5}$	.00575
SO_4	2000	$2.1E^{-5}$	.04200
		Total Ionic Strength	1.53234

SI = pH − P Ca − pAlk − k

Stability Index _____

Appendix M



LIST OF ALL OPEN AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED

Specify Open Hole/Perforations/Varied Casing	From	To	Formation Name
Perforations	1470	1476	Knox Dolomite
	1490	1506	Knox Dolomite
Open Hole	1540	1700	Knox Dolomite

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW
ATLANTA, GEORGIA 30303-8909

Example of a Draft Permit Cover Letter

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

REF: 4WM-GWDW

Mr. John Smith
Wilcox Oil Company
120 Oil Field Road
Columbia, KY -12000

SUBJ: UIC Permit Application Number KYIOOXX
Permit Writer: XXXXX XXXXX

Dear Mr. Smith:

The U. S. Environmental Protection Agency, Region 4, intends to issue the attached Underground Injection Control (UIC) permit for your facility in accordance with the Safe Drinking Water Act. The enclosed public notice, draft permit and statement of basis show the proposed conditions to be incorporated and the rationale for their inclusion. In order that you understand your responsibilities under the provisions of the attached UIC permit, particular attention should be given to the following sections:

1. Part I. This section contains a listing of operating, monitoring, reporting, and plugging and abandonment requirements specific to your well;

2. Part II. This section contains permit conditions which describe regulatory responsibilities for all Class II injection wells under the UIC permit program;

3. Part III. This section, if included, contains any special conditions not covered in Parts I or II.

If you wish to comment on the draft permit, please submit the comments so that they are received in this office within twenty-five (25) days after receipt of this letter in order for us to accommodate any necessary revisions before the end of the public comment period or before the public hearing, if one is

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scheduled. If you have any questions concerning the enclosed conditions or the procedures associated with the permit program, please contact us at the above address or by calling (404) 562-XXXX.

Sincerely,

XXXX XXXXX, Chief
Ground Water & UIC Section
Ground Water/Drinking Water Branch

Enclosures

Example of a Permit for a New Well

U. S. ENVIRONMENTAL PROTECTION AGENCY
UNDERGROUND INJECTION CONTROL PERMIT
AUTHORIZATION TO OPERATE A CLASS II INJECTION WELL
EPA UIC PERMIT NUMBER KYI00XX

Pursuant to the Underground Injection Control regulations of the U.S. Environmental Protection Agency codified at Title 40 of the Code of Federal Regulations, Parts 124, 144, 146 and 147,

Wilcox Oil Company
120 Oil Field Road
Columbia, KY 42000

is hereby authorized to construct, operate, and plug and abandon the following Class II enhanced recovery injection well:

William Jones #1
Western Oil Field
Adair County, Kentucky
Carter Coordinate 14-G-50
330' FSL x 330' FWL

This authorization is in accordance with the limitations, monitoring requirements and other conditions set forth herein. This permit consists of this cover sheet; Part I, 7 pages; Part II, 13 pages; and Part III, 1 page.

All references to Title 40 of the Code of Federal Regulations are to regulations that are in effect on the date that this permit becomes effective.

This permit shall become effective on XXXX.

This permit and the authorization to inject shall remain in full force and effect during the operating life of the well, unless this permit is otherwise modified, revoked and reissued, terminated, or a minor modification is made as provided at 40 C.F.R. §§144.39, 144.40 and 144.41. This permit shall be reviewed at least once every five years from the effective date.

_____	XXX
Date	Robert F. McGhee, Director Water Management Division U.S. Environmental Protection Agency Region 4

PART I

WELL SPECIFIC CONDITIONS

SECTION A. CONSTRUCTION REQUIREMENTS

1. Casing and Cementing

The permittee shall case and cement the well and maintain all casing and cement so as to prevent the movement of fluids into or between underground sources of drinking water. The casing and cement used in the construction of the well shall be designed for the life expectancy of the well. Construction of this well shall be performed as specified in Attachments L & M of the permit application.

