

WALLEWEIN 22-1 EBOOK

DECEMBER 2018

A collection of the primary documents associated with the drilling, completion and testing of the Kevin Dome Carbon Sequestration Project's Wallewein 22-1 well.

*Big Sky Carbon Sequestration Partnership – Phase III
U.S. Department of Energy (DOE)
National Energy Technology Laboratory (NETL)
DOE Award Number: DE-FC26-05NT42587*

WALLEWEIN 22-1 EBOOK

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WALLEWEIN 22-1 EBOOK

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MONTANA BOARD OF OIL AND GAS CONSERVATION
2535 ST. JOHNS AVENUE, BILLINGS, MONTANA 59102

Application for Permit To:

Drill ☒
Oil ☐Deepen ☐
Gas ☒Re-enter ☐
Other Stratigraphic ☒

Lease Name:

Wallewein

Lease Type (Private/State/Federal): **FEB 27 2014**

Private

Well Number:

22-1

**MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS**

Operator: Vecta Oil & Gas, Ltd

Address: PO Box 488

City: Cut Bank

State: MT

Zip: 59427

Telephone Number: (406) 873-9000

Field Name or Wildcat:

Kevin/Sunburst

Unit Name (if applicable):

Surface Location of Well (quarter-quarter and footage measurements):

SESW-Section 22-T36N-R1W
(1170' FSL x 2169' FWL)

Objective Formation(s):

Duperow

Township, Range, and Section:

Section 22-T36N-R1W

County:

Toole

Elevation (indicate GL or KB):

3957' GL

Size and description of drilling/spacing unit and applicable order, if any:

Formation at total depth:

Duperow

Anticipated Spud Date:

5/7/14

Hole Size	Casing Size	Weight / Foot	Grade (API)	Depth	Sacks of Cement	Type of Cement
17-1/2"	13-3/8"			40'	Gravel Pack	Control Set "C"
12-1/4"	9-5/8"	40#/ft	J55	500'	165 Sacks	Control Set "C"
8-3/4"	5-1/2"	17#/ft	J55	4000'	775 Sacks	Control Set "C"

Describe Proposed Operations:

Describe or attach labeled diagram of blowout preventer equipment. Indicate if air drilled or describe mud program.

Vecta Oil & Gas, Ltd proposes to drill a stratigraphic test. Conductor casing will be set to approximately 40'. 9-5/8" surface casing will be run to approximately 500' with good cement returns to surface. 5-1/2" casing will be run from approximately 500' to Total Depth. All geologic horizons will be evaluated to Total Depth. A core test will be run for approximately 180' from the Upper to the Middle portion of the Duperow formation. The well will be drilled with native water and drilling mud to casing point or TD. Open hole logs will be run from surface to TD. Blowout equipment will be as indicated on the attached exhibit and will be tested at regular intervals.

BOARD USE ONLYApproved (date) **APR 11 2014**Permit Fee **\$7500**By **Original Signed By**Check Number **16341**

Title

Permit Expires **OCT 11 2014**Permit Number **31325**THIS PERMIT IS SUBJECT TO THE
CONDITIONS OF APPROVAL
STATED ON THE BACKAPI Number: 25 - **101** - **24242**The undersigned hereby certifies that the information
contained on this application is true and correct.

Signed (Agent)

Title **Patrick M. Montalban - Agent**Date **2/24/14**Telephone Number **(406) 873-2235**

Samples Required:

NONE ☒

ALL

FROM

feet to _____ feet

Core chips to address below, full cores to USGS, Core Laboratory, Arvada, CO. Required samples must be washed, dried and delivered prepaid to:

Montana Board of Oil and Gas Conservation
2535 St. Johns Avenue
Billings, MT 59102**RECEIVED****APR 16 2014**

ALTAMONT OIL & GAS, INC.

Submit In Quadruplicate To:

MONTANA BOARD OF OIL AND GAS CONSERVATION
2535 ST. JOHNS AVENUE
BILLINGS, MONTANA 59102

SUNDRY NOTICES AND REPORT OF WELLS

Operator Vecta Oil & Gas Ltd

Address PO Box 488

City Cut Bank

State MT

Zip Code 59427

Telephone (406) 873-9000

Fax (406) 873-2835

Lease Name:

Wallewein

Type (Private/State/Federal/Tribal/Allotted):

Private

Well Number:

22-1

Unit Agreement Name:

Field Name or Wildcat:

Kevin/Sunburst

Township, Range, and Section:

Section 22-T36N-R1W

County:

Toole

Location of well (1/4-1/4 section and footage measurements):

SESW-Section 22-T36N-R1W
(1217' FSL x 2407' FWL)

API Number:

25 | 101 | 2424200 00

State County Well

Well Type (oil, gas, injection, other):

Gas

Indicate below with an X the nature of this notice, report, or other data:

Notice of Intention to Change Plans ☐Notice of Intention to Run Mechanical Integrity Test ☐Notice of Intention to Stimulate or to Chemically Treat ☐Notice of Intention to Perforate or to Cement ☐Notice of Intention to Abandon Well ☐Notice of Intention to Pull or Alter Casing ☐Notice of Intention to Change Well Status ☐Supplemental Well History ☐Other (specify) Location change request ☒Subsequent Report of Mechanical Integrity Test ☐Subsequent Report of Stimulation or Treatment ☐Subsequent Report of Perforation or Cementing ☐Subsequent Report of Well Abandonment ☐Subsequent Report of Pulled or Altered Casing ☐Subsequent Report of Drilling Waste Disposal ☐Subsequent Report of Production Waste Disposal ☐Subsequent Report of Change in Well Status ☐Subsequent Report of Gas Analysis (ARM 36.22.1222) ☐

Describe Proposed or Completed Operations:

Describe planned or completed work in detail. Attach maps, well-bore configuration diagrams, analyses, or other information as necessary. Indicate the intended starting date for proposed operations or the completion date for completed operations.

Please see attached plats detailing the location change. Also, please refer to the original permit for operational procedures,

BOARD USE ONLY

Approved _____

Date _____

Name _____

Title _____

The undersigned hereby certifies that the information contained on this application is true and correct:

4/17/14

Date

Patrick M. Montalban
 Signed (Agent)
Judy Carmichael
 Patrick M. Montalban - Agent

Print Name and Title

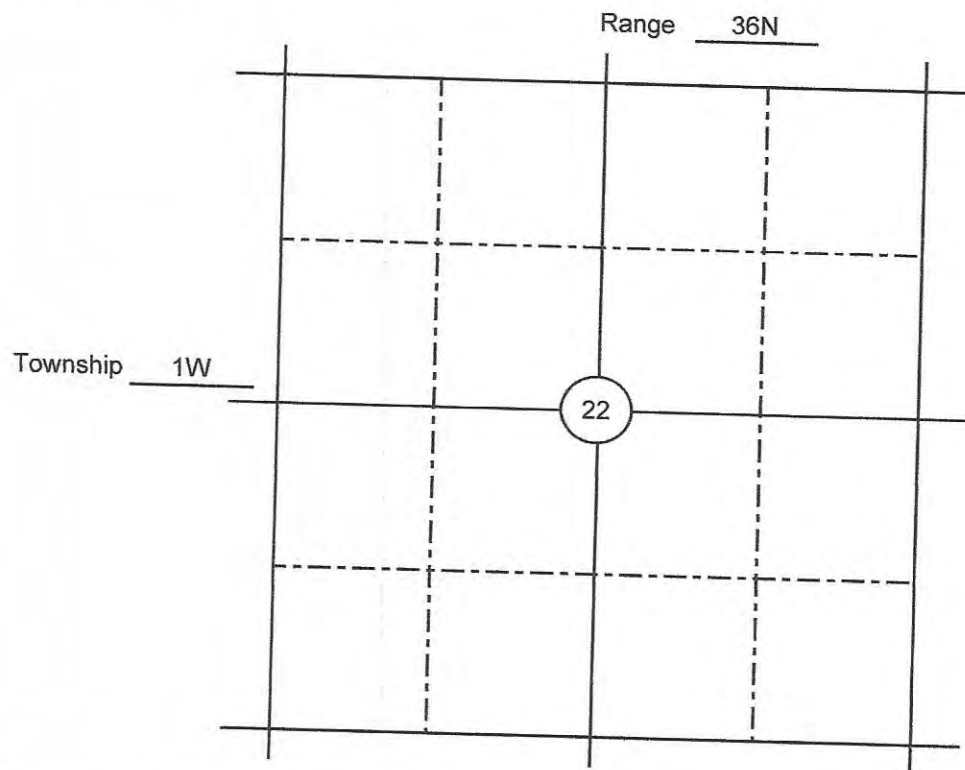
Telephone: _____

(406) 873-9000

SUPPLEMENTAL INFORMATION

NOTE: Additional information or attachments may be required by Rule or by special request.

Plot the location of the well or site that is the subject of this notice or report.



BOARD USE ONLY

CONDITIONS OF APPROVAL

The operator must comply with the following condition(s) of approval:

Failure to comply with the conditions of approval may void this permit.

FORM NO. 2 R 10/09

ARM 36.22.307, 801, 605,
1003, 1004, 1011, 1013,
1108, 1222, 1240, 1301,
1308, 1309, and 1417

Submit in Quadruplicate To:

MONTANA BOARD OF OIL AND GAS CONSERVATION
2535 ST. JOHNS AVENUE
BILLINGS, MONTANA 59102**RECEIVED**

APR 21 2014

SUNDRY NOTICES AND REPORT OF WELLS

Operator Vecta Oil & Gas Ltd .		Lease Name: MONTANA BOARD OF OIL & GAS CONSERVATION - BILLINGS
Address PO Box 488		Wallewein
City Cut Bank	State MT	Type (Private/State/Federal/Tribal/Allotted): Private
Zip Code 59427		Well Number: 22-1
Telephone (406) 873-9000	Fax (406) 873-2835	Unit Agreement Name:
Location of well (1/4-1/4 section and footage measurements): SESW-Section 22-T36N-R1W - (4247' FSL x 2407' FWL) 1170' FSL, 2169' FWL		Field Name or Wildcat: Kevin/Sunburst
API Number: 25 101 2424286-00		Township, Range, and Section: Section 22-T36N-R1W
Well Type (oil, gas, injection, other): Gas		County: Toodle

Indicate below with an X the nature of this notice, report, or other data:

Notice of Intention to Change Plans	☐	Subsequent Report of Mechanical Integrity Test	☐
Notice of Intention to Run Mechanical Integrity Test	☐	Subsequent Report of Stimulation or Treatment	☐
Notice of Intention to Stimulate or to Chemically Treat	☐	Subsequent Report of Perforation or Cementing	☐
Notice of Intention to Perforate or to Cement	☐	Subsequent Report of Well Abandonment	☐
Notice of Intention to Abandon Well	☐	Subsequent Report of Pulled or Altered Casing	☐
Notice of Intention to Pull or Alter Casing	☐	Subsequent Report of Drilling Waste Disposal	☐
Notice of Intention to Change Well Status	☐	Subsequent Report of Production Waste Disposal	☐
Supplemental Well History	☐	Subsequent Report of Change in Well Status	☐
Other (specify) Location change request	☒	Subsequent Report of Gas Analysis (ARM 36.22.1222)	☐

Describe Proposed or Completed Operations:

Describe planned or completed work in detail. Attach maps, well-bore configuration diagrams, analyses, or other information as necessary. Indicate the intended starting date for proposed operations or the completion date for completed operations.

Please see attached plats detailing the location change. Also, please refer to the original permit for operational procedures.

New Location: 1217 FSL 2407 FWL
EL 3963' 6L

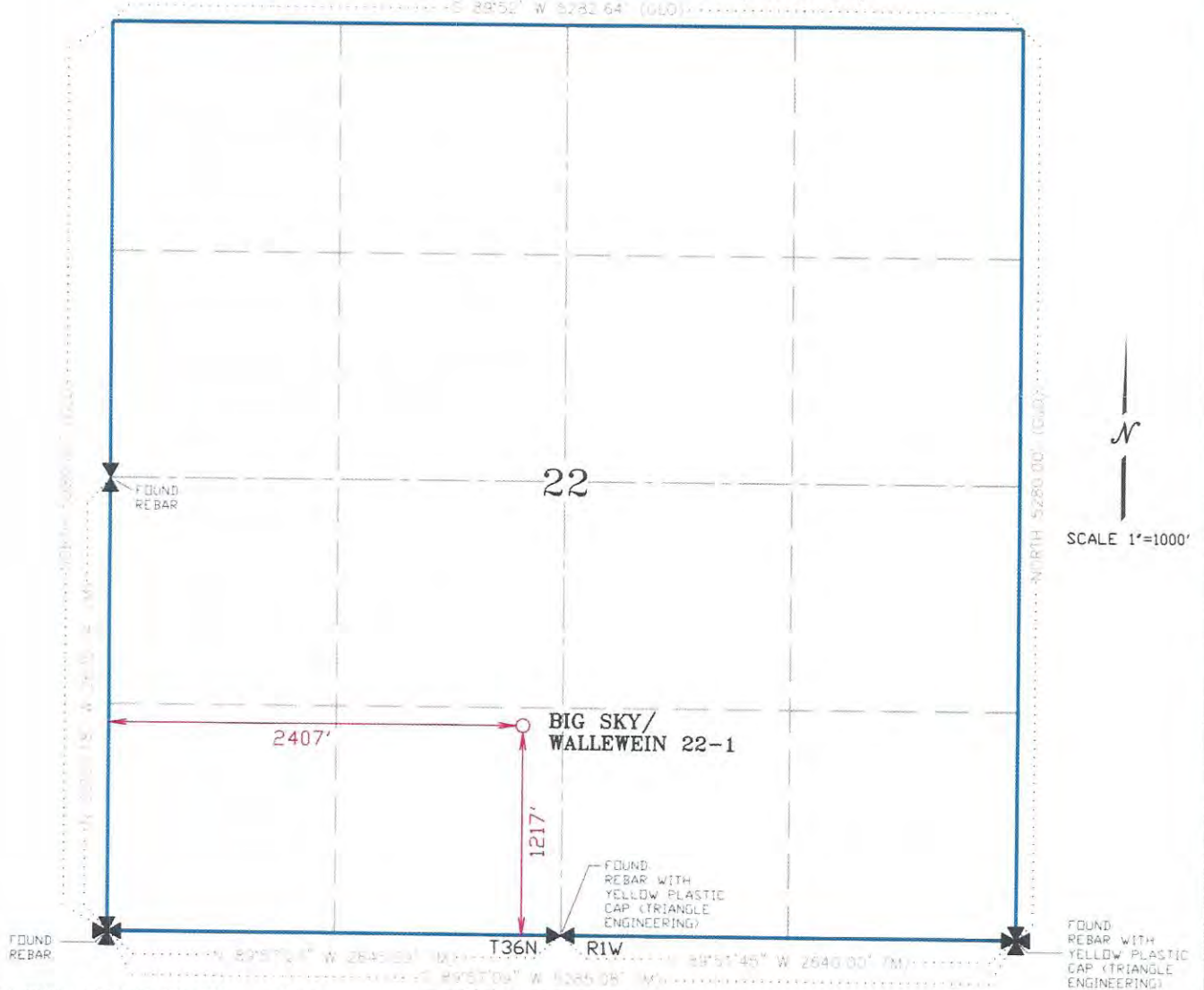
BOARD USE ONLY	
Approved	APR 24 2014
Date	
Original Signed By <i>David Popp</i>	
David Popp, Chief Field Inspector	
Name	Title

The undersigned hereby certifies that the information contained on this application is true and correct:

Date	4/17/14
Signed (Agent)	<i>Patrick M. Montalban</i>
Print Name and Title	Patrick M. Montalban - Agent
Telephone:	(406) 873-9000

WELL LOCATION

BIG SKY/WALLEWEIN 22-1
SE1/4SW1/4 SECTION 22, T36N, R1W, P.M.M.
TOOLE COUNTY, MONTANA
1217' FSL X 2407' FWL
ELEVATION BEFORE GRADING: 3963' (NAVD 88)



ELEVATION BEFORE GRADING: 3963'
BASIS - NAVD 88 / GEOID 12A

GEOGRAPHIC COORDINATES OF SURFACE LOCATION:
48°51'33.52" N 111°43'18.15" W (NAD 83 BASIS)

BASE POSITION FOR GEOGRAPHIC COORDINATES:
48°52'05.06" N 111°42'33.66" W (NAD 83 BASIS)
(OPUS DERIVED)

LOCAL GRID CENTER POSITION:
48°52'05.06" N 111°42'33.66" W (NAD 83 BASIS)

LAND USE: CULTIVATION

NO ATTEMPT HAS BEEN MADE BY THE SURVEYOR TO LOCATE UNDERGROUND STRUCTURES OR BURIED UTILITIES, AND APPROPRIATE AGENCIES AND SURFACE LANDOWNERS MUST BE CONTACTED FOR FIELD LOCATION OF ANY UNDERGROUND STRUCTURES OR BURIED UTILITIES BEFORE ANY CONSTRUCTION COMMENCES CALL 1-800-424-5555 BEFORE ANY CONSTRUCTION COMMENCES.

NOTE: SUBDIVISION LINES AND GOVERNMENT LOT BOUNDARIES ARE SHOWN FOR DEPICTIVE PURPOSES ONLY AND SHOULD NOT BE USED FOR SCALING OR LOCATION PURPOSES.

ON THE BASIS OF MY KNOWLEDGE, INFORMATION AND BELIEF, I CERTIFY THAT AS A RESULT OF A SURVEY MADE ON THE GROUND TO THE NORMAL STANDARD OF CARE OF PROFESSIONAL LAND SURVEYORS PRACTICING IN THE STATE OF MONTANA, I FIND THE LOCATION OF THE BIG SKY/WALLEWEIN 22-1 AS SHOWN ON THE SUBJOINED DRAWING.

John M. Cicon
JOHN M. CICON

No. 4039 LS

4039 LS

1409 CEEDS

REQUESTED BY: ALTAMONT OIL & GAS, INC.
P.O. BOX 488
CUT BANK, MONTANA 59427

BIG SKY/WALLEWEIN 22-1
SE1/4SW1/4 SECTION 22, T36N, R1W, P.M.M.

SCALE 1"=1000'

04-11-14

 CICON AND ASSOCIATES
BOX 541
CHESTER, MONTANA 59522

JOB NO. 13-0706

DRAWING NO. 130706ALTA.DWG

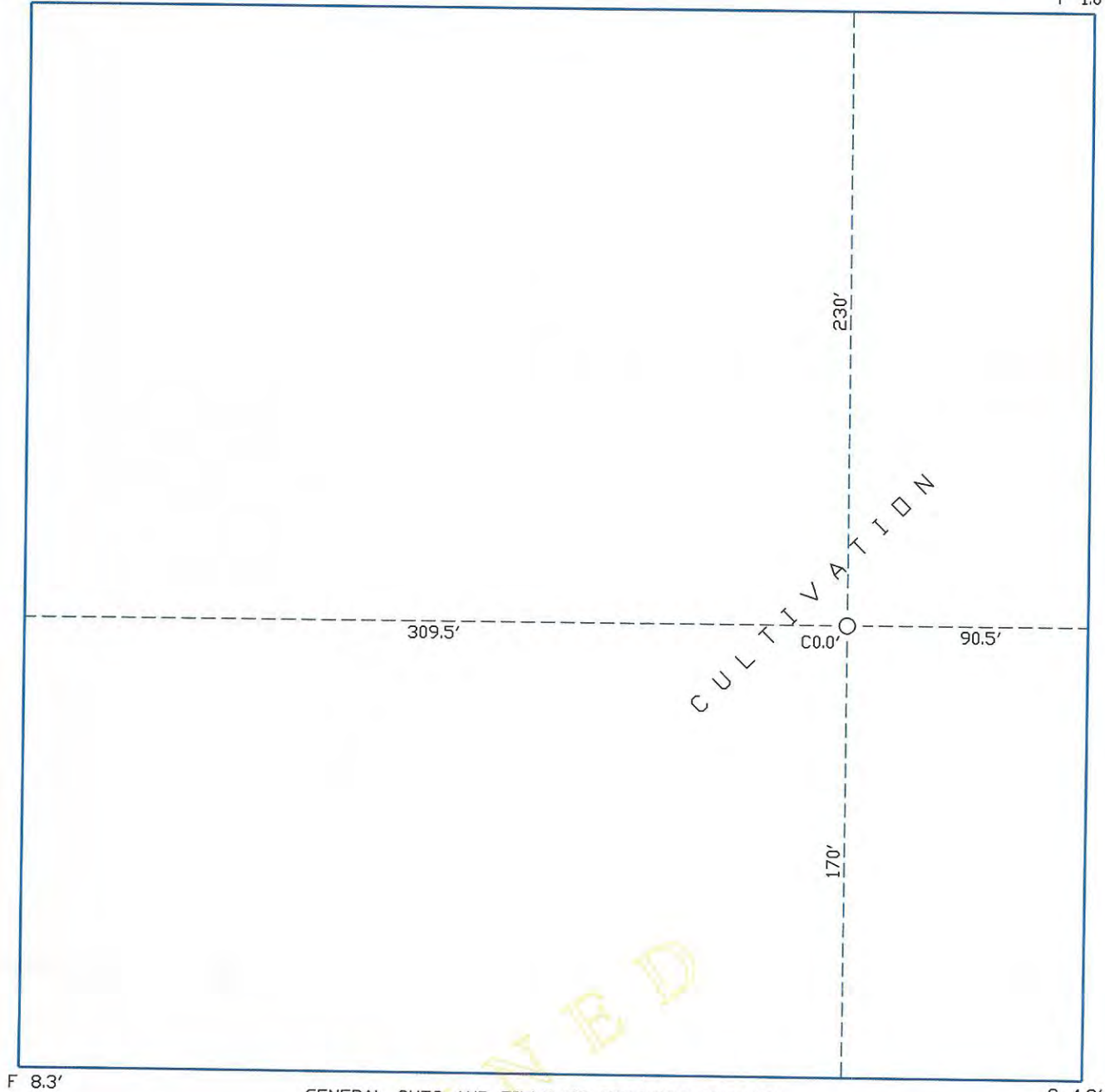
SHEET 1 OF 3

RIG PAD SITE

BIG SKY/WALLEWEIN 22-1
SE1/4SW1/4 SECTION 22, T36N, R1W, P.M.M.
TOOLE COUNTY, MONTANA

F 13.2'

F 1.0'



GENERAL CUTS AND FILLS OF PROPOSED RIG PAD

LAND USE: CULTIVATION

ELEVATION OF LOCATION BEFORE GRADING: 3963'

BASIS OF ELEVATIONS: NAVD 88



SCALE 1" = 60'

NOTE: CUTS AND FILLS NOTED ARE FOR PURPOSES OF DESCRIBING THE GENERAL TOPOGRAPHY OF THE PROPOSED RIG PAD AND ARE NOT INTENDED FOR CALCULATION OF DIRTWORK QUANTITIES OR OTHER CALCULATIONS.

REQUESTED BY: ALTAMONT OIL & GAS, INC.
P.O. BOX 488
CUT BANK, MONTANA 59427

SCALE 1"=50'

BIG SKY/WALLEWEIN 22-1
SE1/4SW1/4 SECTION 22, T36N, R1W, P.M.M.

04-15-14

 CICON AND ASSOCIATES
BOX 541
CHESTER, MONTANA 59522

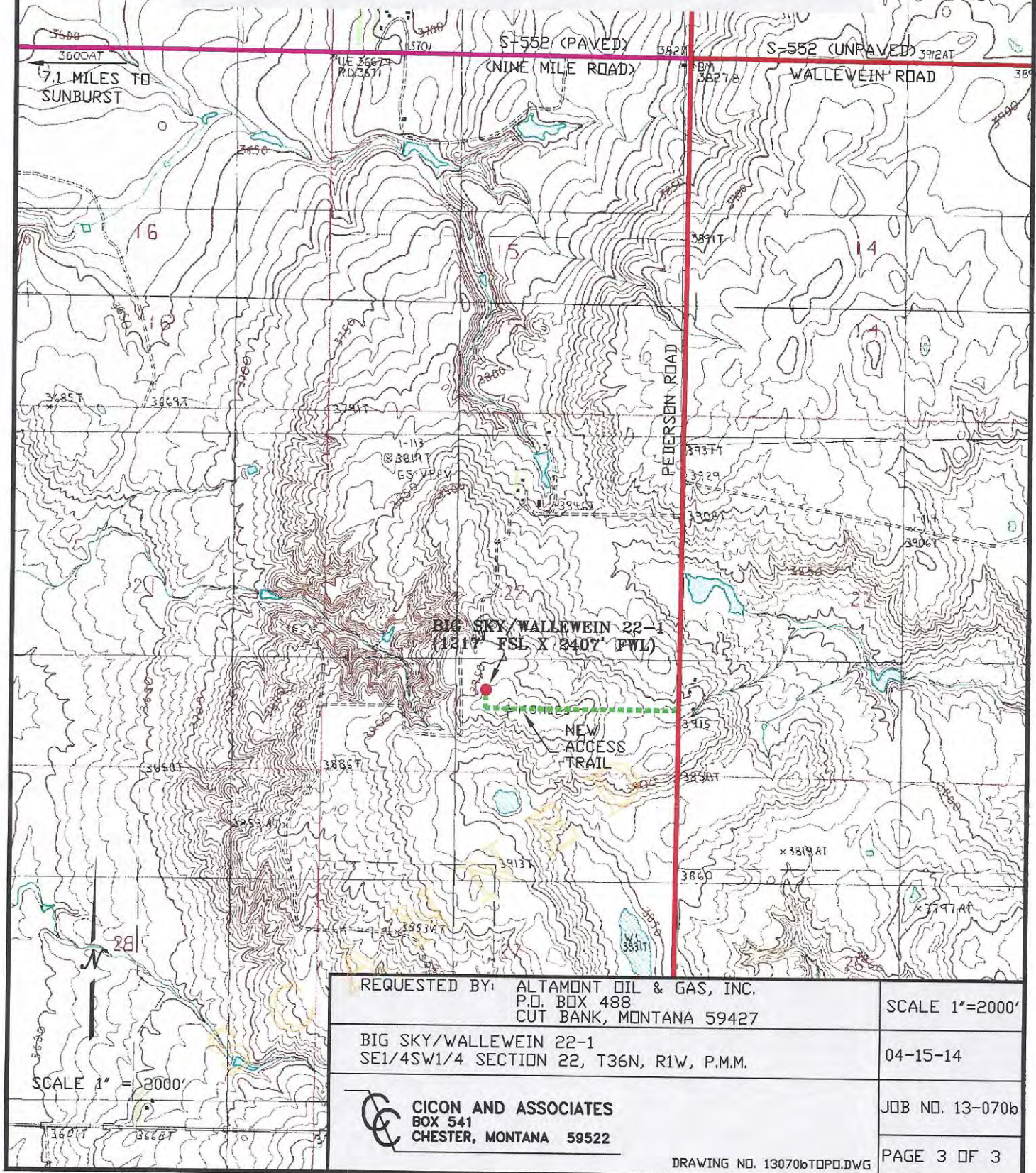
JOB NO. 13-070b

DRAWING NO. 13070bCON.DWG

SHEET 2 OF 3

PROPOSED ACCESS TO WELL SITE

BIG SKY/WALLEWEIN 22-1
SE1/4SW1/4 SECTION 22, T36N, R1W, P.M.M.
TOOLE COUNTY, MONTANA



RECEIVED

FORM NO. 2 R 10/09

JUN 30 2014

ARM 36.22.307, 601, 605,
1003, 1004, 1011, 1013,
1103, 1222, 1240, 1301,
1306, 1309, and 1417

Submit In Quadruplicate To Montana Board of Oil & Gas Conservation

MONTANA BOARD OF OIL AND GAS CONSERVATION
2535 ST. JOHNS AVENUE
BILLINGS, MONTANA 59102

RECEIVED

JUN 23 2014

SUNDRY NOTICES AND REPORT OF WELLS

Operator Vecta Oil & Gas Ltd

Address PO Box 488

City Cut Bank

State MT

Zip Code 59427

Telephone (406) 873-9000

Fax (406) 873-2835

Location of well (1/4-1/4 section and footage measurements):
SESW-Section 22-T36N-R1W
(1217' FSL x 2407' FEL)

Lease Name:

Wallewein

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS

Type (Private/State/Federal/Tribal/Allotted):

Private

Well Number:

#22-1

Unit Agreement Name:

Field Name or Wildcat:

Kevin/Sunburst

Township, Range, and Section:

Section 22-T36N-R1W

API Number:

25 | 101 | 24242

State County Well

Well Type (oil, gas, injection, other):

Gas

County:

Toole

Indicate below with an X the nature of this notice, report, or other data:

Notice of Intention to Change Plans ☒

Notice of Intention to Run Mechanical Integrity Test ☐

Notice of Intention to Stimulate or to Chemically Treat ☐

Notice of Intention to Perforate or to Cement ☐

Notice of Intention to Abandon Well ☐

Notice of Intention to Pull or Alter Casing ☐

Notice of Intention to Change Well Status ☐

Supplemental Well History ☐

Other (specify) ☐

Subsequent Report of Mechanical Integrity Test ☐

Subsequent Report of Stimulation or Treatment ☐

Subsequent Report of Perforation or Cementing ☐

Subsequent Report of Well Abandonment ☐

Subsequent Report of Pulled or Altered Casing ☐

Subsequent Report of Drilling Waste Disposal ☐

Subsequent Report of Production Waste Disposal ☐

Subsequent Report of Change in Well Status ☐

Subsequent Report of Gas Analysis (ARM 36.22.1222) ☐

Describe Proposed or Completed Operations:

Describe planned or completed work in detail. Attach maps, well-bore configuration diagrams, analyses, or other information as necessary. Indicate the intended starting date for proposed operations or the completion date for completed operations.

Following is a change in the drilling program for the Wallewein 22-1:

Wyoming Casing to drill and set 40' of 16" conductor casing. FX Drilling to drill 12-1/4" hole and run 9-5/8" surface casing to approximately 250' cementing with 90 sacks of cement with good returns to surface. FX Drilling to drill 4,315' of 8-3/4" hole to accommodate approximately 4,565' of 5-1/2" production casing to be cemented with 1255 sacks of cement.

See attached BOP and Rig Layout for FX Drilling

BOARD USE ONLY

Approved

JUN 23 2014

Date

Original Signed By
David Popp, Chief Field Inspector

Name

Title

The undersigned hereby certifies that the information contained on this application is true and correct.

5/20/2014

Date

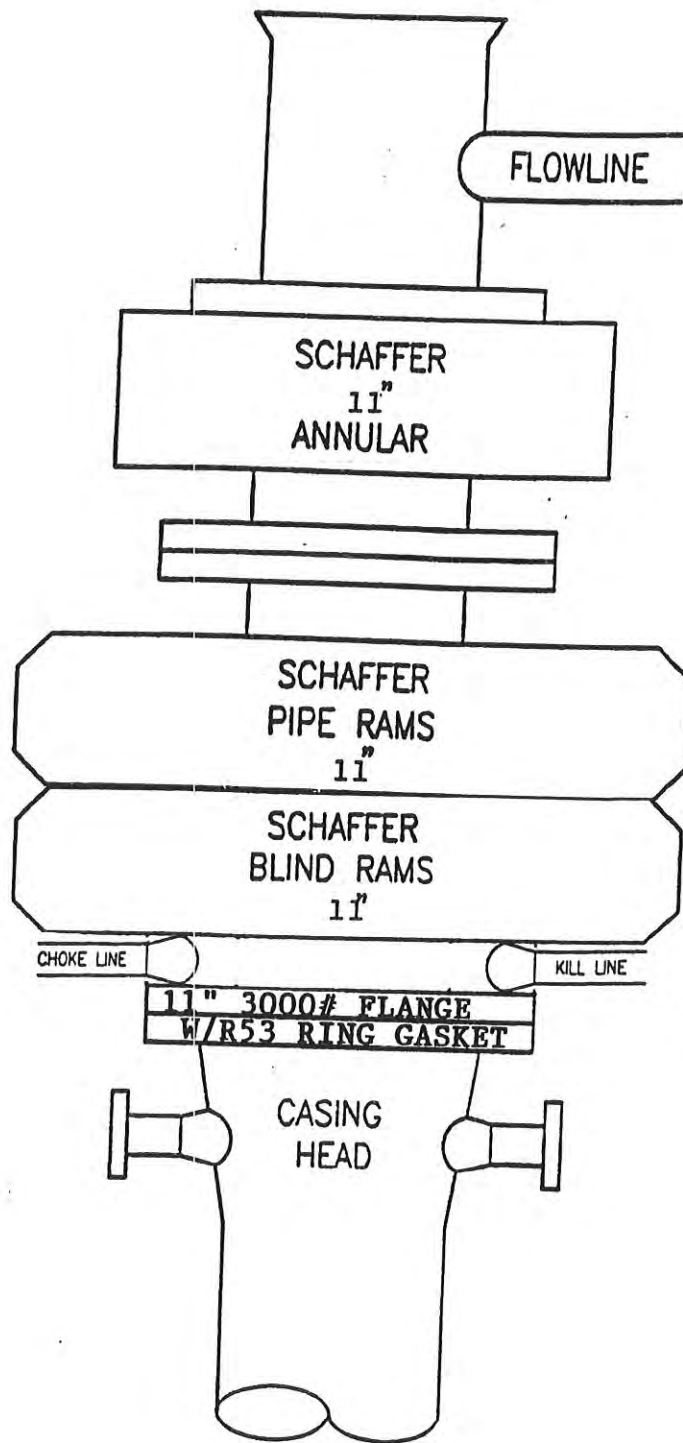
Signed (Agent)

Patrick M. Montalban - Agent

Print Name and Title

Telephone:

(406) 873-9000

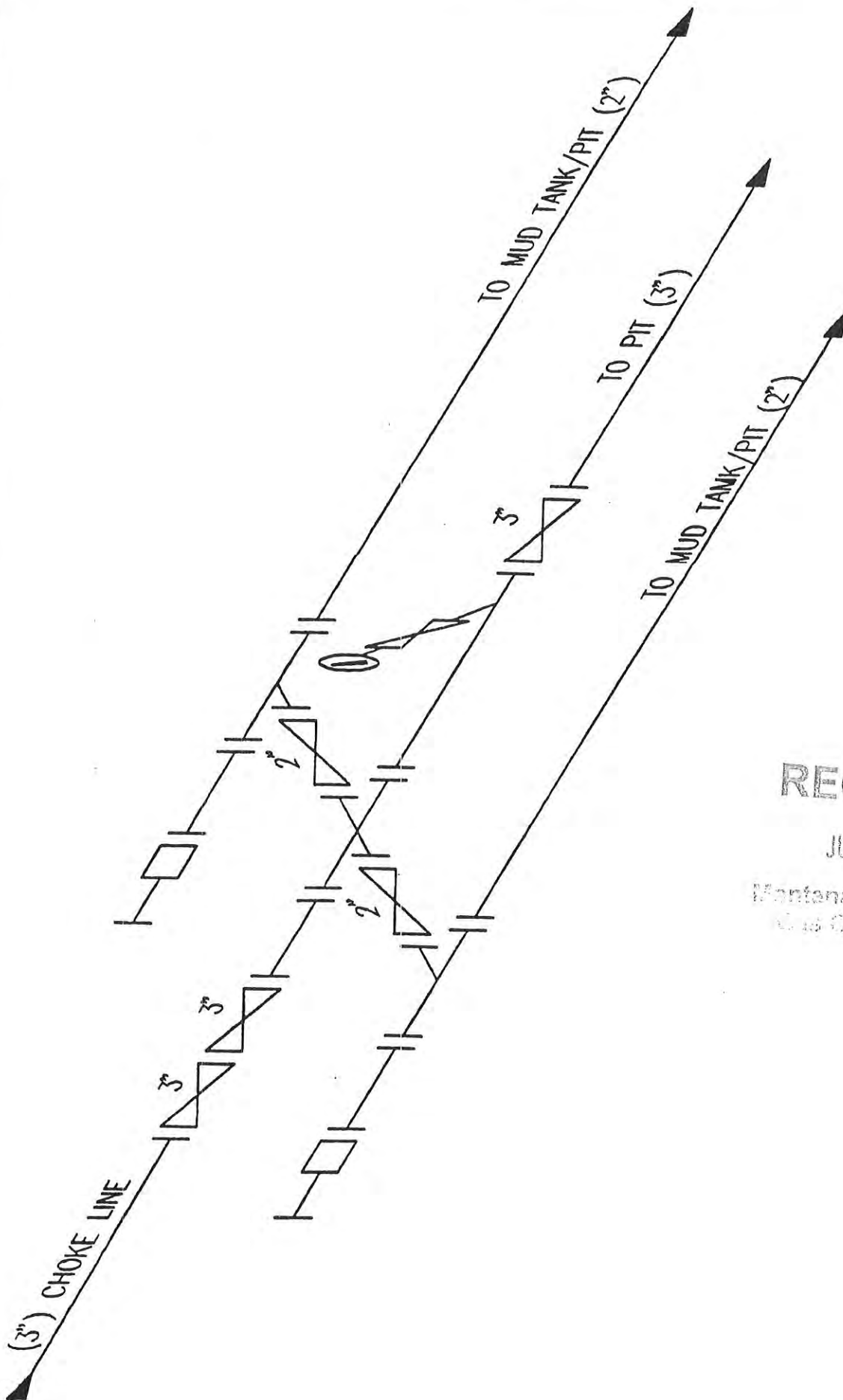


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JUN 30 2014

Montana Board of Oil &
Gas Cons. - Shelby

3M
BLOWOUT PREVENTER
EQUIPMENT



3 M

CHOKE MANIFOLD EQUIPMENT
SKID MOUNTED
ENCLOSED IN STEEL BUILDING

RECEIVED

JUN 30 2014

Montana Dept. of
Conservation

RECEIVED

JUN 04 2014

MOUNTAINVIEW ENERGY LTD

Submit In Quadruplicate To:

MONTANA BOARD OF OIL AND GAS CONSERVATION

2535 ST. JOHNS AVENUE
BILLINGS, MONTANA 59102ARM 36.22.307, 601, 605,
1003, 1004, 1011, 1013,
1103, 1222, 1240, 1301,
1306, 1309, and 1417

RECEIVED

MAY 29 2014

SUNDRY NOTICES AND REPORT OF WELLS

MONTANA BOARD OF OIL &
GAS CONSERVATION - BILLINGS

Operator Vecta Oil & Gas, Ltd		Lease Name: Wallewein
Address P.O. Box 488		Type (Private/State/Federal/Tribal/Allotted): Private
City Cut Bank	State MT	Zip Code 59427
Telephone 406-873-9000		Well Number: 22-1
Fax		Unit Agreement Name: None
Location of well (1/4-1/4 section and footage measurements): SE SW Section 22 T36N R1W (1217' FSL 2407 FWL)		Field Name or Wildcat: Wildcat
API Number:		Township, Range, and Section: T36N R1W S 22
25 101 24242	Well Type (oil, gas, injection, other): CO2 Monitoring	County: Toole
State	County	Well

Indicate below with an X the nature of this notice, report, or other data:

Notice of Intention to Change Plans	☒	Subsequent Report of Mechanical Integrity Test	☐
Notice of Intention to Run Mechanical Integrity Test	☐	Subsequent Report of Stimulation or Treatment	☐
Notice of Intention to Stimulate or to Chemically Treat	☐	Subsequent Report of Perforation or Cementing	☐
Notice of Intention to Perforate or to Cement	☐	Subsequent Report of Well Abandonment	☐
Notice of Intention to Abandon Well	☐	Subsequent Report of Pulled or Altered Casing	☐
Notice of Intention to Pull or Alter Casing	☐	Subsequent Report of Drilling Waste Disposal	☐
Notice of Intention to Change Well Status	☐	Subsequent Report of Production Waste Disposal	☐
Supplemental Well History	☐	Subsequent Report of Change in Well Status	☐
Other (specify) _____	☐	Subsequent Report of Gas Analysis (ARM 36.22.1222)	☐
	☐		☐

Describe Proposed or Completed Operations:

Describe planned or completed work in detail. Attach maps, well-bore configuration diagrams, analyses, or other information as necessary. Indicate the intended starting date for proposed operations or the completion date for completed operations.

Change permitted total depth from 4000' to 4700'.

BOARD USE ONLY

Approved

MAY 30 2014

Date

Original Signed By

David Popp, Chief Field Inspector

Name

Title

The undersigned hereby certifies that the information contained on this application is true and correct:

5/27/2014

Date

Signed (Agent)

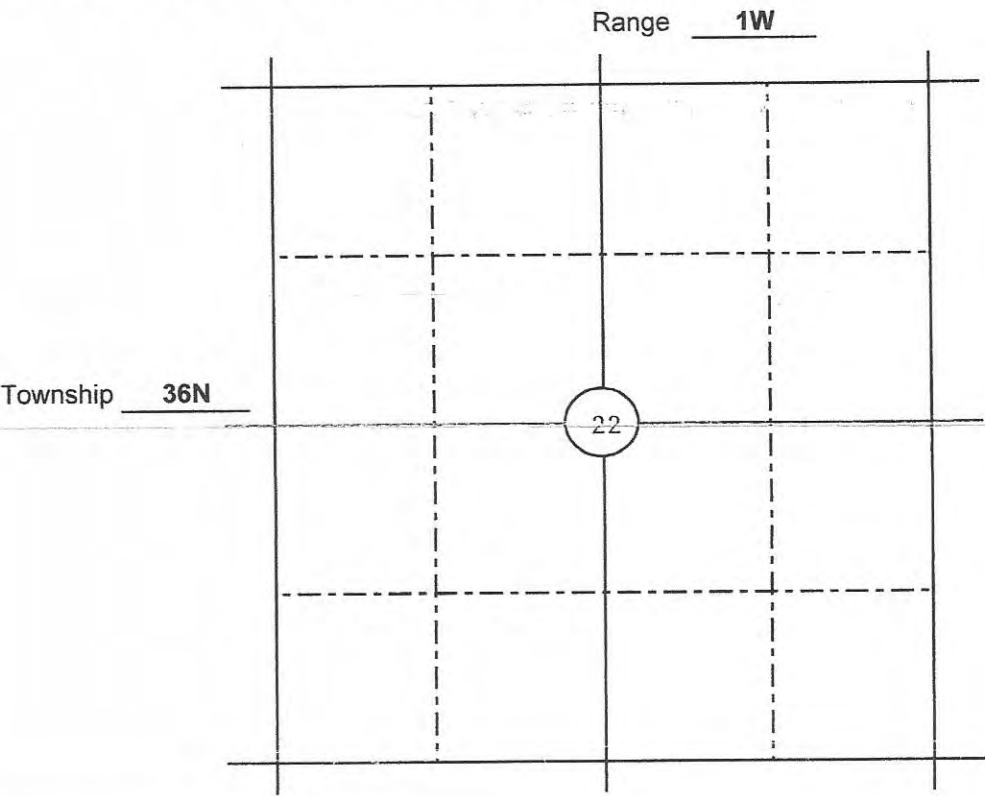
Patrick M. Montalban - Agent

Print Name and Title

Telephone: (406) 873-9000

SUPPLEMENTAL INFORMATION

NOTE: Additional information or attachments may be required by Rule or by special request.
Plot the location of the well or site that is the subject of this notice or report.



BOARD USE ONLY

CONDITIONS OF APPROVAL

The operator must comply with the following condition(s) of approval:

Failure to comply with the conditions of approval may void this permit.