2. Tubing and Packer

Injection may only take place through tubing with a packer set within the casing no higher than 1500 feet below land surface. The tubing and packer shall be maintained in a manner which is compatible with the injection operation specified in Part I, Section B, and which prevents the movement of fluids into or between underground sources of drinking water.

3. Logs, Tests and Reports

The following tests and reports shall be prepared and submitted to EPA to demonstrate mechanical integrity:

(a) A copy of all logs run in the well.

(b) Cement tickets and invoice from the contracted cementing service company indicating cement volume, type, additives, and a job description summary.

(c) A demonstration of the mechanical integrity of the well is required before injection can be authorized. The demonstration will consist of a pressure test on the, tubing/casing annulus to at least 300 psig with less than 3% pressure loss in 30 minutes. The permittee shall contact EPA to arrange a date to conduct this test. A representative of EPA will be present to witness this test. If the well fails the test, the permittee shall cease injection operations until the problem is corrected and mechanical integrity can be demonstrated.

(d) The permittee shall prepare a report, including procedures and results, of the logging and testing programs. Each log shall include a written interpretation prepared by a knowledgeable log analyst. The report must be submitted in accordance with Part I, Section A, item 4, and shall be signed in accordance with Part II, Section E, item 11, of this permit.

4. Commencing injection

The well authorized by this permit may not commence injection until:

(a) Construction is complete, and the permitee has submitted to the Director, by certified mail with return receipt requested, a notice of completion using EPA Form 7520-10, and either:

(i) The Director has inspected or otherwise reviewed the new injection well and finds it is in compliance with the conditions of the permit; or

(ii) The permittee has not received, within thirteen (13) days of the date of the Director's receipt of the notice required above, notice from the Director of his or her intent to inspect or otherwise review the new injection well, in which case prior inspection or review is waived and the permittee may commence injection.

(b) The permittee has demonstrated to EPA that the injection well has mechanical integrity, and has submitted the reports as specified in Part I, Section A, item 3.

(c) Corrective action as specified in Part III is completed, and a report, signed in accordance with Part II, Section E, item 11, has been submitted to and approved by the Director.

SECTION B. OPERATING REQUIREMENTS

1. Injection Operation

Beginning on the date that Part I, Section A, item 4, is completed and lasting through the term of this permit, the permittee is authorized to inject only fluids brought to the surface in connection with conventional

oil and natural gas production from the operations in the Western Oil Field for enhanced recovery operations under the following conditions:

(a) Injection zone

Injection shall be limited to the Knox Formation in the open hole interval between 1550 and 1600 feet below land surface.

(b) Injection Pressure Limitation

(i) Injection pressure shall not initiate fractures or propagate existing fractures in the injection zone. The maximum allowable wellhead injection pressure for the injection well will initially be established at 900 psig. If the permittee wishes to inject above 900 psig, it shall be proven through the use of a step-rate injectivity test, that such additional pressure will not fracture the injection zone. Upon approval by the Director, the permittee may inject at the maximum pressure attained during any step-rate test conducted on the injection well authorized by this permit provided the test proves such pressure will not fracture or extend fractures in the injection zone. Step-rate injectivity test procedures must be approved by the Director prior to conducting the test and the test may be witnessed by EPA or an agent designated by EPA.

(ii) Injection at a pressure which initiates or propagates fractures in the confining zone or causes the movement of injection or formation fluids into an underground source of drinking water is prohibited.

(iii) Injection between the outermost casing protecting underground sources of drinking water and the well bore is prohibited.

2. Annulus Operation

The annulus between the tubing and the long-string casing shall be filled with brine or other fluid as approved by the Director. The annulus pressure shall be maintained at 0 psig.