Shelby

FORM NO. 2 R 10/09

ARM 36.22.307, 601, 605,
1003, 1004, 1011, 1013,
1103, 1222, 1240, 1301,
1306, 1309, and 1417

Submit In Quadruplicate To:

MONTANA BOARD OF OIL AND GAS CONSERVATION
2535 ST. JOHNS AVENUE
BILLINGS, MONTANA 59102

SUNDRY NOTICES AND REPORT OF WELLS

Operator Vecta Oil & Gas, Inc.		Lease Name: Wallewein	
Address 575 Union Blvd.		Type (Private/State/Federal/Tribal/Allotted): Private	
City Lakewood	State CO	Zip Code 80228	Well Number: 22-1
Telephone 303-945-2850	Fax	Unit Agreement Name: NA	
Location of well (1/4-1/4 section and footage measurements): SE SW 1217' FSL 2407' FWL		Field Name or Wildcat: Wildcat	
API Number: 25 101 24242 State County Well		Township, Range, and Section: 36N, 1W, Section 22	
Well Type (oil, gas, injection, other): Other		County: Toole	

Indicate below with an X the nature of this notice, report, or other data:

Notice of Intention to Change Plans	☐	Subsequent Report of Mechanical Integrity Test	☐
Notice of Intention to Run Mechanical Integrity Test	☐	Subsequent Report of Stimulation or Treatment	☐
Notice of Intention to Stimulate or to Chemically Treat	☐	Subsequent Report of Perforation or Cementing	☐
Notice of Intention to Perforate or to Cement	☐	Subsequent Report of Well Abandonment	☐
Notice of Intention to Abandon Well	☐	Subsequent Report of Pulled or Altered Casing	☐
Notice of Intention to Pull or Alter Casing	☐	Subsequent Report of Drilling Waste Disposal	☐
Notice of Intention to Change Well Status	☐	Subsequent Report of Production Waste Disposal	☐
Supplemental Well History	☐	Subsequent Report of Change in Well Status	☐
Other (specify) <u>Injectivity Test</u>	☒	Subsequent Report of Gas Analysis (ARM 36.22.1222)	☐

Describe Proposed or Completed Operations:

Describe planned or completed work in detail. Attach maps, well-bore configuration diagrams, analyses, or other information as necessary. Indicate the intended starting date for proposed operations or the completion date for completed operations. Please see attached Procedure.

RECEIVED RECEIVED

MAR 26 2015

MAR 19 2015

Montana Board of Oil & Gas Conservation - Shelby

MONTANA BOARD OF OIL & GAS CONSERVATION • BILLINGS

BOARD USE ONLY	
Approved <u>MAR 23 2015</u>	Date
Original Signed By George Hudsk, UIC Director	
Name	Title

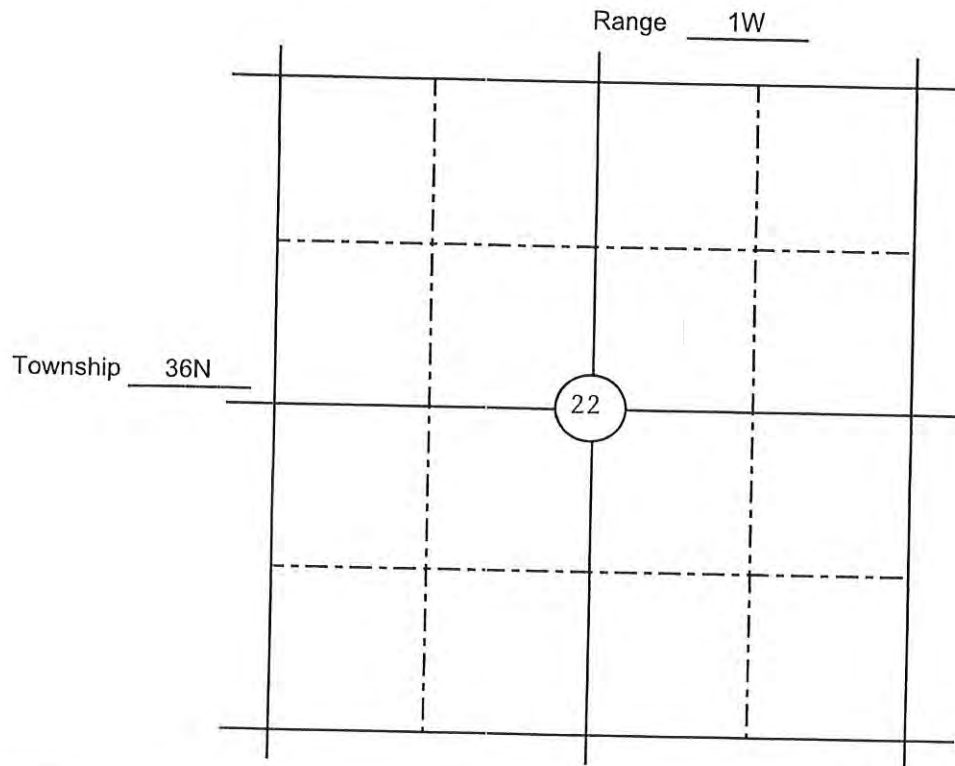
The undersigned hereby certifies that the information contained on this application is true and correct:

3-16-15	Signed (Agent)
Date	Joseph Montalban - Consultant
Print Name and Title	
Telephone: <u>406-873-9000</u>	

SUPPLEMENTAL INFORMATION

NOTE: Additional information or attachments may be required by Rule or by special request.

Plot the location of the well or site that is the subject of this notice or report.



BOARD USE ONLY

CONDITIONS OF APPROVAL

The operator must comply with the following condition(s) of approval:

RECEIVED

MAR 26 2015

Montana Board of Oil &
Gas Cons. - Shelby

Failure to comply with the conditions of approval may void this permit.

Step rate general description

The step rate test is used to determine down hole fracturing pressure. A good reference point is the US EPA guidance on step rate fracture testing. Basically the executive summary is that you inject at constant rate for a period of time at which point you increase rate by a small amount again for a pre-determined time. You can plot rate versus pressure and as long as the plot is a straight line you are below fracturing pressure. When the slope changes you are exceeding fracturing pressure. You then go back to the step prior to fracturing and repeat that step and watch the formation fail a second time. After that you do an immediate shut down and get the bottom Instant Shut In Pressure. Monitor pressure fall off until fracture closes. With that you will get the dynamic fracturing pressure, static fracturing pressure, and closure pressure.

1. Move in workover rig
2. Unset retrievable BP. Lower below Zone 5 and reset at +/- 4100.
3. Pick up retrievable packer and tubing and run in hole
4. Set packer above zone 5 at +/- 4,000'
5. Spot two 500 BBL tanks on location
6. Fill tank with 3% NaCl with inhibitors heated so that it is at minimum 50 degrees F at time of delivery
7. If temperatures warrant, have a hot oiler and/or steamer on location to keep everything from freezing
8. Rig up slickline unit and run in hole with memory pressure/temperature gauges and land in the packer
9. Make static temperature and pressure measurements every 300', making sure both P and T are stabilized
10. Set gauge in nipple below packer and come out of hole
11. Rig up pump truck. Digitally record injection rate and surface pressure.
12. Establish base injection rate trying to closely match formation feed-in pressure for 30 minutes
13. Assuming that formation feed-in rate was $\frac{1}{4}$ BPM then increase rate to $\frac{1}{2}$ BPM for thirty minutes
14. Continue increasing rate by $\frac{1}{4}$ BPM increments until slope change is notice.
15. Repeat last step and observe fracturing again.
16. Shut in and record Instant Shut In Pressure and monitor a minimum of 30 minutes.

RECEIVED

MAR 26 2015

Montana Board of Oil &
Gas Cons. - Shelby

17. Perform Injection/Fall Off Test: Inject salt water at constant rate below frac pressure for eight hours or 1,000 BSW. SWI for minimum 120 hours.
18. Pull gauges making static temperature recordings every 300' (5 minute stops) while pulling out of hole.
19. Pull tbg and packer. Release BP and reset above Zone 5.

RECEIVED

MAR 26 2015

Montana Board of Oil &
Gas Cons. - Shelby

Submit In Quadruplicate To:

MONTANA BOARD OF OIL AND GAS CONSERVATION
2535 ST. JOHNS AVENUE
BILLINGS, MONTANA 59102

RECEIVED**JUN - 6 2016****SUNDRY NOTICES AND REPORT OF WELLS****MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS**

Operator Vecta Oil & Gas, Ltd.		Lease Name: Wallewein
Address 575 Union Blvd. Suite 208		Type (Private/State/Federal/Tribal/Allotted): Private
City Lakewood	State CO	Zip Code 80228
Telephone 303-204-1258		Well Number: 22-1
Location of well (1/4-1/4 section and footage measurements): SE SW 1217' FSL 2407' FWL		Unit Agreement Name: NA
		Field Name or Wildcat: Wildcat
		Township, Range, and Section: T36N, R1W, Section 22
API Number: 25 101 24242 State County Well	Well Type (oil, gas, injection, other): Monitoring	County: Toole

Indicate below with an X the nature of this notice, report, or other data:

Notice of Intention to Change Plans	☐	Subsequent Report of Mechanical Integrity Test	☐
Notice of Intention to Run Mechanical Integrity Test	☐	Subsequent Report of Stimulation or Treatment	☐
Notice of Intention to Stimulate or to Chemically Treat	☐	Subsequent Report of Perforation or Cementing	☐
Notice of Intention to Perforate or to Cement	☐	Subsequent Report of Well Abandonment	☐
Notice of Intention to Abandon Well	☒	Subsequent Report of Pulled or Altered Casing	☐
Notice of Intention to Pull or Alter Casing	☐	Subsequent Report of Drilling Waste Disposal	☐
Notice of Intention to Change Well Status	☐	Subsequent Report of Production Waste Disposal	☐
Supplemental Well History	☐	Subsequent Report of Change in Well Status	☐
Other (specify) _____	☐	Subsequent Report of Gas Analysis (ARM 36.22.1222)	☐

**NOTIFY SERVICE COMPANY TO
FORWARD CEMENT TICKETS AS
REQUIRED BY RULE 36.22.1241.**

Describe Proposed or Completed Operations:

Describe planned or completed work in detail. Attach maps, well-bore configuration diagrams, analyses, or other information as necessary. Indicate the intended starting date for proposed operations or the completion date for completed operations.

Move onto location on approximately June 13, 2016. Rig up with Sevice Rig on well. Run in hole, latch onto retrievable bridge plug, release it, and pull it out of hole. Run in hole and set a CICR at 4095', establish a rate and squeeze 50sx of cement below the retainer and into the Middle Duperow perms, sting out and Trip out of hole with workstring. Run in hole and set a CICR at 4020', establish a rate and squeeze 35sx of cement below the retainer and into the Upper Duperow perms, sting out and balance 15sx cement (3890'-4020') on top of retainer. Leave corrosion inhibited fluid in the well, spot a gelled pill from (200'-400') in the 5 1/2" casing, and then set a 23 sx cement plug from (0-200'). Cap off casing stubs with a steel plate welded on top 4 feet below the surface. Cleanup, restore and reclaim the location.

BOARD USE ONLY

Approved **JUN 07 2016**
 Date
Original Signed By
David Popp, Chief Field Inspector
 Name Title

The undersigned hereby certifies that the information contained on this application is true and correct:

6/2/2016

Date

Signed (Agent)

Joseph Montalban - Consultant

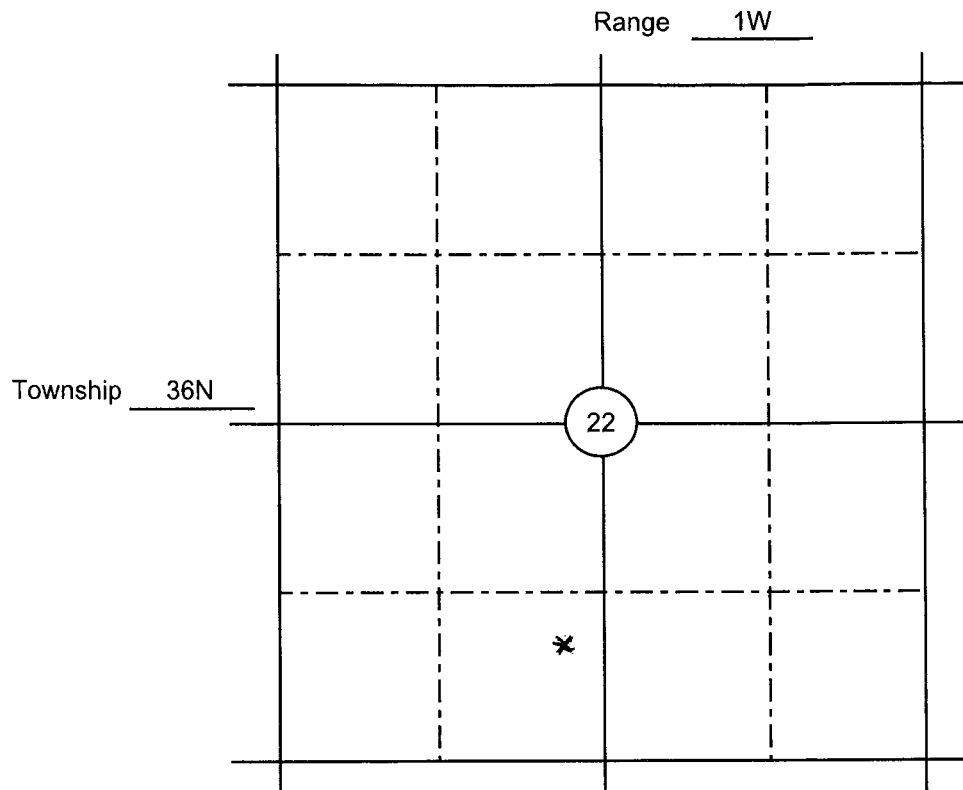
Print Name and Title

Telephone: 406-873-9000

SUPPLEMENTAL INFORMATION

NOTE: Additional information or attachments may be required by Rule or by special request.

Plot the location of the well or site that is the subject of this notice or report.



BOARD USE ONLY

CONDITIONS OF APPROVAL

The operator must comply with the following condition(s) of approval:

Notify the Shelby Office (406) 434-2422
24 hours prior to plugging well

Failure to comply with the conditions of approval may void this permit.

Submit In Quadruplicate To:

MONTANA BOARD OF OIL AND GAS CONSERVATION
2535 ST. JOHNS AVENUE
BILLINGS, MONTANA 59102**RECEIVED****JUN - 6 2016****SUNDRY NOTICES AND REPORT OF WELLS****MONTANA BOARD OF OIL & GAS CONSERVATION • BILLINGS**

Operator Vecta Oil & Gas, Ltd.		Lease Name: Wallewein .
Address 575 Union Blvd. Suite 208		Type (Private/State/Federal/Tribal/Allotted): Private
City Lakewood	State CO	Zip Code 80228
Telephone 303-204-1258		Well Number: 22-1
Location of well (1/4-1/4 section and footage measurements): SE SW 1217' FSL 2407' FWL		Unit Agreement Name: NA
		Field Name or Wildcat: Wildcat
		Township, Range, and Section: T36N, R1W, Section 22
API Number: 25 101 24242 State County Well		County: Toole
Well Type (oil, gas, injection, other): Monitoring		

Indicate below with an X the nature of this notice, report, or other data:

Notice of Intention to Change Plans	☐	Subsequent Report of Mechanical Integrity Test	☐
Notice of Intention to Run Mechanical Integrity Test	☐	Subsequent Report of Stimulation or Treatment	☐
Notice of Intention to Stimulate or to Chemically Treat	☐	Subsequent Report of Perforation or Cementing	☐
Notice of Intention to Perforate or to Cement	☐	Subsequent Report of Well Abandonment	☐
Notice of Intention to Abandon Well	☒	Subsequent Report of Pulled or Altered Casing	☐
Notice of Intention to Pull or Alter Casing	☐	Subsequent Report of Drilling Waste Disposal	☐
Notice of Intention to Change Well Status	☐	Subsequent Report of Production Waste Disposal	☐
Supplemental Well History	☐	Subsequent Report of Change in Well Status	☐
Other (specify) _____	☐	Subsequent Report of Gas Analysis (ARM 36.22.1222)	☐

Describe Proposed or Completed Operations:

Describe planned or completed work in detail. Attach maps, well-bore configuration diagrams, analyses, or other information as necessary. Indicate the intended starting date for proposed operations or the completion date for completed operations.

Move onto location on approximately June 13, 2016. Rig up with Sevice Rig on well. Run in hole, latch onto retrievable bridge plug, release it, and pull it out of hole. Run in hole and set a CICR at 4095', establish a rate and squeeze 50sx of cement below the retainer and into the Middle Duperow perms, sting out and Trip out of hole with workstring. Run in hole and set a CICR at 4020', establish a rate and squeeze 35sx of cement below the retainer and into the Upper Duperow perms, sting out and balance 15sx cement (3890'-4020') on top of retainer. Leave corrosion inhibited fluid in the well, spot a gelled pill from (200'-400') in the 5 1/2" casing, and then set a 23 sx cement plug from (0-200'). Cap off casing stubs with a steel plate welded on top 4 feet below the surface. Cleanup, restore and reclaim the location.

BOARD USE ONLY

Approved

JUN 07 2016

Date



Name

CHIEF FIELD INSPECTOR

Title

The undersigned hereby certifies that the information contained on this application is true and correct:

6/2/2016

Date



Signed (Agent)

Joseph Montalban - Consultant

Print Name and Title

Telephone:

406-873-9000

SUPPLEMENTAL INFORMATION

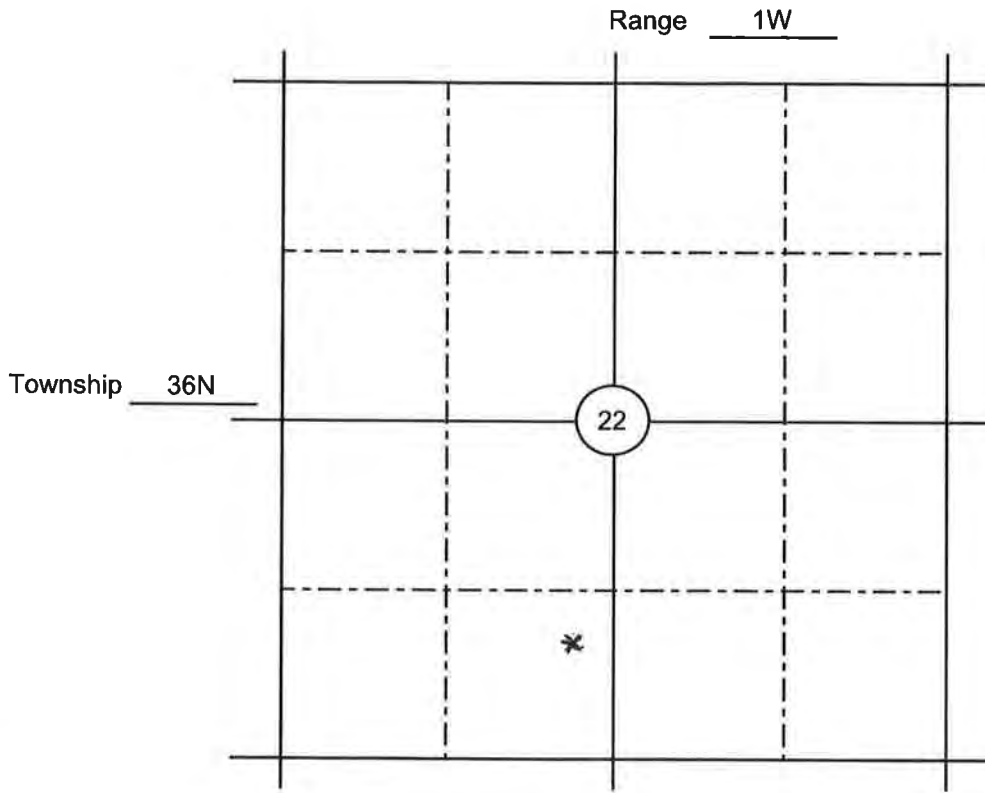
NOTE: Additional information or attachments may be required by Rule or by special request.

Plot the location of the well or site that is the subject of this notice or report.

RECEIVED

JUN - 6 2016

**MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS**



BOARD USE ONLY

CONDITIONS OF APPROVAL

The operator must comply with the following condition(s) of approval:

Notify the Shelby Office (406) 434-2422
24 hours prior to plugging well

Failure to comply with the conditions of approval may void this permit.

101-24242

Submit In Quadruplicate To:

**MONTANA BOARD OF OIL AND GAS CONSERVATION
2535 ST. JOHNS AVENUE
BILLINGS, MONTANA 59102**

RECEIVED**JUL 22 2016****SUNDRY NOTICES AND REPORT OF WELLS**MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS

Operator Vecta Oil & Gas, Ltd.		Lease Name: Wallewein
Address 575 Union Blvd. Suite 208		Type (Private/State/Federal/Tribal/Allotted): Private
City Lakewood	State CO	Zip Code 80228
Telephone 303-204-1258		Well Number: 22-1
Location of well (1/4-1/4 section and footage measurements): SE SW 1217' FSL 2407' FWL		Unit Agreement Name: NA
		Field Name or Wildcat: Wildcat
		Township, Range, and Section: T36N, R1W, Section 22
API Number: 25 101 24242	Well Type (oil, gas, injection, other): Monitoring	County: Toole
State	County	Well

Indicate below with an X the nature of this notice, report, or other data:

Notice of Intention to Change Plans	☐	Subsequent Report of Mechanical Integrity Test	☐
Notice of Intention to Run Mechanical Integrity Test	☐	Subsequent Report of Stimulation or Treatment	☐
Notice of Intention to Stimulate or to Chemically Treat	☐	Subsequent Report of Perforation or Cementing	☐
Notice of Intention to Perforate or to Cement	☐	Subsequent Report of Well Abandonment	☒
Notice of Intention to Abandon Well	☐	Subsequent Report of Pulled or Altered Casing	☐
Notice of Intention to Pull or Alter Casing	☐	Subsequent Report of Drilling Waste Disposal	☐
Notice of Intention to Change Well Status	☐	Subsequent Report of Production Waste Disposal	☐
Supplemental Well History	☐	Subsequent Report of Change in Well Status	☐
Other (specify) _____	☐	Subsequent Report of Gas Analysis (ARM 36.22.1222)	☐
	☐		☐

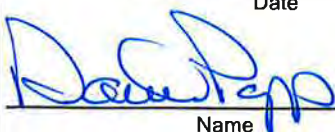
Describe Proposed or Completed Operations:

Describe planned or completed work in detail. Attach maps, well-bore configuration diagrams, analyses, or other information as necessary. Indicate the intended starting date for proposed operations or the completion date for completed operations.

Move on location July 11, 2016. Rig up Service rig and run in hole with work string, latch onto RBP and trip out of hole with RBP. Run in hole with CICR and set it at 4094'. Establish a rate of 1.5 bbls/min at 1400 psi. Squeeze 50 sacks of cement below retainer and into Middle Duperow perms. Sting out and trip out of hole with workstring. Run in hole and set a CICR at 4015'. Unable to establish rate or pump any cement below CICR. Pump a 50 sack plug on top of CICR as instructed by State Inspector. Trip out of hole. Run in hole with sand line to tag cement. Tag cement plug @ 3600'. Trip in and spot gelled pill from 200'-400'. Set 23 sack cement plug from (0-200'). Good returns to surface, capped off casing stubs with steel plate and bury 5 feet below ground surface. Move equipment off location and clean up location. Crew will come back and reclaim location after harvest.

LOCATION INSPECTED & APPROVED

by Gary Klotz 10-5-16

BOARD USE ONLYApproved OCT 12 2016
Date

Name

CHIEF FIELD INSPECTOR

Title

The undersigned hereby certifies that the information contained on this application is true and correct:

7/18/16

Date



Signed (Agent)

Joseph Montalban - Consultant

Print Name and Title

Telephone: 406-873-9000

SRA

SUPPLEMENTAL INFORMATION

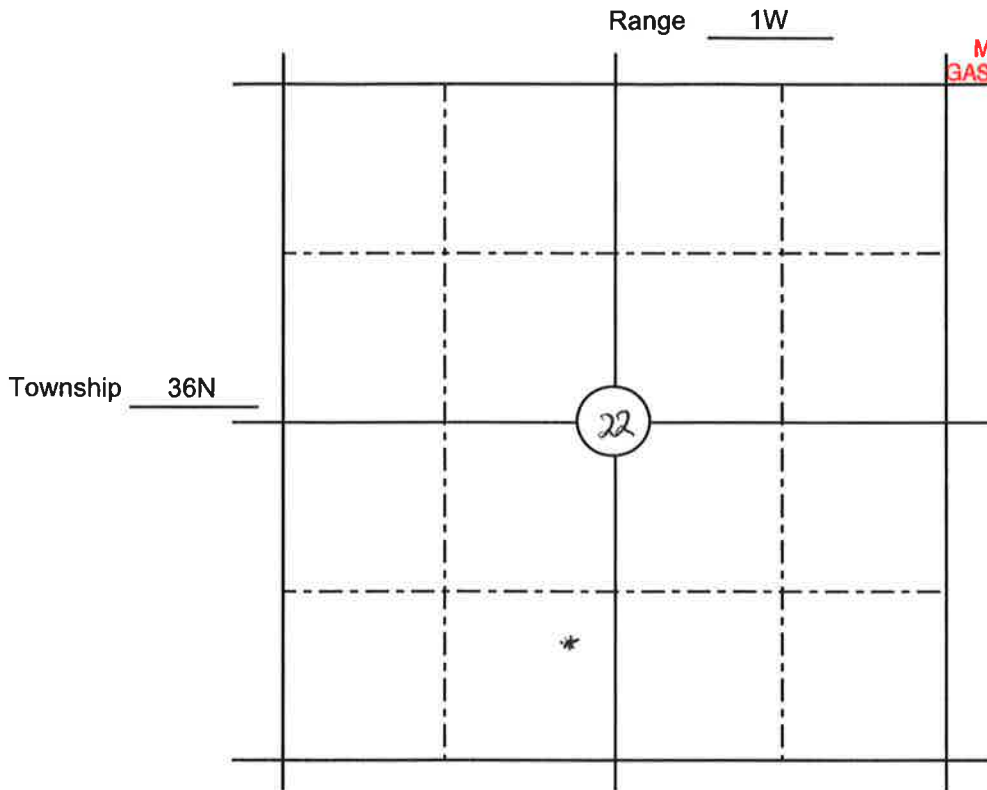
NOTE: Additional information or attachments may be required by Rule or by special request.

Plot the location of the well or site that is the subject of this notice or report.

RECEIVED

JUL 22 2016

**MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS**



BOARD USE ONLY

CONDITIONS OF APPROVAL

The operator must comply with the following condition(s) of approval:

Failure to comply with the conditions of approval may void this permit.

101-24242

Submit In Quadruplicate To:

MONTANA BOARD OF OIL AND GAS CONSERVATION
2535 ST. JOHNS AVENUE
BILLINGS, MONTANA 59102

RECEIVED**OCT 11 2016****SUNDRY NOTICES AND REPORT OF WELLS**MONTANA BOARD OF OIL &
GAS CONSERVATION - BILLINGS

Operator Vecta Oil & Gas, Ltd.

Address 575 Union Blvd. Suite 208

City Lakewood State CO Zip Code 80228

Telephone 303-204-1258 Fax

 Location of well (1/4-1/4 section and footage measurements):
 SE SW 1217' FSL 2407' FWL

Lease Name:

Wallewein

Type (Private/State/Federal/Tribal/Allotted):

Private

Well Number:

22-1

Unit Agreement Name:

NA

Field Name or Wildcat:

Wildcat

Township, Range, and Section:

T36N, R1W, Section 22

API Number:

25 | 101 | 24242

State County Well

Well Type (oil, gas, injection, other):

Monitoring

County:

Toole

Indicate below with an X the nature of this notice, report, or other data:

Notice of Intention to Change Plans ☐Notice of Intention to Run Mechanical Integrity Test ☐Notice of Intention to Stimulate or to Chemically Treat ☐Notice of Intention to Perforate or to Cement ☐Notice of Intention to Abandon Well ☐Notice of Intention to Pull or Alter Casing ☐Notice of Intention to Change Well Status ☐Supplemental Well History ☐Other (specify) ☐Subsequent Report of Mechanical Integrity Test ☐Subsequent Report of Stimulation or Treatment ☐Subsequent Report of Perforation or Cementing ☐Subsequent Report of Well Abandonment ☒Subsequent Report of Pulled or Altered Casing ☐Subsequent Report of Drilling Waste Disposal ☐Subsequent Report of Production Waste Disposal ☐Subsequent Report of Change in Well Status ☐Subsequent Report of Gas Analysis (ARM 36.22.1222) ☐**Describe Proposed or Completed Operations:**

Describe planned or completed work in detail. Attach maps, well-bore configuration diagrams, analyses, or other information as necessary. Indicate the intended starting date for proposed operations or the completion date for completed operations.

Move equipment out to location on September 20, 2016. Begin land reclamation work on the Wallewein 22-1 well pad. Crews reclaim well site to original setting and to landowner specifications. Work was suspended for a couple days due to rain. Reclamation work is finished on September 27, 2016.

LOCATION INSPECTED & APPROVED by Klotz

BOARD USE ONLY

Approved OCT 12 2016

Date

CHIEF FIELD INSPECTOR

Name

Title

The undersigned hereby certifies that the information contained on this application is true and correct:

10/3/2016

Date

Signed (Agent)

Joseph Montalban - Consultant

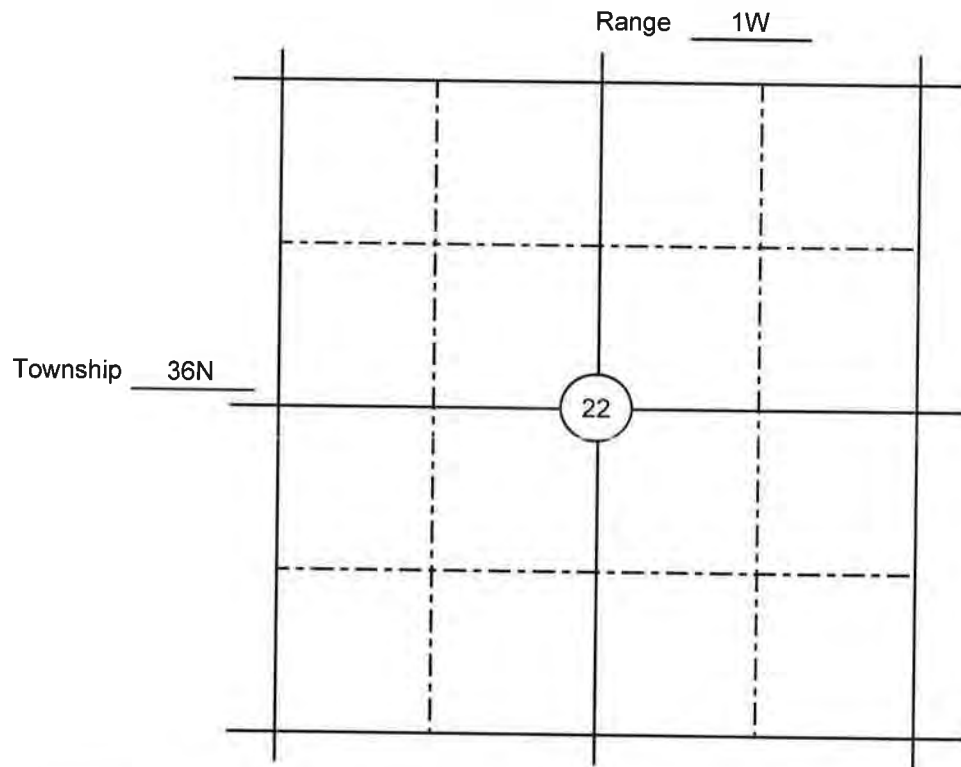
Print Name and Title

Telephone: 406-873-9000

SUPPLEMENTAL INFORMATION

NOTE: Additional information or attachments may be required by Rule or by special request.

Plot the location of the well or site that is the subject of this notice or report.



BOARD USE ONLY

CONDITIONS OF APPROVAL

The operator must comply with the following condition(s) of approval:

Failure to comply with the conditions of approval may void this permit.



Montana Department of
ENVIRONMENTAL QUALITY

Steve Bullock, Governor
Tracy Stone-Manning, Director

P. O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • Website: www.deq.mt.gov

April 28, 2014

LEE SPANGLER
MSU - ALTAMONT
PO BOX 173905
BOZEMAN MT 59717

RE: **Confirmation Letter, Notice of Intent (NOI) Number MTR105520
MSU - ALTAMONT - BIG SKY WALLEWEIN 22-1**

Dear LEE SPANGLER:

The Department of Environmental Quality (DEQ) is acknowledging receipt on 4/23/2014 of your complete Notice of Intent (NOI) for permit coverage under the January 1, 2013, *General Permit for Storm Water Discharges Associated with Construction Activity* (General Permit). For administrative purposes, you have been assigned permit number MTR105520. Please include this permit number on any future correspondence with DEQ regarding this site.

This letter acknowledges receipt of the complete NOI and does not provide a DEQ determination of the validity of the information you provided. Your eligibility for coverage under the General Permit is based on the validity of the certification you provided. Your signature on the NOI certifies that you have read, understood, and are implementing all of the applicable requirements.

The General Permit requires you to implement the Storm Water Pollution Prevention Plan (SWPPP) and defines inspection and record keeping requirements. Records defined in Part 2.5 are required to be maintained on-site with the designated SWPPP Administrator. An electronic copy of the Permit and additional guidance materials can be viewed and downloaded at <http://deq.mt.gov/wqinfo/mpdes/stormwaterconstruction.mcp>.

Coverage under the General Permit remains effective until you submit a complete Notice of Termination (NOT). Your signature on the NOT certifies that you have achieved final stabilization, removed your temporary Best Management Practices, and have paid all applicable fees. Failure to submit a complete NOT will result in the assessment of additional annual permit fees, which must be paid by the owner or operator.

Coverage under this General Permit does not waive your obligation to obtain coverage under other applicable permits.

If you have any questions regarding the requirements of the General Permit, please feel free to contact the Water Protection Bureau at (406) 444-3080.

Sincerely,

Jamie Petaja
Data Control Tech
Water Protection Bureau
jpetaja@mt.gov

Attachments: General Permit

GENERAL PERMIT FOR STORM WATER DISCHARGES
ASSOCIATED WITH CONSTRUCTION ACTIVITY

PERMIT NUMBER MTR100000

MONTANA DEPARTMENT
OF ENVIRONMENTAL QUALITY

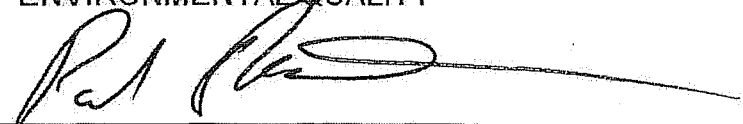
**AUTHORIZATION TO DISCHARGE UNDER
THE MONTANA POLLUTANT DISCHARGE ELIMINATION SYSTEM**

In compliance with Section 75-5-101 *et seq.*, Montana Codes Annotated (MCA), Administrative Rules of Montana (ARM) 17.30.1301 *et seq.*, and ARM 17.30.1101 *et seq.*, owners and operators (permittees) with authorization under this "General Permit for Storm Water Discharges Associated with Construction Activity" (permit) are authorized to discharge storm water in accordance with the conditions set forth in Parts 1, 2, 3, 4, and 5 of this permit.

This permit shall become effective January 1, 2013.

This permit and the authorization to discharge shall expire at midnight, December 31, 2017.

FOR THE MONTANA DEPARTMENT OF
ENVIRONMENTAL QUALITY

A handwritten signature in black ink, appearing to read 'Paul Skubinna', is written over a horizontal line.

Paul Skubinna, Program Manager
Water Quality Discharge Permit Section
Water Protection Bureau
Permitting & Compliance Division

Issuance date: October 25, 2012



May 18, 2015

LEE SPANGLER
MSU - ALTAMONT
PO BOX 173905
BOZEMAN MT 59717

RE: **Confirmation Letter, Termination of Permit Authorization Number MTR105520
MSU - ALTAMONT - BIG SKY WALLEWEIN 22-1**

Dear LEE SPANGLER:

This letter serves as confirmation that the Department has received a complete Notice of Termination (NOT) form on 5/12/2015. This termination is for the authorization to discharge storm water from the above site in accordance with the Department's *General Permit for Storm Water Discharges Associated with Construction Activity* (General Permit) and the information provided in your Notice of Intent (NOI) and Storm Water Pollution Prevention Plan (SWPPP). The reason for terminating this permit authorization is because the construction project site has achieved "Final Stabilization" as defined in the General Permit.

Termination of this permit authorization does not relieve the owner or operator from responsibility for compliance with any other applicable federal, state, or local law, rule, standard, ordinance, order, judgment or decree. Termination of this permit authorization does not remove the owner or operator from their obligation to obtain and maintain other permit(s) to discharge sewage, industrial wastes, or other wastes into any state waters, or from associated liability for discharging wastes into state waters.

Permittees are required to pay the applicable annual fee of the calendar year in which they have permit coverage, as defined in 75-5-516, MCA and 17.30.201, ARM. Your NOT has been processed and your authorization is terminated. To bring your account current, an invoice for outstanding fees is enclosed.

The Department will keep this information on file. If you have any questions, please contact the Water Protection Bureau at (406) 444-3080. Thank you for your cooperation in protecting Montana's waters.

Sincerely,

A handwritten signature in blue ink that reads "Janie Petaja". The signature is fluid and cursive, with the first name "Janie" being more prominent than the last name "Petaja".

Janie Petaja
Data Control Tech
Water Protection Bureau
jpetaja@mt.gov

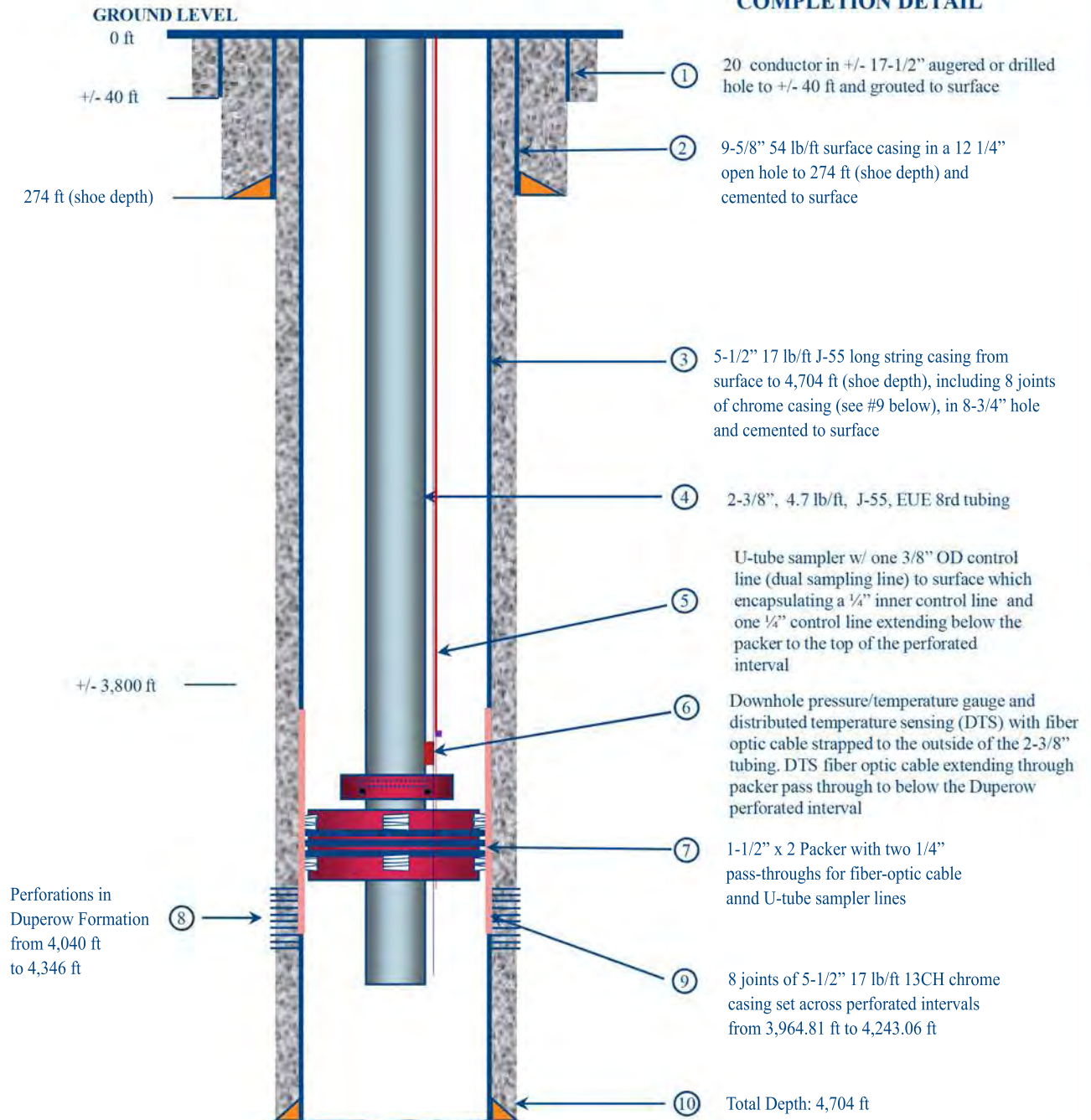
encl: invoice

WALLEWEIN 22-1 EBOOK

Drilling Documents

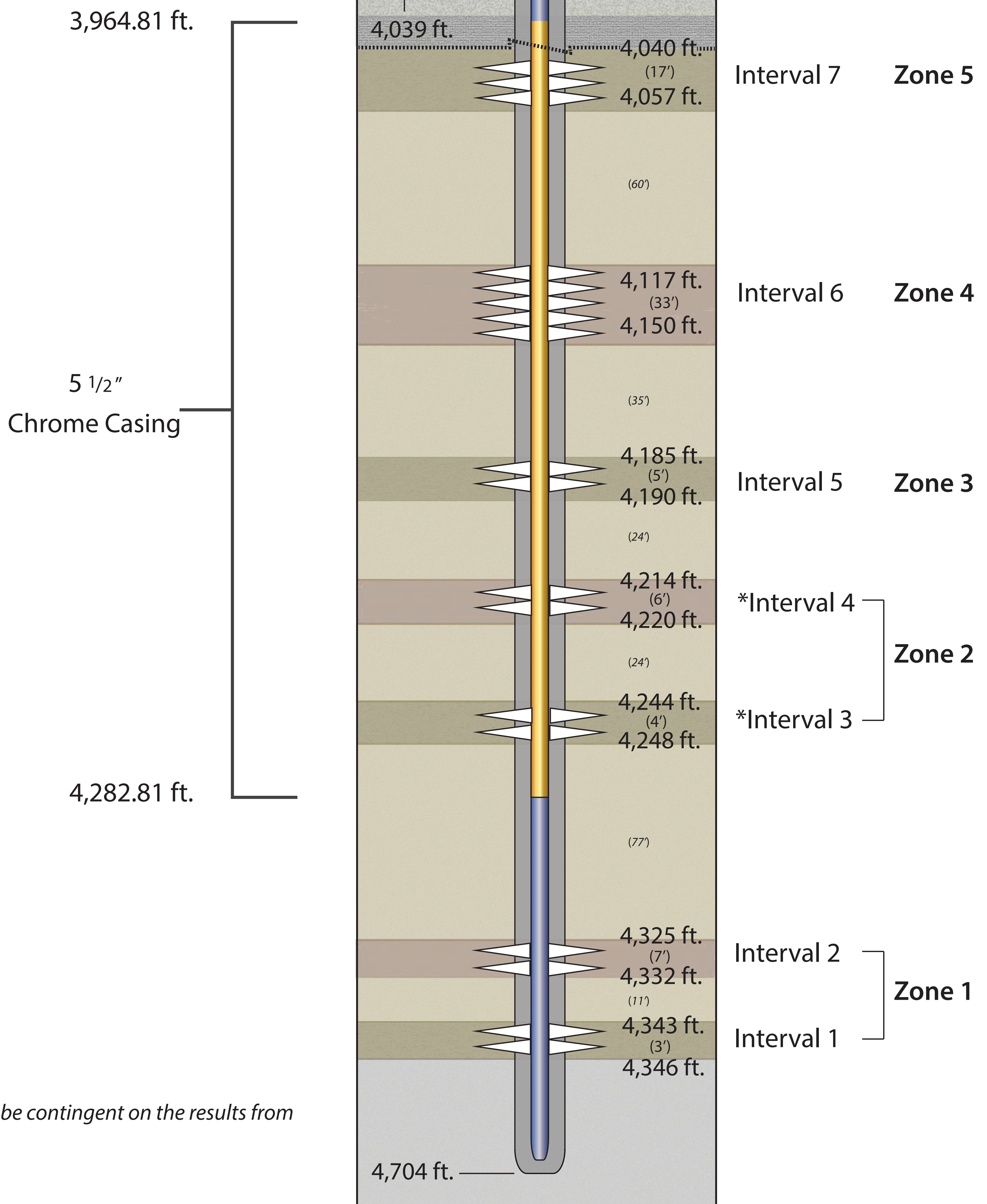
Geochemical Monitoring Well

COMPLETION DETAIL



Note: All casings cemented to surface

Well Perforation Schematic for the Wallewein 22-1 Far Geochemical Well



*Interval 3 and 4 will be contingent on the results from Interval 1 and 2

**ALTAMONT/VECTA OIL & GAS, LTD/BIG SKY
WALLEWEIN 22-1
PROGNOSIS**

May 16, 2014

ALTAMONT/VECTA OIL & GAS, LTD/BIG SKY
Wallewein 22-1
API No. 25-101-24242
LOCATION: SESW - SECTION 22 – T36N – R1W
(1217' FSL – 2407' FWL)
TOOLE COUNTY, MONTANA

DRILLING—TESTING—CASING—PROGRAM—PROGNOSIS
GROUND ELEVATION (BEFORE GRADING) 3963' GL – 3974' KB

Altamont Oil & Gas Operations, Inc (Altamont) has prepared roads, made locations, dug pits, installed the liner under tanks, set mud tanks, and installed liner in reserve pit and lined with netting. FX Drilling Company will move in, rig up and spud well May 19, 2014, weather permitting.