The annulus shall be monitored with a gauge designed to indicate both a vacuum (below atmospheric) and positive pressure (above atmospheric). The

permittee shall comply with Part I, Section B, item 3, when a change in the annulus pressure of 15 psig occurs. The permittee shall provide an explanation to the Director for the change in pressure and measures that will be taken to restore annulus pressure to achieve compliance with this Section. If the cause of annulus pressure change is not corrected within 48 hours, the permittee shall cease injection unless such order to cease operation is waived by the Director.

3. Loss of Mechanical Integrity During Operation

The permittee shall cease injection if a loss of mechanical integrity as defined at 40 C.F.R. §146.8 becomes evident during operation. Operation shall not be resumed until the permittee has complied with the provisions of Part II, Section G, of this permit regarding mechanical integrity demonstration and testing.

The permittee shall notify the Director of the loss of mechanical integrity in accordance with the reporting procedures in Part II, Section E, item 12(d).

SECTION C. MONITORING REQUIREMENTS

1. Sampling and Analysis Methods

Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. Grab samples shall be used for the laboratory analysis of the physical and chemical characteristics as specified in Part I, Section C, item 3(a). Test methods and procedures shall be as specified at 40 C.F.R. §136.3 or 40 C.F.R. Part 261, Appendix III. When the analytical method for a particular parameter is not specified at either 40 C.F.R. §136.3 or 40 C.F.R. Part 261, Appendix III, the permittee must obtain the Director's approval of the method used. The permittee shall identify the types of tests and methods used to generate all monitoring data. Reports to be generated from monitoring data are specified in Part I, Section D.

2. Injection Operation Monitoring

The permittee shall monitor the operation of the injection well as follows:

Parameter	Monitoring Frequency
Injection Pressure (psig) at Wellhead	Weekly
Annulus Pressure (psig) at Wellhead	Weekly
Flow Rate (barrels/day) of Injected Fluid	Weekly
Cumulative volume (barrels) of Injected Fluid	Weekly

Observation and recording of injection pressure, annulus pressure, flow rate and cumulative volume shall be made over equal time intervals beginning on the date on which the well commences operation. Recordings shall be of representative values.

3. Injection Fluid Analysis

The permittee shall conduct an injection fluid analysis at least once every twelve (12) months and whenever changes are made to the injection fluid. Analyses shall be made beginning within twelve (12) months from the effective date of this permit, or twelve (12) months from the most recent analysis, whichever is later. An analysis must include:

(a) pH, total dissolved solids, and specific gravity; and

(b) a list of all chemicals and their composition used for any well stimulation and fracturing during that sampling year; and a list of any additives used and, their chemical composition, including any inhibitors used to prevent scaling, corrosion, or bacterial growth. These lists should indicate the brand name of the product and the manufacturer.

On the written request of EPA, an injection fluid analysis shall include the following additional constituents: barium, calcium, total

iron, magnesium, sodium, bicarbonate, carbonate, chloride, sulfate, carbon dioxide, dissolved oxygen, hydrogen sulfide, and purgeable aromatic hydrocarbons.

SECTION D. REPORTING REQUIREMENTS

1. Reports on Well Tests and Workovers

Within ninety (90) days after the completion of the activity, the permittee shall report to the Director the results of the following:

(a) Mechanical integrity tests, other than those specified in Part I, Section A, item 3; and

(b) Any well workover, logging or other test data, other than those specified in Part I, Section A, item 3, revealing downhole conditions.

2. Reporting of Monitoring Results

Monitoring results, as specified in Part I, Section C, shall be reported each year on EPA Form 7520-11 and must be postmarked by the 28th day of the month following the first full year after the effective date of this permit.

Copies of the monitoring results required by Part I and all other reports required by Part II shall be submitted to the Director at the following address:

U. S. Environmental Protection Agency
Region 4, Water Management Division
Ground Water/Drinking Water Branch
Ground Water & UIC Section
61 Forsyth Street, SW
Atlanta, Georgia 30303-8909

3. Reporting of New Wells Drilled Within the Area of Review (AOR)

Within ten (10) days after spud date, the permittee shall report to the Director by certified mail, return receipt requested, the construction plans for any new well within the AOR of the permitted facility that will penetrate the confining zone or injection zone. The permittee shall provide information on proposed construction (including location and quantities of cement), location and depth. This requirement applies to any construction activity regardless of ownership of the well.