CONDUCTOR CASING

Wyoming Casing has set 40' of 16" conductor casing prior to moving FX Drilling to location. Wyoming Casing has set the cellar approximately 4ft deep.

SURFACE CASING

- 1) Drill about 250' (plus or minus) of 12-1/4" surface hole to accommodate approximately 250' (plus or minus) of 9-5/8" pipe. Run approximately 6 joints of 9-5/8", 36#/ft, J55, 8rd, ST&C, Rge 3 surface casing.
- 2) Haul drilling mud from previous well for spud mud when available. Mix gel, lime and LCM as needed to drill surface hole. CONTRACTOR MUST MUD UP WITH 40 – 50 VISCOSITY AND LCM, WHEN NEEDED, PRIOR TO SPUDDING WELL. MAKE DUMMY TRIP PRIOR TO RUNNING SURFACE.
- 3) Run guide shoe on bottom joint and float collar on first joint and four (4) centralizers (every other joint). See Sanjel cement program for surface pipe cementing procedure. Obtain good returns to surface. Gravel pack, if needed. Use thread-lock on the shoe and bottom joint.
- 4) DO NOT SLACK OFF BEFORE EIGHT (8) HOURS W.O.C. TIME. Thereafter, nipple up, trip in the whole. DRILL OUT AFTER TWELVE (12) HOURS. Test casing and BOP to 500 pounds above shoe and 300 pounds below.
- 5) STRAIGHT HOLE SURVEYS: Run every 100' on surface hole and at bottom of surface hole and thereafter, every 30'. Contractor must perform straight hole surveys every 30'. Maximum surface hole deviation allowed is one half degree per 100' (1/2°/100') hole. Maximum deviation allowed to total depth shall not exceed three degrees (3°).

MAIN HOLE

- 1) Drill 8-3/4" hole from 250' – 4565' (plus or minus) to accommodate approximately 4565' (plus or minus) of 5-1/2" Casing. Core Potlatch and Duperow section, as detailed in core plan. Run approximately 3800' of 5-1/2", 17#/ft, J55, 8rd, LT&C Rge 3 casing from 250' to 3800' and 5-1/2", 17#/ft, 80 Ksi CR-13 Chrome Casing from 3800' to 4100' picking up with 5-1/2", 17#/ft, J55, 8rd, LT&C, Rge 3 casing at 4100' and setting same at 4565'. Run 5-1/2" Stage Tool at 2,390'. Run Chrome Casing under the direction of the Wellsite Engineer.
- 2) Run float shoe on bottom joint and float collar on first joint. Run centralizers as instructed by the drilling engineer. Cement 5-1/2" long string pipe, as per Sanjel's program. Obtain good returns to surface. Use thread-lock on the guide shoe and bottom joint.
- 3) STRAIGHT HOLE SURVEYS: Run surveys every 30', or as close as possible. Maximum deviation allowed to total depth shall not exceed three degrees (3°).

PIPE MEASUREMENTS

Pipe measurements are the strict responsibility of the Contractor. Pipe must be strapped before reaching any important payzones (Sunburst, Madison and Duperow) and Total Depth. IF MORE THAN THREE (3') FOOT ERROR OCCURS WHILE STRAPPING OUT OF THE HOLE, PIPE WILL BE STRAPPED AGAIN GOING BACK IN THE HOLE. IF ERROR CONTINUES, CORRECT PIPE TALLY BOARD. Dimensions are as follows:

Drill Pipe: 4-1/2" XH

Drill Collars: 8" – 6-5/8" Top and Bottom Tool Joint

Bottom Hole Collar: 6-1/4" – 4" H90 Tool Joint – One BH collar with 4-1/2" Reg

SAMPLES

Begin catching thirty (30') foot samples from underneath surface. Begin collecting ten (10') samples at 2200' or when Sunburst formation is reached. Samples are to be WASHED CLEAN and marked showing well name; Altamont/Vecta/Big Sky Wallewein 22-1 and depth. Bundle in lots of 100'. Two sets of all samples should be collected and stored for Operator. Five (5') foot samples will be caught as instructed by Wellsite Geologist.

DRILLING PROGRAM

Native mud can be carried to about 1,800' or the Kootenai whichever comes first. At this depth, start to mix gel each tour (about 10 sacks) and raise viscosity to the 40-45 range for coring and testing. Water loss NO GREAT THAN SIX (6) c.c. and weight no greater than 9.1 must be obtained and maintained before entering the SUNBURST AND MADISON PAYZONES. IT IS THE STRICT RESPONSIBILITY OF THE CONTRACTOR TO HAVE THE SHALE SHAKER RUNNING TWENTY-FOUR (24) HOURS DAILY FROM DRILLING OUT SURFACE TO TOTAL DEPTH, IF CONTRACTOR CAN SUPPLY EQUIPMENT. CONTRACTOR MUST MAINTAIN MUD CONDITIONS AS OUTLINED, AND SUPPLY A PROPER HOLE IN GOOD CONDITION FOR CORING AND LOGGING PRIOR TO REACHING THE DUPEROW, WHICH WILL BE EXPECTED AROUND 3,793'. Viscosities, mud weights and water loss are to be taken every FOUR HOURS and marked in the daily log. Before reaching Total Depth, raise viscosity to the 70 – 80 range and a water loss of 5 – 6 range for Open Hole Logging. Prepare the hole for logging.

MUD PROGRAM

The Mud Program is included in the Prognosis packet.

CORING PROGRAM

Core samples will be taken 30' (minimum 10') into the Potlatch and 240' into the Upper and Middle Duperow (plus or minus). Core points are as follows:

Core 1:	3600' – 3630'
Core 2:	3843' – 3903'
Core 3:	3903' – 3963'
Core 4:	3963' – 4032'

WELLHEAD ASSEMBLY

The diagram of the wellhead assembly and BOP is included with the Prognosis packet.

HOLE SAFETY

It is the strict responsibility of the Contractor, at all times, to keep the hole full while making trips and running cutting cores prevent blowout.

LOGGING PROGRAM TOTAL DEPTH

OPEN HOLE:

Platform Express (PEX) – Array Induction Tool: TD to Surface casing

(note; PEX includes formation Density, compensated neutron, gamma ray and caliper)

Sonic Scanner: TD to Surface casing

Combinable Magnetic Resonance (CMR): TD to Madison top

Elemental Capture Spectroscopy (ECS): TD to Madison top
Hostile Environment Natural Gamma Ray Spectroscopy (HNGS): TD to Madison top
Full-bore Micro Imager (FMI): TD to Madison top
Cement Bond Log over Surface Casing

CASED HOLE:

Reservoir Saturation Tool (RST): TD to Surface
Isolation Scanner (IBT): PBTD to Surface (*note; this is cement evaluation logging*)
Multi-Finger Caliper (PMIT): PBTD to Surface

The logging program could be changed on site by the consulting geologist or engineer.

Contractor shall provide proper and suitable hole for logging with mud and proper condition for logs to reach bottom. Mix gel and raise viscosity to 60 – 70 range for running logs prior to reaching T. D. Short trip drill pipe (about ten stands) before running log to insure clean hole and logs going to bottom.

COMPLETION PROGRAM

See Sanjel Completion Cement program included in the Prognosis packet.

H2S SAFETY

H2S and CO2 monitoring equipment will be present on-site along with a safety supervisor. All hands will be required to attend daily H2S training. The service will be provided by Triple AAA Safety/Training and Darwin Krabbenhoft.

KEVIN DOME GEOLOGIC WELL PROGNOSIS

Estimated tops based on Kelly Busing Elevation 3974' KB:

Formation	Monitoring Well (md-ft)	Datum
Ground Surface Elevation	3963	
Blackleaf	1041	+2933
Bow Island	1314	+2660
Kootenai	1858	+2116
Sunburst	2227	+1747
Swift	2282	+1692
Rierdon	2336	+1638
Sawtooth	2452	+1522
Madison (Sun River Dolomite)	2489	+1485
Mission Canyon	2624	+1350
Lodgepole	3195	+779
Banff	3428	+546
Bakken	3547	+427
Three Forks	3569	+405
Potlatch	3577	+397
Nisku	3738	+236
Upper Duperow	3793	+181
Middle Duperow	3965	+9
Lower Duperow	4212	-238
Souris River	4471	-497
T.D.	4565	-591

*****CALL PATRICK M. MONTALBAN BEFORE RUNNING SURFACE CASING---CORING---
 OPEN HOLE LOGS AND BEFORE RUNNING LONG STRING *****

DO NOT DRILL PAST 4565' TOTAL DEPTH!!!!

Altamont Oil and Gas Operations, Inc.

Toole, County- Kevin, Mt. Proposed Wells:

Wallewein #22

Location Legal Description - SESW S22-T36 West – Range 1 West

Prepared for- Pat Montalbon



Prepared by: Warren K. Lear

May 19, 2014

Altamont Oil and Gas Operation, Inc.
Pat Montalbon
P.O. Box 488
Cut Bank, Mt. 59427

May 19, 2014

Mr. Pat Montalbon,

MiSwaco a schlumberger company, is pleased to provide this drilling fluids program. Kenneth Smith of Pioneer Drilling Fluids operates a warehouse and services our product for us from Havre, Mt. and covers the High Line region from Cut Bank, Mt to Malta, Mt.

We appreciate the opportunity to submit this drilling fluid program for consideration for the upcoming well-BSCSP Production Well #1 with the legal description of SESW S22-T36W, R1W which you are planning to drill in Toole, County near Kevin, Mt.

This following proposed drilling fluid system has been working well for us in the active clay and shale deposits of the area. It is understood that you will have a preset 30 ft. 13³/₈ inch conductor pipe and then will be drilling a 12¹/₄ inch surface hole using air- air-mist and set 9⁵/₈ inch surface casing to TD of 500 ft. then TD at approximately 4,000 ft. into the Duperow formation.

It is recommended to use caution drilling this area with air, as surface formations tend to be primarily clays and shale with potential for some surface gravel as you move closer to the river. These surface formations are very water sensitive and if water mist is applied, the clays and shale can become water saturated and begin to swell and squeeze and or slough and cave in. Lost circulation may also be of concern due to the unstable sand and gravels, that if allowed to get wet may slough and cave in. If lost circulation is a problem it is recommended to "Mud Up Immediately" using **Max Gel** bentonite and **Poly Plus Liquid** and **Lime** for viscosity and a blend of various sized LCM for combating the lost circulation (it is recommended to hold a nominal supply of LCM on location to combat this eventuality).

After Surface has been set to allow the cement to cure for 10 to 12 hours before beginning to nipple up the BOP. It is understood that the open hole section of the well will be drilled with an 8³/₄ inch bit to TD of 4,000 ft. Prepare to drill out from under surface by pretreating the drilling water with **Bicarbonate of Soda** (3 lb/bbl to 4 lb/bbl) and be prepared to continue to treat with additional applications of Bicarb to control contamination caused from drilling out the surface cement inside and below the surface casing. Divert the contaminated fluid to the reserve pit as it is being drilled to control the worst contamination.

After the cement has been drilled out it is recommended to mud up immediately. To mud up, dump and clean all mud tanks and refill with fresh water.

When drilling the upper section of the open hole caution should be exercised to avoid excessive ROP to prevent issues of excess solids and related hole cleaning issues.

To Mud Up Mix: Soda Ash (.25 to .5 ppb) to control total hardness of drilling fluid, Max Gel-for viscosity of 38 to 42 sec/qt. (8 ppb to 10 ppb), Platinum Pac (.75 to 1.25 ppb) and Asphasol Supreme if desired for extra filtration control 2 to 3 ppb. Control filtrate to less than 6cc at all times. Clean Faze- (1.5 to 3 ppb) to aid filtration control. Drill Detergent as a surfactant to help control solids and clay buildup such as bit balls and mud rings (1 can over each 8hr shift at the shale shaker). Caustic Soda to pH of 9.5. (If it is decided to run the Gypsum/Lime system we will then use Lime instead of Caustic Soda or Soda Ash for pH of 9.5 to 10 and this will also assist with controlling CO2 which is a possibility in the Souris River formation) and Fed Rheo Smart as a thinner as needed to control viscosity (.25 to .5 ppb). Drill Zone L or Rod Ease surfactant to control torque and aid in control of mud rings and bit balling, Ring Free may also be run on connections (1vis cup / connection) or up to 1 bucket per 100 bbl of fresh mud may be mixed directly into the drill fluid to help prevent bit ball, boots and mud rings (apply up stream of the mud hopper). A good practice is to ream each joint in this section twice before making connections and circulate all connections 2-3 minutes while on bottom before making another connection. We will allow the mud weight to climb up and may need to increase the mud weight using Mi Wate to as high as 10.3 lbs/gal to help stabilize shale formations such as of the Lodgepole and to control potential water flows, gas and H2S. This will also help to reduce the popping and heaving of the upper shale. We will also be using Safe Scav HSW at the first sign of H2S to prevent the H2S from breaking out of solution into a gas form, concentrations of 1 to 2 gallons per 100 bbl of fresh mud (Safe Scav HSW can control up to .1 lb/bbl H2S with concentrations of 1 lb per bbl Safe Scav HSW)

The Gypsum/Lime drilling fluid system has been used with very good success for improved control of the reactive clays and shale formations of the region and if chosen for this project may be used to further inhibit the shale and clay that will be encountered on this hole. If chosen the fresh water system may be easily rolled over to the Gypsum /Lime system with simple additions of 3 to 6 lb/bbl Gypsum and .25 lb/bbl Lime to raise the "Total Hardness" to >880 to 1000 ppm while simultaneously adding thinners such as Fed RheoSmart or Lignite at concentrations of .25 to .5 ppb to control the flocculation and viscosity associated with rolling in the gypsum and lime.

Continue drilling to TD while maintaining drilling fluid specs, using: Max Gel- (10 to 12 lbs/bbl) to increase viscosity of 42 to 48 seconds per quart, by the time we reach TD or as needed to clean and stabilize the hole. Maintain filtration control at less than 6cc with Platinum Pac or Platinum Pac UL at .75 to 1.5 lbs/bbl and Asphasol Supreme at 3 to 4 lbs/bbl and Clean Faze- for extra filtration if desired at concentrations of 1.5 to 3 lbs / bbl. to control filtrate of 4 cc to 6cc or less at all times. Drill Detergent (1 bucket per 100 bbls over 6 to 8 hour dribble at shale shaker) as a surfactant to control solids and sticking shale and clay's.

For running any wire line logs or for running any casing it is recommend to raise the viscosity up to 65 to 75 seconds per quart to improve successful logging activity. To cement any casing it is then recommended to thin the drilling fluid back to a viscosity of 40 to 42 seconds per quart using fresh water and products such as Tackle or Ring Free or Fed RheoSmart which will allow for improved cement bond.

Note: The Madison and Duperow Formations commonly contain deposits of Anhydrite as well as a possibility for concentrations of up to 1.7% H2S.. Additions of Caustic Soda to pH

of 10 to 11 will assist in controlling the H₂S from breaking out of solution into a gas form. Note also that the Duperow and Souris River have a possibility of containing CO₂. This will be controlled with additions of Lime.

If using a fresh water non dispersed fluid without Gypsum and lime for inhibition then it will be necessary when encountering any anhydrite formation to pre-treat with addition of Soda Ash at ½ to 1 lb/bbl, to control excess total hardness, viscosity and loss of filtration control, along with additions of Lignite and/or Fed Rheo Smart as needed to help control Viscosity. Additions of Ring Free at the flow line as needed to assist in controlling viscosity. Drill Zone surfactant will assist in controlling mud rings and bit balling at additions of 1 bucket per 100 bbls of mud added at the suction over 6 to 8 hour dribble. It is a good practice to ream each joint twice before making connections and circulate all connections 2-3 minutes on bottom before making another connection. We will allow the mud weight to climb up to 10.2 lbs/gallon and may need to increase the weight using Mi Wate as needed to control potential water flows and natural gas and H₂S. This will also help to reduce the popping and heaving of the upper shale's. Be sure to control ROP at all times to control mud weight and solids content and to insure adequate hole cleaning and mud cleaning with surface equipment.

Maintain filtrate below 4cc to 6cc at all times. In which case we prevent a lot of the problems associated with issues such as drilling Anhydrite. NOTE: If the Gypsum / Lime system is chosen "Do Not use Soda Ash for pH control" as this will reduce the total hardness, which we are looking to achieve with the Gypsum and Lime. The implementation of a premix tank will be required for subsequent additions of Bentonite and other products that mix better in a fresh water. After pre-hydration of these products they may be introduced easily into the main drilling fluid system as needed for mud maintenance, after the system has been flipped to a gyp/lime mud. (We recommend holding the pre-hydrated fluid at a viscosity of 50 to 55 so that it may then be blended into the main drilling fluid system and mixed with the fresh water addition for solids control and hole cleaning needs.)

Please review this drilling fluid proposal and respond as soon as possible for any changes or additions.

For any questions regarding any of the information within this proposal or if you wish to discuss it further, please contact Warren K. Lear Office (406) 323-2702 Cell (406) 208-8151 or Tommy Soennichsen Cell (406-350-0715). M-I SWACO appreciates the opportunity to contribute the success of the project.

Sincerely,
Warren K. Lear
NAM Tech Manager
MI / Swaco
A Schlumberger Company

Casing Size (in)	Hole Size (in)	Casing Program	Depth (ft) MD	Formation Tops (ft)	Mud System
9 5/8" Surface Casing	12 1/4" -0- To 500 ft		surface 280 ft 535 ft.	<u>Cretaceous</u> Blackleaf Bow Island	Water W/ fresh water and Poly Plus sweeps for hole Cleaning as needed
Long String Casing 5 1/2"	8 3/4" Open Hole 500 ft		1,030 ft 1,396 ft 1,446 ft 1,540 ft 1,630 ft 1,650 ft 1,828ft 2,419 ft 2,651 ft 2,766 ft 2,790 ft 2,803 ft 2,956 ft 3,033 ft 3,284 ft 3,550 ft 3,670 ft 3,770 ft	Kootenai Sunburst <u>Jurassic</u> Swift Rierdon Sawtooth <u>Mississippian</u> Madison (Sun River Dolomite) Mission Canyon Lodgepole Banff Bakken (Oil/gas/water) <u>Devonian</u> Threeforks Potlatch (anhydrite) Nisku Duperow Porosity Middle Duperow Porosity Lower Duperow Porosity Base Lower Duperow Porosity 4,000 ft. TD	This section can drills very fast, watch ROP Don't over drill and cause tight hole due to solids build up. Ream joints twice and circulate hole for 2 to 3 minutes before each connection. *Sodium Bicarb .25 to .5 lb/bbl, before drilling out cement shoe.** Dump and clean tanks before mud up. Soda Ash .25 to 1 lb/bbl, to pH 9.5, Max Gel, -10 to 12 lbs/bbl to viscosity of 42 to 46 seconds per quart. Fed Rheo Smart or Lignite-.15 to .25 lbs.bbl, Phosphate or Ring Free if needed 1 qt-down drill pipe on connections to control bit ball and mud rings. Platinum Pac- or Platinum Pac UL.75 to 1 lb/bbl, Asphasol Supreme up to 3 to 4 lbs / bbl. Clean Faze-1 to 2.5 lb/bbl to 4cc to 6cc. Drill Zone-.25 to .5 lb/bbl as lubricant and to control boots and mud rings. D-D 1 can/tour 8 hr dribble for solids control. ***At first sign of HWS treat mud with Safe Scav HSW 1 1/2 to 2 gallons per 100 bbl for H2S Zones-Cautic Soda to pH of 11 to 11.5 to aid in control H2S (If CO2 is encountered treat with Lime) Mud Wt 10.2 to 10.3 lb/ga. have plenty of Mi Wate (Barite) on location to increase mud weight to 13 lb/ga. if formation pressures require. Viscosity 42 to 46 sec/quart (to suspend Barite). Filtrate 4cc to 6cc or less Maintain drilling fluid++Pre-treat w/Soda Ash 1/2 to 1 lb/bbl.-to prepare for drilling Anhydrite-continue treatment to control excess total hardness as needed (or roll system over ot Gypsum/Lime system with total hardness at 880 to 1000 ppm) and use Fed Rheosmart-thinner to help control viscosity. D-D (drilling detergent) or Drill Zone at the flow line for solids control. To inhibit the uphole shales roll the system over to a Gypsum/Lime fluid-Maintian Total Hardness >880 ppm to 1000 ppm using Gypsum at 2 to 3 lbs/bbl and Lime at .25 to .5 lbs/bbl. (at this point a premix tank will be necessary for any additional Max Gel applications. And discontinue use of Soda Ash for pH and use Lime for pH from here on).
To 4,000 ft.	To 4,000 ft				

(0 – 500 ft. MD) –Surface Casing	
Drilling Fluid System	Air / Air Mist-Fresh Water , Poly Plus / Spud Mud
Key Products	Platinum Pac And Poly Plus LV injection fluid –If Mud up is required for any reason use Soda Ash, Max Gel, Platinum Pac and or Platinum Pac UL. With Poly Plus Liquid, Lime if needed.
Solids Control	N/A with air drilling, if mud up is required-Shale Shaker and RESERVE PIT and De-Sander / Desilter if mudded up.
Potential Problems	Hole Cleaning, Seepage Losses, Surface gravel possible. Possible Lost Circulation

Interval Drilling Fluid Properties						
Depth Interval (ft)	Mud Weight (ppg)	Funnel Viscosity Sec/qt	Plastic Viscosity (cp)	Yield Point (lb/100ft²)	API Fluid Loss (ml/30min)	Drill Solids (%)
0 – 500 ft.	8.4 – 8.8	38 to 40	N/A	N/A	N/A	N/A

- As the surface formations in this area are very reactive clays and shale it is recommended to control the free water that is available to the formations without the benefit of an inhibitor to prevent the hydration of the formation's from the injection water of an air/mist injection program.
- **Drill with Air/Air Mist and Platinum Pac with Poly Plus LV injection fluid.** (Platinum Pac .75 ppb Poly Plus LV .25 to .5 ppb) this will yield an injection fluid with physical properties - viscosity approximately 38 to 40 seconds per quart. This slurry will then be ready if addition of **Platinum Foam Plus** drilling foam is required at ratio of ¼ qt to ½ qt per bbl of polymer slurry. This slurry may then be injected at a rate to provide the foam quality as desired.
- Lost circulation may be problematic in this area, Keep a good supply of fibrous lost circulation materials (**Fed Seal, Cotton Seed Hulls, Mica, Sawdust, and Poly Swell** etc.) on location for any mud losses. Mud up as needed if lost circulation is encountered while drilling surface.
- **As drilling conditions dictate or if mud up is needed** (such as for lost circulation) **Mud Up as follows:** Spud Mud-Mix **Soda Ash** .25 to .5 ppb or to pH of 9 then mix **Max Gel** to viscosity as needed drilling (10 to 14 ppb thru mixing hopper) **Poly Plus Liquid** polymer as need to reach desired viscosity for drilling conditions. (.25 to .5 ppb) **Lime** may be to increase viscosity with this spud mud as desired. Mix LCM if or as needed up to 30 % by volume using various sized products such as Mica, Fed Seal, Saw Dust, Drillers Paper an Cedar Fiber Etc.

- To run casing it is recommended to Mud up and circulate the hole full of drilling fluid to stabilize and cushion the hole while running surface casing. For running casing bring Viscosity up to 60 to 65 sec/qt .using Max Gel and Poly Plus Liquid then before pumping cement thin back the fluid to viscosity of 40 to 42 seconds per quart then sweep the hole with fresh water in front of the cement to improved cement bond.

Open Hole-Interval Drilling Fluid Properties						
Depth Interval (ft)	Mud Weight (ppg)	Funnel Viscosity Sec/qt	Plastic Viscosity (cp)	Yield Point (lb/100ft ²)	API Fluid Loss (ml/30min)	Drill Solids (%)
500 ft. to 4,000 ft.	10.2 to 13 as needed	42 to 46	18 to 20	12 to 14	4cc to 6cc	.5 to 3.5

Open Hole-Interval Product discussion	
Drilling Fluid System	LSND Gypsum/Lime Inhibitive system
Key Products	Max Gel, Platinum Pac, Platinum Pac UL, Asphasol Supreme, Clean Faze, Fed Rheo-Smart, Mica Fine & Ring Free, Drill Zone L, D-D, Rod Ease, Fed RheoSmart, Lignite, Tackle. Gypsum, Lime, Caustic Soda and Mi Wate
Solids Control	Shale Shaker, De-Sander/De-silter cones, and Hydo-cyclone if Available
Potential Problems	Lost circulation, Sloughing Shale, and high solids

- For mud-up; Based on 200 bbl pit, Pretreat mud with 4-6 sacks Bicarbonate of soda prior to drilling out cement, after drilling cement from surface dump and clean mud tanks. Then mix, **Soda Ash** .25 to .5 ppb or to pH of 9 to 9.5. **Max Gel** as needed for viscosity 38 to 42 seconds per quart (up to 8 to 12 lbs/bbl)., and 2 to 3 sacks **Platinum Pac** or **Platinum Pac UL**, (slowly over 1 hour per sack to control filtrate of <6cc per 30 minute API filtration test). **Asphasol Supreme** may be added in addition to improve filtration control if desired 1 to 2 ppb as desired or as needed. **Clean Faze** 2 to 3 lb/bbl if and/or as needed for additional filtration Control. **D-D with spout or Platinum D-D** to assist with controlling sticky clay and shale issues-1 to 2 buckets per 150 bbls of fresh fluid added at or near the shale shaker to help control solids. 1 bucket **Poly Plus**-mixed near suction end of the pit (up to .25 to .5 ppb mixed slowly over a 4 to 6 hr dribble) to inhibit clays and shale and to aid in viscosity. **Fed Rheo-smart** thru mud hopper .25 to .5 ppb to control viscosity as needed and to assist bentonite to form thin firm, smooth filter cake. 1 bucket **Drill Zone** per 100 to 150 bbls of fresh mud (slowly 6 to 8 hr dribble). **Ring Free** thinner dispersant to help control bit balls and mud rings either 1 to 2 quarts per connection down drill pipe or add directly to the drilling fluid 1 bucket per 100 bbls of fluid (add just above the mixing hopper discharge at suction end of the mud pits.
- If the **Gypsum/Lime inhibitive system** is chosen- after fresh mud is mixed in main drilling mud pits, roll the system over to the inhibit system. Add 2-3 50 lb sacks of **Gypsum** and 1 sack **Lime** per 150 bbls of mud thru mud hopper over 2 full circulations. While adding Gypsum/lime at the same time add 1 to 2 - 50 lbs sacks of **Lignite** or **Fed Rheo-smart** to prevent flocculation of the system.

- Maintain pH at 9.5 to 10 while drilling with continued additions of **Lime** ½ to 1 sack per 150 bbls (be sure to add **Fed Rheo Smart or lignite** to control flocculation as needed). Do **not use any further Soda Ash for pH after rolling the system over**, as this will lower the Total Hardness which we are trying to achieve for our inhibition with Gypsum/Lime. to total hardness of >880 ppm. To 1000 ppm.
- ROP should be watched, do not over drill, this allows for good hole cleaning. Ream all joints twice before making the next connection and circulate the hole for 2 to three minutes before making the next connection.
- Add **Ring Free** on connections (1 vis cup down the drill pipe) for controlling bit balling and booting.
- Continuous stream (3/4-1" stream) H2O for thinning and prevention of dehydration and to aid in solids control at all times.
- **Note- Use of a premix tank will be needed after the addition of the Gypsum/Lime to the system it will be necessary to use a pre-hydration tank to mix all additional bentonite to the system before adding them to the main drilling pits this may also be used as a pill tank or as mud storage for weighted system if needed.**

It is recommended to maintain premixed fluid specs as follows: viscosity of around 50 to 55 sec/quart, which may then be diluted back as needed with fresh water after additions of the premixed slurry is added to the main drilling system tanks. Additions of **Fed RheoSmart** and/or lignite (as needed) up to 1 sack per every 2 Gypsum/1 Lime added to maintain total hardness between 880 to 1,000 ppm. Once the pre-hydrated mud has been added to the main drilling fluid system maintain the filtrate at 4cc to 6cc's. using additions of **Platinum Pac UL** 1 t 2 sacks per 100 bbls, and if desired **Asphasol Supreme** at 2 to 3 lbs/bbl for additional filtration control and hole stability. Add **Drill Zone** 1 bucket per tour for control of solids sticking to BHA and **Poly Plus** up to 1 bucket per tour to aid viscosity and Filtrate control, **Ring Free** on connections as needed to help control bit ball as needed.

To Log or to Run Casing: Bring viscosity up to 65 to 70 seconds per quart, insure that filtrate is down to less than 6cc using Platinum Pac and Total Hardness is greater than 880 ppm using Gypsum and pH is 9.5 to 10 using Lime. Weight should be 10.2 lb/ga. or as needed to control formation pressures and H2S and CO2. For TOH for any reason, circulate hole for 1 to 1½ hours to insure the hole is clean and cuttings have cleaned up coming over the shale shaker then trip drill pipe gently and keep the hole full at all times. Watch for flows or gas kicks while tripping out of the hole for any reason and while on the bank while logs are being run. To cement long string or to plug and abandon the hole, thin back the viscosity of the drilling fluid using Fed RheoSmart and water as needed to viscosity of 40 to 42 seconds per quart to allow for improved cement bonds.

If there are any questions about this mud program please feel free to contact myself or Tommy Soennichsen. Office phone 406-323-2702, Warren K. Lear Cell 406-208-2819, Tommy cell phone 406-350-0715

Mud pricing will be provided upon request thru separate cover, based on delivery from nearest delivering warehouse.

- **Engineering charges @** [REDACTED] Drive By Check/ Plus mileage @ [REDACTED] per mile

For 24 hour onsite Engineering and Consultant engineering if workload requires [REDACTED] per day plus housing provided on location and mileage @ [REDACTED] per mile

Cost Estimate for pricing and charges may be provided on separate coverage if required.



This suggested program is advisory only and may be rejected in the sole discretion of any and all parties receiving it. In addition all parties receiving this program recognize, agree, and acknowledge that M-I Drilling Fluids L.L.C. (M-I) has no care, custody or control of the well, the drilling equipment at the well, nor the premises about the well. Also, there are obviously many conditions within and associated with a well of which M-I can have no knowledge and over which it does not and cannot have control. Therefore, M-I shall not be liable for the failure of any equipment to perform in a particular way or the failure to obtain any particular results from carrying out this program by any party receiving it. Furthermore, the owner and operator of the well and the drilling contractor in consideration of the recommendations contained in this suggested program agree to indemnify and save M-I harmless from all claims and costs for loss, damage or injury to persons or property including, without limitations: subsurface damage, subsurface trespass or injury to the well or reservoir allegedly caused by M-I's operations or reliance by anyone upon this program unless such personal injuries or damage shall be caused by the willful misconduct or gross negligence of M-I.



Altamont Oil and Gas
Big Sky Carbon Sequestration Project
Surface Casing Cementing Proposal

Wallewien 22-1
Toole County, Montana

Primary Cement **Version 2** (05.17.14)

Prepared for: Patrick Montalban
Phone:
Mobile:
Email: [REDACTED]

Prepared by: Alan Olson
Phone:
Mobile:
Email: [REDACTED]



Altamont Oil and Gas/Big Sky Carbon Sequestration
Wallewien 22-1 Surface Casing Cement Program

9 5/8 inch Surface Casing

Hole Size:	12 1/4 inch.
Casing Size:	9 5/8 inch, 36 lb/ft, J/K 55, STC.
Depth	250 ft.
Excess	70 % (gauge)

Cement Blends

Tail	ControlSet 'C' + 0.25 lbs./sack Polyflake
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Cement Data

Water requirements :gal/sk	Tail: 9.16
Yield : ft ³ /sk	1.74
Density: lbs/gal	13.5
Thickening Time: hr: min	1:30
Compressive Strength: psi/hrs	1400/12
	2200/24
Temperature °F	70

Calculations

Tail	$0.3131 \text{ ft}^3/\text{ft} \times 250 \text{ ft.} = 78.27 \text{ ft}^3$ $78.27 \text{ ft}^3 \times 70 \% \text{ (gauge)} = 133.06 \text{ ft}^3$ $133.06 \text{ ft}^3 \div 1.74 \text{ ft}^3/\text{sk} = 77 \text{ sks}$
Shoe Joint	$.4341 \text{ ft}^3/\text{ft} \times 40' = 17.36 \text{ ft}^3$ $17.36 \text{ ft}^3 \div 1.74 = 10 \text{ sks}$
Total Cement Volume	<u>90 sacks</u>

Surface Casing Cementing procedure

1. Make up float equipment and centralizers as required on 9 5/8 inch casing and run into total depth.
2. Break circulation and condition hole and drilling fluid prior to cementing.
3. Rig in Sanjel Cementing Unit, Surface treating lines, and a 9 5/8 inch head to casing.
4. Fill Surface treating lines with water and pressure test lines to 2000 psi.
5. Mix and pump the following:
 - A. 15 bbls fresh water
 - B. 90 sks CSC plus additives mixed @ 13.5 lb/gal
6. Drop a Top Rubber Plug and displace plug to insert float with water. Bump plug with a minimum of 500 psi over final pumping pressure.
7. Hold pressure for 1 minute(s), then bleed back casing pressure to ensure float is holding.
8. Rig down Sanjel, W.O.C. a minimum of 12 hours.

NOTE:

This recommendation is to be used as a guide. Job conditions and field experience must dictate job procedures. Please check all calculations on location.

Altamont Oil and Gas/Big Sky Carbon Sequestration
Wallewien 22-1 Surface Casing Cement Program

COST ESTIMATE:		F.O.B.		MILES CITY, MT			
SURFACE CASING		9 5/8 inch					
SERVICES							
1380	Pumping Unit Travel			300	miles		/ mile
1000	Pumping Unit Base Charge			250	feet		/ 6 hours
1150	Twin Unit Surcharge						/ 6 hours
1481	Bulk Cement Blending			91	ft^3		/ ft^3
1484	Bulk Cement Delivery			4.5	tons		/ ton*mile
1497	SAM III - Data Acquisition			1	job		/ job
CEMENT							
3030	Control Set 'C'			90	sacks		/ sack
3247	Polyflake	0.25	lbs/sk	23	lbs		/ lb
OTHER MATERIALS							
1492	Envirobag	1	bag				/ bag
3262	DF-3	1	gal				/ gal
NON-DISCOUNTED ITEMS							
1493	Environmental Surcharge	1	job				/ job
2992	Fuel Surcharge	2	trucks				/ truck
FLOAT EQUIPMENT (NON-DISCOUNTED)							
4441	9 5/8" Guide Shoe	1	unit				/ unit
4443	9 5/8" Float Collar	1	unit				/ unit
4450	9 5/8" Limit Clamp	1	unit				/ unit
4448	9 5/8" Centralizer	4	units				/ unit
4447	9 5/8" Rubber Plug	1	unit				/ unit
4400	Threadlok	2	units				/ unit
FLOAT EQUIPMENT TOTAL							
NON-DISCOUNTED TOTAL							
						DISCOUNT:	
DISCOUNTED TOTAL							
GRAND TOTAL							

A minimum of two additional hours of pumping time per pumping operation will be charged after initial 6 hours location time. Hours will be charged as follows:

Additional hours on location will be charged (non-discounted) as follows:

Twin Cement Pumping Unit – per unit, per hour

Pumping Time.....

Standby Time.....

Bulk Cement Unit – per unit, per hour

Standby Time.....

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1. **Entire Agreement.** If we have signed an agreement applicable to the goods and services, that agreement will apply and the T&Cs do not. If no signed agreement exists between us, the T&Cs are our entire agreement for the goods and services, and no prior discussion, agreement, conduct, or industry practice will affect them. The T&Cs may not be changed, superseded or replaced by any other agreement (including any terms in a purchase order, service order, invoice or other similar document) unless specifically agreed by each of us in writing.

2. **Acknowledgment.** You understand that interpretations, research, analysis, advice or interpretational data furnished by Sanjel ("Recommendations") are opinions based on inferences from measurements, empirical relationships and assumptions and industry practice and that Recommendations are not infallible, and the opinions of professional geologists, engineers, drilling consultants and analysts may differ. Sanjel does not warrant the accuracy, correctness, or completeness of the Recommendations, or that your or any third party's reliance on the Recommendations will accomplish any particular results. You assume full responsibility for the use of and decisions based on the Recommendations, and you hereby agree to release, defend, indemnify and hold Sanjel harmless from Claims arising from the use of the Recommendations.

3. **Payment.** You will pay Sanjel for the goods and services at the rates in the applicable proposal or work order (which are good for 90 days) in US dollars within 30 days of receipt of performance or a correct invoice, whichever is later. Sanjel may charge interest at 18% per year on all overdue amounts, and you will bear all costs of collection of overdue accounts, including legal fees.

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11. **Confidentiality.** Any non-public information that we learn about each other in connection with the T&Cs, including our relationship, is confidential information of the disclosing party, and neither of us may disclose confidential information of the other to any third party without the prior written consent of the disclosing party. We may each use confidential information of the other to perform under the T&Cs, and may share it only on a need-to-know basis with employees.

12. **Indemnity.** (A) Subject to Section 12(b) below, each of us ("Indemnitor") hereby agrees to release, defend, indemnify and hold the other, its affiliates, officers, directors, agents, partners, joint venturers, employees and contractors of every tier ("Indemnitee Group") harmless for all losses, claims, demands, causes of action, costs and expenses (including reasonable legal fees) (collectively, "Claims"), for personal injury, death and property damage to Indemnitor, its affiliates, officers, directors, agents, partners, joint venturers, employees and contractors of every tier arising out of or incident to the T&Cs or any goods or services provided hereunder, without regard to whether such Claim is caused, in whole or in part, by the negligence (whether sole, joint or concurrent, active or passive), contractual liability or other fault of any member of the Indemnitee Group or by any defect or pre-existing condition (whether known or unknown, patent or otherwise). (B) You hereby agree to release, defend, indemnify and hold Sanjel harmless for any Claims Sanjel may suffer or incur arising out of or incident to: well blowout or any uncontrolled well condition, fire, cratering, redrill or sidetracking, seepage or reservoir damage, loss or damage to the hole, pollution and contamination (except sudden and accidental pollution originating above the service of the earth and emanating from Sanjel's equipment while in Sanjel's care, custody and control), and loss or damage to Sanjel's (or its contractors') equipment while down the hole at new replacement value; even if caused in whole or in part by the sole, joint or concurrent negligence or other fault (active or passive) of Sanjel or any other person.

13. **Consequential Damages Exclusion:** Notwithstanding anything to the contrary, neither of us will be liable to the other for business interruptions, punitive, indirect or consequential damages relating to the goods or services (including but not limited to any loss of profit, loss of expected revenue, loss of hydrocarbons or loss of rig time).

14. **Disposal of Chemicals.** You will arrange and be responsible for the disposal of any used chemicals and hazardous materials related to the goods or services.

15. **Insurance.** Each of us will maintain, at its own cost, commercial general liability insurance covering its indemnification obligations under the T&Cs with combined single limits of at least \$5,000,000 per occurrence and in the aggregate. We will obtain insurance from carriers with AM Best ratings of at least A-VII (or equivalent), ensure the other party is named as an additional insured, and ensure that our carriers waive rights of subrogation against the other party.

16. **Uncontrollable Events.** Except for payment obligations, if either of us is unable to comply with the T&Cs because of events beyond our reasonable control, we will promptly notify the other in writing and will make reasonable efforts to restore our ability to perform as soon as possible. If the inability to perform continues for more than 10 days, the other party may cancel the applicable job immediately, by giving written notice to the affected party.

17. **Waiver.** Failure to enforce any or all of the T&Cs will not relieve either party of its rights or obligations or constitute a waiver or prevent further enforcement.

18. **Assignment.** You will not assign any of your rights or obligations under this PO without Sanjel's approval, which Sanjel may not unreasonably withhold. Any assignment in violation of this provision will be null and void.

19. **Governing Law.** We agree that the laws of the State of Colorado govern the T&Cs, without the application of choice of law rules. Each of us voluntarily submits to the jurisdiction and venue of the federal or state courts (as applicable) of the State of Colorado for the adjudication of all disputes under the T&Cs.



Altamont Oil and Gas
Big Sky Carbon Sequestration Project
Long String Casing Cementing Proposal
Wallewien 22-1
Toole County, Montana

Primary Cement Version 1 (05.20.14)

Prepared for: Patrick Montalban
Phone:
Mobile:
Email: [REDACTED]

Prepared by: Alan Olson
Phone:
Mobile:
Email: [REDACTED]



Altamont Oil and Gas/Big Sky Carbon Sequestration
Wallewien 22-1 Long String Casing Cement Program

5 1/2 inch Long String Casing

Hole Size:	8 3/4 inch.
Casing Size:	5 1/2 inch, 15.5 lb/ft, J 55, LTC.
Depth	4,565 ft.
Excess	30 % (gauge)
Top of Madison Frm.	~2,490'
Stage Tool	~2,390'
TOC:	Surface

Cement Blends

First Stage

Lead 1-1-0 'G' + 0.40% CDF-4P, 0.30% CFL-3,
0.50% CFR-2, 1 lb/sk PS Flake, .25 lbs/sk Poly Flake
Mixed at 15.8 lbs/gal.

4,565 ft to 2,390 ft = 2,175 ft

Second Stage

Lead Control Set 'C' + .25 lbs/sk Ploy Flake Mixed at
13 lbs/gal.
1,890 ft to Surface = 1,890 ft

Tail 1-1-0 'G' + 0.30% CFL-3, 0.50% CFR-2. Mixed at
15.8 lbs/gal.

2,390 ft to 1,890 ft = 500 ft

Altamont Oil and Gas/Big Sky Carbon Sequestration
Wallewien 22-1 Long String Casing Cement Program

Cement Data

	Lead:	Tail:
Water requirements :gal/sk	10.56	3.44
Yield : ft ³ /sk	1.93	.94
Density: lbs/gal	13	15.8
Thickening Time: hr: min	3:00	3:30
Compressive Strength: psi/hrs	1121/12	1195/12
	1551/24	1988/24
		3482/48
Temperature °F	90	

Calculations

First Stage

Tail
 $0.2526 \text{ ft}^3/\text{ft} \times 2175 \text{ ft} = 549.40 \text{ ft}^3$
 $549.40 \text{ ft}^3 \times 30 \% \text{ (gauge)} = 714.22 \text{ ft}^3$
 $714.22 \text{ ft}^3 \div .94 \text{ ft}^3/\text{sk} = \mathbf{760 \text{ sks}}$

Second Stage

Lead
 $0.2526 \text{ ft}^3/\text{ft} \times 1,890 \text{ ft} = 477.41 \text{ ft}^3$
 $477.41 \text{ ft}^3 \times 30 \% \text{ (gauge)} = 620.63 \text{ ft}^3$
 $620.63 \text{ ft}^3 \div 1.93 \text{ ft}^3/\text{sk} = \mathbf{320 \text{ sks}}$

Tail
 $0.2526 \text{ ft}^3/\text{ft} \times 500 \text{ ft} = 126.3 \text{ ft}^3$
 $126.3 \text{ ft}^3 \times 30 \% \text{ (gauge)} = 164.19 \text{ ft}^3$
 $164.19 \text{ ft}^3 \div .94 \text{ ft}^3/\text{sk} = \mathbf{175 \text{ sks}}$

Altamont Oil and Gas/Big Sky Carbon Sequestration Wallewien 22-1 Long String Casing Cement Program

Long String Casing Cementing procedure

1. Make up float equipment and centralizers as required on 5 1/2 inch casing and run into total depth. Run Stage Tool at ~2,390'.
2. Break circulation and condition hole and drilling fluid prior to cementing.
3. Rig in Sanjel Cementing Unit, Surface treating lines, and a 5 1/2 inch head to casing.
4. Fill Surface treating lines with water and pressure test lines to 2500 psi.
5. Mix and pump the following:
 - A. 20 bbls fresh water
 - B. 30 bbls Mud Flush
 - C. 5 bbls fresh water
 - D. 760 sks 1-1-0 'G' plus additives mixed @ 15.8 lb/gal
6. Drop first stage Top Rubber Plug and start displacement with water at +/- 7 bpm switching to mud after 70 bbls of water. **Slow rate to 2 bpm while plug passes stage tool.** Bump plug with a minimum of 500 psi over final pumping pressure.
7. Hold pressure for 1 minute(s), then bleed back casing pressure to ensure float is holding.
8. Drop tool opening plug.
9. Waite 15 minutes for plug to land. Pressure up on tool as per tool directions to open tool. Pump 10 bbls of mud then turn circulation over to drilling rig.
10. **Circulate for 8 hours waiting on cement.**
11. Rig in Sanjel Cementing Unit, Surface treating lines to 5 1/2 inch head.
12. Fill Surface treating lines with water and pressure test lines to 2500 psi.
13. Mix and pump the following:
 - A. 20 bbls fresh water
 - B. 30 bbls Mud Flush
 - C. 5 bbls fresh water
 - B. 320 sks Control Set'C' plus additives mixed @ 13 lb/gal (Lead Cement Blend)
 - C. 175 sks 1-1-0 'G' plus additives mixed @ 15.8 lb/gal (Tail Cement Blend)
14. Drop second stage Closing Plug and displace with water at +/- 6 bpm. Bump plug as per stage tool instructions to properly close tool.
15. Hold pressure for 1 minute(s), then bleed back casing pressure to ensure tool is holding.

NOTE:

This recommendation is to be used as a guide. Job conditions and field experience must dictate job procedures. Please check all calculations on location.

Altamont Oil and Gas/Big Sky Carbon Sequestration
Wallewien 22-1 Long String Casing Cement Program

COST ESTIMATE:			F.O.B.	MILES CITY, MT		
PRODUCTION CASING			5 1/2	inch		
SERVICES						
1380	Pumping Unit Travel		300	miles		/ mile
1006	Pumping Unit Base Charge		4565	feet		/ 6 hours
1150	Twin Unit Surcharge					/ 6 hours
1480	Bulk Cement Blending		1296	ft^3		/ ft^3
1484	Bulk Cement Delivery		55.5	tons		/ ton*mile
1497	SAM III - Data Acquisition		1	job		/ job
1310	Multiple Stage Cementing		1	6 hours		/ 6 hours
PREFLUSHES AND SPACERS						
3195	MUDFLUSH		2520	gals		/ gal
TAIL CEMENT						
3002	1:1:0 'Poz:G'		760	sacks		/ sack
3132	CFL-3	0.30	%	189	lbs	/ lb
3161	CFR-2	0.50	%	314	lbs	/ lb
3264	CDF-4P	0.40	%	251	lbs	/ lb
3247	Polyflake	0.25	lbs/sk	190	lbs	/ lb
3250	PS Flake	1.00	lbs/sk	760	lbs	/ lb
LEAD CEMENT - STAGE 2						
3030	Control Set 'C'		320	sacks		/ sack
3247	Polyflake	0.25		10	lbs	/ lb
TAIL CEMENT - STAGE 2						
3002	1:1:0 'Poz:G'		175	sacks		/ sack
3132	CFL-3	0.30	%	44	lbs	/ lb
3161	CFR-2	0.50	%	73	lbs	/ lb
OTHER MATERIALS						
1492	Envirobag	1	bag			/ bag
3262	DF-3	4	gals			/ gal
NON-DISCOUNTED ITEMS						
1493	Environmental Surcharge	1	job			/ job
2992	Fuel Surcharge	4	trucks			/ truck

CONTINUED ON NEXT PAGE

Altamont Oil and Gas/Big Sky Carbon Sequestration
Wallewien 22-1 Long String Casing Cement Program

FLOAT EQUIPMENT (NON-DISCOUNTED)					
4412	5 1/2 " Float Shoe - K-55	1	unit		/ unit
4413	5 1/2 " Float Collar - K-55	1	unit		/ unit
4420	5 1/2 " Limit Clamp	1	unit		/ unit
4418	5 1/2 " Centralizer	64	units		/ unit
4400	Threadlok	2	units		/ unit
2999	5 1/2 " Stage Tool/Plug Set	1	unit		/ unit
FLOAT EQUIPMENT TOTAL					
NON-DISCOUNTED TOTAL					
				DISCOUNT:	
DISCOUNTED TOTAL					
GRAND TOTAL					

A minimum of two additional hours of pumping time per pumping operation will be charged after initial 6 hours location time. Hours will be charged as follows:

Additional hours on location will be charged (non-discounted) as follows:

Twin Cement Pumping Unit – per unit, per hour

Pumping Time.....

Standby Time.....

Bulk Cement Unit – per unit, per hour

Standby Time.....

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Big Sky Carbon Sequestration Project

Primary Cementing Proposal

Wallewien 22-1 Monitoring Well

Toole County, Montana

Primary Cement Version 2 (03.27.14)

Prepared for: Patrick Montalban
Phone: [REDACTED]
Mobile: [REDACTED]
Email: [REDACTED]

Prepared by: Justin Hill
Phone: [REDACTED]
Mobile: [REDACTED]
Email: [REDACTED]

Service Center: Miles City, Montana, 406.357.3399



9 5/8 inch Surface Casing

Hole Size:	11 inch.
Casing Size:	9 5/8 inch, 36 lb/ft, J/K 55, STC.
Depth	250 ft.
Excess	70 % (gauge)

Cement Blends

Lead	ControlSet 'C' + 0.25 lbs./sack Polyflake
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Cement Data

Water requirements :gal/sk	Lead:
Yield : ft ³ /sk	9.16
Density: lbs/gal	1.74
Thickening Time: hr: min	13.5
Compressive Strength: psi/hrs	1:30
	1400/12
	2200/24
Temperature °F	70

Calculations

Lead	$0.1547 \text{ ft}^3/\text{ft} \times 250 \text{ ft} = 38.68 \text{ ft}^3$
	$38.68 \text{ ft}^3 \times 70 \% \text{ (gauge)} = 65.76 \text{ ft}^3$
	$65.76 \text{ ft}^3 \div 1.74 \text{ ft}^3/\text{sk} = \underline{\underline{40 \text{ sks}}}$

Shoe Joint	$.4341 \text{ ft}^3/\text{ft} \times 40' = 17.36 \text{ ft}^3$
	$17.36 \text{ ft}^3 \div 1.74 = \underline{\underline{10 \text{ sks}}}$

Total Cement Volume **50 sacks**

Surface Casing Cementing procedure

1. Make up float equipment and centralizers as required on 9 5/8 inch casing and run into total depth.
2. Break circulation and condition hole and drilling fluid prior to cementing.
3. Rig in Sanjel Cementing Unit, Surface treating lines, and a 9 5/8 inch head to casing.
4. Fill Surface treating lines with water and pressure test lines to 1500 psi.
5. Mix and pump the following:
 - A. 20 bbls fresh water
 - B. 50 sks CSC plus additives mixed @ 13.5 lb/gal
6. Drop a Top Rubber Plug and displace plug to insert float with water.
Bump plug with a minimum of 500 psi over final pumping pressure.
7. Hold pressure for 1 minute(s), then bleed back casing pressure to ensure float is holding.
8. Rig down Sanjel, W.O.C. a minimum of 12 hours.

NOTE:

This recommendation is to be used as a guide. Job conditions and field experience must dictate job procedures. Please check all calculations on location.

COST ESTIMATE:**F.O.B. MILES CITY, MT****PRODUCTION CASING****9 5/8 inch****SERVICES**

1380	Pumping Unit Travel	300	miles		/ mile	
1000	Pumping Unit Base Charge	250	feet		/ 6 hours	
1150	Twin Unit Surcharge				/ 6 hours	
1481	Bulk Cement Blending	51	ft^3		/ ft^3	
1484	Bulk Cement Delivery	2.5	tons		/ ton*mile	
1497	SAM III - Data Acquisition	1	job		/ job	

LEAD CEMENT

3030	Control Set 'C'	50	sacks		/ sack	
3247	Polyflake	0.25	lbs/sk	13	lbs	/ lb

OTHER MATERIALS

1492	Envirobag	1	bag		/ bag	
3262	DF-3	2	gals		/ gal	

NON-DISCOUNTED ITEMS

1493	Environmental Surcharge	1	job		/ job	
2992	Fuel Surcharge	2	trucks		/ truck	

NON-DISCOUNTED TOTAL

DISCOUNT:

GRAND TOTAL**FLOAT EQUIPMENT (NON-DISCOUNTED)**

4441	9 5/8" Guide Shoe	1	unit		/ unit	
	9 5/8" Float Collar	1	unit		/ unit	
4450	9 5/8" Limit Clamp	1	unit		/ unit	
4448	9 5/8" Centralizer	4	units		/ unit	
4400	Threadlok	1	unit		/ unit	
4437	9 5/8" Rubber Plug	1	unit		/ unit	

FLOAT EQUIPMENT TOTAL**NON-DISCOUNTED TOTAL**

DISCOUNT:

DISCOUNTED TOTAL**GRAND TOTAL**

A minimum of two additional hours of pumping time per pumping operation will be charged after initial 6 hours location time. Hours will be charged as follows:

Additional hours on location will be charged (non-discounted) as follows:

Twin Cement Pumping Unit – per unit, per hour

Pumping Time.....

Standby Time.....

5 1/2 inch Long String Casing

Hole Size:	8 3/4 inch.
Casing Size:	5 1/2 inch, 15.5 lb/ft, J 55, LTC.
Depth	4100 ft.
Excess	30 % (gauge)
Top of Madison Frm.	~3000'(estimated)
Stage Tool	~2500'

Cement Blends

First Stage

Lead	1-1-2 'G' + 0.40% CDF-4P + 0.30% CFL-3 + 0.30% CFR-2 + 2% CaCl ₂ + 2 lb/sk PS Flake 4130 ft to 2500 ft = 1630 ft
Tail	Custom 'G' (ARC) + 0.30% CFR-2 + 1.50% LDP-C-137 + 2 lb/sk PS Flake 4430 ft to 4130 ft = 300 ft

Second Stage

Lead	Control Set 'C' + .25 lb/sk Poly Flake mixed at 11.5 lbs/gal 2000 ft to Surface = 2000 ft
Tail	Control Set 'C' + .25 lb/sk Poly Flake Mixed at 13.5 lbs/gal 2500 ft to 2000 ft = 500 ft

Cement Data, First Stage

Water requirements :gal/sk	Lead:	Tail:
Yield : ft ³ /sk	5.7	9.22
Density: lbs/gal	1.26	2.07
Thickening Time: hr: min	14.15	14.65
Compressive Strength: psi/hrs	4:00	3:39
	600/6	195/6
	1210/12	643/12
Temperature °F	100° F	1700/48

Cement Data, Second Stage

Water requirements :gal/sk	Lead:	Tail:
Yield : ft ³ /sk	17.38	9.16
Density: lbs/gal	2.84	1.74
Thickening Time: hr: min	11.5	13.5
	3:35	2:45

Compressive Strength: psi/hrs

500/6

500/6

Temperature °F

950/12

1400/12

85° F

Calculations

First Stage

Lead

$$\begin{aligned}0.2526 \text{ ft}^3/\text{ft} \times 1630 \text{ ft} &= 411.74 \text{ ft}^3 \\411.74 \text{ ft}^3 \times 30 \% \text{ (gauge)} &= 535.26 \text{ ft}^3 \\535.26 \text{ ft}^3 \div 1.26 \text{ ft}^3/\text{sk} &= \mathbf{425 \text{ sks}}\end{aligned}$$

Tail

$$\begin{aligned}0.2526 \text{ ft}^3/\text{ft} \times 300 \text{ ft} &= 75.78 \text{ ft}^3 \\75.78 \text{ ft}^3 \times 30 \% \text{ (gauge)} &= 98.51 \text{ ft}^3 \\98.51 \text{ ft}^3 \div 2.07 \text{ ft}^3/\text{sk} &= \mathbf{50 \text{ sks}}\end{aligned}$$

Second Stage

Lead

$$\begin{aligned}0.2526 \text{ ft}^3/\text{ft} \times 2000 \text{ ft} &= 505.20 \text{ ft}^3 \\505.20 \text{ ft}^3 \times 30 \% \text{ (gauge)} &= 656.76 \text{ ft}^3 \\656.76 \text{ ft}^3 \div 2.84 \text{ ft}^3/\text{sk} &= \mathbf{230 \text{ sks}}\end{aligned}$$

Tail

$$\begin{aligned}0.2526 \text{ ft}^3/\text{ft} \times 500 \text{ ft} &= 126.3 \text{ ft}^3 \\126.3 \text{ ft}^3 \times 30 \% \text{ (gauge)} &= 164.19 \text{ ft}^3 \\164.19 \text{ ft}^3 \div 1.74 \text{ ft}^3/\text{sk} &= \mathbf{95 \text{ sks}}\end{aligned}$$

Long String Casing Cementing procedure

1. Make up float equipment and centralizers as required on 5 1/2 inch casing and run into total depth. Run Stage Tool at ~2500' (500' above Madison frm.).
2. Break circulation and condition hole and drilling fluid prior to cementing.
3. Rig in Sanjel Cementing Unit, Surface treating lines, and a 5 1/2 inch head to casing.
4. Fill Surface treating lines with water and pressure test lines to 2500 psi.
5. Mix and pump the following:
 - A. 20 bbls fresh water
 - B. 20 bbls Mud Flush
 - C. 5 bbls fresh water
 - B. 425 sks 1-1-2 'G' plus additives mixed @ 14.15 lb/gal (Lead Cement Blend)
 - C. 50 sks Custom 'G' plus additives mixed @ 14.65 lb/gal (Tail Cement Blend)
6. Drop first stage Top Rubber Plug and start displacement with water switching to mud after 40 bbls of water displacement. **Slow rate to 1 bpm while plug passes stage tool.** Bump plug with a minimum of 500 psi over final pumping pressure.
7. Hold pressure for 1 minute(s), then bleed back casing pressure to ensure float is holding.
8. Drop tool opening plug.
9. Wait X minutes for plug to land. Pressure up on tool as per tool directions to open tool. Pump 10 bbls of mud then turn circulation over to drilling rig.
10. **Circulate for 12 hours waiting on cement.**
11. Rig in Sanjel Cementing Unit, Surface treating lines to 5 1/2 inch head.
12. Fill Surface treating lines with water and pressure test lines to 2500 psi.
13. Mix and pump the following:
 - A. 20 bbls fresh water
 - B. 10 bbls Mud Flush
 - C. 5 bbls fresh water
 - B. 230 sks CSC plus additives mixed @ 11.5 lb/gal (Lead Cement Blend)
 - C. 95 sks CSC plus additives mixed @ 13.5 lb/gal (Tail Cement Blend)
14. Drop second stage Closing Plug and displace with water at +/- 6 bpm. Bump plug 500 psi over final pumping pressure.
15. Hold pressure for 1 minute(s), then bleed back casing pressure to ensure tool is holding.

NOTE:

This recommendation is to be used as a guide. Job conditions and field experience must dictate job procedures. Please check all calculations on location.

COST ESTIMATE:

F.O.B. MILES CITY, MT

PRODUCTION CASING

5 1/2 inch

SERVICES

1380	Pumping Unit Travel	300	miles	/ mile
1006	Pumping Unit Base Charge	4430	feet	/ 6 hours
1150	Twin Unit Surcharge			/ 6 hours
1480	Bulk Cement Blending	860	ft^3	/ ft^3
1484	Bulk Cement Delivery	37.8	tons	/ ton*mile
1497	SAM III - Data Acquisition	1	job	/ job
1310	Multiple Stage Cementing	1	stage	/ stage

PREFLUSHES AND SPACERS

3195	MUDFLUSH	1260	gals	/ gal
------	----------	------	------	-------

LEAD CEMENT - STAGE 1

3002	1:1:0 'Poz:G'	425	sacks	/ sack
3132	CFL-3	0.30	%	106 lbs / lb
3161	CFR-2	0.30	%	106 lbs / lb
3100	CaCl2	2.00	%	702 lbs / lb
3264	CDF-4P	0.40	%	141 lbs / lb
3250	PS Flake	2.00	lbs/sk	850 lbs / lb
3231	Gel	2.00	%	702 lbs / lb

LEAD CEMENT - STAGE 2

3030	Control Set 'C'	230	sacks	/ sack
3247	Polyflake	0.25	lbs/sk	58 lbs / lb

TAIL CEMENT - STAGE 2

3030	Control Set 'C'	95	sacks	/ sack
3247	Polyflake	0.25	lbs/sk	24 lbs / lb

OTHER MATERIALS

1492	Envirobag	1	bag	/ bag
3262	DF-3	7	gals	/ gal

NON-DISCOUNTED ITEMS

1493	Environmental Surcharge	1	job	/ job
2992	Fuel Surcharge	3	trucks	/ truck
1395	Twin Unit - Add. Pumping	4	hours	/ hour
1398	Bulk Unit- Standby	8	hours	/ hour

NON-DISCOUNTED TOTAL

GRAND TOTAL

DISCOUNT:

FLOAT EQUIPMENT (NON-DISCOUNTED)

	4 1/2" Float Collar - L80	1	unit		/ unit	
	4 1/2" Guide Shoe	1	unit		/ unit	
4410	4 1/2" Limit Clamp	1	unit		/ unit	
4408	4 1/2" x 6 1/4" Centralizer	15	units		/ unit	
4400	Threadlok	2	units		/ unit	
2999	4 1/2" Stage Tool	1	unit		/ unit	
FLOAT EQUIPMENT TOTAL						
NON-DISCOUNTED TOTAL						
DISCOUNTED TOTAL						
GRAND TOTAL						

DISCOUNT:

A minimum of two additional hours of pumping time per pumping operation will be charged after initial 6 hours location time. Hours will be charged as follows:

Additional hours on location will be charged (non-discounted) as follows:

Twin Cement Pumping Unit – per unit, per hour

Pumping Time.....
Standby Time.....

Bulk Cement Unit – per unit, per hour

Standby Time.....

Please refer to the General Terms and Conditions contained on the last page of this proposal. The provision of goods or services to the Customer, whether described in this proposal or otherwise provided, is governed by the General Terms and Conditions unless a written master service agreement is in place between the Customer and Sanjel. By accepting this proposal (either expressly or by allowing Sanjel to perform services or provide goods) the Customer agrees to be bound by the General Terms and Conditions, or where applicable, the master service agreement in place. Such acceptance shall constitute an acknowledgment by the Customer that it has reviewed and understands the General Terms and Conditions and has had the opportunity to seek independent legal advice. Such terms take precedence over any subsequent or supplemental terms provided by the Customer, including any terms found on a purchase order, which shall not apply regardless of whether or not they are signed by Sanjel.

General Terms and Conditions

Under these terms and conditions ("T&Cs") Sanjel (USA) Inc. ("Sanjel") agrees to provide, and you agree to purchase, the goods and services in the attached proposal or work order ("goods," "services" or "goods and services"). You understand and agree that the T&Cs govern and control the provision of all goods or services Sanjel provides to you, including any goods or services Sanjel provides or performs under written or oral requests for goods or services. You accept the T&Cs by informing Sanjel or allowing Sanjel to provide goods and services, whichever is first. You cannot change the T&Cs, and Sanjel rejects any proposals on your forms or otherwise. When used in the T&Cs, "we," "us," and "our" refer to both you and Sanjel, collectively.

1. Entire Agreement. If we have signed an agreement applicable to the goods and services, that agreement will apply and the T&Cs do not. If no signed agreement exists between us, the T&Cs are our entire agreement for the goods and services, and no prior discussion, agreement, conduct, or industry practice will affect them. The T&Cs may not be changed, superseded or replaced by any other agreement (including any terms in a purchase order, service order, invoice or other similar document) unless specifically agreed by each of us in writing.

2. Acknowledgment. You understand that interpretations, research, analysis, advice or interpretational data furnished by Sanjel ("Recommendations") are opinions based on inferences from measurements, empirical relationships and assumptions and industry practice and that Recommendations are not infallible, and the opinions of professional geologists, engineers, drilling consultants and analysts may differ. Sanjel does not warrant the accuracy, correctness, or completeness of the Recommendations, or that your or any third party's reliance on the Recommendations will accomplish any particular results. You assume full responsibility for the use of and decisions based on the Recommendations, and you hereby agree to release, defend, indemnify and hold Sanjel harmless from Claims arising from the use of the Recommendations.

3. Payment. You will pay Sanjel for the goods and services at the rates in the applicable proposal or work order (which are good for 90 days) in US dollars within 30 days of receipt of performance or a correct invoice, whichever is later. Sanjel may charge interest at 18% per year on all overdue amounts, and you will bear all costs of collection of overdue accounts, including legal fees.

4. Services. You acknowledge and agree that the services Sanjel may perform are of such a nature that results cannot be guaranteed, and Sanjel makes no representations, warranties or guarantees with respect to the results of the services. Sanjel's only warranty with regard to the services is that they will conform to the material aspects of the applicable scope of work.

5. Goods. Sanjel may provide goods to you under the T&Cs or in connection with the services. Sanjel warrants that goods will (a) substantially conform to the applicable scope of work (b) be free of defects and of good quality and workmanship, and (c) not be subject to any liens, claims or encumbrances. There are no warranties, express or implied, of merchantability, use, and fitness that extend beyond those expressly stated herein.

6. Warranty Remedies. Sanjel will re-perform any non-conforming services if Sanjel is notified before leaving the work site, and will repair or replace any non-conforming or defective goods you notify Sanjel of within 30 days after Sanjel provided them to you free of charge. If Sanjel is unable to repair the non-conforming services, Sanjel will reimburse you for costs of a third party to repair such services, up to 10% of the original work order for such services. If fishing services are required to retrieve goods, Sanjel may specify the provider and be present during recovery. The remedies will not apply if damage is caused by: (i) your failure to properly store or maintain the goods, (ii) abnormal well conditions, abrasive materials, corrosion due to aggressive fluids or incorrect specifications, (iii) unauthorized alteration or repair of the goods, (iv) loss of goods while on your site due to your or any third party's negligence, vandalism or force majeure, (v) Sanjel's lack of or incorrect information regarding well conditions, or (vi) use or handling of the goods in a manner inconsistent with Sanjel's recommendations. Sanjel's warranty obligations will terminate if you fail to perform your obligations, including your failure to pay on time.

7. Delay and Cancellation. If Sanjel cannot provide goods or services to you due to circumstances beyond its control, Sanjel may charge you actual costs incurred, including but not limited to: mileage; blending; materials (including handling and hauling); return delivery and restocking charges; and all location time in excess of the location time allowance. Orders for goods or services that you cancel after Sanjel has procured the required materials may be subject to a 25% restocking fee. If Sanjel provides materials to your specifications and you cancel for any reason (including an uncontrollable event) you will be charged a cancellation fee plus actual costs incurred as a result of such cancellation.

8. Taxes. Prices are exclusive of any municipal, state, federal, special or use taxes or levies imposed on the sale of goods or services. You will be responsible for all taxes applicable to the provision of the goods or services.

9. Additional Services Requests. You will pay for services, equipment or materials not listed in a proposal but purchased or rented by Sanjel at your request at cost plus 25%. Sanjel has no liability to you for such services, equipment or materials.

10. Proprietary Rights. You acknowledge that any intellectual property Sanjel uses in connection with the T&Cs, or that is created or developed by Sanjel in the course of performing under the T&Cs, is the property of Sanjel at all times, and you understand that you are not entitled to any intellectual property rights in any of Sanjel's intellectual property, except as required to receive the benefit of the goods or services.

11. Confidentiality. Any non-public information that we learn about each other in connection with the T&Cs, including our relationship, is confidential information of the disclosing party, and neither of us may disclose confidential information of the other to any third party without the prior written consent of the disclosing party. We may each use confidential information of the other to perform under the T&Cs, and may share it only on a need-to-know basis with employees.

12. Indemnity. (A) Subject to Section 12(b) below, each of us ("Indemnitor") hereby agrees to release, defend, indemnify and hold the other, its affiliates, officers, directors, agents, partners, joint venturers, employees and contractors of every tier ("Indemnitee Group") harmless for all losses, claims, demands, causes of action, costs and expenses (including reasonable legal fees) (collectively, "Claims"), for personal injury, death and property damage to Indemnitor, its affiliates, officers, directors, agents, partners, joint venturers, employees and contractors of every tier arising out of or incident to the T&Cs or any goods or services provided hereunder, without regard to whether such Claim is caused, in whole or in part, by the negligence (whether sole, joint or concurrent, active or passive), contractual liability or other fault of any member of the Indemnitee Group or by any defect or pre-existing condition (whether known or unknown, patent or otherwise). (B) You hereby agree to release, defend, indemnify and hold Sanjel harmless for any Claims Sanjel may suffer or incur arising out of or incident to: well blowout or any uncontrolled well condition, fire, cratering, redrill or sidetracking, seepage or reservoir damage, loss or damage to the hole, pollution and contamination (except sudden and accidental pollution originating above the service of the earth and emanating from Sanjel's equipment while in Sanjel's care, custody and control), and loss or damage to Sanjel's (or its contractors') equipment while down the hole at new replacement value; even if caused in whole or in part by the sole, joint or concurrent negligence or other fault (active or passive) of Sanjel or any other person.

13. Consequential Damages Exclusion: Notwithstanding anything to the contrary, neither of us will be liable to the other for business interruptions, punitive, indirect or consequential damages relating to the goods or services (including but not limited to any loss of profit, loss of expected revenue, loss of hydrocarbons or loss of rig time).

14. Disposal of Chemicals. You will arrange and be responsible for the disposal of any used chemicals and hazardous materials related to the goods or services.

15. Insurance. Each of us will maintain, at its own cost, commercial general liability insurance covering its indemnification obligations under the T&Cs with combined single limits of at least \$5,000,000 per occurrence and in the aggregate. We will obtain insurance from carriers with AM Best ratings of at least A-VII (or equivalent), ensure the other party is named as an additional insured, and ensure that our carriers waive rights of subrogation against the other party.

16. Uncontrollable Events. Except for payment obligations, if either of us is unable to comply with the T&Cs because of events beyond our reasonable control, we will promptly notify the other in writing and will make reasonable efforts to restore our ability to perform as soon as possible. If the inability to perform continues for more than 10 days, the other party may cancel the applicable job immediately, by giving written notice to the affected party.

17. Waiver. Failure to enforce any or all of the T&Cs will not relieve either party of its rights or obligations or constitute a waiver or prevent further enforcement.

18. Assignment. You will not assign any of your rights or obligations under this PO without Sanjel's approval, which Sanjel may not unreasonably withhold. Any assignment in violation of this provision will be null and void.

19. Governing Law. We agree that the laws of the State of Colorado govern the T&Cs, without the application of choice of law rules. Each of us voluntarily submits to the jurisdiction and venue of the federal or state courts (as applicable) of the State of Colorado for the adjudication of all disputes under the T&Cs.



**Pumping
Service Report**

9193103

Client Name Altamont Oil & Gas Inc.	Well Name Wallewien 22-1	Rig	Job Date May 20,2014	Call Sheet 1042128
Client Representative Mr. Patrick Montalban	Surface Well Location Sec 17:T35N:R1W	Down Hole Well Location	Job Type Surface Casing	

Well Profile

Maximum Treating Pressure (psi):	---
Predicted Bottom Hole Static Temperature (°F):	90.00 @ --
Bottom Hole Circulating Temperature (°F):	--- @ --
Bottom Hole Logged Temperature (°F):	--- @ --

Open Hole					
Size (in)	Excess (%)	TMD From (ft)	TMD To (ft)	TVD From (ft)	TVD To (ft)
17.000	70.000	0.000	350.000	--	--

Casing									
Size (in)	Weight (lb/ft)	Grade	Collapse Pressure (psi)	Internal Yield Pressure (psi)	Capacity (bbl)	I.D. (in)	O.D. (in)	Depth From (ft)	Depth To (ft)
13.375	54.500	J-55	1,130.0	2,730.0	54.11	12.615	14.375	0.0	350.0

Products

Stage 1

From Depth (ft): 0
To Depth (ft): 3800
Acids/Blends/Fluids :
Tail: 104 Sacks of Control Set C, Density = 13.5 lb/gal, Volume Pumped = 32.2 (bbl)
Water Temperature(°F) = 60 , Bulk Temperature(°F) = 60 , Slurry Temperature(°F) = 80
+ 0.25 lb/sack of Polyflake (Preblend)

Fluid & Cement Data

Expected Cement Top: Surface

Wellbore Fluid

Fluid Type	Viscosity (cP)	Density (lbs/gal)	Yield Point (psi)	Temperature (°F)	Recorded@
Water Based Mud	--	--	--	--	May 04, 2014 11:49

Attachment & Tools

Down Hole Tools

Tool Type	Depth (ft)	Supplier
Float Collar	274.000	Third Party



**Pumping
Service Report**

9193103

Units & Personnel

Units

Truck Unit No.	Main Type	Sub Type	Tractor Unit No.	Main Type	Sub Type	Time On Location	Time Off Location
200848	PICKUP	3/4 Ton				05/20/2014 00:30	05/20/2014 03:30
740077	BODY JOB	C & A				05/20/2014 00:30	05/20/2014 03:30
746092	TRACTOR	Tandem - Tractor	446092	TRAILER	Bulker	05/20/2014 00:30	05/20/2014 03:30

Crew and Bonuses

Employee	Start Shift	End Shift	Second Start Shift	Second End Shift
Pedersen, Justin	05/20/2014 00:30	05/20/2014 03:30		
Thompson, Bradi	05/20/2014 00:30	05/20/2014 03:30		
Luff, Aaron	05/20/2014 00:30	05/20/2014 03:30		
Secrest, Cotton	05/20/2014 00:30	05/20/2014 03:30		
Bounds, Bradley	05/20/2014 00:30	05/20/2014 03:30		

Treatment Reports & Remarks



**Pumping
Service Report**

9193103

Treatment Report

Event #	Event Time	Event Description	Fluid Type	Rate (bbl/min)	Tubular Pressure (psi)	Annular Pressure (psi)	Stage Volume (bbl)	Total Volume (bbl)
1	May 20,2014 00:30	Arrive On Location		0.00	0.0	0.0	0.00	0.00
	Remarks: 0							
2	May 20,2014 00:35	Tailgate Meeting		0.00	0.0	0.0	0.00	0.00
	Remarks: 0							
3	May 20,2014 00:40	Safety Meeting		0.00	0.0	0.0	0.00	0.00
	Remarks: 0							
4	May 20,2014 00:45	Sign-off on Safety		0.00	0.0	0.0	0.00	0.00
	Remarks: 0							
5	May 20,2014 00:50	Rig In		0.00	0.0	0.0	0.00	0.00
	Remarks: 0							
6	May 20,2014 01:05	JSA		0.00	0.0	0.0	0.00	0.00
	Remarks: 0							
7	May 20,2014 01:20	Pressure Test	Water	0.25	2,000.0	0.0	0.25	0.25
	Remarks: 0							
8	May 20,2014 01:30	Injection Test	Water	4.00	105.0	0.0	10.00	10.25
	Remarks: 0							
9	May 20,2014 01:32	Pump	Control Set C	4.00	45.0	0.0	32.20	42.45
	Remarks: 0							
10	May 20,2014 01:56	Drop Plug		0.00	0.0	0.0	0.00	42.45
	Remarks: 0							
11	May 20,2014 02:00	Pump Displacement	Water	3.00	45.0	0.0	13.00	55.45
	Remarks: STAGED DISPLACEMENT							
12	May 20,2014 02:08	Pump Displacement	Water	2.00	45.0	0.0	5.00	60.45
	Remarks: STAGED LAST 5 BBLS OF DISPLACEMENT							
13	May 20,2014 02:11	Bump Plug		0.00	650.0	0.0	0.00	60.45
	Remarks: 0							
14	May 20,2014 02:16	Check Float		0.00	0.0	0.0	0.00	60.45
	Remarks: FLOATS HELD							
15	May 20,2014 02:20	Rig Out		0.00	0.0	0.0	0.00	60.45
	Remarks: 0							
16	May 20,2014 02:45	Job Complete		0.00	0.0	0.0	0.00	60.45
	Remarks: 0							
17	May 20,2014 03:15	Pre-Departure Meeting		0.00	0.0	0.0	0.00	60.45
	Remarks: 0							
18	May 20,2014 03:30	Leave Location		0.00	0.0	0.0	0.00	60.45
	Remarks: 0							

Did Float Hold: Yes
Fluid Returns : Yes
Type : Cement
Volume (bbl) : 20
Temperature (°F) : 80
FDAS Functioning Correctly : Yes
Was the Program Followed As Per Design? : Yes



**Pumping
Service Report**

9193103

Treatment Reports & Remarks
Material Transfer Sheet Number Material Transfer Sheet Number 3146 3145

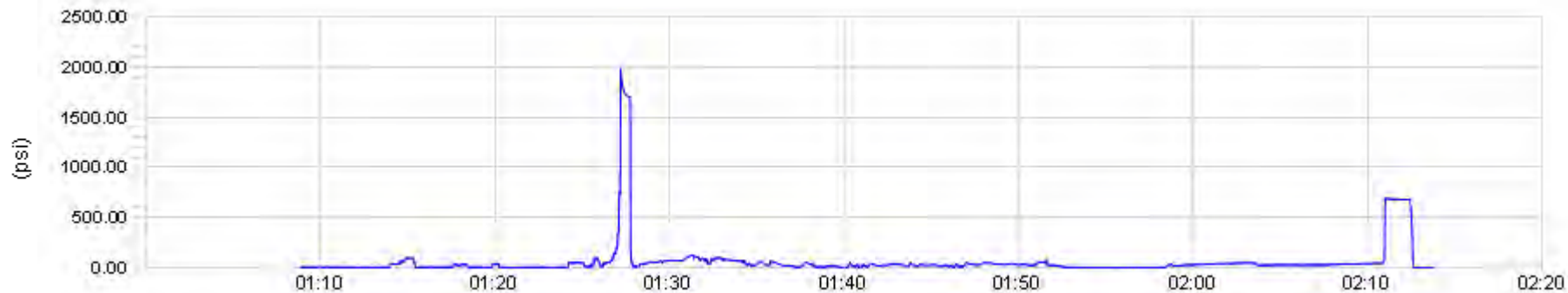


Client	Altamont Oil&Gas Inc.	Client Rep	Mr.Patrick Montalban	Supervisor	Justin Pedersen
Ticket No.	9193103	Well Name	Wallewien 22-1	Unit No.	740077
Location	Sec:17:T35N:R1W	Job Type	Surface Casing	Service District	Miles City
Comments				Job Date	05/20/2014

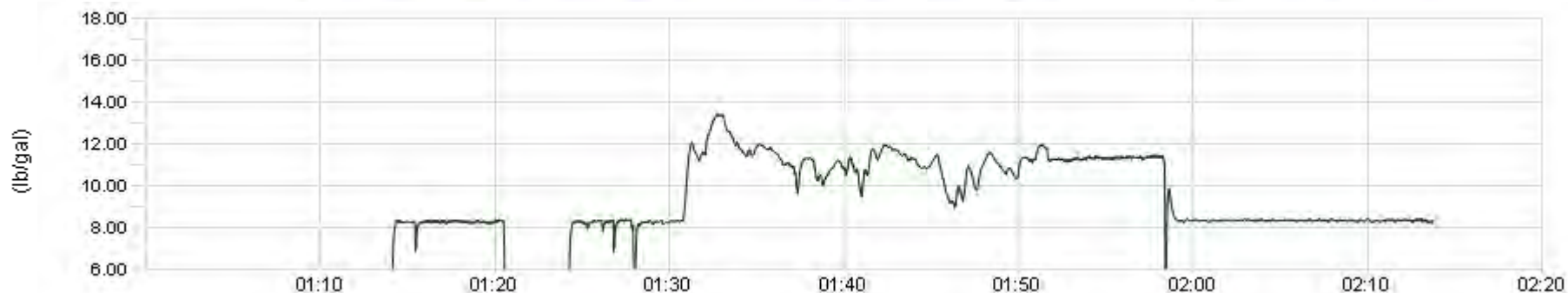
Unit 740077 Rate Total



Unit 740077 Pump Pressure



Unit 740077 Density





Pumping Service Report

9192653

Client Name Altamont Oil & Gas Inc.	Well Name Wallewien 22-1	Rig	Job Date May 30,2014	Call Sheet 1042425
Client Representative Mr. Patrick Montalban	Surface Well Location Sec 17:T35N:R1W	Down Hole Well Location	Job Type Production Casing	

Well Profile

Maximum Treating Pressure (psi):	---
Predicted Bottom Hole Static Temperature (°F):	90.00 @ --
Bottom Hole Circulating Temperature (°F):	--- @ --
Bottom Hole Logged Temperature (°F):	--- @ --

Open Hole					
Size (in)	Excess (%)	TMD From (ft)	TMD To (ft)	TVD From (ft)	TVD To (ft)
17.000	70.000	0.000	350.000	--	--
8.750	30.000	0.000	4,565.000	--	--

Casing									
Size (in)	Weight (lb/ft)	Grade	Collapse Pressure (psi)	Internal Yield Pressure (psi)	Capacity (bbl)	I.D. (in)	O.D. (in)	Depth From (ft)	Depth To (ft)
13.375	54.500	J-55	1,130.0	2,730.0	54.11	12.615	14.375	0.0	350.0
5.500	15.500	J-55	4,040.0	4,810.0	108.65	4.950	6.050	0.0	4,565.0

Products

Stage 1

From Depth (ft):

To Depth (ft):

Acids/Blends/Fluids :

Tail: 760 Sacks of 1-1-0 G, Density = 15.8 lb/gal, Volume Pumped = 127.25 (bbl)
Water Temperature(°F) = 60 , Bulk Temperature(°F) = 50 , Slurry Temperature(°F) = 60
+ 0.4 % of CDF-4P (Preblend),
+ 0.3 % of CFL-3 (Preblend),
+ 0.5 % of CFR-2 (Preblend),
+ 1 lb/sack of PS Flake (Preblend),
+ 0.25 lb/sack of Polyflake (Preblend)

Stage 2

From Depth (ft):

To Depth (ft):

Acids/Blends/Fluids :

Lead 1: 320 Sacks of Control Set C, Density = 13 lb/gal, Volume Pumped = 110 (bbl)
Water Temperature(°F) = 60 , Bulk Temperature(°F) = 50 , Slurry Temperature(°F) = 70
+ 0.25 lb/sack of Polyflake (Preblend)

Tail: 175 Sacks of 1-1-0 G, Density = 15.8 lb/gal, Volume Pumped = 29.3 (bbl)
Water Temperature(°F) = 60 , Bulk Temperature(°F) = 50 , Slurry Temperature(°F) = 60
+ 0.3 % of CFL-3 (Preblend),
+ 0.5 % of CFR-2 (Preblend)

Fluid & Cement Data

Expected Cement Top: --

Wellbore Fluid

Fluid Type	Viscosity (cP)	Density (lbs/gal)	Yield Point (psi)	Temperature (°F)	Recorded@
Water Based Mud	--	--	--	--	May 04, 2014 11:49
Water	--	--	--	--	May 30, 2014 12:16



**Pumping
Service Report**

9192653

Attachment & Tools

Down Hole Tools

Tool Type	Depth (ft)	Supplier
Float Collar	4,523.000	Sanjel
Guide Shoe	--	Sanjel
Stage Tool Mechanical (MSCC)	--	Sanjel

Tubular Plugs

Tubular Plug Type	Size (in)	Supplier
Stage Tool first Plug	5.500	Sanjel
Stage Tool Opening Bomb	5.500	Sanjel
Stage Tool Closing Plug	5.500	Sanjel

Units & Personnel

Units

Truck Unit No.	Main Type	Sub Type	Tractor Unit No.	Main Type	Sub Type	Time On Location	Time Off Location
201179	PICKUP	1 Ton	449091	TRAILER	Utility Trailer	05/29/2014 12:30	05/30/2014 21:45
445030	TRAILER	SCM Twin	745030	TRACTOR	Tandem - Tractor	05/29/2014 12:30	05/30/2014 21:45
446114	TRAILER	Bulker	746114	TRACTOR	Tandem - Tractor	05/29/2014 12:30	05/30/2014 21:45
446095	TRAILER	Bulker	746095	TRACTOR	Tandem - Tractor	05/29/2014 12:30	05/30/2014 21:45
446117	TRAILER	Bulker	746117	TRACTOR	Tandem - Tractor	05/29/2014 12:30	05/30/2014 21:45
200568	PICKUP	1/2 Ton				05/29/2014 12:30	05/30/2014 21:45