If the construction of the new well will not protect USDWs from contamination, the Director may terminate the permit under 40 C.F.R. §144-40(a)(3), if he or she determines that continued injection may endanger human health or the environment.

SECTION E. PLUGGING AND ABANDONMENT PLAN

Plugging and abandonment (P&A) of the permitted injection well shall be in accordance with Part II, Section F, of this permit and 40 C.F.R. §146.10.

During the operating life of the permitted well, this injection facility may be screened for technologically enhanced naturally occurring radioactive material (NORM) by EPA or another party. If the permittee is notified by a party other than EPA, or becomes aware at any time that elevated levels of NORM have been detected at this injection facility, the permittee must notify EPA in writing of that fact no later than 45 days prior to the permittee's intent to P&A the well. EPA may require the permittee to revise the P&A plan to insure the safe disposal and proper management of elevated levels of NORM waste.

The plugging of this injection well shall be performed in the manner described in Attachment Q of the permit application.

PART III

SPECIAL CONDITIONS

CORRECTIVE ACTION AND/OR WELL DATA

1. There is no documentation for the cementing of one well within the area of review (AOR) of the William Jones 41 well. Consequently, that well here identified as the William Jones #3 will require the following:

   (a) The permittee shall submit cement documentation for this well indicating a sufficient volume to yield a top of cement (TOC) within the confining zone overlying the Knox Formation, or

   (b) The permittee shall submit a cement bond log (CBL) indicating that this well is cemented within the confining zone.

   (c) In the absence of a sufficient volume of cement as indicated by (a) or (b) above, the permittee shall submit a plan for performing remedial cementing on this well or submit a plan for plugging this well. On approval by the director, the permittee shall conduct remedial cementing or plugging according to the approved plan.

2. Cement documentation for the William Jones #7 well yields a calculated TOC below the Knox formation. Therefore, this well will require the following:

   (a) The permittee shall submit a cement bond log (CBL) indicating that this well is cemented within the confining zone.

   (b) In the absence of a sufficient volume of cement as indicated by (a) above, the permittee shall submit a plan for performing remedial cementing on this well or submit a plan for plugging the well. On approval by the Director, the permittee shall conduct remedial cementing or plugging according to the approved plan.

Example of a Public Notice to Issue a Permit

PUBLIC NOTICE

U. S. Environmental Protection Agency

Region 4

Water Management Division - Ground Water/Drinking Water Br Branch

61 Forsyth Street, SW

Atlanta, Georgia 30303-8909

(404) 562-9424

Public Notice No. KY98UICOOXX April 3, 1998

NOTICE OF PROPOSED ISSUANCE OF
UNDERGROUND INJECTION CONTROL-PERMIT

The U. S. Environmental Protection Agency (EPA), Region 4, intends to issue an Underground Injection Control (UIC) permit under the authority of the Federal Regulations at 40 C.F.R. Parts 124, 144, 146, and 147 to

Wilcox Oil Company
120 Oil Field Road
Columbia, KY 42000

UIC Permit Application Number KYIOOXXX

The proposed Class 2 permit will authorize the construction, operation, and plugging and abandonment of the William Jones #1 enhanced recovery well in the Western Oil Field located in Adair County, Kentucky, Carter Coordinate 14-G-50, 3301 FSL x 3301 FWL.

The permitted well will be used to inject produced brine brought to the surface in connection with conventional oil and natural gas production from the operations in the Western Oil Field for enhanced recovery into the Knox Formation in the open hole interval from 1550 to 1600 feet below the surface.