Crew and Bonuses

Employee	Start Shift	End Shift	Second Start Shift	Second End Shift
Wilcox, Kevin	05/29/2014 12:30	05/30/2014 11:30		
Schultz, Derek	05/29/2014 12:30	05/30/2014 14:18		
Nansel, Thomas	05/29/2014 12:30	05/29/2014 14:18		
Dunkel, Aaron	05/29/2014 12:30	05/29/2014 14:18		
Schreiber, Harry	05/29/2014 12:30	05/29/2014 14:18		
Lemieux, Robin	05/29/2014 23:30	05/30/2014 12:09		
Reed, Michael	05/29/2014 12:30	05/29/2014 14:18		
Gray, Brian	05/29/2014 12:30	05/29/2014 14:18		
Stigen, John	05/29/2014 12:30	05/29/2014 14:18		
Briggs, Zachary	05/29/2014 12:30	05/29/2014 14:18		
Hill, Justin	05/30/2014 16:12	05/30/2014 21:45		

Treatment Reports & Remarks

Volume To Formation

Stage/Plug/Treatment Interval Name	Volume To Formation (bbl)
Stage1	--
Stage2	--



Pumping Service Report

9192653

Treatment Report

Event #	Event Time	Event Description	Fluid Type	Rate (bbl/min)	Tubular Pressure (psi)	Annular Pressure (psi)	Stage Volume (bbl)	Total Volume (bbl)
1	May 29,2014 12:30	Arrive On Location		--	--	--	--	0.00
2	May 29,2014 23:30	Tailgate Meeting		--	--	--	--	0.00
3	May 29,2014 23:30	Wait On Instructions		--	--	--	--	0.00
4	May 30,2014 05:00	JSA		--	--	--	--	0.00
		Remarks: sign off on safety						
5	May 30,2014 05:30	Rig In		--	--	--	--	0.00
6	May 30,2014 06:30	Sign-off on Safety		--	--	--	--	0.00
7	May 30,2014 06:30	Safety Meeting		--	--	--	--	0.00
8	May 30,2014 06:40	Wait On Instructions		--	--	--	--	0.00
9	May 30,2014 09:07	Establish Circulation	Water	4.00	120.0	--	10.00	10.00
10	May 30,2014 09:11	Stop		--	--	--	--	10.00
11	May 30,2014 09:12	Pressure Test Lines	Water	--	3,000.0	--	--	10.00
		Remarks: 3,000 PSI						
12	May 30,2014 09:13	Pump	Water	4.00	120.0	--	10.00	20.00
13	May 30,2014 09:15	Pump Preflush	Water	4.00	100.0	--	30.00	50.00
		Remarks: SAPP & WS-30						
14	May 30,2014 09:20	Pump	Water	4.00	90.0	--	5.00	55.00
15	May 30,2014 09:25	Mix Cement	1-1-0 G	4.00	90.0	--	129.00	184.00
		Remarks: @ 15.8 PPG						
16	May 30,2014 10:12	Stop		--	--	--	--	184.00
17	May 30,2014 10:12	Drop Plug	Water Based Mud	--	--	--	--	184.00
18	May 30,2014 10:13	Displace Fluid	Water Based Mud	6.50	--	--	108.00	292.00
19	May 30,2014 10:39	Bump Plug	Water Based Mud	--	1,450.0	--	--	292.00
20	May 30,2014 10:40	Check Float		--	--	--	--	292.00
		Remarks: 2 BBL returned float held						
21	May 30,2014 11:11	Open Stage Tool - Mechanical	Water Based Mud	--	--	--	--	292.00
		Remarks: tool opened properly						
22	May 30,2014 11:11	Establish Circulation	Water Based Mud	4.00	100.0	--	5.00	297.00
23	May 30,2014 11:15	Wash	Water	--	--	--	--	297.00
24	May 30,2014 11:30	Wait on Cement		--	--	--	--	297.00
		Remarks: wait 8 hours before second stage						
25	May 30,2014 19:15	Establish Circulation	Water	4.00	60.0	--	20.00	20.00
26	May 30,2014 19:25	Pump Preflush	Water	4.00	40.0	--	30.00	50.00
27	May 30,2014 19:35	Pump	Water	4.00	40.0	--	5.00	55.00
28	May 30,2014 19:40	Mix Cement	Control Set C	3.50	0.0	--	110.00	165.00
		Remarks: @ 13.0 PPG						
29	May 30,2014 20:15	Mix Cement	1-1-0 G	3.00	0.0	--	29.00	194.00
		Remarks: @ 15.8 PPG						
30	May 30,2014 20:20	Stop		--	--	--	--	194.00
31	May 30,2014 20:21	Wash		--	--	--	3.00	197.00



**Pumping
Service Report**

9192653

Treatment Report

Event #	Event Time	Event Description	Fluid Type	Rate (bbl/min)	Tubular Pressure (psi)	Annular Pressure (psi)	Stage Volume (bbl)	Total Volume (bbl)
32	May 30,2014 20:22	Drop Plug		--	--	--	--	197.00
33	May 30,2014 20:25	Displace Fluid	Water Based Mud	6.00	1,000.0	--	57.00	254.00
Remarks: 1 bbl of scavenger @ 10 ppg back on second stage								
34	May 30,2014 20:45	Bump Plug	Water Based Mud	--	1,000.0	--	--	254.00
35	May 30,2014 20:46	Close Stage Tool	Water Based Mud	--	1,700.0	--	--	254.00
36	May 30,2014 20:48	Check Float		--	--	--	--	254.00
Remarks: float held								
37	May 30,2014 20:50	Job Complete		--	--	--	--	254.00
38	May 30,2014 21:00	Rig Out		--	--	--	--	254.00
39	May 30,2014 21:45	Pre-Departure Meeting		--	--	--	--	254.00
40	May 30,2014 21:50	Leave Location		--	--	--	--	254.00

Did Float Hold: Yes

Fluid Returns : Yes

Type : Cement

Volume (bbl) : 11

Temperature (°F) : 70

FDAS Functioning Correctly : Yes

Was the Program Followed As Per Design? : Yes

Material Transfer Sheet Number

Material Transfer Sheet Number

25689

25687

25688

Comments To Service Report

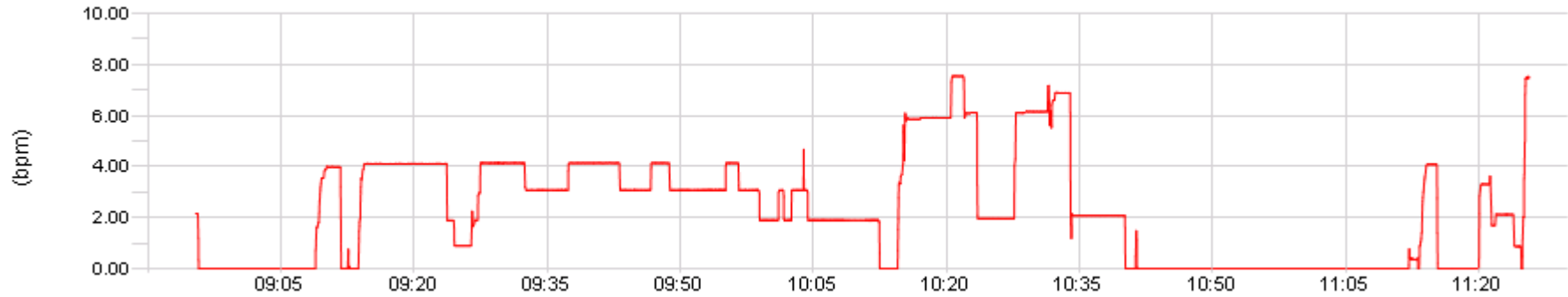
Got 11 bbl of cement back @ 15.8 ppg on the first stage

Got 1 bbl of scavenger back on second stage

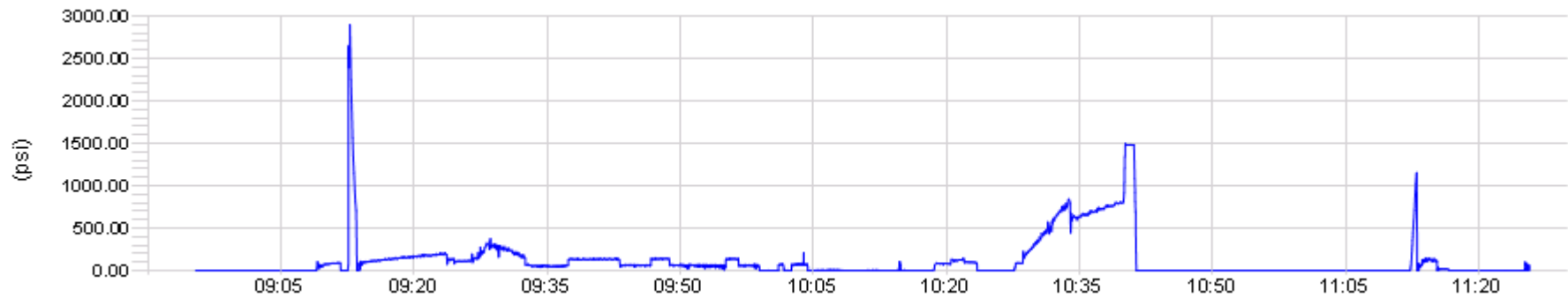


Client	Altamont Oil & Gas	Client Rep	Mr. Tim Bone	Supervisor	Kevin Wilcox
Ticket No.	9192653	Well Name	Wallenwien 22-1	Unit No.	745030
Location	Sec 17: T35N: R1W	Job Type	Production Casing	Service District	Miles City
Comments				Job Date	05/30/2014

Unit 745030 Rate Total



Unit 745030 Pump Pressure

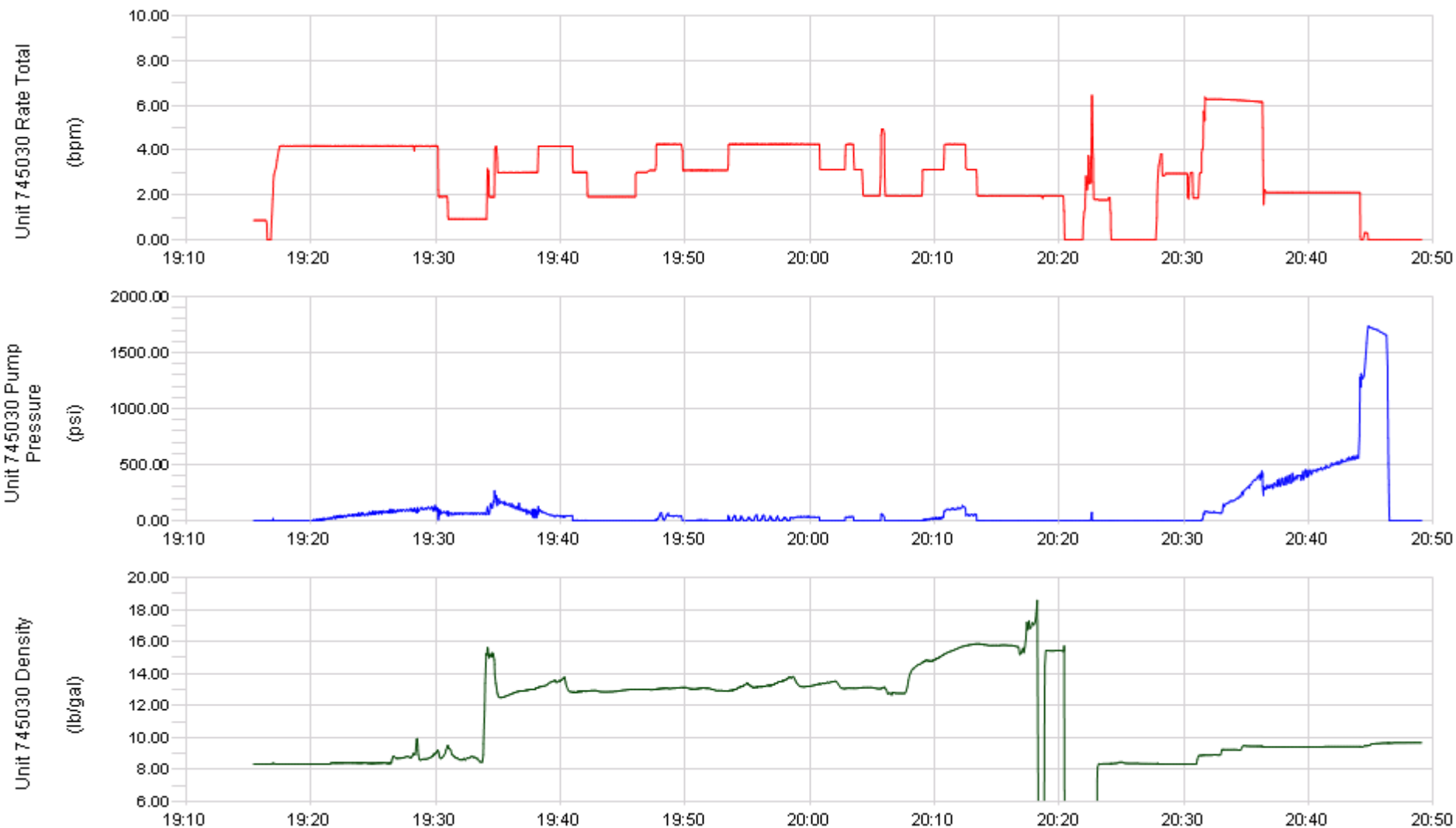


Unit 745030 Density





Client	Altamont Oil & Gas	Client Rep	Mr. Tim Bone	Supervisor	Kevin Wilcox
Ticket No.	9192653	Well Name	Wallenwien 22-1	Unit No.	745030
Location	Sec 17: T35N: R1W	Job Type	Production Casing	Service District	Miles City
Comments				Job Date	05/30/2014



Big Sky Carbon Sequestration Partnership (BSCSP)
Kevin Dome Carbon Sequestration Project
Toole County, Montana

The Wallewein 22-1 Final Isolation Scanner Cement Evaluation Report is available for download through the U.S. Department of Energy (DOE) EDX website:

<https://edx.netl.doe.gov/dataset>

Altamont Oil & Gas, Inc.

Toole County, MT

Sec 22, T36N, R1W, P.M.M. Survey

Wallewein 22-1

WB1 / #1420861

Survey: Phoenix MWD Survey

Standard Survey Report

29 May, 2014

Survey Report

Company:	Altamont Oil & Gas, Inc.	Local Co-ordinate Reference:	Well Wallewein 22-1
Project:	Toole County, MT	TVD Reference:	KB @ 3974.00usft (FX #5)
Site:	Sec 22, T36N, R1W, P.M.M. Survey	MD Reference:	KB @ 3974.00usft (FX #5)
Well:	Wallewein 22-1	North Reference:	True
Wellbore:	WB1 / #1420861	Survey Calculation Method:	Minimum Curvature
Design:	WB1 / #1420861	Database:	Compass 5000 RMR DB

Project	Toole County, MT		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Montana		

Site		Sec 22, T36N, R1W, P.M.M. Survey			
Site Position:		Northing:	1,688,100.829 usft	Latitude:	48° 51' 33.520 N
From:	Lat/Long	Easting:	1,433,762.561 usft	Longitude:	111° 43' 18.150 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.63 °

Well	Wallewein 22-1					
Well Position	+N/-S	0.00 usft	Northing:	1,688,100.829 usft	Latitude:	48° 51' 33.520 N
	+E/-W	0.00 usft	Easting:	1,433,762.561 usft	Longitude:	111° 43' 18.150 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,963.00 usft

Wellbore	WB1 / #1420861				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2013	05/19/14	13.14	72.23	55,950

Design	WB1 / #1420861				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00		0.00

Survey Program	Date	05/29/14			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
300.00	4,700.00	Phoenix MWD Survey (WB1 / #1420861)	MWD	MWD - Standard	

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	1.10	299.80	299.98	1.43	-2.50	1.43	0.37	0.37	0.00	
First Phoenix MWD Survey										
329.00	1.10	301.20	328.98	1.71	-2.98	1.71	0.09	0.00	4.83	
362.00	1.10	299.10	361.97	2.03	-3.53	2.03	0.12	0.00	-6.36	
394.00	1.10	298.20	393.96	2.33	-4.07	2.33	0.05	0.00	-2.81	
425.00	1.20	297.90	424.96	2.62	-4.61	2.62	0.32	0.32	-0.97	
457.00	1.20	300.10	456.95	2.94	-5.20	2.94	0.14	0.00	6.88	
489.00	1.10	298.10	488.94	3.26	-5.76	3.26	0.34	-0.31	-6.25	
520.00	1.10	296.60	519.94	3.53	-6.29	3.53	0.09	0.00	-4.84	
552.00	1.00	298.60	551.93	3.80	-6.81	3.80	0.33	-0.31	6.25	

Survey Report

Company:	Altamont Oil & Gas, Inc.	Local Co-ordinate Reference:	Well Wallewein 22-1
Project:	Toole County, MT	TVD Reference:	KB @ 3974.00usft (FX #5)
Site:	Sec 22, T36N, R1W, P.M.M. Survey	MD Reference:	KB @ 3974.00usft (FX #5)
Well:	Wallewein 22-1	North Reference:	True
Wellbore:	WB1 / #1420861	Survey Calculation Method:	Minimum Curvature
Design:	WB1 / #1420861	Database:	Compass 5000 RMR DB

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
584.00	1.00	294.00	583.93	4.05	-7.31	4.05	0.25	0.00	-14.38
616.00	0.90	294.00	615.92	4.26	-7.79	4.26	0.31	-0.31	0.00
647.00	1.00	290.60	646.92	4.46	-8.27	4.46	0.37	0.32	-10.97
679.00	1.00	289.10	678.92	4.65	-8.80	4.65	0.08	0.00	-4.69
711.00	1.10	291.30	710.91	4.85	-9.35	4.85	0.34	0.31	6.88
742.00	1.00	292.60	741.90	5.06	-9.87	5.06	0.33	-0.32	4.19
774.00	1.10	291.20	773.90	5.28	-10.42	5.28	0.32	0.31	-4.38
805.00	1.10	289.60	804.89	5.49	-10.97	5.49	0.10	0.00	-5.16
837.00	1.00	286.20	836.89	5.67	-11.53	5.67	0.37	-0.31	-10.63
868.00	1.00	287.90	867.88	5.83	-12.05	5.83	0.10	0.00	5.48
900.00	0.90	287.50	899.88	5.99	-12.55	5.99	0.31	-0.31	-1.25
931.00	0.90	285.70	930.88	6.13	-13.02	6.13	0.09	0.00	-5.81
963.00	0.90	281.40	962.87	6.25	-13.51	6.25	0.21	0.00	-13.44
994.00	0.90	272.20	993.87	6.30	-13.99	6.30	0.47	0.00	-29.68
1,025.00	0.90	282.60	1,024.86	6.37	-14.47	6.37	0.53	0.00	33.55
1,057.00	0.80	274.10	1,056.86	6.44	-14.94	6.44	0.50	-0.31	-26.56
1,089.00	0.70	271.80	1,088.86	6.46	-15.36	6.46	0.33	-0.31	-7.19
1,119.00	0.70	262.90	1,118.86	6.44	-15.72	6.44	0.36	0.00	-29.67
1,151.00	0.80	271.10	1,150.85	6.42	-16.14	6.42	0.46	0.31	25.63
1,183.00	0.70	270.70	1,182.85	6.43	-16.56	6.43	0.31	-0.31	-1.25
1,214.00	0.80	267.30	1,213.85	6.42	-16.97	6.42	0.35	0.32	-10.97
1,246.00	0.70	268.90	1,245.84	6.41	-17.38	6.41	0.32	-0.31	5.00
1,277.00	0.70	255.80	1,276.84	6.36	-17.76	6.36	0.52	0.00	-42.26
1,309.00	0.70	252.40	1,308.84	6.25	-18.13	6.25	0.13	0.00	-10.63
1,340.00	0.70	259.40	1,339.84	6.16	-18.50	6.16	0.28	0.00	22.58
1,370.00	0.80	255.80	1,369.83	6.07	-18.88	6.07	0.37	0.33	-12.00
1,400.00	0.80	258.10	1,399.83	5.98	-19.29	5.98	0.11	0.00	7.67
1,432.00	0.70	245.30	1,431.83	5.85	-19.69	5.85	0.61	-0.31	-40.00
1,462.00	0.70	249.70	1,461.83	5.71	-20.02	5.71	0.18	0.00	14.67
1,494.00	0.80	245.80	1,493.82	5.55	-20.41	5.55	0.35	0.31	-12.19
1,525.00	0.70	243.70	1,524.82	5.38	-20.78	5.38	0.33	-0.32	-6.77
1,557.00	0.70	253.80	1,556.82	5.24	-21.14	5.24	0.39	0.00	31.56
1,587.00	0.70	254.30	1,586.82	5.14	-21.49	5.14	0.02	0.00	1.67
1,619.00	0.70	246.00	1,618.81	5.00	-21.86	5.00	0.32	0.00	-25.94
1,650.00	0.70	246.70	1,649.81	4.85	-22.21	4.85	0.03	0.00	2.26
1,682.00	0.70	234.40	1,681.81	4.66	-22.55	4.66	0.47	0.00	-38.44
1,713.00	0.80	233.70	1,712.81	4.42	-22.87	4.42	0.32	0.32	-2.26
1,745.00	0.80	237.10	1,744.80	4.17	-23.24	4.17	0.15	0.00	10.63
1,776.00	0.80	237.90	1,775.80	3.94	-23.61	3.94	0.04	0.00	2.58
1,808.00	0.80	239.90	1,807.80	3.71	-23.99	3.71	0.09	0.00	6.25
1,840.00	0.70	248.50	1,839.79	3.52	-24.37	3.52	0.47	-0.31	26.88
1,871.00	0.90	236.10	1,870.79	3.32	-24.74	3.32	0.85	0.65	-40.00
1,903.00	0.70	243.50	1,902.79	3.09	-25.13	3.09	0.70	-0.63	23.13

Survey Report

Company:	Altamont Oil & Gas, Inc.	Local Co-ordinate Reference:	Well Wallewein 22-1
Project:	Toole County, MT	TVD Reference:	KB @ 3974.00usft (FX #5)
Site:	Sec 22, T36N, R1W, P.M.M. Survey	MD Reference:	KB @ 3974.00usft (FX #5)
Well:	Wallewein 22-1	North Reference:	True
Wellbore:	WB1 / #1420861	Survey Calculation Method:	Minimum Curvature
Design:	WB1 / #1420861	Database:	Compass 5000 RMR DB

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
1,935.00	0.90	242.30	1,934.79	2.89	-25.52	2.89	0.63	0.63	-3.75	
1,967.00	0.80	247.50	1,966.78	2.68	-25.95	2.68	0.39	-0.31	16.25	
1,999.00	0.90	239.50	1,998.78	2.47	-26.38	2.47	0.48	0.31	-25.00	
2,031.00	0.90	235.90	2,030.77	2.20	-26.80	2.20	0.18	0.00	-11.25	
2,062.00	0.90	235.30	2,061.77	1.93	-27.20	1.93	0.03	0.00	-1.94	
2,094.00	0.90	236.40	2,093.77	1.64	-27.62	1.64	0.05	0.00	3.44	
2,125.00	0.90	234.50	2,124.76	1.37	-28.02	1.37	0.10	0.00	-6.13	
2,157.00	0.90	242.10	2,156.76	1.10	-28.45	1.10	0.37	0.00	23.75	
2,188.00	0.90	236.10	2,187.76	0.85	-28.86	0.85	0.30	0.00	-19.35	
2,220.00	0.90	232.20	2,219.75	0.56	-29.27	0.56	0.19	0.00	-12.19	
2,252.00	1.00	225.70	2,251.75	0.21	-29.67	0.21	0.46	0.31	-20.31	
2,284.00	1.10	226.40	2,283.74	-0.20	-30.09	-0.20	0.32	0.31	2.19	
2,315.00	1.10	221.90	2,314.74	-0.62	-30.51	-0.62	0.28	0.00	-14.52	
2,346.00	0.90	221.40	2,345.73	-1.03	-30.87	-1.03	0.65	-0.65	-1.61	
2,377.00	1.00	219.50	2,376.73	-1.42	-31.20	-1.42	0.34	0.32	-6.13	
2,409.00	1.00	221.60	2,408.72	-1.84	-31.56	-1.84	0.11	0.00	6.56	
2,441.00	1.00	218.90	2,440.72	-2.27	-31.92	-2.27	0.15	0.00	-8.44	
2,472.00	1.10	222.80	2,471.71	-2.70	-32.29	-2.70	0.40	0.32	12.58	
2,504.00	1.20	220.40	2,503.71	-3.18	-32.72	-3.18	0.35	0.31	-7.50	
2,535.00	1.40	222.60	2,534.70	-3.70	-33.19	-3.70	0.66	0.65	7.10	
2,567.00	1.30	223.60	2,566.69	-4.25	-33.70	-4.25	0.32	-0.31	3.13	
2,599.00	1.40	221.60	2,598.68	-4.81	-34.21	-4.81	0.35	0.31	-6.25	
2,630.00	1.50	224.40	2,629.67	-5.38	-34.75	-5.38	0.40	0.32	9.03	
2,662.00	1.40	223.40	2,661.66	-5.97	-35.31	-5.97	0.32	-0.31	-3.13	
2,693.00	1.40	225.50	2,692.65	-6.51	-35.84	-6.51	0.17	0.00	6.77	
2,725.00	1.50	225.60	2,724.64	-7.07	-36.42	-7.07	0.31	0.31	0.31	
2,757.00	1.50	223.00	2,756.63	-7.67	-37.00	-7.67	0.21	0.00	-8.13	
2,788.00	1.40	224.40	2,787.62	-8.24	-37.54	-8.24	0.34	-0.32	4.52	
2,820.00	1.10	227.20	2,819.61	-8.73	-38.04	-8.73	0.96	-0.94	8.75	
2,852.00	1.10	226.50	2,851.61	-9.15	-38.49	-9.15	0.04	0.00	-2.19	
2,883.00	1.00	227.40	2,882.60	-9.54	-38.91	-9.54	0.33	-0.32	2.90	
2,915.00	1.00	223.60	2,914.60	-9.93	-39.30	-9.93	0.21	0.00	-11.88	
2,946.00	1.00	221.80	2,945.59	-10.32	-39.67	-10.32	0.10	0.00	-5.81	
2,978.00	1.00	221.40	2,977.59	-10.74	-40.04	-10.74	0.02	0.00	-1.25	
3,009.00	1.00	221.50	3,008.58	-11.15	-40.40	-11.15	0.01	0.00	0.32	
3,041.00	1.00	213.50	3,040.58	-11.59	-40.74	-11.59	0.44	0.00	-25.00	
3,070.00	1.00	208.30	3,069.57	-12.02	-41.00	-12.02	0.31	0.00	-17.93	
3,101.00	1.00	207.50	3,100.57	-12.50	-41.25	-12.50	0.05	0.00	-2.58	
3,133.00	1.00	208.10	3,132.56	-13.00	-41.51	-13.00	0.03	0.00	1.88	
3,165.00	1.00	206.20	3,164.56	-13.49	-41.77	-13.49	0.10	0.00	-5.94	
3,196.00	1.00	203.30	3,195.55	-13.98	-41.99	-13.98	0.16	0.00	-9.35	
3,228.00	1.00	201.70	3,227.55	-14.50	-42.21	-14.50	0.09	0.00	-5.00	
3,260.00	1.10	200.50	3,259.54	-15.05	-42.42	-15.05	0.32	0.31	-3.75	

Survey Report

Company:	Altamont Oil & Gas, Inc.	Local Co-ordinate Reference:	Well Wallewein 22-1
Project:	Toole County, MT	TVD Reference:	KB @ 3974.00usft (FX #5)
Site:	Sec 22, T36N, R1W, P.M.M. Survey	MD Reference:	KB @ 3974.00usft (FX #5)
Well:	Wallewein 22-1	North Reference:	True
Wellbore:	WB1 / #1420861	Survey Calculation Method:	Minimum Curvature
Design:	WB1 / #1420861	Database:	Compass 5000 RMR DB

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
3,292.00	1.10	197.80	3,291.54	-15.63	-42.62	-15.63	0.16	0.00	-8.44	
3,324.00	1.10	200.30	3,323.53	-16.21	-42.82	-16.21	0.15	0.00	7.81	
3,355.00	0.90	203.20	3,354.53	-16.71	-43.02	-16.71	0.67	-0.65	9.35	
3,387.00	1.10	200.00	3,386.52	-17.23	-43.22	-17.23	0.65	0.63	-10.00	
3,419.00	1.10	200.50	3,418.52	-17.81	-43.44	-17.81	0.03	0.00	1.56	
3,450.00	1.00	200.50	3,449.51	-18.34	-43.63	-18.34	0.32	-0.32	0.00	
3,480.00	1.10	199.90	3,479.51	-18.85	-43.82	-18.85	0.34	0.33	-2.00	
3,512.00	1.10	195.60	3,511.50	-19.44	-44.01	-19.44	0.26	0.00	-13.44	
3,543.00	1.10	199.20	3,542.49	-20.01	-44.19	-20.01	0.22	0.00	11.61	
3,574.00	1.10	195.30	3,573.49	-20.57	-44.37	-20.57	0.24	0.00	-12.58	
3,606.00	1.10	190.40	3,605.48	-21.17	-44.50	-21.17	0.29	0.00	-15.31	
3,637.00	1.10	191.50	3,636.48	-21.76	-44.62	-21.76	0.07	0.00	3.55	
3,669.00	1.20	184.90	3,668.47	-22.39	-44.70	-22.39	0.52	0.31	-20.63	
3,700.00	1.20	185.10	3,699.46	-23.04	-44.76	-23.04	0.01	0.00	0.65	
3,732.00	1.40	183.60	3,731.45	-23.76	-44.82	-23.76	0.63	0.63	-4.69	
3,763.00	1.40	181.00	3,762.45	-24.52	-44.85	-24.52	0.20	0.00	-8.39	
3,795.00	1.50	182.20	3,794.44	-25.33	-44.87	-25.33	0.33	0.31	3.75	
3,826.00	1.40	179.00	3,825.43	-26.11	-44.88	-26.11	0.41	-0.32	-10.32	
3,922.00	1.50	177.60	3,921.39	-28.54	-44.81	-28.54	0.11	0.10	-1.46	
4,016.00	1.50	177.40	4,015.36	-31.00	-44.70	-31.00	0.01	0.00	-0.21	
4,079.00	1.50	176.40	4,078.34	-32.65	-44.61	-32.65	0.04	0.00	-1.59	
4,110.00	1.60	176.20	4,109.33	-33.48	-44.55	-33.48	0.32	0.32	-0.65	
4,142.00	1.50	175.00	4,141.32	-34.35	-44.49	-34.35	0.33	-0.31	-3.75	
4,173.00	1.60	175.40	4,172.31	-35.18	-44.42	-35.18	0.32	0.32	1.29	
4,205.00	1.60	175.20	4,204.29	-36.07	-44.34	-36.07	0.02	0.00	-0.63	
4,237.00	1.70	176.90	4,236.28	-36.99	-44.28	-36.99	0.35	0.31	5.31	
4,269.00	1.70	180.70	4,268.27	-37.94	-44.26	-37.94	0.35	0.00	11.88	
4,300.00	1.50	183.80	4,299.25	-38.80	-44.29	-38.80	0.70	-0.65	10.00	
4,332.00	1.30	188.70	4,331.24	-39.58	-44.38	-39.58	0.73	-0.63	15.31	
4,364.00	1.40	193.80	4,363.24	-40.32	-44.53	-40.32	0.49	0.31	15.94	
4,395.00	1.10	197.90	4,394.23	-40.97	-44.71	-40.97	1.01	-0.97	13.23	
4,427.00	0.80	199.90	4,426.22	-41.47	-44.88	-41.47	0.94	-0.94	6.25	
4,458.00	0.70	205.70	4,457.22	-41.85	-45.03	-41.85	0.40	-0.32	18.71	
4,490.00	0.70	207.20	4,489.22	-42.20	-45.21	-42.20	0.06	0.00	4.69	
4,522.00	0.70	207.20	4,521.22	-42.54	-45.39	-42.54	0.00	0.00	0.00	
4,553.00	0.70	210.50	4,552.21	-42.88	-45.57	-42.88	0.13	0.00	10.65	
4,584.00	0.70	206.10	4,583.21	-43.21	-45.75	-43.21	0.17	0.00	-14.19	
4,616.00	0.70	207.80	4,615.21	-43.56	-45.93	-43.56	0.06	0.00	5.31	
4,645.00	0.80	206.80	4,644.21	-43.89	-46.10	-43.89	0.35	0.34	-3.45	
Final Phoenix MWD Survey										
4,700.00	0.80	206.80	4,699.20	-44.58	-46.45	-44.58	0.00	0.00	0.00	
Projection to TD										

Survey Report

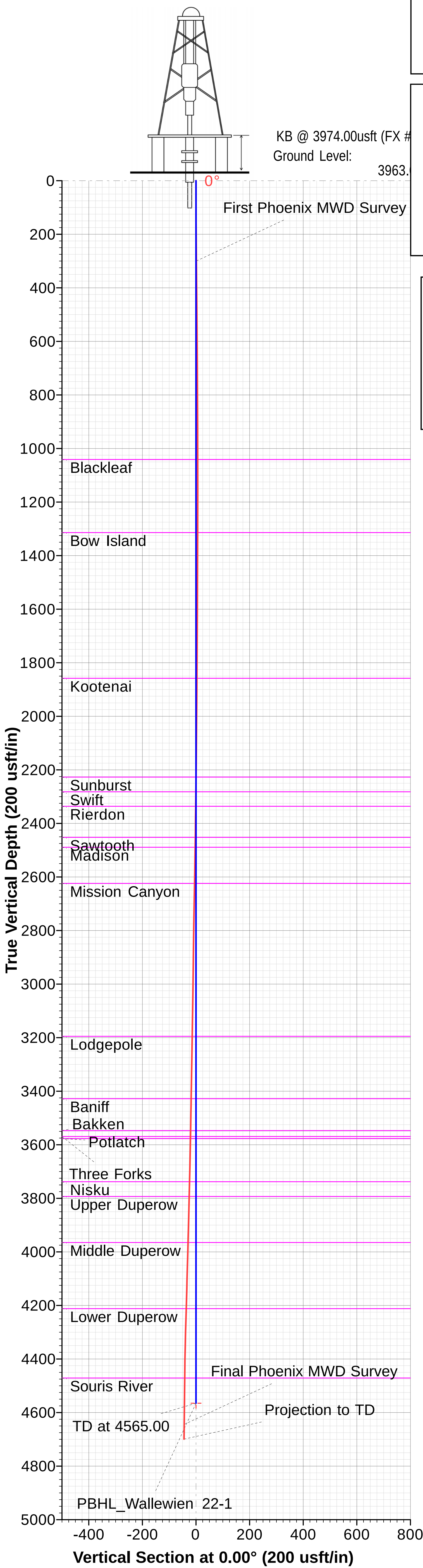
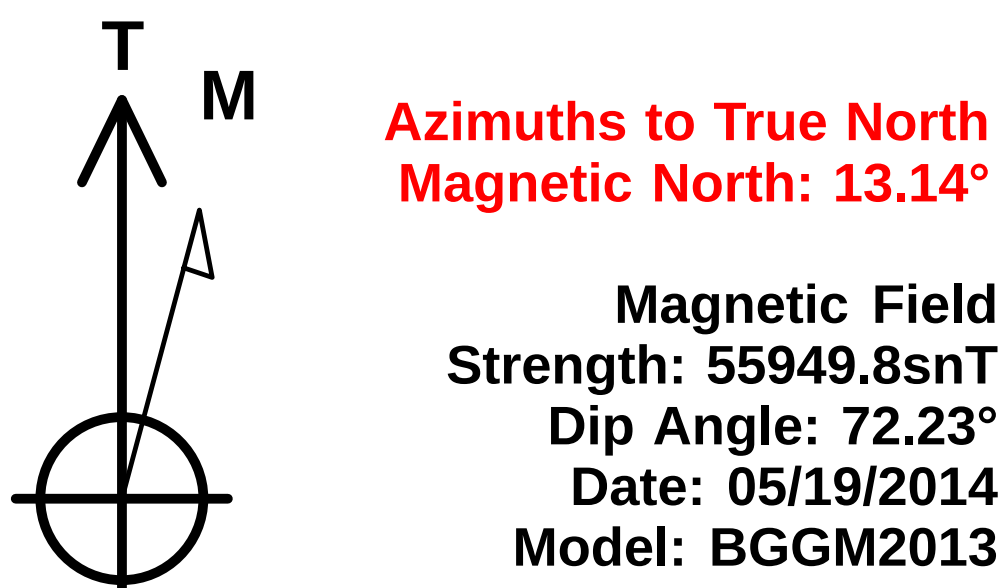
Company:	Altamont Oil & Gas, Inc.	Local Co-ordinate Reference:	Well Wallewein 22-1
Project:	Toole County, MT	TVD Reference:	KB @ 3974.00usft (FX #5)
Site:	Sec 22, T36N, R1W, P.M.M. Survey	MD Reference:	KB @ 3974.00usft (FX #5)
Well:	Wallewein 22-1	North Reference:	True
Wellbore:	WB1 / #1420861	Survey Calculation Method:	Minimum Curvature
Design:	WB1 / #1420861	Database:	Compass 5000 RMR DB

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
300.00	299.98	1.43	-2.50	First Phoenix MWD Survey
4,645.00	4,644.21	-43.89	-46.10	Final Phoenix MWD Survey
4,700.00	4,699.20	-44.58	-46.45	Projection to TD

Checked By: _____ Approved By: _____ Date: _____

Altamont Oil & Gas

Project: Toole County, MT
Site: Sec 22, T36N, R1W, P.M.M. Survey
Well: Wallewein 22-1
Wellbore: WB1 / #1420861
Design: Plan #1 05-21-14
Rig: FX #5



WELL DETAILS						
+N/-S	+E/-W	Northing	Ground Level: Easting	3963.00	Latitude	Longitude
0.00	0.00	1688100.829	1433762.561		48° 51' 33.520 N	111° 43' 18.150 W

SECTION DETAILS											
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
2	4565.00	0.00	0.00	4565.00	0.00	0.00	0.00	0.00	0.00	PBHL_Wallewein 22-1	

SITE DETAILS: Sec 22, T36N, R1W, P.M.M. Survey

Site Centre Northing: 1688100.829
Easting: 1433762.561

Positional Uncertainty: 0.00
Convergence: -1.63
Local North: True

LEGEND

Wallewein 22-1, WB1 / #1420861, WB1 / #1420861 V0

Plan #1 05-21-14

Map System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone Name: Montana

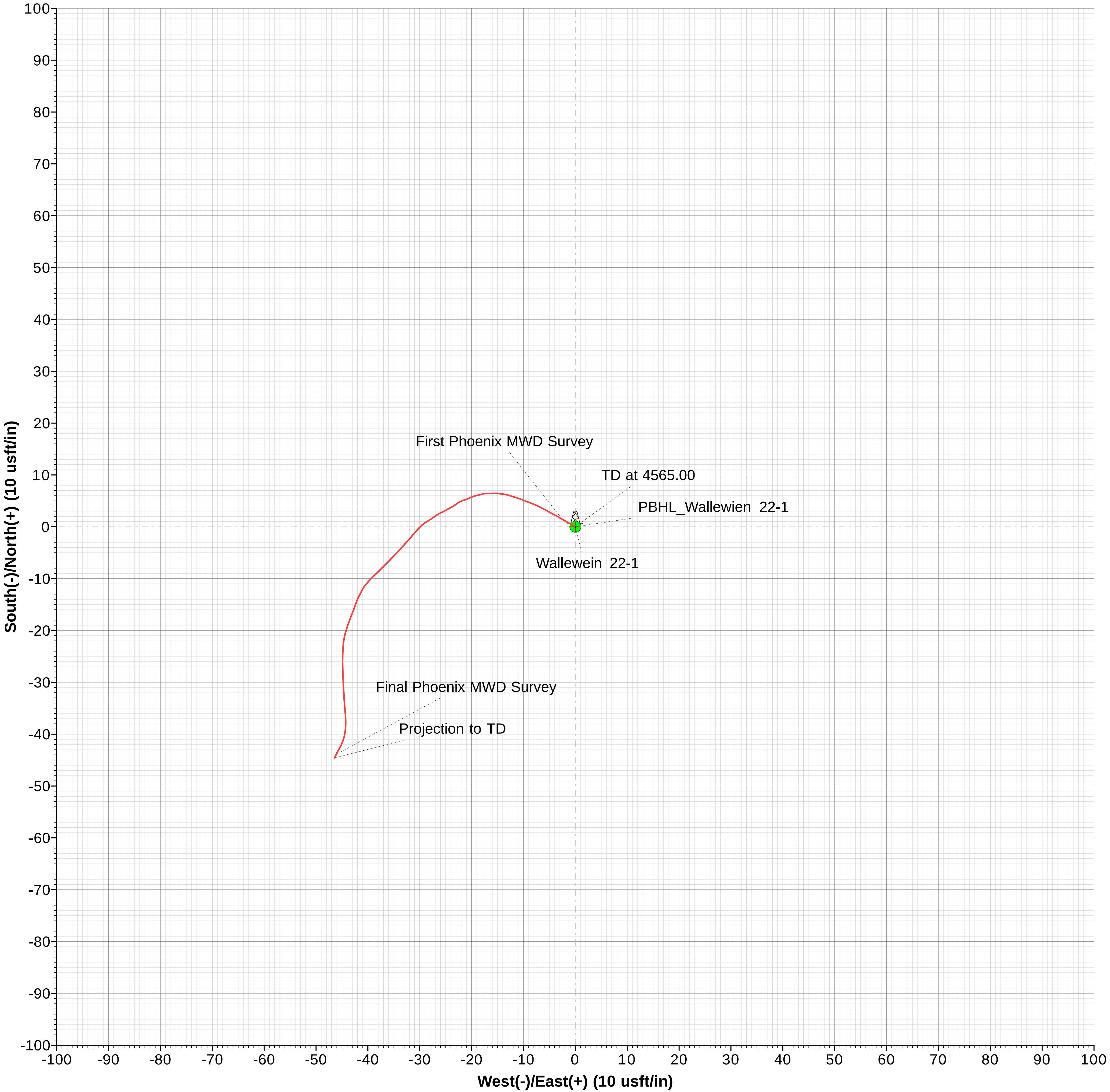
Local Origin: Well Wallewein 22-1, True North

Latitude: 48° 51' 33.520 N
Longitude: 111° 43' 18.150 W

Grid East: 1433762.561
Grid North: 1688100.829
Scale Factor: 1.000

Geomagnetic Model: BGGM2013
Sample Date: 19-May-14
Magnetic Declination: 13.14°
Dip Angle from Horizontal: 72.23°
Magnetic Field Strength: 55950

To convert a Magnetic Direction to a Grid Direction, Add 14.77°
To convert a Magnetic Direction to a True Direction, Add 13.14° East
To convert a True Direction to a Grid Direction, Add 1.63°



OPERATIONAL SUMMARY
AND
GEOLOGICAL WELL HISTORY

ALTAMONT/VECTA OIL & GAS Ltd./BIG SKY
Wallewein 22-1
Section 22 T36N R1W
SE SW (1217'fsl 2407'fwl)
Toole County, Montana

API No. 25-101-24242
Permit No. 31325(Montana)

Wildcat

Quest Minerals
Don Thompson

[REDACTED]
[REDACTED]

North Star Geological, LLC
Steven Sasaki

[REDACTED]
[REDACTED]

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RESUME

Operator: ALTAMONT/VECTA OIL & GAS Ltd./BIG SKY
Location: SE SW Section 22 Township 36N Range 1W
Surface Coordinates: 1217' FSL 2407' FWL
Field: Wildcat
County/State: Toole County, Montana
Elevation: 3963' GL 3974' KB
Total Depth: 4700' Driller 4696' Logger
Casing size: Surface 9 5/8", 36#/ft., J-55, ST&C, 8rd, Rge 3. Set at 272.54' KB. Cemented with 105 sacks Control Set C, 1/4#/sx polyflake. Plug down 2:30 AM MDT.

Production 8 joints 5 1/2", 17#/ft, 13 CR-80 Bare CR T&C R-3 JFE and 104 joints 5 1/2". 17#/ft., J-55, LT&C, 8 rd., Range 3 casing. Set at 4700' KB. Cemented with 760 sacks 1-1-0 "G", 0.4% CDF-4P, 0.5% CFR-3, 1/4#/sx Polyflake. Plug down 10:45 AM MDT, 5/30/14. Plug Held. 2nd Stage: Lead: 320 sacks "G" 1-1-0 "G", 1/4 #/sx Polyflake. Tailed: 175 sacks 1-1-0 "G", 0.3% CFL-3, 0.5% CFR-2. Plug down at 8:45 PM MDT 5/30/14. Plug Held.

Spud Date: May 19, 2014
Completion Date: May 30, 2014
Well Status: Cased For Completion as a CO2 Monitoring well.
Drilling Contractor: FX Drilling Company
Rig Number: Rig No. 5
Type Drilling Rig: Cardwell KB 150
Mud Pump: No. 1 Bomco 1000 6"X10" No. 2 Bomco 1000 6"X10"
Air Compressor: None
Mud Company: M-I SWACO Drilling Fluids LLC Tommy Soennichsen
Mud Type: Freshwater Chemical/Gel mud system
Hole Size: Surface: 12.25" 0'-274' Main Hole: 8.75" 274'-4700'
Size Drill Pipe: 4 1/2" FH (16.60#/ft.)
Size Drill Collars: 2 - 10" 120#/ft. (60') Surface only 10 - 6 1/4" 85#/ft. (261')
Mud Loggers: NorAm Dan'l Donges/Dave Myhre
Sample Intervals: Mud 30' 270'-2250' 2350'-3670'
Mud 20' 2250'-2350' 3670'-3904' 4144'-4700'
Mud 10' 3904'-4144'

Sample Quality: Good
Drilling Supervision: RPM Consultants Bohn
Directional: Phoenix Technology Services Mark Hesla
MWD: Phoenix Technology Services JT Ebert/Steve Stack
Core Company: Devilbliss Coring Service Virgil Devilbliss
Core No. 1 3661'-3691' Cut 30' Recovered 30'
Core No. 2 3904'-3964' Cut 60' Recovered 60'
Core No. 3 3964'-4024' Cut 60' Recovered 60'
Core No. 4 4024'-4084' Cut 60' Recovered 60'
Core No. 5 4084'-4124' Cut 60' Recovered 60'

correction: 4144'

Core Handling: Terra Tek Ronald Rowan



SAMPLE DISTRIBUTION

Samples are not required by State and not by Federal Regulatory Agencies. Two (2) dried sample cut sets were sent to Vecta Oil & Gas, geologist.

MUD SUMMARY

SURFACE HOLE

Gel (Bentonite)	50 sacks	Soda Ash	2 sacks
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MAIN HOLE

Gel (Bentonite)	89 sacks	Sodium Bicarbonate	11 sacks
Soda Ash	3 sacks	Platinum Pac UL	30 sacks
Detergent	5 cans	Unitrol	22 sacks
Platinum Pac	15 sacks	Gypsum	57 sacks
Poly Plus	3 cans	RingFree	8 cans
Tackle	1 can	Sawdust	11 sacks
MI-I Bar	185 sacks	Lime	28 sacks
Myacide GA25	6 cans	Fed Rheosmart	48 sacks

DEVIATION SURVEY RECORD

	<u>DEPTH</u>	<u>DEGREES</u>	<u>AZIMUTH</u>	<u>TVD</u>
1.	121'	0.5*	-----	-----
2.	300'	1.1*	299.8*#	299.98'
3.	329'	1.1*	301.2*#	328.98'
4.	362'	1.1*	299.1*#	361.97'
5.	394'	1.1*	298.2*#	393.96'
6.	425'	1.2*	297.9*#	424.96'
7.	457'	1.2*	300.1*#	456.95'
8.	489'	1.1*	298.1*#	488.94'
9.	520'	1.1*	296.6*#	519.94'
10.	552'	1.0*	298.6*#	551.93'
11.	584'	1.0*	294.0*#	583.93'
12.	616'	0.9*	294.0*#	615.92'
13.	647'	1.0*	290.6*#	646.92'
14.	679'	1.0*	289.1*#	678.92'
15.	711'	1.1*	291.3*#	710.91'
16.	742'	1.0*	292.6*#	741.90'
17.	774'	1.1*	291.2*#	773.90'
18.	805'	1.1*	289.6*#	804.89'
19.	837'	1.0*	286.2*#	836.89'

20.	868'	1.0*	287.9*#	867.88'
21.	900'	0.9*	287.5*#	899.88'
22.	931'	0.9*	285.7*#	930.88'
23.	963'	0.9*	281.4*#	962.87'
24.	994'	0.9*	272.2*#	993.87'
25.	1025'	0.9*	282.6*#	1024.86'
26.	1057'	0.8*	274.1*#	1056.86'
27.	1089'	0.7*	271.8*#	1088.86'
28.	1119'	0.7*	262.9*#	1118.86'
29.	1151'	0.8*	271.1*#	1150.85'
30.	1183'	0.7*	270.7*#	1182.85'
31.	1214'	0.8*	267.3*#	1213.85'
32.	1246'	0.7*	268.9*#	1245.84'
33.	1332'	0.7*	255.8*#	1276.84'
34.	1309'	0.7*	252.4*#	1308.84'
35.	1340'	0.7*	259.4*#	1339.84
36.	1370'	0.8*	255.8*#	1369.83'
37.	1400'	0.8*	258.1*#	1399.83'
38.	1432'	0.7*	245.3*#	1431.83'
39.	1462'	0.7*	249.7*#	1461.83'
40.	1494'	0.8*	245.8*#	1493.82'
41.	1525'	0.7*	243.7*#	1524.82'
42.	1557'	0.7*	253.8*#	1556.82'
43.	1587'	0.7*	254.3*#	1586.82'
44.	1619'	0.7*	246.0*#	1618.81'
45.	1650'	0.7*	246.7*#	1649.81'
46.	1682'	0.7*	234.4*#	1681.81'
47.	1713'	0.8*	233.7*#	1712.81'
48.	1745'	0.8*	237.1*#	1744.8'
49.	1776'	0.8*	237.9*#	1775.8'
50.	1808'	0.8*	239.9*#	1807.8'
51.	1840'	0.9*	248.5*#	1839.79'
52.	1871'	0.9	236.1*#	1870.79'
53.	1903'	0.7*	243.5*#	1902.79'
54.	1935'	0.9*	242.3*#	1934.79'
55.	1967'	0.8*	247.5*#	1966.78'
56.	1999'	0.9*	239.5*#	1998.78'
57.	2031'	0.9	235.9*#	2030.77'
58.	2062'	0.9*	235.3*#	2061.77'
59.	2094'	0.9*	236.4*#	2093.77'
60.	2125'	0.9*	234.5*#	2124.76'
61.	2157'	0.9*	242.1*#	2156.76'
62.	2188'	0.9*	236.1*#	2187.76'
63.	2220'	0.9*	232.2*#	2219.75'
64.	2252'	1.0*	225.7*#	2251.75'
65.	2284'	1.1*	226.4*#	2283.74'
66.	2315'	1.1*	221.9*#	2314.74'
67.	2346'	0.9*	221.4*#	2345.73'
68.	2377'	1.0*	219.5*#	2376.73'

69.	2409'	1.0*	221.6*#	2408.72'
70.	2441'	1.0*	218.9*#	2440.72'
71.	2472'	1.1*	222.8*#	2471.71'
72.	2504'	1.2*	220.4*#	2503.71'
73.	2535'	1.4*	222.6*#	2534.70'
74.	2567'	1.3*	223.6*#	2566.69'
75.	2599'	1.4*	221.6*#	2598.68'
76.	2630'	1.5*	224.4*#	2629.67'
77.	2662'	1.4*	223.4*#	2661.66'
78.	2693'	1.4*	225.5*#	2692.65'
79.	2725'	1.5*	225.6*#	2724.64'
80.	2757'	1.5*	223.0*#	2756.63'
81.	2788'	1.4*	224.4*#	2787.62'
82.	2820'	1.1*	227.2*#	2819.61'
83.	2852'	1.1*	226.5*#	2851.61'
84.	2915'	1.0*	223.6*#	2914.60'
85.	2946'	1.1*	221.8*#	2945.59'
86.	2978'	1.0*	221.40*#	2977.59'
87.	3009'	1.0*	221.5*#	3008.58'
88.	3041'	1.0*	213.5*#	3040.58'
89.	3070'	1.0*	208.3*#	3069.57'
90.	3101'	1.0*	207.5*#	3100.57'
91.	3133'	1.0*	208.1*#	3132.56'
92.	3165'	1.0*	206.2*#	3164.56'
93.	3196'	1.0*	203.3*#	3195.55'
94.	3228'	1.0*	201.7*#	3227.55'
95.	3260'	1.1*	200.5*#	3259.54'
96.	3292'	1.1*	197.8*#	3291.54'
97.	3324'	1.1*	200.3*#	3323.53'
98.	3355'	0.9*	203.2*#	3354.53'
99.	3387'	1.1*	200.0*#	3386.52'
100.	3419'	1.1*	200.5*#	3418.52'
101.	3450'	1.0*	200.5*#	3449.51'
102.	3480'	1.1*	199.9*#	3479.50'
103.	3512'	1.1*	195.6*#	3511.50'
104.	3543'	1.1*	199.2*#	3542.49'
105.	3574'	1.1*	195.3*#	3573.49'
106.	3606'	1.1*	190.4*#	3605.48'
107.	3637'	1.1*	191.5*#	3636.48'
108.	3669'	1.2*	184.9*#	3668.47'
109.	3700'	1.2*	185.1*#	3699.46'
110.	3732'	1.4*	183.6*#	3731.45'
111.	3763'	1.4*	181.0*#	3762.45'
112.	3795'	1.5*	182.2*#	3794.44'
113.	3826'	1.4*	179.0*#	3825.43'
114.	3922'	1.5*	177.6*#	3921.39'
115.	4016'	1.5*	177.4*#	4015.36'
116.	4079'	1.5*	176.4*#	4078.34'
117.	4110'	1.6*	176.2*#	4109.33'

118.	4142'	1.5*	175.0*#	4141.32'
119.	4173'	1.6*	175.4*#	4172.31'
120.	4205'	1.6*	175.2*#	4204.29'
121.	4237'	1.7*	176.9*#	4236.28'
122.	4269'	1.7*	180.7*#	4268.27'
123.	4300'	1.5*	183.8*#	4299.25'
124.	4332'	1.3*	188.7*#	4331.24'
125.	4364'	1.4*	193.8*#	4363.24'
126.	4395'	1.1*	197.9*#	4394.23'
127.	4427'	0.8*	199.9*#	4426.22'
128.	4458'	0.7*	205.7*#	4457.22'
129.	4490'	0.7*	207.2*#	4489.22'
130.	4522'	0.7*	207.2*#	4521.22'
131.	4553'	0.7*	210.5*#	4552.21'
132.	4584'	0.7*	206.1*#	4583.21'
133.	4616'	0.7*	207.8*#	4615.21'
134.	4645'	0.8*	206.8*#	4644.21'

#Electronic

MUD PROPERTIES

	<u>DEPTH</u>	<u>VISCOSITY</u>	<u>WEIGHT</u>	<u>WATER LOSS</u>	<u>PH</u>
1.	530'	43	8.8	5.0	9.0
2.	630'	42	8.9	5.2	9.5
3.	760'	42	8.9	5.0	9.5
4.	900'	41	8.9	5.0	9.5
5.	1090'	45	9.1	5.0	9.5
6.	1211'	45	9.1	4.6	9.5
7.	1332'	45	9.2	4.6	9.0
8.	1509'	44	9.2+	4.4	9.0
9.	1509'	44	9.2+	4.4	9.0
10.	1645'	46	9+	4.8	9.0
11.	1787'	48	9.2+	4.0	9.0
12.	1901'	46	9.2+	4.4	9.0
13.	2120'	42	9.2	4.6	9.0
14.	2200	42	9.4	4.4	9.0
15.	2370'	42	9.4	4.4	9.0
16.	2466'	42	9.4	4.4	9.0
17.	2517'	42	9.4	4.8	9.0
18.	2700'	44	9.3	6.0	9.0
19.	2760'	61	9.3	6.4	8.5
20.	2826'	57	9.3	5.8	8.5
21.	2889'	52	9.3	5.6	8.5
22.	2939'	55	9.3	5.6	8.5
23.	2987'	49	9.3	5.4	8.5
24.	3056'	46	9.25	6.0	8.5
25.	3158'	40	9.2	5.0	9.0

26.	3200'	42	9.2	5.2	9.0
27.	3235'	42	9.2	6.1	9.0
28.	3280'	51	9.2	5.0	9.0
29.	3319'	48	9.2	5.6	9.0
30.	3350'	49	9.2	6.2	9.0
31.	3373'	48	9.2	6.0	9.0
32.	3421'	50	9.25	5.8	9.0
33.	3470'	50	9.25	5.6	9.0
34.	3517'	50	9.2	5.6	9.0
35.	3567'	49	9.25	5.8	9.0
36.	3638'	45	9.3	5.8	9.0
37.	3710'	63	9.5	5.6	9.0
38.	3757'	77	9.55	5.6	9.5
39.	3834'	72	9.55	5.4	10.0
40.	3944'	63	9.26	5.4	9.0
41.	3964'	69	9.5+	5.2	9.5
42.	4006'	67	9.6+	5.2	10.0
43.	4066'	61	9.7	5.4	10.0
44.	4102'	65	9.7	5.2	9.5
45.	4132'	64	9.6+	4.8	9.5
46.	4175'	57	9.8	5.4	11.0
47.	4275''	47	9.8	5.4	11.0
48.	4335'	56	9.75	5.4	10.5
49.	4440'	58	9.8	5.0	10.0
50.	4470'	60	9.8	5.0	9.5
51.	4530'	67	9.8	5.2	9.5
52.	4650'	61	9.8	5.4	9.5
53.	4658'	65	9.7	5.4	9.5

BIT RECORD

BIT#	MAKE	TYPE	SIZE	IN	OUT	FOOTAGE	WOB	JET SIZE	Hrs	RPM
1.	HTC	MX-1	12 ¼"	Sfe	274'	274'	12k	4X16	6.5	60
2.	STC	MDSI616	8 ¾"	274'	3661'	3387'	14k	6X18	64.5	52
3.	C-1	CZ 410	8 ¾"	3661'	3690'	30'	11k	--	2.6	50
4.	STC	MDSI616	8 ¾"	3661'	3904'	243'	13k	6X18	2.25	43
5.	C-2RR	CZ 410	8 ¾"	3904'	3964'	60'	10-11k	--	4.8	50
6.	C-3RR	CZ 410	8 ¾"	3964'	4024'	60'	17k	--	3.7	60
7.	C-4RR	CZ 410	8 ¾"	4024'	4084'	60'	10-11k	--	4.0	54
8.	C-5RR	CZ 410	8 ¾"	4084'	4144'	60'	13-15k	--	4.1	50
9.	STC RR	MDSI616	8 ¾"	4144'	4700'	556'	12-13k	6X18	12	50

LOGGING PROGRAM

Ran Schlumberger PEX-HNGS (Platform Express, Hostile Environment Natural Gamma Ray Spectroscopy) Drilling Engineers QuickLook Gamma Ray, MSIP-FMI (Sonic Scanner, Full-bore Micro Imager and CMR-ECS (Combinable Magnetic Resonance Spectroscopy Capture Sonde) from 4696' to 272'. Sonic Scanner Cement Bond Log run from 272' to surface.

ELECTRICAL LOG FORMATION TOPS ,(ft.)

<u>FORMATION</u>	<u>E-LOG TOPS</u>	<u>SUBSEA</u>
<u>Cretaceous</u>		
Blackleaf (Second White Specks)	1058'	+2916
Bow Island	1332'	+2642
Kootenai	1878'	+2096
Sunburst	2233'	+1744
<u>Jurassic</u>		
Swift	2294'	+1680
Rierdon	2359'	+1615
Sawtooth	2480'	+1494
<u>Mississippian</u>		
Madison	2498'	+1476
Mission Canyon	2638'	+1336
Lodge Pole	3202'	+772
Banff	3490'	+484
Bakken	3584'	+390
<u>Devonian</u>		
Three Forks	3604'	+370
Potlatch	3611'	+363
Nisku	3770'	+204
Duperow	3848'	+ 126
Middle Duperow Porosity	4117'	- 143
Lower Duperow	4277'	- 303
Souris River ?	4548'	- 574
<u>TOTAL DEPTH LOGGERS</u>	4696'	- 722

DAILY DRILLING CHRONOLOGY

May 19, 2014 FX Drilling rig #5 spudded in @ base of conductor pipe at 9:00 AM MDT. Drilled 12 ¼" hole to 274' with mud. Circulated hole clean, tripped out and then ran 9 5/8", 6 jts., 36#/ft., J-55, ST&C, 8rd., Range 3 casing. Set at 272.52' KB. Circulate. Wait on cementers.

May 20, 2014 Total Depth 274'. Wait on cementers. Cementers on location at 12:30 AM MDT. Rig up cementers. Cemented casing with 104 sacks Control Set "C", ¼#/sx polyflake. Plug down 2:30 AM MDT. 20 barrels cement returns to pit. WOC. Nipped up BOP. Pressured up BOP. Failed test, cement in BOP. Cleaned out cement. Tested BOP. Failed test. Replaced drilling head. Pressured up BOP. OK. Tested blind rams to 500 psig, choke manifold 500 psig. OK. Tested pipe rams and annular to 450 psig. OK. Pickup 8 ¾" bit, directional tool and collars. Drilled from 274' to 449' while surveying every connection.

May 21, 2014 Drilled from 449' to 2390'.

May 22, 2014 Drilled from 2390' to 3264'

May 23, 2014 Drilled from 3264' to 3661'. Core point. Circulate and condition hole for Core No. 1. Trip out of hole.

May 24, 2014 Trip in with reaming bit, wash/ream to bottom. Circulate and condition mud. Trip for core barrel. Pickup core head and barrel. Trip in and cut core No. 1. 3661'-3690'. Trip out and lay down core. Pickup bit, mud motor and MWD equipment.

May 25, 2014 Total Depth 3690'. Trip to bottom, ream from 3660- to 3690', Drill from 3690' to 3904'. Circulate hole clean, trip out for core assembly. Lay down MWD, mud motor and bit. Pickup corehead, outer core barrel and inner core barrel. Trip in. Wash last 8' to bottom. Started coring at 3904'. Core No. 2 (3904' to 3964'). Tripped out with core.

May 26, 2014 Tripped out with core #2. Laid down and cut core for transport (3904'-3964' full recovery). Tripped back in for core run #3. Cored from 3964' to 4024'. Trip out. Lay down Core #3. Pickup new inner barrel. Trip back in for core #4. Cut Core No. 4 from 4024' to 4084'. Trip out.

May 27, 2014 Laid down core #4 (4024'-4084'). Tripped back to bottom, cut core #5 (4084'-4144'). Retrieved core #5, tripped back in with drilling assembly. Drilled from 4144' to 4403'.

May 28, 2014 Drilled from 4403' to 4700' (TD). Circulated hole clean. Tripped out with directional tools. Laid down directional assembly, picked up roller cone bit, tripped back to bottom, conditioned hole for logs with short trip. Trip out for logs. Schlumberger on location. Rig up Schlumberger. Run in hole and tag total depth. Log run No. 1.

May 29, 2014 TD 4700'. Completed logging run #1. Change out tools, run in hole, log run #2. Completed logging run #2. Change out tools, run in hole, log run #3. Completed logging run #3. Rig down Schlumberger. Rig up Wyoming Casing. Run 5 ½" casing.

May 30, 2014 TD 4700'. Finished running 5 ½" casing. Circulate and thin mud back. Cemented with 760 sacks 1-1-0 "G", 0.4% CDF-4P, 0.5% CFR-3, ¼#/sx Polyflake. Bumped plug, 10:45 AM MDT. Plug held. Drop DV dart. Wait ½ hr. for dart to seat. Pressured up and opened DV ports. Circulate casing 8 hours. Cemented 2nd Stage: Lead: 320 sacks "G" 1-1-0 "G", ¼ #/sx Polyflake. Tailed: 175 sacks 1-1-0 "G", 0.3% CFL-3, 0.5% CFR-2. Plug down at 8:45 PM MDT 5/30/14. End Report.

LITHOLOGY

Sample descriptions begin at 300' in Cretaceous Colorado Shale. Sample descriptions are corrected for drill time lag. Formation tops were determined from samples, penetration rate and downhole gamma tool. Samples were examined and described wet.

FOOTAGE

SAMPLE DESCRIPTION

SAMPLES CAUGHT IN 30' INTERVALS

300'-330'	Shale, black, blocky to chunky, soft, gritty texture, non-calcareous. Trace free pyrite chunks. Trace Inoceramus Prisims.
330'-360'	Shale, black, blocky to chunky, soft, gritty texture, slightly calcareous. Trace tan fossil debris.
360'-390'	Shale, black to dark gray, chunky, soft, gritty texture, micropyrritic in part, carbonaceous in part, very slightly calcareous. Trace free pyrite. Trace tan fossil debris.
390'-420'	Shale, dark gray to black, blocky to chunky, soft, gritty texture, non-calcareous. Trace Inoceramus Prisims.
420'-450'	Shale, black, chunky, soft, gritty texture, carbonaceous, non-calcareous. Trace Inoceramus Prisims.
450'-480'	Siltstone, light to medium gray, soft, very friable, homogenous, argillaceous, slightly calcareous, abundant very fine black shale fragments, moderate amounts of pyrite.
480'-510'	Siltstone, light to medium gray, soft, very friable, homogenous, argillaceous, slightly calcareous, abundant very fine black shale fragments, moderate amounts of pyrite.
510'-540'	Claystone, light gray, very soft, mushy, very silty, minor amounts sand, slightly calcareous, disseminated pyrite, grading in part to siltstone, as above.
540'-570'	Claystone, light gray, very soft, very silty, slightly calcareous, minor amounts white Inoceramus Prisims, trace of pyrite, grading to very argillaceous siltstone.
570'-600'	Siltstone, light to medium gray, very soft to firm in part, moderate amounts very fine black shale/carbonaceous fragments, slightly calcareous, trace of white calcite fragments, trace very fine sand grains, trace of pyrite.
600'-630'	Siltstone, light to medium gray, very soft to firm, very friable, very argillaceous, minor calcite/Inoceramus Prisims, rare pyrite.
630'-660'	No Sample
660'-690'	Siltstone, as above.

690'-720'	Shale, medium gray, very soft, slightly calcareous, moderate amounts very fine to fine grained quartz sand grains, trace amounts of pyrite.
720'-750'	Shale, gray, soft to firm, massive, earthy, very silty, slightly calcareous.
750'-780'	Shale, medium gray, very soft to firm, mushy to crumbly, massive, uniform, silty, slightly calcareous, rare pyrite
780'-810'	Shale, medium gray, firm, massive, blocky to sublaminal, very slightly calcareous.
810'-840'	Shale, medium gray, soft to firm, massive, very slightly calcareous, minor amounts of crunchy siltstone, rare pyrite.
840'-870'	Shale, as above.
870'-900'	Shale, medium gray, very soft to firm, massive, very silty, minor amounts of crunchy siltstone, minor amounts disseminated pyrite.
900'-930'	Clay, light gray, very soft, sticky, very poor sample.
930'-960'	Clay, light gray, very soft, sticky, very poor sample.
960'-990'	Clay, light gray, very soft, sticky, very poor sample.
990'-1020'	Clay, light gray, very soft, sticky, very poor sample.
1020'-1050'	Clay, light gray, very soft, sticky, very poor sample.

E-LOG TOP BLACKLEAF 1058' +2916'

1050'-1080'	Clay, light gray, very soft, sticky, very poor sample.
1080'-1110'	Clay, light gray, very soft, sticky, very poor sample.
1110'-1140'	Shale, gray, moderately hard, brittle, blocky, massive, slightly calcareous.
1140'-1170'	Shale, dark gray, firm to moderately hard, blocky, subfissile, slightly calcareous.
1170'-1200'	Shale, as above.
1200'-1230'	Shale, medium gray, very hard, subfissile to blocky, non calcareous, very fine black carbonaceous specks.
1230'-1260'	Shale, medium gray, very hard, brittle, laminar cuttings, non calcareous.
1260'-1290'	Shale, medium gray, very hard, brittle, laminar cuttings, non calcareous.
1290'-1320'	Shale, medium gray, hard to very hard, soapy to crunchy texture, non calcareous.

1320'-1350' Shale, medium to dark gray, hard, brittle, crunchy, very silty in part, non calcareous.

E-LOG TOP BOW ISLAND 1332' +2642'

- 1350'-1380' Shale, dark gray to black, blocky, soft, gritty texture, non-calcareous. Much Bentonite, cream, sandy, soft, gummy.
- 1380'-1410' Sandstone, gray, quartzose, very fine grained, well sorted, hard, sharp, scattered gray, black and brown chert grains, appears tite, non-calcareous, no shows. Trace shale, black, blocky, firm, gritty texture, non-calcareous.
- 1410'-1440' Sandstone, light gray, quartzose, very fine grained, well sorted, soft, very bentonitic, non-calcareous, no shows.
- 1440'-1470' Sandstone as above.
- 1470'-1500' Shale, dark gray, blocky to chunky, medium firm, gritty texture, sandy in part, non-calcareous.
- 1500'-1530' Shale, dark gray, blocky to chunky, medium, gritty texture, non-calcareous. Trace Bentonite, gray, soft, waxy to greasy texture.
- 1530'-1560' Shale, dark gray to black, blocky, medium firm, gritty texture, non-calcareous. Trace lose quartz sand grains in sample.
- 1560'-1590' Shale, black to dark gray, blocky, medium firm, gritty texture, occasional green glauconite grains, non-calcareous. Trace lose quartz sand grains in sample.
- 1590'-1620' Shale as above.
- 1620'-1650' Bentonite, gray, chunky to gummy, soft, sandy in part, non-calcareous.
- 1650'-1680' Sandstone, light gray, quartzose, fine grained, medium to well sorted, soft, very bentonitic, non-calcareous. Trace Shale, black, blocky, medium firm, gritty to sandy texture, non-calcareous.
- 1680'-1710' Sandstone and shale as above.
- 1710'-1740' Sandstone, gray, quartzose, very fine grained, medium to well sorted, scattered black chert grains, very bentonitic, non-calcaeous.
- 1740'-1770' Shale, black, chunky, medium, gritty texture, carbonaceous, non-calcareous. Trace lose sand grains in sample.
- 1770'-1800' Sandstone, gray, quartzose, very fine grained, hard, sharp, scattered black chert grains, appears tite, non-calcareous.
- 1800'-1830' Sandstone, light gray, quartzose, very fine to fine grained, medium to well sorted, hard, scattered black chert grains, appears tite, non-calcareous, no shows. Much lose quartz sand

grains in sample. Trace Shale, dark gray, blocky, medium firm, gritty texture, non-calcareous. Trace Bentonite, gray, soft, gummy.

1830'-1860' Sandstone, light gray, quartzose, fine grained, well sorted, all lose sand grains in sample, scattered black chert grains, non-calcareous, no shows.

E-LOG TOP KOOTENAI 1878' +2096'

1860'-1890' Sandstone as above.

1890'-1920 Sandstone, gray, quartzose in part, very fine to fine grained, medium sorting, hard, sharp, scattered black chert grains, appears tite, non-calcareous. Trace Siltstone, gray green, chunky, hard, sharp, non-calcareous.

1920'-1950' Sandstone, gray, quartzose, very fine to fine grained, medium sorting, hard, sharp, appears tite, non-calcareous, no shows. Trace Siltstone, as above. Trace Shale, reddish brown, chunky, soft earthy texture, non-calcareous.

1950'-1980' Sandstone, gray, quartzose, very fine to fine grained, medium sorting, hard, sharp, scattered black and brown chert grains, appears tite, non-calcareous.

1980'-2010' Shale, gray, blue green, chunky, soft, smooth texture, non-calcareous. Much lose sand grains in sample.

2010'-2040' Sandstone, light gray, quartzose, very fine to fine grained, medium sorting, hard, sharp, scattered black chert grains, appears tite, very slightly calcareous. Much lose sand grains in sample. Trace Shale, maroon, chunky, soft, earthy texture, non-calcareous.

2040'-2070' Sandstone, light gray, quartzose, very fine to fine grained, medium sorting, hard, scattered black and brown chert grains, appears tite, very slightly calcareous. Trace Shale, gray, maroon, green, chunky, soft, earthy to smooth texture, non-calcareous.

2130'-2160' Sandstone, light gray, quartzose, fine to medium grained, medium sorting, hard, sharp, scattered black and gray chert grains, appears tite, calcareous.

2160'-2190' Sandstone, light gray, quartzose, very fine to fine grained, medium sorting, hard, sharp, scattered black chert grains, appears tite, calcareous.

2190'-2220' Bentonite, cream, chunky, soft, waxy texture. Trace Sandstone as above.

2220'-2250' Bentonite, buff to gray, chunky, soft, waxy texture. Trace lose quartz sand grains in sample.

E-LOG TOP SUNBURST 2233' +1744'

2250'-2270' Sandstone, white, very light gray tan, moderately hard, brittle, friable, very fine to fine grained, argillaceous, trace to abundant calcite cement, no show.

2270'-2290' Sandstone, as above.

Shale, gray tan, firm, crumbly, non calcareous, rare pyrite.

2290'-2310' Sandstone, as above, very silty.

E-LOG TOP SWIFT 2294' +1680'

2310'-2330' Sandstone, light gray tan, light gray, very friable, very fine to secondary fine grained, poorly sorted, abundant silt, moderate amounts calcareous cement, no shows.

2330'-2350' Sandstone, as above.

E-LOG TOP RIERDON 2359' +1615'

2350'-2380' Siltstone, light gray tan, firm, friable to brittle in part, minor amounts very fine grained sand, no calcite, thin interbedded medium gray shales.

2380'-2410' Limestone, medium gray, hard, cryptocrystalline, massive, rare very fine grained pyrite.

2410'-2440' Limestone, as above, trace silt, sand.

2440'-2470' Limestone, light gray, light tan gray, firm to very hard, dense, trace to locally abundant disseminated pyrite.

E-LOG TOP SAWTOOTH 2480' +1494'

2470'-2500' No sample

E-LOG TOP MADISON 2498' +1476'

2500'-2530' Limestone, white, very light gray, very soft to hard, cryptocrystalline, dense, argillaceous l part, chalky in part, very rare very fine disseminated pyrite,
Dolomite, very light gray, very hard, very finely microcrystalline, silty.

2530'-2560' Dolomite, very light gray, very hard, brittle, finely microcrystalline, minor amounts limy matrix
Anhydrite, very light gray to white, very soft, pasty.

2560'-2590' Anhydrite, white, very light gray, very soft,
Dolomite, firm to hard, cryptocrystalline to microcrystalline, dense, very rare very fine disseminated pyrite.

2590'-2620' Anhydrite, white, very light gray, very soft,
Dolomite, very pale gray, very hard, cryptocrystalline to very finely microcrystalline, dense, very rare very fine disseminated pyrite.

E-LOG TOP MISSION CANYON 2638' +1336'

2620'-2650' Anhydrite, Dolomite, as above.

2650'-2680'	Dolomite, cream, light gray, very hard, angular cuttings, cryptocrystalline to very finely microcrystalline, limy matrix in part, abundant anhydrite.
2680'-2710'	Anhydrite, white, very pale cream, very soft, pasty, dolomite fragments.
2710'-2740'	Anhydrite, white, very pale cream, very soft, pasty, dolomite fragments, Dolomite, very pale gray, very hard, brittle, slightly limy matrix.
2740'-2770'	Anhydrite, white, very pale cream, very soft, pasty, dolomite fragments, Dolomite, very pale gray, very hard, brittle, slightly limy matrix.
2770'-2800'	Anhydrite, white, very pale cream, very soft, pasty, dolomite fragments, Dolomite, very pale gray, very hard, brittle, slightly limy matrix.
2800'-2830'	Limestone, cream, microcrystalline, anhydritic. Trace Dolomite, light tan to light gray, cryptocrystalline, limy, dense. Trace Anhydrite, cream, soft, slightly calcareous.
2830'-2860'	Limestone, cream to light gray, cryptocrystalline, firm, anhydritic. Trace Dolomite, light brown, cryptocrystalline, limy, slightly argillaceous, dense. Trace Anhydrite, cream, soft, slightly calcareous.
2860'-2890'	Limestone, light brownish gray, cryptocrystalline, firm, anhydritic, slightly argillaceous, dense. Trace Dolomite, light brown, cryptocrystalline, limy, dense. Trace Anhydrite, cream, lumpy, soft, calcareous.
2890'-2920'	Limestone, Dolomite and Anhydrite as above.
2920'-2950'	Limestone, tan, cryptocrystalline to chalky, firm to soft, anhydritic, slightly argillaceous. Trace Dolomite, tan, cryptocrystalline, limy, slightly argillaceous.
2950'-2980'	Limestone, gray to light brown, cryptocrystalline to chalky, firm to soft, slightly argillaceous, dense. Trace Anhydrite, cream, lumpy, soft.
2980'-3010'	Limestone, light brown, light gray, cream, cryptocrystalline to chalky, firm, slightly argillaceous, dense.
3010'-3040'	Limestone as above.
3040'-3070'	Dolomite, light gray, cryptocrystalline, micropyrritic in part, dense. Trace Shale, gray, chunky, firm, anhydritic, slightly calcareous. Trace Limestone, cream, lumpy, soft. Trace Chert, milky white.
3070'-3100'	Dolomite, light brown, cryptocrystalline, firm, limy in part, slightly argillaceous, dense. Trace Shale, gray, chunky, firm, micropyrritic, anhydritic.
3100'-3130'	Dolomite, tan, cream, mottled, cryptocrystalline to chalky, limy in part, pyritic in part, dense.
3130'-3160'	Dolomite, tan to light brown, mottled, cryptocrystalline to chalky, micropyrritic in part, limy, dense. Trace Chert, brown, milky white, gray.

3160'-3190' Limestone, light brown, white, mottled, cryptocrystalline to chalky, pyritic in part, slightly argillaceous, dense. Much Chert, brown.

E-LOG TOP LODGEPOLE 3202' +772'

3190'-3220' Limestone, white to gray, mottled chalky to microcrystalline to chalky, pelletoidal, slightly argillaceous, dense. Much Chert, brown to gray.

3220'-3250' Limestone, mottled light to medium gray, dark gray in part, firm to very hard, microcrystalline, slightly brecciated in part, argillaceous in part, moderate amounts dark brown gray to clear angular chert fragments.

3250'-3280' Limestone, medium gray, mottled light gray, firm to very hard, microcrystalline, dense, trace chert, no fluorescence, slow milky cut, moderately bright yellow white residual ring.

3280'-3310' Limestone, medium gray, mottled light gray, firm to very hard, microcrystalline, dense, slightly argillaceous, trace chert, very pale milky cut, moderately bright yellow white residual ring .

3310'-3340' Limestone, light gray, medium gray, soft to hard, microcrystalline, dense, slightly argillaceous, siliceous in part, thin clear to light tan chert fragments, no shows.

3340'-3370' Limestone, light tan gray, mottled light brown, moderately hard, brittle, microcrystalline to cryptocrystalline, dense, slightly argillaceous, minor amounts brown translucent chert, very rare pyrite, no fluorescence, slow milky cut, moderately bright yellow white residual ring.

3370'-3400' Limestone, light tan gray, mottled light brown, moderately hard, brittle, microcrystalline to cryptocrystalline, dense, slightly argillaceous, minor amounts brown translucent chert, very rare pyrite, no fluorescence, slow milky cut, moderately bright yellow white residual ring.

3400'-3430' Limestone, medium gray, mottled light gray, brown, generally very hard, brittle, cryptocrystalline to microcrystalline, dense, moderately silicified in part, minor brown to clear translucent chert, slow milky cut.

3430'-3520' No samples.

E-LOG TOP BANFF 3490' +484'

3520'-3550' Siltstone, gray to light gray, sub-blocky to chunky, firm, appears tite, slightly calcareous, no shows.

E-LOG TOP BAKKEN 3584' +390'

3550'-3580' Shale, black, chunky, brittle, non-calcareous. Trace Shale greenish gray, chunky, non-calcareous. Trace Anhydrite, cream, lumpy, soft.

E-LOG TOP THREE FORKS 3604' +370'

E-LOG TOP POTLATCH 3611' +363'

3580'-3610' Anhydrite, white, lumpy, soft. Trace Shale, gray, chunky, firm, smooth texture, anhydritic, slightly calcareous.

3610'-3640' Anhydrite, snow white, lumpy, soft.

CORE NO. 1 3661'-3691'

Cut 30'

Recovered 30'

CORING TIMES

9-7-5-5-5-6-4-5-5-4

5-5-4-4-6-4-6-5-4-5

4-5-5-6-5-7-6-6-4-6

PASON 1' Time During Core No. 1

2.7-6.3-6.0-5.3-5.1-4.7-5.5-4.6-5.3-4.7

4.2-4.9-4.6-8.3-4.3-5.7-4.4-5.7-4.4-4.9

4.9-4.3-4.5-6.6-4.1-5.1-7.8-5.3-5.7-4.2

Note: Samples collected at shakers during coring from 3661' to 3670' are largely very fine sludge – the result of the mechanical action of the core bit on the rock. Refer to core analysis for detailed sample descriptions.

3640'-3670' Anhydrite, snow white, lumpy, soft. Trace Dolomite, light brown, cryptocrystalline, dense.

BEGIN 20' SAMPLE INTERVALA

3670'-3690' Anhydrite, snow white, lumpy, soft.

3690'-3710' Anhydrite, white, very soft to firm, tough, massive.

3710'-3730' Anhydrite, white, soft to firm, stiff, silty in part, massive, no fluorescence, very pale milky cut.

3730'-3750' Anhydrite, white, very soft, crumbly, still, pale milky cut.

3750'-3770' Anhydrite, as above

Dolomite: light gray, very hard, very finely microcrystalline, dense, no shows

E-LOG TOP NISKU 3770' +204'

3770'-3790' Dolomite, very light cream white, hard, brittle, microcrystalline, dense, moderately bright yellow white fluorescence, dull slow milky cut.

3790'-3810' Dolomite, very light cream tan, very firm, to very hard, microcrystalline to cryptocrystalline in part, dense, minor amounts anhydrite, moderately bright yellow white, fluorescence, slow fair blue white cut.

3810'-3830' Dolomite, tan, hard to very hard, angular cuttings, cryptocrystalline, dense, minor amounts white anhydrite, pale yellow white fluorescence, very pale slow cut.

E-LOG TOP DUPEROW 3848' +126'

3830'-3850' Dolomite, light gray, mottled white, firm to very hard, very finely microcrystalline, generally dense, rare intergranular porosity, trace amounts very fine disseminate pyrite, no shows.

3850'-3870' Dolomite, light gray, mottled white, firm to very hard, brittle, very finely microcrystalline, dense, trace black carbonaceous material, trace very fine disseminate pyrite, no shows.

3870'-3890' Dolomite, as above

3890'-3904' Dolomite, as above

CORE NO. 2 3904'-3964' Cut 60' Recovered 60'

CORING TIMES

6-7-6-6-5-6-6-6-5

6-5-5-6-4-5-4-4-4

4-4-3-4-5-4-4-3-4-2

3-3-3-4-5-5-5-5-4-4

4-5-5-4-5-4-4-6-6-6

6-5-4-5-5-5-6-7-6-4

PASON 1' Time During Core No. 2

5.5-6.1-6.1-5.9-5.3-6.1-5.8-6.1-5.7-5.7

5.8-5.5-4.8-5.0-5.2-4.2-4.1-3.9-4.4-3.7

3.4-6.7-3.2-4.1-4.6-4.1-4.4-3.2-3.1-2.7

2.8-2.5-2.8-4.1-5.5-5.0-5.0-4.7-4.1-4.3

4.2-4.6-4.7-4.4-4.5-4.6-4.1-6.1-6.1-5.8

5.4-5.4-8.0-5.0-4.9-5.4-6.1-6.0-6.1-4.1

Note: Samples collected at shakers during coring from 3910' to 3950' are largely very fine sludge – the result of the mechanical action of the core bit on the rock. Refer to core analysis for detailed sample descriptions.

3904'-3910' Dolomite, gray to light brown, cryptocrystalline, slightly argillaceous, dense.

3910'-3920' Dolomite, gray to light brown, cryptocrystalline, anhydritic in part, argillaceous, dense.

3920'-3930' Dolomite, gray to light brown, cryptocrystalline, anhydritic in part, argillaceous, dense.

3930'-3940' Dolomite, gray to light brown, cryptocrystalline, anhydritic, slightly argillaceous, dense.

3940'-3950' Dolomite, gray to light brown, cryptocrystalline, argillaceous, dense.

3950'-3964' No sample

CORE NO. 3 3964'-4024' Cut 60' Recovered 60'

CORING TIMES

4-4-5-5-6-5-7-4-4-3
3-4-3-3-4-3-5-4-4-4
4-3-4-3-3-3-4-4-4-4
4-4-4-3-4-4-4-3-4-3
3-4-4-2-2-3-3-3-3-4
4-3-3-3-4-2-4-4-4-4

PASON 1' Time During Core No. 3

3.8-4.3-4.5-4.1-7.1-5.6-5.8-4.8-4.0-3.0
3.0-3.4-3.8-3.0-3.6-3.5-4.5-4.2-4.1-3.9
3.9-2.8-2.8-2.9-5.8-3.9-3.9-3.8-4.1-3.7
3.8-3.9-3.8-3.9-3.6-3.9-3.7-3.6-3.6-3.0
3.5-3.7-3.6-2.5-1.9-2.4-3.4-2.6-3.5-3.5
4.0-3.2-2.5-3.2-3.8-3.0-6.4-3.8-4.2

Note: Samples collected at shakers during coring from 3964' to 4014' are largely very fine sludge – the result of the mechanical action of the core bit on the rock. Refer to core analysis for detailed sample descriptions.

3964-3974' Dolomite, very light cream, mottled light brown, soft to very hard, microcrystalline, locally very limy.

3974'-3984' Dolomite, very light cream, mottled light brown, soft to very hard, microcrystalline, locally very limy.

3984'-3994' Dolomite, light brown, mottled very light cream, microcrystalline, very limy matrix, dense.

3994'-4004' Dolomite, brown, mottled very light cream white, light gray, generally very hard, microcrystalline, dense, slightly lime, very rare disseminated pyrite.

4004'-4014' Dolomite, very light tan, cream, firm, crumbly to brittle in part, macrocrystalline, very limy, argillaceous in part.