The proposed UIC permit was drafted in accordance with the provisions of the Safe Drinking Water Act, as amended (42 U.S.C. 300f et seq., commonly known as SDWA) and other lawful standards and regulations. The permit limitations and conditions are tentative and open to comment from the public. Persons wishing to comment upon or object to any aspects of the permit issuance are invited to submit same in writing within thirty (30) days of this notice to the U. S. Environmental Protection Agency, Water Management Division, Ground Water/Drinking Water Branch, Ground Water & UIC Section, 61 Forsyth Street, S.W., Atlanta, Georgia 30303-8909, ATTENTION: XXXXX XXXXX. The public notice number and the UIC permit number should be included in the first page of comments. All comments received during the

public notice period will be made a part of the administrative record of this permit and will be available for public review.

All comments received within the thirty-day period will be considered in the formulation of the final determination regarding the permit issuance. Any interested person may, within the thirty-day period, request a public hearing, as provided by 40 C.F.R. §124.12. where there is a significant degree of public interest in the proposed permit issuance, the EPA Regional Administrator will hold a public hearing. Any request for a hearing must be in writing to the address given above and must state the nature of the issues proposed to be raised in the hearing.

After consideration of all timely written comments, the requirements and policies in the Safe Drinking Water Act and appropriate regulations, and, if a hearing is held, after consideration of all comments, statements and data presented at the hearing, the EPA Regional Administrator or his designee will make final determinations regarding the permit issuance. If the final determinations are substantially unchanged from the tentative determinations outlined above, the EPA Regional Administrator or his designee will so notify all persons who submitted written comments or participated in the hearing, if any was held. If the final determinations are substantially changed, the EPA Regional Administrator or his designee will issue a public notice indicating the revised determinations.

Within thirty (30) days after the Regional Administrator serves notice of the above final permit decision, any person who filed comments or participated in the public hearing, if any, may petition the Administrator to review the permit decision or any condition therein. Any person who failed to file comments or failed to participate in the public hearing, if any, may petition for administrative review only to the extent of the changes from the draft to the final permit decision. Additional information regarding administrative review is available in 40 C.F.R. §124.19 or by contacting the Legal Support Branch of the Environmental Accountability Division at the above address or at telephone number (404) 562-9488. A petition to the Administrator under 40 C.F.R. §124.19 is a prerequisite to the seeking of judicial review of the final permit decision.

The administrative record, including application, statement of basis, draft permit, comments received, and additional information on hearing procedures is available by writing to EPA at the above address, or for review and copying at 61 Forsyth Street, 9th Floor, Atlanta, Georgia, 30303-8909, between the hours of 8:15 a.m. and 4:30 p.m., Monday through Friday. Copies will be provided at a cost of 20 cents per page.

Please bring the foregoing to the attention of anyone who may be interested in this matter.

Example of a Statement of Basis

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4

Statement of Basis

for

U. S. EPA Underground Injection Control (UIC) Draft Permit Number KYIOOXX

for

Wilcox Oil Company
120 Oil Field Road
Columbia, KY 42000

for

The construction, operation, and plugging and abandonment of the William Jones #1 located in:

Western Oil Field
Adair County, KY
Carter Coordinate 14-G-50
330' FSL x 330' FWL

On March 16, 1998, Wilcox Oil Company submitted a UIC permit application and requested a permit for the construction, operation, and plugging and abandonment of the above mentioned well. This application and its subsequent amendments have been reviewed by EPA Region 4 staff and were deemed complete on April 14, 1998.

Under the authority of 40 C.F.R. Parts 144 and 146, EPA permits must specify conditions for construction, operation, monitoring, reporting, and plugging and abandonment of injection wells so as to prevent the movement of fluids into any underground source of drinking water (USDW). General provisions for EPA UIC permit requirements are found at 40 C.F.R. Parts 144 and 146, while regulations specific to Kentucky injection operations are found at 40 C.F.R. Part 147, Subpart S. In addition, permit conditions specific to this well are as follows.