CORE NO. 4 4024'-4084'

Cut 60' Recovered 60'
CORING TIMES

7-6-6-6-6-5-4-4-4-5
5-4-5-4-4-4-3-3-4-3
3-3-3-4-3-3-3-4-3-2
2-3-3-4-4-4-3-4-4-3
4-4-5-4-4-4-3-4-4-4
4-4-4-3-3-4-3-4-4-5

PASON 1' Time During Core No. 4

3.7-2.2-6.3-5.9-5.8-5.7-4.9-4.1-4.5-4.5
4.3-4.6-4.6-4.5-4.1-4.4-3.7-3.1-3.1-3.3
3.5-3.2-3.3-2.9-3.4-3.3-3.4-3.0-6.1-2.8
3.2-3.0-2.9-3.0-3.3-4.1-4.0-3.6-3.8-3.8

3.0-3.6-4.3-4.9-4.1-4.5-3.6-3.6-3.5-3.7
4.6-4.0-3.6-3.8-3.5-3.1-3.2-3.1-4.5-4.1
4.7

4024'-4084' No Samples Caught

CORE NO. 5 4084'-4144' Cut 60' Recovered 60'

CORING TIMES

4-5-6-5-5-5-5-5-6
5-4-6-5-4-5-5-4-4-4
4-5-4-4-5-5-5-5-4-5
4-3-3-3-3-3-4-5-3
3-4-4-4-3-3-3-4-3
4-4-4-3-4-3-4-3-3-3

PASON 1' Time During Core No. 5

4.7-6.2-5.4-5.2-5.0-5.1-4.9-4.9-5.2-5.7
5.3-4.9-4.6-5.6-4.9-4.6-4.7-4.8-4.3-3.9
3.9-4.4-4.1-4.5-3.5-4.7-5.1-5.4-4.7-5.0
4.4-4.5-6.0-3.9-2.7-2.9-3.3-2.6-4.0-4.6
3.2-3.2-4.4-4.2-3.9-3.8-2.6-3.0-3.1-3.3
3.7-3.7-3.8-3.7-3.9-3.5-3.2-3.7-3.5-3.0

Note: Samples collected at shakers during coring from 4014' to 4144' are largely very fine sludge – the result of the mechanical action of the core bit on the rock. Refer to core analysis for detailed sample descriptions.

4084'-4094' Dolomite, very light tan gray, mottled very light gray white, firm to hard, very finely microcrystalline, dense, slightly argillaceous, very faint petroliferous odor, very dull yellow white fluorescence, very pale milky cut.

4094'-4104' Dolomite, light gray, very pale yellow gray, hard, brittle, microcrystalline, dense, rare very fine black carbonaceous material, faint petroliferous odor, pale yellow white fluorescence, very weak slow milky cut.

4104'-4114' Dolomite, light gray, very pale yellow gray, hard, brittle, microcrystalline, dense, rare very fine black carbonaceous material, faint petroliferous odor, pale yellow white fluorescence, faint milky cut.

E-LOG TOP MIDDLE DUPEROW POROSITY 4117' -143'

4114'-4124' Dolomite, light yellow brown, mottled very light gray, moderately to very hard, microcrystalline, abundant very soft white limy marl? (core bit gouge?), faint petroliferous odor, very faint yellow white fluorescence, very weak cut.

4124'-4134' Dolomite, light yellow brown, mottled very light gray, moderately to very hard, microcrystalline, abundant very soft white limy marl? (bit gouge?), faint petroliferous odor, faint yellow white fluorescence, trace very weak cut.

4134'-4144' Dolomite, light yellow brown, very light gray white, very soft (gouge?) to very hard, microcrystalline, dense, faint petroliferous odor, moderately bright yellow white fluorescence, trace very faint cut.

BEGIN 20' SAMPLE INTERVALS AFTER CORING

4144'-4150' Dolomite, brown, buff, mottled, cryptocrystalline, limy, argillaceous, anhydritic, dense, faint hydrocarbon odor, pale yellow green fluorescence, weak milky residual cut in solvent. Trace Anhydrite, white to cream, lumpy, soft.

4150'-4170' Dolomite, dark brown, brown, buff, mottled in part, cryptocrystalline, limy in part, anhydritic, dense, no hydrocarbon odor, pale yellow green fluorescence, weak milky residual cut in solvent. Trace Anhydrite, white, massive to lumpy, soft.

4170'-4190' Limestone, white to light tan, chalky, soft, slightly argillaceous, no hydrocarbon odor, pale yellow green fluorescence, weak milky residual cut in solvent.

4190'-4210' Limestone, white, chalky, soft, slightly argillaceous. Trace Dolomite, tan, cryptocrystalline to microcrystalline, slightly argillaceous, dense, no hydrocarbon odor, spotty yellow green fluorescence, weak milky residual cut in solvent.

4210'-4230' Limestone, tan to white, cryptocrystalline to chalky in part, slightly argillaceous, dense, no shows.

4230'-4250' Anhydrite, white to cream, lumpy, soft. Trace Dolomite, tan, cryptocrystalline, dense, pale yellow mineral fluorescence, no cut in solvent.

4250'-4270' Anhydrite, white to cream, lumpy, soft. Trace Dolomite, tan cryptocrystalline, dense, pale yellow mineral fluorescence, no cut in solvent.

E-LOG TOP LOWER DUPEROW 4277' -303'

4270'-4290' Anhydrite, white to cream, microcrystalline to lumpy, soft. Trace Dolomite, brown, cryptocrystalline, dense, pale yellow mineral fluorescence, no cut in solvent.

4290'-4310' Anhydrite, white to cream, microcrystalline to lumpy, soft. Trace Dolomite, brown, cryptocrystalline, dense, pale yellow mineral fluorescence, no cut in solvent.

4310'-4330' Anhydrite, white to tan, microcrystalline to amorphous, lumpy in part, soft to medium. Trace Dolomite, brown, cryptocrystalline, slightly argillaceous, dense, weak hydrocarbon odor in wet sample, pale yellow mineral fluorescence, weak residual cut in solvent.

4330'-4350' Dolomite, cream to light brown, mottled very light gray white, very hard, microcrystalline, dense, limy argillite in part, very pale yellow white fluorescence, no cut.

4350'-4370' Anhydrite, cream, stiff, clumpy, soft, no shows.

4370'-4390' Anhydrite, white, cream, very soft to stiff, no shows.

- 4390'-4410' Anhydrite, cream, soft to stiff, minor white dolomite, no shows.
- 4410'-4430' Limestone, light to medium gray brown, soft to firm, argillaceous in part, cryptocrystalline to microcrystalline in part, marly, dense, trace black carbonaceous material, very pale yellow white fluorescence, no cut.
- 4430'-4450' Limestone, medium brown, very hard, brittle, cryptocrystalline, dense, slightly silicified, no shows.
- 4450'-4470' Anhydrite, white, soft, crumbly, dense, abundant limestone as above, no shows.
- 4470'-4490' Anhydrite, as above.
- 4490'-4510' Limestone, tan to medium brown, very hard, brittle, cryptocrystalline, dense, slightly argillaceous, slightly anhydritic, no shows.
- 4510'-4530' Limestone, as above, trace of black carbonaceous material, no shows.

E-LOG TOP SOURIS RIVER? 4548' -574'

- 4530'-4550' Limestone, medium gray, hard, brittle, cryptocrystalline, dense, no shows.
- 4550'-4570' Limestone, as above.
- 4570'-4590' Limestone, gray, brown gray, hard, cryptocrystalline, dense, massive, no shows.
- 4590'-4610' Limestone, as above.
- 4610'-4630' Limestone, mottled light to medium gray, trace of tan gray in part, firm, to hard, cryptocrystalline, argillaceous in part, dense, no shows.
- 4630'-4650' Limestone, mottled light to medium gray, trace of tan gray in part, firm, to hard, cryptocrystalline, argillaceous in part, dense, no shows.
- 4650'-4670' Limestone, mottled light to medium gray, trace of tan gray in part, firm, to hard, cryptocrystalline, argillaceous in part, dense, no shows.
- 4670'-4700' Limestone, mottled light to medium gray, trace of tan gray in part, firm, to hard, cryptocrystalline, argillaceous in part, dense, no shows.

TOTAL DEPTH DRILLER 4700'
LOGGER 4696'

WALLEWEIN 22-1 AS-BUILT RECORD

	Core Samples		July 2016 P&A Hole Status - Final Status	Oct/Nov 2015 Resampling Hole Status	Oct/Nov 2015 Resampling Notes	Perf Details	Acid Treatment	Swabbing Volumes	Original Sample Info from Dec 2014/Jan 2015
Middle Duperow	CORE: 3,661 ft - 3,691 ft	5	0 ft	Spot gelled pill from 200-400ft. Set 23 sacks cement 0-200ft. Capped casing stub w/ steel plate & buried 5ft bgs. Tagged top of cement at 3,600ft	Well was filled with corrosion inhibitor (packer fluid) following Oct/Nov 2015 resampling work.			Jan 7. Moved packer to 4039ft w/ end of bottom hole assembly at 4049ft Jan 9. Began w swabs, recovered 17BBL of fluid. Pack moved to 4029ft, bottom of assembly at 4039ft. Swab run, no fluid. Then did acid job (500gal) w 24BBL of 3%NaCl for pressure test. After acid job, swabbed 31BBL of fluid (6 over load). Jan 10. Swabbed, recovered 78BBL of fluid. On Jan9, 36BBL of fluid (acid+Nacl water) were loaded in well. 31BBL were recovered on Jan 9, another 78BBL recovered on Jan 10, for a total of 109 BBL, or 73BBL over initial load. During swab runs on Jan 10, three zone 5 liquid samples were collected. Jan 15. well completion finished. March 19 - 21. Completion work. ~700BBL 3%NaCl water was injected for injection testing. March 22 - 26, falloff testing. March 29, testing activities completed. Dec 29. Perf'd zone 4. Dec 30. RBP set @ 4170ft. Packer set @ 4111ft w bottom of hole assembly @ 4121ft. Ran several swabs, recovered 20BBLs fluid. Ran additional swabs, no fluid. Did acid job (500gal) with 26BBL of water for pressure test. Ran 3 more swabs, recovered 27BBL first run, dry last 2 runs. Jan 2. Ran 4 swabs, recovered 7BBL of fluid. Then moved up to zone 5.	During swab runs, 3 Zone 5, Interval 7 fluid samples were collected (see Zone 5 Samples 1-3). Note that these sample results are not valid, thus the resampling. No gas samples collected.
	CORE: 3,904 ft - 3,964 ft		4,000 ft	RBP removed. CICR set @4,015ft . Pumped 50 sacks cement above CICR (state approved).	RBP set @4,000 ft after Oct/Nov 2015 resampling	Zone 5 resampled for TDS and gas. TDS results were: 8510ppm, 10,200ppm, 7250ppm, 8750ppm, 7160ppm, 8780ppm, and 7190ppm. H2S from gas samples VERY HIGH. Offgassing from produced water ~ 7-10% H2S. Gas sample lab results ranged from 12.9-14.1% H2S.	4 shots/ft - 69 total shots 90 deg phasing 38.5 gram "perfecta" 4" casing gun (.43 EHD, 58.9" penetration)	Acid Job. 4,040 - 4,057 ft. 500 gal 15% HCL acid.	
	CORE: 3,964 ft - 4,024 ft		4,040 ft		(ISOLATED RBP@3,970 ft)				
	CORE: 4,024 ft - 4,084 ft		4,057 ft						
			4,085 ft	RBP removed CICR set @ 4,094ft, 50 sack cement squeezed below CICR into perf'd zones	RBP set here during Oct/Nov 2015 resampling				
		Zone 4	4,117 ft		(ISOLATED RBP@3,970 ft)		4 shots/ft - 133 total shots 90 deg phasing 38.5 gram "perfecta" 4" casing gun (.43 EHD, 58.9" penetration)	Acid Job. 4,117 - 4,150 ft. 500 gal 15% HCL acid.	No Liquid samples collected. No gas samples collected
	4,150 ft								
		3	4,185 ft		(ISOLATED RBP@3,970 ft)		4 shots/ftfoot - 21 total shots 90 deg phasing 38.5 gram "perfecta" 4" casing gun (.43 EHD, 58.9" penetration)	Acid Job. 4,185 - 4,190 ft. 500 gal 15% HCL acid.	During swabbing runs, six Zone 3, Interval 5 fluid samples were collected (Zone 3 Samples 1-6). Note that these sample results are not valid, thus the resampling. No gas samples collected.
			4,190 ft						
		Zone 2	4,214 ft		skipped, no perfs				
	4,248 ft								
Lower Duperow				chrome ends @ 4,282.81 ft					
				CIBP & 5 sacks of cement					
	Zone 1	4,320 ft		(ISOLATED CIBP@4,320 ft & 5 sacks of cement)			Acid Job. 4,325-4,346 ft treated together. 500 gal 15% HCL acid.	Dec 17. Filled wellbore w/ freshwater(?) to conduct well pressure test. Dec 18. Pumped 80BBL of 2% NaCl water into well, reverse circulated. Perfed zone 1. Swabbed prior to acid job on Dec 20, no fluid recovery	No liquid samples collected. No gas samples collected.
		4,325 ft 4,332 ft 4,343 ft 4,346 ft		(ISOLATED CIBP@4,320 ft & 5 sacks of cement)					
Souris River									
			4,704 ft	BOTTOM OF HOLE					

WALLEWEIN 22-1 EBOOK

Testing & Completion Documents

Step rate general description

The step rate test is used to determine down hole fracturing pressure. A good reference point is the US EPA guidance on step rate fracture testing. Basically the executive summary is that you inject at constant rate for a period of time at which point you increase rate by a small amount again for a pre-determined time. You can plot rate versus pressure and as long as the plot is a straight line you are below fracturing pressure. When the slope changes you are exceeding fracturing pressure. You then go back to the step prior to fracturing and repeat that step and watch the formation fail a second time. After that you do an immediate shut down and get the bottom Instant Shut In Pressure. Monitor pressure fall off until fracture closes. With that you will get the dynamic fracturing pressure, static fracturing pressure, and closure pressure.

1. Move in workover rig
2. Unset retrievable BP. Lower below Zone 5 and reset at +/- 4100.
3. Pick up retrievable packer and tubing and run in hole
4. Set packer above zone 5 at +/- 4,000'
5. Spot two 500 BBL tanks on location
6. Fill tank with 3% NaCl with inhibitors heated so that it is at minimum 50 degrees F at time of delivery
7. If temperatures warrant, have a hot oiler and/or steamer on location to keep everything from freezing
8. Rig up slickline unit and run in hole with memory pressure/temperature gauges and land in the packer
9. Make static temperature and pressure measurements every 300', making sure both P and T are stabilized
10. Set gauge in nipple below packer and come out of hole
11. Rig up pump truck. Digitally record injection rate and surface pressure.
12. Establish base injection rate trying to closely match formation feed-in pressure for 30 minutes
13. Assuming that formation feed-in rate was $\frac{1}{4}$ BPM then increase rate to $\frac{1}{2}$ BPM for thirty minutes
14. Continue increasing rate by $\frac{1}{4}$ BPM increments until slope change is notice.
15. Repeat last step and observe fracturing again.
16. Shut in and record Instant Shut In Pressure and monitor a minimum of 30 minutes.

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17. Perform Injection/Fall Off Test: Inject salt water at constant rate below frac pressure for eight hours or 1,000 BSW. SWI for minimum 120 hours.
18. Pull gauges making static temperature recordings every 300' (5 minute stops) while pulling out of hole.
19. Pull tbg and packer. Release BP and reset above Zone 5.

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WALLEWEIN 22-01 COMPLETION REPORT

Daily Operations Summary

Day 1: December 12, 2014

- Transported the well service rig to the Wallewein 22-01 well pad
- Assembled and installed the blow-out preventer system

Days 2 – 3: December 13 – 14, 2014, Days off

Day 4: December 15, 2014

- Assembled the service rig and equipment at the well pad
- Began offloading tubing from trailer
- Cold weather caused equipment-freezing

Day 5: December 16, 2014

- Foggy weather conditions led to severe icing of rig structure
- Conducted pressure test of blow-out preventer system (BOP); test failed with leakage detected at bottom of tubing and threaded-connection
- Tubing/threaded-connection welded and second BOP pressure test measured successful to 1,000 psi
- Cold weather resulted in equipment-freezing

Day 6: December 17, 2014

- Foggy weather conditions led to severe icing of rig structure
- Continued offloading tubing from trailer
- Conducted pressure test of BOP; test measured successful to 1,000 psi (the full capacity of pump)

Day 7: December 18, 2014

- Total pipe in-hole measured at 141 joints with bit and scraper; seat nipple set at a depth of 4,592 feet.
- Pressured-up well to depth of 4,238 feet, but experienced pump failure

Day 8: December 19, 2014

- Rigged-up pump truck to reverse-circulate 80 barrels of 2% NaCl in well (displacing freshwater in wellbore); recovered heavy cement and mud-contaminated water
- Repeated reverse-circulation process until well cleaned through
- Completed swab run to a depth of 2,800 feet
- Perforated well at depths from 4,343 – 4,346 feet (Zone 1, Interval 1) and 4,325 – 4,332 feet (Zone 1, Interval 2)

Day 9: December 20, 2014

- Completed swab run to a depth of 4,592 feet; no fluid recovery
- Displaced 500 gallons of 15% HCl acid to perforation intervals
- Displacement pump caught pressure and produced a total of 41 barrels of fluid
- Well pressure dropped from 3,250 psi to 1,400 psi after 1 hour; pressure bled off until dead
- Completed 3 final swab runs to a depth of 3,200 feet; no fluid entry

Day 10: December 21, 2014

- Completed swab runs from depths 2,600 to 4,300 feet; recovered 5 barrels of fluid (pH measured at 1)
- Slight pressure blow on tubing; pressure-buildup measured during 1 hour well 'shut-ins'
- Loaded tubing with 10 barrels of water, unseated packer, and completed final swab run to a depth of 3,200 feet

Day 11: December 22, 2014

- Rigged in-hole with cement bailer and set cement from 4,280 to 4,278 feet (to last permanent plug in well)
- Perforated from depths 4,185 feet (Zone 3, Interval 5) to 4,190 feet (Zone 3, Interval 5))
- Pulled out of hole; rigged down wireline; well experience slight blow

Day 12: December 23, 2014

- Set packer at a depth of 4,175 feet and initiated swab run; hit fluid at a depth of 800 feet below surface
- Continued to swab well down; fluid rise recorded between runs
- Six fluid samples collected for analysis
- Completed swab run down to seat nipple and ran swab tests every half hour for 1.5 hours:
 - o Test 1, .5 hr: 2,000 feet fluid entry (11.5 barrels)
 - o Test 2, 1 hr: 2,000 feet fluid entry (11.5 barrels)
 - o Test 3, 1.5 hrs: 2,000 feet fluid entry (11.5 barrels)
- Daily totals included 15 swab runs and 105 barrels of fluid recovered

Day 13: December 24, 2014

- Hit fluid at a depth of 1,000 feet on first swab run; completed a total of five swab runs and recovered 30 barrels of fluid
- Pumped 500 gallons (12 barrels) of 15% HCl acid into well at a maximum pressure of 3,500 psi; average pressure/rate for acid job was 3,000 psi/three barrels per minute; pressure declined from 3,000 psi to 175 psi after 15 minutes
- Completed a total of 8 swab runs and recovered 51 barrels of fluid

Days 14 – 17: December 25 – 28, 2014, Days off**Day 18: December 29, 2014**

- Low temperatures caused equipment freezing and morning delays
- Packer sent to shop to get redressed
- Rigged up Pioneer Wireline Services equipment and perforated from depths 4,117 – 4,150 feet (Zone 4, Interval 6)

Day 19: December 30, 2014

- Low temperatures caused equipment freezing and morning delays
- Set retrievable bridge plug at a depth of 4,170 feet
- Bottom of packer set at a depth of 4,111 feet; bottom of bottom hole assembly (BHA) set at a depth of 4,121 feet

Day 20: December 31, 2014

- Completed swab run down to seat nipple; followed up with 2 additional runs (dry); recovered 20 barrels of fluid
- Ran 30 minute swab tests; followed up with 1 swab run (dry)
- Pumped 500 gallons (12 barrels) of 15% HCl acid; displaced acid with 26 barrels of H₂O
- Maximum pressure (during acid job) measured at 4,250 psi; average pressure at 3,250 psi; pressure declined to 2,500 psi after 15 minutes
- Maximum displacement (during acid job) rate measured at 3 barrels per minute; average displacement rate measured at 2.5 barrels per minute
- Completed 3 swab runs (two dry) to seat nipple; 27 barrels of fluid recovered

Day 21: January 1, 2015, Day off**Day 22: January 2, 2015**

- Strong winds caused work delays
- Completed 4 swab runs; 7 barrels of fluid recovered
- Perforated from depths 4,040 – 4,057 feet (Zone 5, Interval 7)

Days 23 – 25: January 3 – 5, 2015, Days off (weather)

- Well shut-in due to winter storms

Day 26: January 6, 2015

- Retrieved and sent in [damaged] retrievable bridge plug to shop for repairs
- Picked up bridge plug and set at a depth of 4,107 feet

Day 27: January 7, 2015

- Waited on heavy winds to subside
- Picked up packer at set at a depth of 4,039 feet (with end of bottom hole assembly at a depth of 4,049 feet)

Day 28: January 8, 2015, Day off (weather)

- Heavy blizzard conditions present

Day 29: January 9, 2015

- Completed swab run to seat nipple; recovered 17 barrels of fluid and swabbed dry
- Set packer at a depth of 4,029 feet (with end of bottom hole assembly at a depth of 4,039 feet)
- Completed second swab run to seat nipple
- Loaded hole with 12 barrels of 15% HCL acid and 11 barrels of 3% NaCl displacement fluid
- Caught pressure at a rate of 1.5 barrels per minute at 4,250 psi; continued displacement to bottom perforations with a rate of 3 barrels per minute at 4,000 psi
- Shut-in pressure at 3,000 psi; after 15 minutes, shut-in pressure measured at 200 psi
- Completed swab run; fluid at a depth of 300 feet; 31 barrels of fluid recovered with significant influx following 45 minute shut-in period

Day 30: January 10, 2015

- Completed 3 hour swab test
- Recovered a total of 78 barrels of fluid
- Collected 3 fluid samples from final swab run for laboratory analysis

Day 31: January 11, 2015, Day off

Day 32: January 12, 2015

- Unseated packer and reset at a depth of 4,070 feet to test retrievable bridge plug below
 - o Note: packer discovered to have previously moved up-hole (likely the source of leakage)
- Rigged-up Liquid Gold rig and pressured-up tubing to 1,000 psi; pressure bled to 750 psi after 4 minutes, and 400 psi after 10 minutes (pressure test repeated 4 times with same results)
- On/off tool's steel components damaged and sent into shop for repairs

Day 33: January 13, 2015

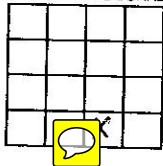
- Still waiting on On/off tool replacement part at shop; no rig operations

Day 34: January 14, 2015

- On/off tool repaired and picked up from shop
- Unseated retrievable bridge plug and pulled out of hole
- Team Oil Tools' retrievable bridge plug set at a [same] depth of 3,970 feet
- Rigged-up Liquid Gold Rig and reverse circulated 120 barrels of packer fluid with corrosion inhibitor and biocide down-hole

Day 35: January 15, 2015

- Pulled tubing out of hole and laid onto trailer
- Nippled-down blowout preventer; nipped-up Larkin wellhead with '6 pup joint'
- Rigged-down General Well Service Rig No. 5; released and hauled out all equipment off-site



(SUBMIT IN TRIPLICATE)
TO

MONTANA BOARD OF OIL AND GAS CONSERVATION
2535 ST. JOHNS AVENUE
BILLINGS, MONTANA 59102

ARM 36.22.202
ARM 36.22.207
ARM 36.22.1011
ARM 36.22.1013
ARM 36.22.1114
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COMPLETION REPORT

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS

Company Vecta Oil & Gas, Ltd. Lease Wallewein Well No. 22-1
Address 575 Union Blvd. Suite 208 Field or Area Kevin Dome
Lakewood, CO 80228
Surface Location: 1217 ft. from S Line, 2407 ft. from W Line, Sec. 22 T 36 R 1
(N/S) (E/W)
County Toole Elevation 3963' 3974'
(Surface) (KB)
Date Spud 5/19/2014 Date Completed 1/15/2015 Completed as Monitoring Well
(Oil, gas, cbm, injection, dry hole, etc.)

The information given herewith is a complete and correct record of the well as of the date of preparation.

Signed [Signature]
Title Consultant Date 6/10/15
Telephone 406-873-9000

For Vertical Well: Total depth 4700 ft. Plugged back to 4270 ft.
For Horizontal or Directionally Drilled Well: Enter well bore and bottom hole location data on page 2 of this form.
For coal bed natural gas well: Static water level NA ft. below reference elevation of NA ft.

Casing and Tubing Record

Well Bore	Type	String Size	Weight	Grade	Length (Feet)	From (MD, Feet)	To (MD, Feet)	Cement (Sacks)	Cement Top (MD, Feet)	Packer Set (MD, Feet)
12 1/4"	Surface	9 5/8"	36	J55	273	0	273	105	Surface	None
8 3/4"	Production	5 1/2"	17	J55	4700	0	4700	760	Surface	None
8 3/4"	Production	5 1/2"	17	Chrome	318	428	4601	-	Surface	None

Perforated or Open-hole Intervals

Well Bore	Open Hole/Perf'd Zone Top	Bottom	Holes per foot	Size and Type	Open or Isolated (method of isolation)
See attached					

Acidized, Shot, Fraced, Squeezed, or Cemented

Well Bore	Interval Top	Bottom	Treatment Type	Amount and Type of Material	Max. Rate (BBLs/Min)	Max. Pressure (PSI)
See attached						

Well is producing from Duperow formation(s) or pool(s).

I.P. 0 barrels of oil, 0 MCF of gas, and 0 barrels of water per 24 hours.

Initial 10-day average production NA /day (if taken)

Pressures (if measured): Tubing NA psi flowing: NA psi shut-in

Casing NA psi flowing: NA psi shut-in

Formation Volume Factor NA Porosity NA % Water Saturation NA %

Type Of Trap Stratigraphic Producing Mechanism Water

Bottom Hole Locations

Bottom Hole Locations													
Well Bore	Kick-off		Total Depth		Location, T-R-S					From N/S Line		From E/W Line	
	MD	From (Well bore)	MD	TVD	Twp	N/S	Rng	E/W	Sec.	Feet	N / S	Feet	E / W
None													

Drill Stem Tests

DST #	Interval		Tool Open	Shut-in	F.P.	S.I.P.	Recovery	Cushion
	From	To	(Min.)	(Min.)				
None								

Cores

Core #	Interval		Recovery
	From	To	
1	3661	3691	30'
2	3904	3964	60'
3	3964	4024	60'
4	4024	4084	60'
5	4084	412	60'

Logs

Log Type	Interval	
	From	To
See attached		

Geological Markers

Formation	Top		Formation	Top	
	MD	TVD		MD	TVD
Blackleaf	1058'		Middle Duperow Porosity	4117'	
Bow Island	1332'		Lower Duperow	4277'	
Kootenai	1878'		Souris River	4548'	
Sunburst	2233'				
Swift	2294'				
Rierdon	2359'				
Sawtooth	2480'				
Madison	2498'				
Mission Canyon	2638'				
Lodge Pole	3202'				
Banff	3490'				
Bakken	3584'				
Three Forks	3604'				
Pottatch	3611'				
Nisku	3770'				
Duperow	3848'				

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Perforated or Open Hole Intervals

Well Bore	Open hole/perf'd zone		Hole per foot	Size and Type
	Top	Bottom		
8 3/4"	4343	4346	4	4" Hollow Steel Carrier
8 3/4"	4325	4332	4	4" Hollow Steel Carrier
8 3/4"	4185	4190	4	4" Hollow Steel Carrier
8 3/4"	4117	4150	4	4" Hollow Steel Carrier
8 3/4"	4040	4057	4	4" Hollow Steel Carrier

Open or Isolated
(Method of Isolation)

Isolated (CIBP @ 4320' & 5 sacks of cement)

Isolated (CIBP @ 4320' & 5 sacks of cement)

Isolated (RBP @ 3970')

Isolated (RBP @ 3970')

Isolated (RBP @ 3970')

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Acidized, Shot, Fraced, Squeezed, or Cemented						Max Rate	Max Pressure
Well Bore	Interval		Treatment type	Amount and Type of Material		(BBLs/Min)	(PSI)
	Top	Bottom					
8 3/4"	4343	4346	Acid Job	500 Gallons 15% HCL Acid		3	3600
8 3/4"	4325	4332	Acid Job	Treated with zone above			
8 3/4"	4185	4190	Acid Job	500 Gallons 15% HCL Acid		3	3500
8 3/4"	4117	4150	Acid Job	500 Gallons 15% HCL Acid		3	4250
8 3/4"	4040	4057	Acid Job	500 Gallons 15% HCL Acid		3	4250

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Log Type

	From	To
Sonic Scanner CBL	0	272
Isolation Scanner - Casing Integrity, GR, CCL	0	272
Isolation Scanner - Casing Integrity, GR, CCL	272	4700
Cement Bond Log - DSLT - GR	272	4700
PEX - HNGS Schlumberger Platform Express-array induction, density porosity, neutron porosity, resistivity, gamma ray, and caliper	272	4700
Drilling Engineers QuickLook Gamma Ray	272	4700
RST - Reservoir Saturation Tool	272	4700
MSIP - Sonic Scanner	272	4700
FMI - CMR-ECS - Full-bore Micro Imager and Combinable Magnetic Resonance Spectroscopy Capture Sonde	2500	4700

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Pioneer Business Park
1935 South Fremont Drive
Salt Lake City, Utah 84104

Routine Core Analysis Report

Prepared for: Altamont Vecta Oil Gas Ltd Big Sky

Well: Wallewein 22-1

Location: Montana, US

Prepared by:

TerraTek, A Schlumberger company

1935 South Fremont Drive

Salt Lake City, Utah 84104

(801) 584-2400

Schlumberger Confidential

Date: Sep 15 2014

Project No: 811156

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MONTANA BOARD OF OIL &
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Client: Altamont Vecta Oil Gas Ltd Big Sky

Well: Wallewein 22-1

Project No: 811156

Location: Montana, US



TerraTek
A Schlumberger company

Pioneer Business Park
1935 South Fremont Drive
Salt Lake City, Utah 84104

Quality Assurance Process

Schlumberger is committed to providing unsurpassed services in reservoir sampling and analyses while maintaining high standards of safety and quality. Our objective is to deliver the most accurate and reliable sampling processes and fluid and rock property measurements available in the industry. This objective requires persistent innovation and ongoing development of state-of-the-art technologies and equipment.

A rigorous quality assurance program, continuous employee training and enforcement of strict safety standards maintain our compliance with quality, health, safety, and environment (QHSE) requirements. Proactive integration of QHSE objectives and management goals at every level supports the communication and implementation of QHSE policies and standards. Schlumberger requires that qualified engineering technologists perform all laboratory measurements according to specified analytical procedures designed for obtaining accurate and reliable data.

The lab-generated data undergoes the following five levels of quality checks to establish the integrity of the reported results.

- Establish quality of measurement during data generation.
- Lab supervisor and manager confirm the overall quality of the generated data.
- Project manager reviews and processes generated data and generates reports.
- Technical advisors confirm consistency of reported data.
- Project manager finalizes reports.

Hence, the completion of each project requires that a qualified and experienced team of engineers perform a variety of independent reviews of all technical data to confirm the consistency and accuracy of the report as per pre-established quality checklists designed for each operation and based on the level of complexity. All property measurements and calculation procedures are maintained in company archives for a period of one year. This information is available for review by clients upon request.

The file and laboratory records information is listed below to provide access reference to all records related to this project. For any questions, please do not hesitate to contact the undersigned project manager.

File No.: 811156

Laboratory Procedures

Alexander Leibold

Routine Core Analysis

Reviewed by

X	Clay Williams	TRA Lab Data Processor
X	Chad Fuller	TRA Lab Manager

Project Management

Kelly Vaughn

Core Analysis Manager

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Client: Altamont Vecta Oil Gas Ltd Big Sky
Well: Wallewein 22-1 Location: Montana, US
Project No: 811156



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1936 South Fremont Drive
Salt Lake City, Utah 84104

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Client: Altamont Vecta Oil Gas Ltd Big Sky

Well: Wallewein 22-1

Location: Montana, US

Project No: 811156



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Salt Lake City, Utah 84104

Routine Core Analysis Summary

43 samples from the Wallewein 22-1 well were tested.

The properties of residual fluid saturations, porosity and permeability of the core sample were obtained through basic core analysis specified in the API RP40 method, Recommended Practices for Core Analysis (1998).

All plugs were Dean-Stark extracted to measure fluid saturation. They were then soxhlet cleaned with chloroform/methanol azeotrope to remove hydrocarbons, drilling fluid contamination, and salt. All plugs were dried in convection oven at 104 degC until the weights stabilized. Afterward, they were kept in a desiccant chamber when not being tested. ***Samples 1-30 were cleaned with toluene and then soxhlet cleaned with chloroform/methanol azeotrope. Samples 31-43 were cleaned only with toluene.

For each sample, steady-state air permeability was measured with nitrogen gas for a single flow rate up to 1 cc/sec at a net confining pressure of 400 psi. Grain volume was measured using helium expansion at ambient conditions based on Boyle's Law. Bulk volume was calculated by measuring the length and width of each plug, a right cylinder. Pore volume was calculated to be the difference between the bulk volume and grain volume. Porosity was calculated to be the pore volume divided by the bulk volume, and the oil and water saturations are the volume of each divided by pore volume.

The routine core properties are summarized in Table 1. The permeability-porosity relationship is shown in Fig. 1. The permeability, porosity, and saturation profiles with depth can be found in Fig. 2 through 4.

Some samples contain gypsum and thus the weight change was less than the total water extracted. This results in a calculated oil saturation of less than 0%. These samples are reported as <0.01%.

Samples that have fractures which likely gave artificially higher permeability values are: 13, 14, 15, 21, 29, 31B, 33B, 37B and 41B. An attempt was able to be made to heal the fractures with teflon for samples 13, 14, 15, 21, 33B, 41B and could not be attempted for 29, 31B and 37B. A few samples have a lower permeability than the lower resolution of testing ability; these samples are reported as <0.01 mD.

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Altamont Vecta Oil Gas Ltd Big Sky
Wallewein 22-1
Routine Core Analysis Results Summary
811156
September 13, 2014



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Sample ID	Sample Depth (ft)	Sample Length (cm)	Sample Diameter (cm)	Bulk Density (g/cc)	Dry Bulk Density (g/cc)	Grain Density (g/cc)	Ambient Porosity (%)	Saturation		Gas Permeability Net Stress 400 PSI (mD)	Lithology
								Water (% PV)	Oil (% PV)		
1	3917.40	2.662	2.540	2.794	2.791	2.869	2.71	5.47	7.08	0.01	dol, gy, xl, sl/ anhy
2	3939.30	2.607	2.539	2.786	2.778	2.876	3.43	11.04	16.10	<0.01	dol, dk gy-gy, fgr, sl/ lam
3	3945.60	2.600	2.540	2.808	2.807	2.858	1.79	0.43	6.50	<0.01	dol, gy & lt gy, xl, sl/ vgy
4	3947.20	2.590	2.541	2.746	2.744	2.869	4.37	0.02	5.93	0.02	dol, gy-bm, fgr, anhy
5	3950.70	2.589	2.540	2.817	2.816	2.887	2.45	0.03	5.49	<0.01	anhy dol, gy, xl, vgy
6	3979.12	2.596	2.543	2.691	2.646	2.870	7.79	53.55	4.93	0.41	dol, lt gy, slt, sl/ anhy, dk gy lam
7	3981.70	2.586	2.540	2.792	2.782	2.884	3.55	12.89	17.94	<0.01	anhy dol, gy, xl
8	3995.50	2.598	2.543	2.782	2.778	2.879	3.53	2.15	12.63	0.02	dol, gy, fgr, pof
9	4016.10	2.642	2.541	2.766	2.756	2.876	4.17	16.12	11.17	<0.01	dol, lt gy-lt bm, xl, anhy
10	4022.50	2.657	2.539	2.723	2.713	2.877	5.71	13.03	5.67	0.03	dol, lt gy-lt bm, fgr, anhy
11	4039.68	2.629	2.541	2.640	2.591	2.876	9.91	51.44	<0.01	0.67	dol, lt gy, fgr-slt, anhy, gy lam
12	4040.38	2.644	2.541	2.666	2.641	2.861	7.71	46.41	<0.01	0.10	dol, gy, fgr, sl/ calc, lam
13	4041.00	2.606	2.540	2.569	2.546	2.862	11.05	21.25	<0.01	4.56	dol, gy-bm, fgr, frac
14	4041.80	2.591	2.537	2.630	2.615	2.890	9.51	8.83	8.22	4.44	dol, gy-bm & wh, fgr, anhy, aff, frac
15	4043.68	2.591	2.540	2.635	2.628	2.869	8.41	2.72	6.07	1.09	dol, gy-bm, fgr, pof, cff, frac
16	4045.60	2.581	2.540	2.681	2.680	2.874	6.74	0.00	1.33	0.16	dol, gy-bm, fgr, sl/ anhy, sl/ vgy, pof
17	4046.50	2.614	2.540	2.635	2.633	2.873	8.37	0.01	3.17	0.22	dol, gy-bm, fgr, sl/ anhy, vgy
18	4049.80	2.619	2.540	2.657	2.651	2.859	7.26	3.12	6.60	0.10	dol, gy-bm, fgr, sl/ anhy
19	4050.28	2.609	2.540	2.656	2.645	2.855	7.35	9.26	6.29	0.27	dol, gy-bm, fgr, sl/ anhy, sl/ lam
20	4051.40	2.626	2.541	2.625	2.619	2.857	8.33	0.90	7.84	0.49	dol, gy-bm, fgr, sl/ anhy, sl/ vgy
21	4052.76	2.620	2.540	2.757	2.756	2.865	3.80	0.20	2.56	3.82	dol, gy, fgr, anhy, sl/ vgy, aff, frac
22	4053.87	2.614	2.541	2.712	2.706	2.880	5.41	9.75	2.13	0.21	dol, dk bm-gy, f-m gr, anhy, sl/ vgy, sl/ lam, pof
23	4054.82	2.620	2.540	2.623	2.620	2.862	8.44	0.01	2.93	0.92	dol, dk bm-gy, f-m gr, anhy, vgy
24	4057.10	2.652	2.543	2.681	2.678	2.863	6.47	0.01	5.79	0.25	dol, gy-bm, f-m gr, anhy, vgy
25	4063.06	2.598	2.541	2.664	2.663	2.875	7.39	0.00	1.81	2.10	dol, gy-bm, fgr, sl/ anhy, sl/ vgy, lam

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Altamont Vecta Oil Gas Ltd Big Sky
Wallewein 22-1
Routine Core Analysis Results Summary
811156
September 13, 2014



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Salt Lake City, Utah 84104

Sample ID	Sample Depth (ft)	Sample Length (cm)	Sample Diameter (cm)	Bulk Density (g/cc)	Dry Bulk Density (g/cc)	Grain Density (g/cc)	Ambient Porosity (%)	Saturation		Gas Permeability Net Stress 400 PSI (mD)	Lithology
								Water (% PV)	Oil (% PV)		
26	4064.40	2.609	2.540	2.524	2.523	2.862	11.84	0.01	1.27	18.6	dol, lt brn-gy, f-m gr, vgy, lam
27	4065.75	2.553	2.543	2.697	2.693	2.860	5.84	1.32	6.99	0.07	dol, gy, fgr, sl/ vgy, lam, pof
28	4071.80	2.609	2.543	2.740	2.740	2.869	4.50	0.17	0.79	0.01	dol, gy-lt brn, fgr, sl/ anhy, sl/ vgy
29	4081.20	2.639	2.541	2.718	2.715	2.883	5.85	0.00	6.46	0.09	anhy dol, gy-brn, fgr
30	4105.75	2.639	2.541	2.715	2.708	2.862	5.40	8.30	6.99	0.03	dol, gy-lt gy, fgr, anhy
31B	4109.00	2.558	2.539	2.755	2.754	2.891	4.74	1.14	3.26	1.88	anhy dol, brn-gy & wh, fgr, sl/ vgy, pof
32B	4117.50	2.584	2.540	2.584	2.547	2.855	10.79	42.47	<0.01	0.26	dol, gy-lt gy, f-m gr, gyp, anhy, sl/ vgy, sl/ lam
33B	4118.40	2.623	2.540	2.508	2.428	2.853	14.88	56.62	<0.01	1.04	dol, lt gy-lt brn, fgr, gyp, anhy, sl/ vgy, sl/ lam, frac
34B	4119.30	2.620	2.537	2.446	2.420	2.866	15.57	22.79	<0.01	0.36	dol, gy-lt brn, f-m gr, gyp, anhy, vgy, sl/ lam
35B	4120.70	2.572	2.537	2.480	2.454	2.855	14.06	30.35	<0.01	8.65	dol, brn-gy, f-m gr, gyp, anhy, vgy
36B	4123.90	2.592	2.537	2.648	2.647	2.856	7.33	0.21	1.72	0.38	dol, gy-lt gy, f-m gr, sl/ calc, sl/ anhy, sl/ gyp, vgy, sl/ lam
37B	4131.70	2.576	2.536	2.493	2.483	2.864	13.32	8.08	<0.01	30.9	dol, dk gy-brn, f-m gr, anhy, gyp, vgy, pof
38B	4133.00	2.579	2.540	2.648	2.627	2.852	7.89	46.56	<0.01	0.57	dol, lt gy-gy, f-m gr, anhy, gyp, sl/ vgy, sl/ lam, aff, gypif
39B	4137.60	2.606	2.540	2.727	2.706	2.866	5.59	53.51	<0.01	4.18	anhy dol, gy & lt gy, f-m gr, gyp, sl/ vgy, lam, aff
40B	4139.30	2.578	2.543	2.742	2.739	2.855	4.08	3.75	4.19	0.03	dol, gy, fgr, sl/ gyp, sl/ anhy, sl/ vgy
41B	4140.40	2.560	2.539	2.504	2.478	2.862	13.42	23.29	<0.01	26.4	dol, lt gy-brn, f-m gr, gyp, anhy, vgy, sl/ lam, frac
42B	4142.90	2.560	2.543	2.582	2.581	2.857	9.65	0.16	0.75	0.01	dol, gy, fgr, anhy, sl/ gyp, sl/ vgy
43B	4143.50	2.548	2.541	2.569	2.568	2.852	10.28	0.04	0.84	0.07	dol, gy, fgr, sl/ anhy, sl/ gyp, sl/ vgy

TerraTek

A Schlumberger Company
Pioneer Business Park
1935 S Fremont Dr - Salt Lake City, Utah 84104
Telephone (801) 584-2400
Fax (801) 584-2432

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MONTANA BOARD OF OIL & GAS
COUNCIL ON OIL & GAS