Area of Review (AOR) and Corrective Action: In accordance with 40 C.F.R. §§144.55, 146.6 and 146.7, this is the area surrounding the well or project which

the applicant must research, examine and develop a program to address, with a corrective action plan, wells which penetrate the injection zones that are improperly sealed, completed or abandoned and may therefore provide a conduit for fluid migration. Except for the William Jones #3 and the William Jones #7, the applicant has provided documentation on the well population within one-quarter mile of the injection well (i.e., AOR) indicating that all the wells are properly constructed and corrective action will not be required.

Underground Sources of Drinking Water: USDWs are defined by the UIC regulations as aquifers or portions thereof which contain less than 10,000 parts per million of total dissolved solids and which are being or could be used as a source of drinking water. The lower-most possible USDW has been identified at approximately 150 feet below ground surface. The geologic name of this fresh water bearing formation is the Ft. Payne Formation.

Injection and Confining Zones: Injection of fluids for enhanced recovery is limited by the permit to the Knox Formation in the open hole interval between 1550 and 1600 feet below ground surface.This injection zone is separated from the lower-most USDW by a confining zone comprised of Devonian Age shale, Silurian Age limestones and Ordovician Age limestones with a thickness of approximately 1400 feet.

Construction Requirements: The construction of the injection well meets the regulatory criteria of 40 C.F.R. §146.22 which requires that all new Class II wells be sited so that they inject into a formation which is separated from any USDW by a confining zone free of known open faults or fractures within the AOR; and that all Class II wells be cased and cemented to prevent the movement of fluids into or between USDWs.

Injection Fluid: The injected fluid is limited to fluids brought to the surface in connection with conventional oil and natural gas production from the operations in the Western Oil Field. The expected maximum daily volume of fluid to be injected is 200 barrels.

Maximum Injection Pressure: The maximum allowable wellhead injection pressure for the proposed operation will be 900 psig. This limitation will ensure that the pressure during injection does not initiate new fractures or propagate existing fractures in the confining zones adjacent to the lowermost USDW. This in turn ensures that the injection pressure will not cause the movement of injection or formation fluids into a USDW, as required at 40 C.F.R. §146.23.

Monitoring and Reporting Requirements: In accordance with 40 C.F.R. §§144.54 and 146.23, the applicant will be responsible for monitoring injection pressure,

annulus pressure, flow rate, and cumulative volume on a weekly basis and reporting monitoring results to EPA on an annual basis. The applicant is also required to conduct and pass a two-part mechanical integrity test (MIT), in accordance with 40 C.F.R. §146.8, once after the well is complete and once every five years thereafter. These tests will provide EPA with an evaluation of the integrity of the tubular goods (casing, tubing, and packer) as well as documentation as to the absence of fluid movement behind the cemented casing.

Plugging and Abandonment: In accordance with 40 C.F.R. §§146.10 and 146. 24 (d) , the permit includes a plugging and abandonment plan that will result in environmentally protective well closure at the time of cessation of operations. The applicant has also made a demonstration of financial responsibility, in accordance with 40 C.F.R. §§144.52(a) and 146.24(a), which indicates that adequate resources will be available for well closure and will preclude the possibility of abandonment without proper plugging.

Expiration Date: In accordance with 40 C.F.R. §144.36, the permit will be in effect for the life of the well or project, unless it is otherwise modified, revoked and reissued, or terminated as provided at 40 C.F.R. §§144.39, 144.40 and 144.41. The permit will be reviewed by EPA at least once every five (5) years from the effective date for consistency with federal regulations.

Additional Information: Questions, comments and requests for additional information or for a public hearing may be directed to the contact person listed below. The public comment period on this permitting action will close thirty (30) days after the date of the public notice. If EPA receives written comments of substantial public interest concerning a hearing on this action, a public notice of this hearing will be published locally and mailed to interested parties.

XXXX XXXX
U. S. EPA, Region 4
Water Management Division
Ground Water/Drinking Water Branch
Ground Water & UIC Section
61 Forsyth Street, SW
Atlanta, Georgia 30303-8909