Client: Arkamont Vecta Oil Gas Ltd Big Sky

Well: Wallewein 22-1

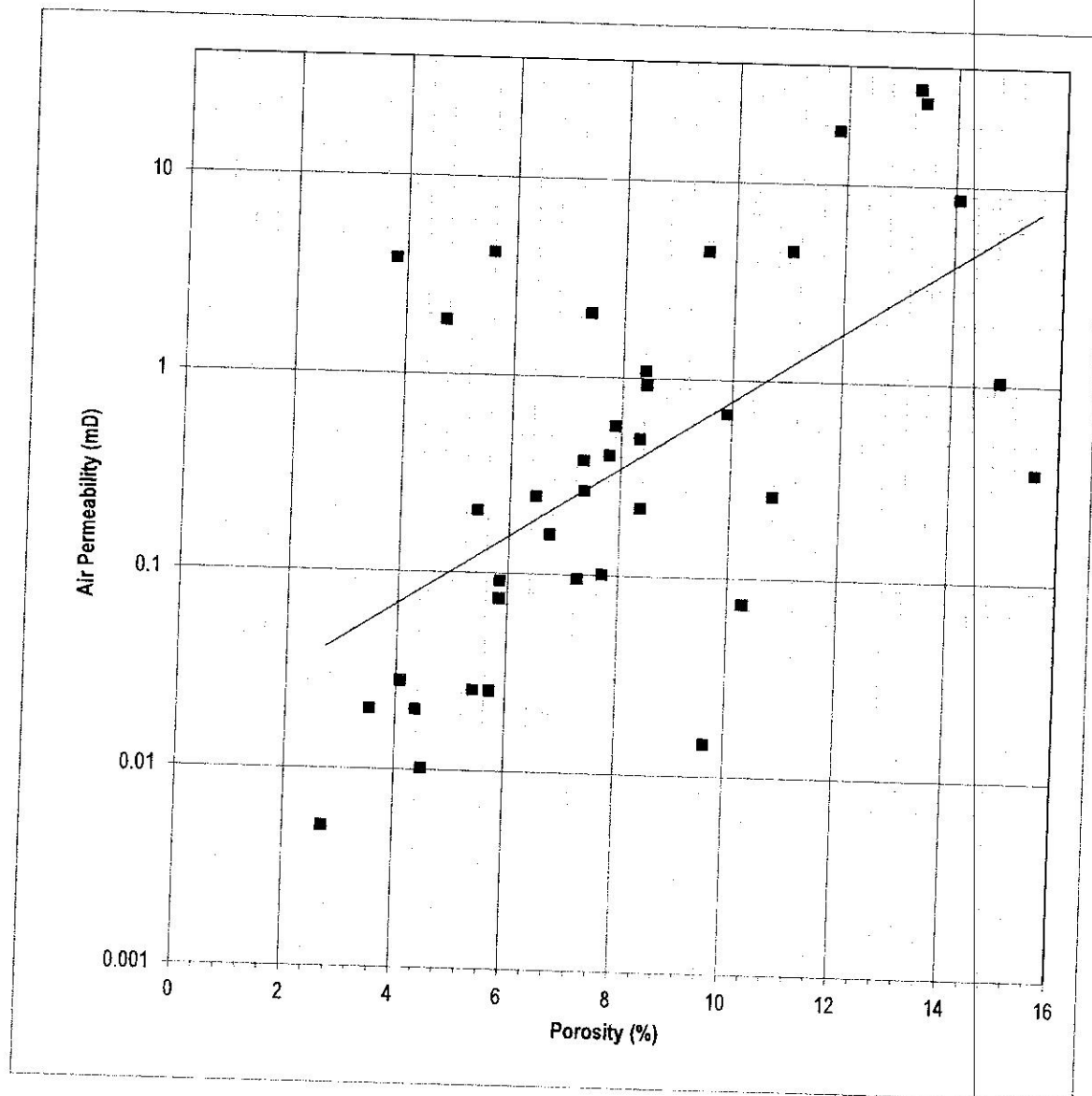
Location: Montana, US

Project No: 811156



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Figure 1. Permeability v. Porosity Cross Plot



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Well: Wallewein 22-1

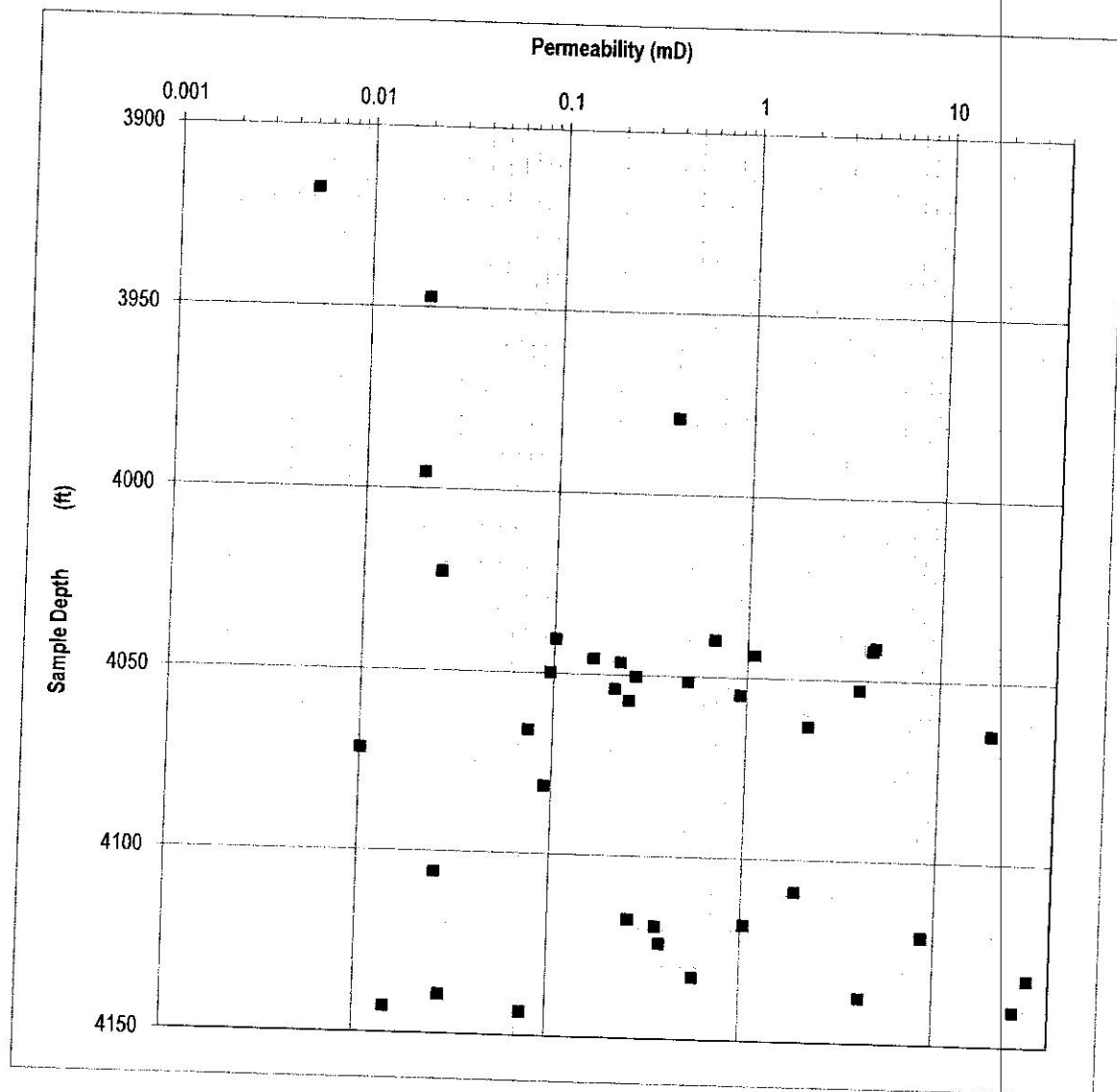
Location: Montana, US

Project No: 811156



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Figure 2. Permeability Profile v. Depth



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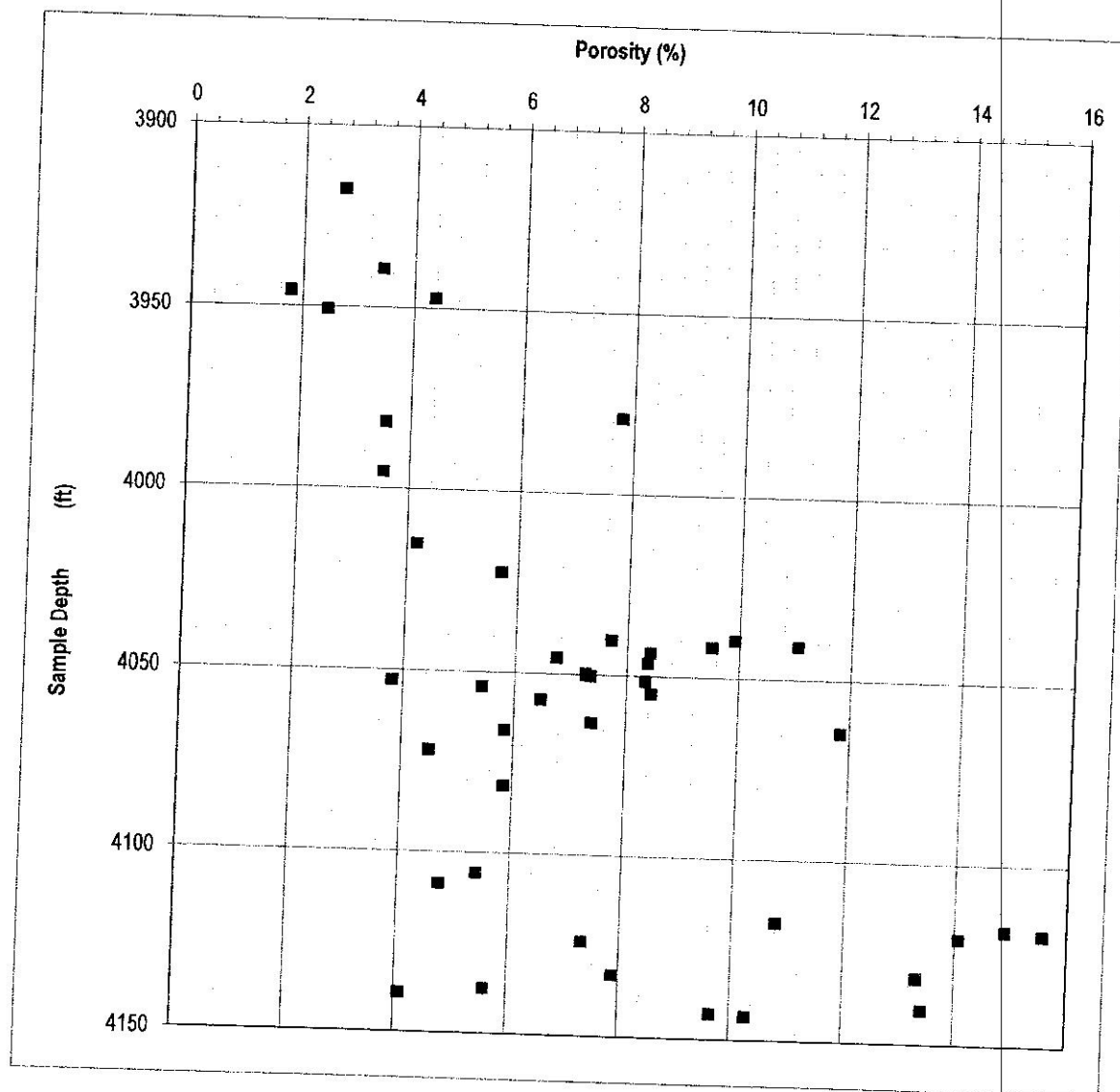
MONTANA BOARD OF OIL &
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Client: Altamont Vecta Oil Gas Ltd Big Sky
Well: Wallewein 22-1 Location: Montana, US
Project No: 811156



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Figure 3. Porosity Profile v. Depth



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Client: Altamont Vecta Oil Gas Ltd Big Sky

Well: Wallewein 22-1

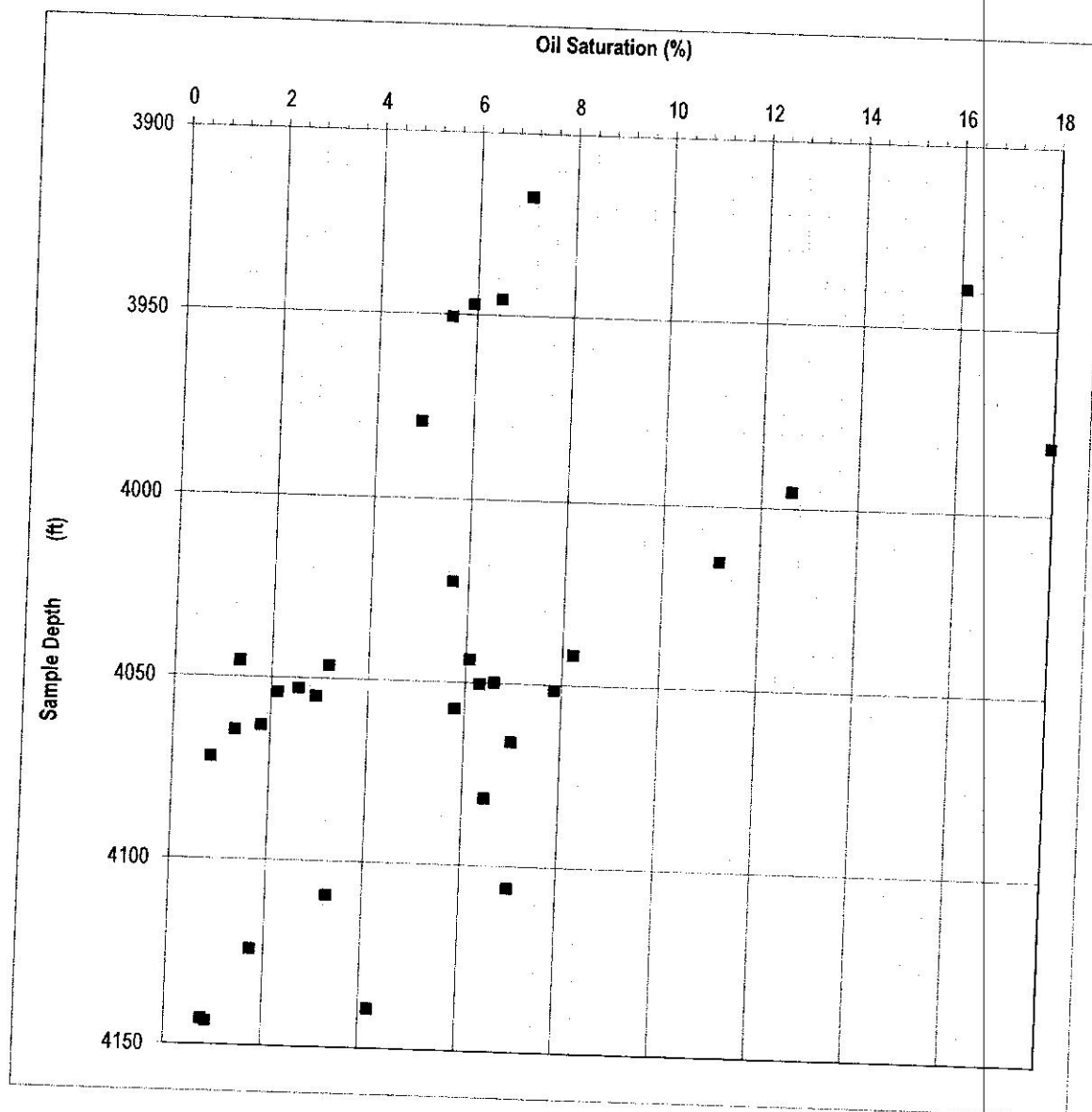
Location: Montana, US

Project No: 811156



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Figure 4. Saturation Profile v. Depth



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MONTANA DEPARTMENT OF OIL &
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Description Scheme for Carbonate Sedimentary Rocks:

Rock Type, Color, Grain Size or Crystal Size, Porosity Type, Accessories

Description Scheme for Clastic Sedimentary Rocks:

Rock Type, Color, Grain Size, Cement, Structures and Accessories

Key to Abbreviations:

aff	- anhydrite filled fracture	gml	- granule	sdv	- sandy
alt	- altered	gy	- gray	sh	- shale
anhy	- anhydrite(ic)	gyp	- gypsum(iferous)	shy	- shaley
arg	- argillaceous	gypff	- gypsum filled fracture	sid	- siderite
bdd	- bedded	hem	- hematite(ic)	sil	- silica(eous)
bent	- bentonite	if	- incipient fracture	sl/	- slightly
bf	- buff	incl	- inclusion	sltst	- siltstone
biot	- bioturbated	intrpt	- interparticle	slt	- silt
bit	- bitumen	intrpt	- intraparticle	sfty	- silty
bl	- blue(ish)	intxl	- intercrystalline	ss	- sandstone
blk	- black	lam	- laminated	stn	- stain(ed)(ing)
bnd	- banded	lav	- lavender	str	- streak
brec	- breccia(ted)	lig	- lignite(ic)	styl	- stylolite
brn	- brown(ish)	ls	- limestone	suc	- sucrosic
bur	- burrowed	lt	- light	tan	- tan
c	- coarse	m	- medium	v/	- very
calc	- calcite(areous)	mar	- maroon	vc	- very coarse
carb	- carbonaceous	mas	- massive	vf	- very fine
cff	- calcite filled fracture	mdy	- muddy	vgy	- vuggy
cgl	- conglomerate	mic	- micro	wh	- white
chky	- chalky	mc	- micro-crack	wthrd	- weathered
chlor	- chlorite	mnr	- minor	wvy	- wavy
cht	- chert	mica	- micaceous	yel	- yellow
chty	- cherty	mol	- moldic	xl	- crystalline
clst	- clast	ms	- mudstone		
clv	- clay(ey)	mtx	- matrix		
clyst	- claystone	nod	- nodule(s)		
cob	- cobble	o	- oil		
dism	- disseminated	of	- open fracture		
dk	- dark	ool	- oolitic		
dff	- dolomite filled	org	- organic		
frac	- fracture	orng	- orange		
dol	- dolomite(ic)	pbl	- pebble		
f	- fine	pel	- peloids		
fen	- fenestral	pff	- pyrite filled fracture		
fis	- fissile	pis	- pisolitic		
flu	- fluorescence	pk	- pink		
fos	- fossil(iferous)	pof	- partially open fracture		
frac	- fracture	ppvgs	- pinpoint vugs		
fri	- friable	ptg	- parting(s)		
gff	- gouge filled fracture	purp	- purple		
glau	- glauconitic	pyr	- pyrite(ic)		
gn	- green	qff	- quartz filled fracture		
grdd	- graded	qtz	- quartz		
gr	- grain(ed)	red	- red(dish)		
		sa	- salty		

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WALLEWEIN 22-1 EBOOK

Well Logs

BIG SKY CARBON
SEQUESTRATION PARTNERSHIP

Schlumberger
Carbon Services



Wireline Logging Program

Wallewein 22-1

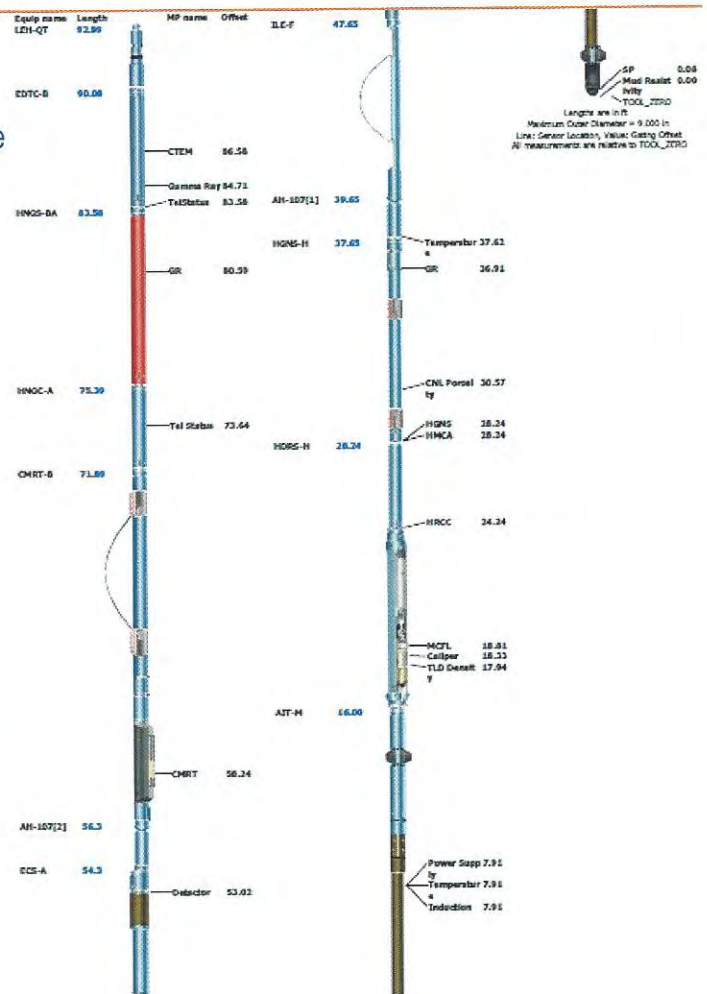
22 April, 2014

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CarbonServicesNumber

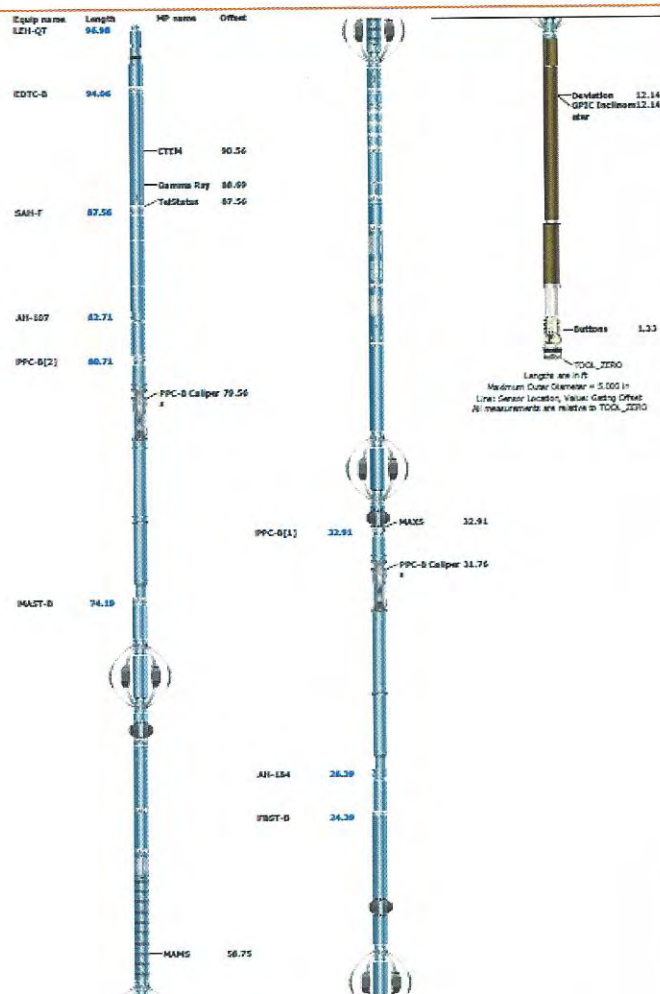
Schlumberger
Carbon Services

Induction resistivity, SP, mud resistivity, neutron porosity, bulk density, borehole caliper, microresistivity, Permeability, Capillary bound porosity, Spectrum lithology, corrected gamma ray for uranium, potassium and thorium.



Schlumberger
Carbon Services

Compressional and shear delta t, CBL, anisotropy,
formation dip, borehole images





Wireline Logging Program – Cased Hole

Danielson 33-17 / Wallewein 22-1

20 May, 2014

Cased Hole Logs

Run # 1: RST (Reservoir Saturation Tool)

Details:

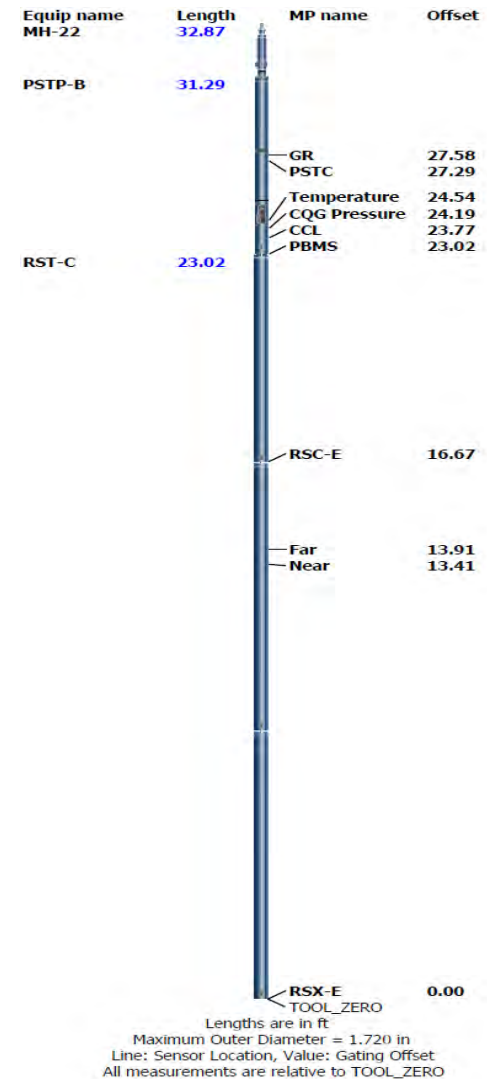
Length = 32.87 ft.

Maximum Diameter = 1.72"

Time = 6 hrs. (includes Rig Up/Down)

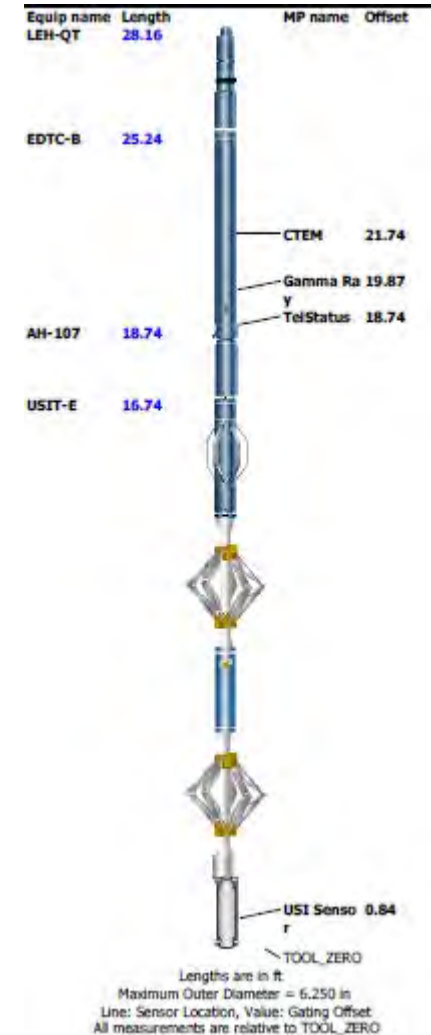
Output:

Sigma, porosity, pressure and temperature



Schlumberger
Carbon Services

Casing thickness, internal radius, acoustic impedance, flexural attenuation, hydraulic communication map, solid-liquid-gas map of annulus material



Cased Hole Logs

Run # 3: PMIT (Multifinger Imaging Tool)

Details:

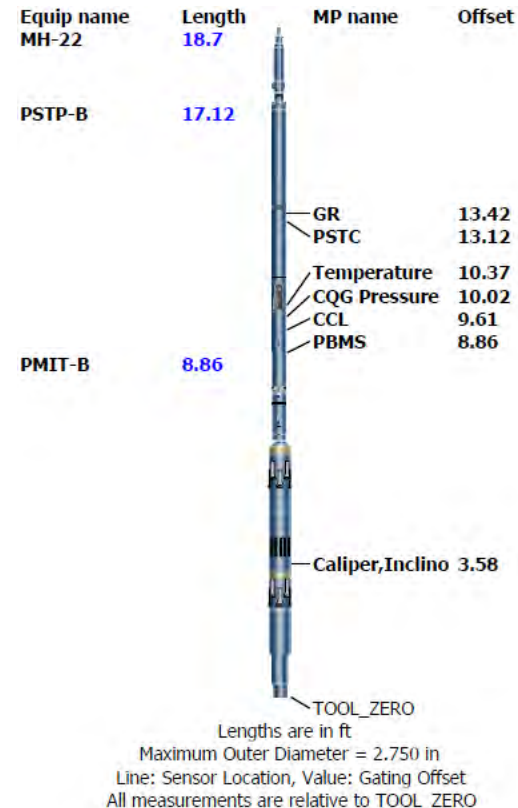
Length = 18.7 ft.

Maximum Diameter = 2.75" – 6.99" extended

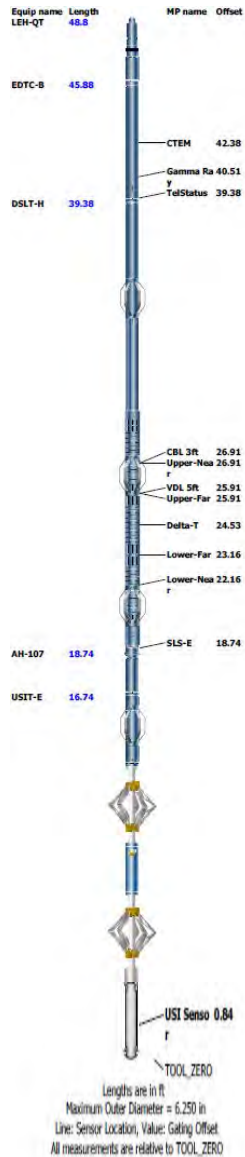
Time = 6 hrs. (includes Rig Up/Down)

Output:

Internal casing image from multiple internal radius measurements



Optional



Big Sky Carbon Sequestration Partnership (BSCSP)
Kevin Dome Carbon Sequestration Project
Toole County, Montana

Wallewein 22-1 Well Logs

Wallewein 22-1 Log List	From	To
Sonic Scanner CBL	0 ft	272 ft
Isolation Scanner - Casing Integrity, GR, CCL	0 ft	272 ft
Isolation Scanner - Casing Integrity, GR, CCL	272 ft	4,700 ft
Cement Bond Log - DSLT - GR	272 ft	4,700 ft
PEX - HNGS Schlumberger Platform Express-array induction, density porosity, neutron porosity, resistivity, gamma ray, and caliper	272 ft	4,700 ft
Drilling Engineers QuickLook Gamma Ray	272 ft	4,700 ft
RST - Reservoir Saturation Tool	272 ft	4,700 ft
MSIP - Sonic Scanner	272 ft	4,700 ft
FMI - CMR-ECS - Full-bore Micro Imager and Combinable Magnetic Resonance Spectroscopy Capture Sonde	2,500 ft	4,700 ft

Well logs are available for download through the U.S. Department of Energy (DOE) EDX website: <https://edx.netl.doe.gov/dataset>

WALLEWEIN 22-1 EBOOK

Fluid Analysis

Big Sky Carbon Sequestration Partnership (BSCSP) Kevin Dome Carbon Sequestration Project

Toole County, Montana

Wallewein 22-1 Fluid Analysis

Formation groundwater and gas samples were taken from the Duperow formation in 2015 as part of the Site Characterization data collection process. This data has been archived on the BSCSP Archive repository and is also available for download through the U.S. Department of Energy (DOE) EDX website: <https://edx.netl.doe.gov/dataset>

Core Analysis

Core Analysis Plan

April 28, 2014

**Big Sky Carbon Sequestration Partnership
Production Well #1, Monitoring Well #1, Injection Well**

The purpose of the Core Plan is to assure that the project objectives for site characterization and subsurface modeling are achieved. Considerations for the research goals of project partners, permitting requirements, required data for project planning and decision making, as well as budget and scope all went into creation of this document. The following sections are included to provide a framework for core acquisition and analysis in addition to rationale for proposed core intervals:

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Order of Core & Sample Handling/Preparation/Analyses

1. Core from intervals of interest (see Appendix I) are pulled out of the 30 and 60 foot core barrels, already contained in aluminum sleeves. The aluminum sleeves are handled by TerraTek crew. Core will be packaged in core boxes and shipped to TerraTek facilities by SLB/TerraTek trucks and personnel.

TerraTek Contact Info:

Coring Services:	Core Analysis:	
Virgil Devilbis	Daniel Fargo	Christopher Gillespie
		

2. On arrival at TerraTek, the core will be gamma logged in the aluminum tubes. The core is then removed from the aluminum tubes and additionally marked for core section, depth, orientation, etc. (according to the standard methods outlined by the American Petroleum Institute) and reassembled. A single 4" diameter core sample will be prepared in the injection zone of each well.
3. Whole core samples will be prepared for shipment to Shell's sterile slabbing facility in Houston – 3-5 samples, each 15-20 cm long, of intact core will be prepared from gas cap zone in the production well and injections zones of the monitoring and injection wells. **Special handling is required – See Appendix II**
4. TerraTek will then slab the core to 1/3 thickness. D. Bowen, Vecta Oil and Gas, will do initial physical examination of the slabbed core at TerraTek and make preliminary descriptions. The core will undergo basic preservation and photography, and fragment samples will be prepared per state requirements.
5. Core fragments from selected intervals will be collected by D. Bowen and distributed to project partners for:
 - a. Isotopic analysis (Columbia),
 - b. Rare earth element, trace, and major element analysis (INL),
 - c. Bulk XRD (MSU), and
 - d. Bulk composition XRF (LANL).Fragment sample distribution will be documented with details including depth, formation, core section, and quantity.
6. TerraTek will prepare petrographic thin sections. Thin sections will be sent to Eby Petrography for detailed mineralogical analysis. After analysis, thin sections will be archived at MSU.
7. D. Bowen (and Core Team members) will visually inspect the slabbed core and logs and determine the most appropriate intervals to be sampled for tests described in the "Core & Sample Analyses" section below. The butt end of the core will be plugged to 1.0 or 1.5 inch diameter subcore, either as single oriented core (vertical or horizontal) or as sets (vertical and horizontal) depending on the type of analyses to be performed.
8. Standard analyses of core plugs will be conducted at TerraTek, including baseline testing for mineralogy, grain density, porosity, and vertical and horizontal permeability.
9. Duplicate core plugs will be further tested at TerraTek using CO₂/CO₂+brine to assess relative permeability, strength, and anisotropic properties from multi-stage compression testing, with pre- and post-test CT scanning and photography.
10. TerraTek will also prepare samples and perform selected tight rock analyses on core obtained from sealing layers.
11. Both the 1/3 and 2/3 slabs will be shipped to archival facilities at MSU (C. Shaw, Gaines Hall Rm 024).

12. Selected 3-foot sections ($n = 2$) of the 2/3 slab will be sent to LBNL for analysis of seismic properties.
13. C. Shaw (MSU) will perform bulk XRD mineral analysis on selected samples.
14. C. Shaw (MSU) will conduct flow through tests on selected subsamples.
15. The archived core, selected subsamples (for SEM), and thin sections will be used for fracture characterization by D. Lageson (MSU).
16. The Core Team will inspect results obtained above and determine additional plugging (of core butt) and/or testing to close data gaps.
17. Core sample distribution will be logged by MSU (S. Fairweather/C. Shaw). Further requests for core samples will be directed through S. Fairweather. The core facilities at MSU will be utilized to prepare additional samples from the 2/3 section as requested. The 1/3 slab will be permanently archived at MSU.
18. Core images, analysis results, and supporting documentation will be made available to partners through an online database hosted by MSU.

Core & Sample Analyses

1. Sample Preparation

Following the core arrival and initial core handling (removal from aluminum sleeves), the full diameter core (4 inch) will be slabbed according to standard practice (1/3). A single, full diameter (4 inch) sample from the porosity (injection) zone from each well be prepared and samples will be prepared and shipped to Shell's WTC lab for sterile slabbing and microbial analysis. After the remaining core is slabbed at TerraTek, the clean faces will be digitally photographed in white light for an easy to access digital record of the core appearance by TerraTek.

The butt end of the core will be further plugged (1.0, 1.5 or 2.5 inch diameter) at horizontal and vertical orientations. The plugs will be analyzed at TerraTek for hydraulic and geomechanic characteristics (see Tables 1 – 6 below).

Table 1. Core handling and preparation.

Test	Description	Total No. of Samples	Analysis Lab
1.1	Digital White Light Photography of the entire length of core.	730 ft	TerraTek
1.2	Core Preservation	730 ft	TerraTek
1.3	State fragment sample requirement preparation (one sample per foot for MT)	750	TerraTek
1.4	Drilling of horizontal and vertical plugs for conventional core analysis	~90	TerraTek
1.5	Detailed core description, per foot	730	Vecta (Bowen)

2. Standard Mineralogic and Petrographic Analyses

Subsamples of selected plugged intervals will be analyzed using XRD for baseline bulk mineralogy by MSU. XRD subsamples from selected plugged intervals will be collected immediately adjacent to the vertical plug only (half height of the vertical plug) for a representative sample area. Thin-section subsamples will be gathered for petrographic analysis (Eby Consulting) of *each plug orientation* from select intervals to assess anisotropy and at regular intervals along the core.

Eby Consulting will carry out petrographic analysis of thin sections sampled from the same regular and select locations in the core where geomechanical and hydraulic plug samples are gathered. The analysis will include estimates of grain size, sorting, porosity, grain and cement mineralogy, fabric and rock classification.

All core will be archived at MSU. Supplementary core samples and thin sections requested post-archival will be prepared using MSU's core facilities.

Table 1. Mineralogy and petrography core tests.

Test	Description	No. of samples	Analysis Lab
2.1	Petrographic thin section preparation (one per 3 feet)	~240	TerraTek
2.2	General petrographic thin section description, mineralogy		Eby Consulting
2.3	Bulk XRD mineral analysis	~100	MSU (Shaw)
2.4	Whole core petrology	730 ft	MSU (Shaw, Lageson)

3. Hydraulic Analysis

TerraTek will undertake measurements of porosity and permeability on reservoir (dolomite) core plugs at regular and select intervals. Porosity will be determined on 1 or 1.5 inch plugs. Plugs for the porosity analyses will be sampled from each of the regular interval sites along the core as well as the select intervals that are of marked interest to the BSCSP researchers. It is anticipated that porosity will be determined for approximately 90 plugs total for all three wells. The porosity analyses are considered non-destructive; these samples will be used for later geomechanical and/or hydraulic tests to minimize plugging time and costs.

Permeability to gas at a single confining pressure will be measured on 1 or 1.5 inch plugs. Plugs for permeability analyses will be sampled from each orientation (vertical/horizontal to assess permeability anisotropy) from select intervals that are of marked interest to BSCSP researchers. Vertical air permeability measurements require 2.5 inch plugs. The liquid permeability analyses are considered non-destructive; these samples will be used for subsequent relative (CO₂ and brine) permeability tests, so as to minimize plugging time and cost.

A single, full diameter (4 inch) sample from the porosity (injection) zone from each well will be analyzed for porosity, grain density, air permeability.

Table 2. Standard hydraulic core tests.

Test	Description	No. of samples	Analysis Lab
3.1	Porosity of core plugs sampled from regular and select intervals	~90	TerraTek
3.2	Grain density of core plugs sampled from regular and select intervals	~90	TerraTek
3.3	Permeability to gas at one confining pressure of core plugs sampled from regular and select intervals	~90	TerraTek
3.4	Air permeability and porosity at additional confining pressures - per sample / pressure- in conjunction with above test	~45	TerraTek
3.5	Vertical air permeability (min. sample length 2.5 inches)	~45	TerraTek
3.6	Full diameter routine porosity (@ 1 stress) grain density, air permeability (@ 1 stress) K-h (horizontal), K-h-90°, and K-vertical	~3	TerraTek

4. Tight Rock Analysis

In order to assess the porosity and permeability of reservoir seals (tight dolomite and anhydrite), special techniques are used that yield more accurate results than standard pycnometry and liquid permeability analyses. As such, TerraTek will undertake measurements of porosity (bulk and effective), density (bulk and grain), fluid saturation and single-phase gas permeability (pulse decay) on seal core plugs at intervals selected by the BSCSP researchers. It is anticipated that approximately 2 plugs from tight dolomite (Upper Duperow) intervals in each of the three wells will be sampled for TRA porosity and permeability analyses. Two plugs will also be sampled from the anhydrite (Potlatch) core in the monitoring well. The technique for TRA porosity and permeability is considered destructive.

Table 3. Tight Rock Analysis core tests.

Test	Description	No. of samples	Analysis Lab
4.1	Pulse Decay permeability (plug sample) from Upper Duperow and Potlatch	~8	TerraTek
4.2	TRA Sample prep, bulk density, grain density, GasPHI, Saturations, PHleff	~8	TerraTek

5. Mechanical Properties

The geomechanical core testing will assess rock strength at select intervals along the length of the core. TerraTek will conduct compression strength tests (unconfined compression strength with evaluation of elastic parameters of Young's modulus and Poisson's ratio) on select plugs. Analysis of anisotropic properties from multi-stage compression testing will also be performed on a limited subset of plugs. Plugs will undergo pre- and post-test CT scanning and post-test photography.

Table 4. Geomechanical core tests.

Test	Description	No. of samples	Analysis Lab
5.1	Unconfined compression strength test with evaluation of elastic parameters of Young's modulus and Poisson's ratio (per sample, destructive).	~12	TerraTek
5.2	3 Sample Multi-stress path testing suite for analysis of anisotropic properties and in-situ stress, destructive.	~8	TerraTek
5.3	Pre and post-test CT scanning of plugs (1 longitudinal and 2 x-section)	~20	TerraTek
5.4	Post-test photography of plugs	~20	TerraTek
5.5	Triaxial shear testing		MSU/MT Tech

6. Special Core Analysis

Additional core analyses will be undertaken that are not considered part of the standard petrophysical suite of analyses. The following tests will be performed by project partners:

TerraTek will conduct gamma logging of the entire 730 feet of core obtained, to be used to correlate to down-hole logs. They will also take CAT Scan longitudinal images of whole core sections to be used for quality assurance. NMR T2 relaxation cutoff and permeability relationship measurements will be taken for down-hole logging calibration.

TerraTek will also perform several tests to determine the rocks' response when subjected to flow and chemical characteristics of CO₂+brine including: CO₂/brine relative permeability at reservoir conditions, rate sensitivity to CO₂, and return permeability after CO₂/brine relative permeability tests. LBNL will conduct high pressure (0 - 60,000 psia) mercury injection capillary pressure tests and helium porosimetry on ~10 samples to obtain capillary pressure curves and throat size histograms.

LBNL will also measure BET surface area on selected subsets to determine reaction rates for RTM modeling. Seismic properties will be measured using (1) SHRB resonance system at 1000 hz (V_p, V_s, Q_p, Q_s) and (2) torsional shear at 0.1-100 hz (V_s, Q_s). They will perform SEM/EDS using a Zeiss LS-10 w. SDD EDS detector and powder XRD on a small set of samples from the 2/3 slab (n = 5) using a Rigaku. Anisotropy analysis and micro-CT imaging on selected samples (Advanced Light Source, Beamline 8.3.2 at a range of resolutions 4 microns to 750 nm) will also help with seismic calibration for the geophysical monitoring program.

LANL will conduct bulk composition XRF measurements on a select number of samples.

INL will test core fragment samples for rare earth elements, trace, and major element composition, and Columbia will perform analysis of carbon isotopes in preparation for the MVA Geochemistry and Tracer programs.

Table 5. Special core tests.

Test	Description	No. of samples	Analysis Lab
6.1	Gamma Logging of entire length of core, to be used to match core to down-hole logs.	730 ft	TerraTek
6.2	CAT Scan Longitudinal Images of whole core	~65	TerraTek
6.3	NMR- T2 measurements at 100% Sw and at Swi (ambient conditions)	~25	TerraTek
6.4	USS CO2 / brine relative permeability test at reservoir conditions	~10	TerraTek
6.5	Rate sensitivity to CO2 @ Srw: 4 flow rates at reservoir conditions	~10	TerraTek
6.6	Return permeability test following CO2- Brine USS relative permeability tests	~10	TerraTek
6.7	High pressure mercury injection capillary pressure test (0-60,000 psia)	~10	LBNL
6.8	BET Surface Area	~15	LBNL
6.9	seismic properties using (1) SHRB resonance system at 1000 hz (Vp, Vs, Qp, Qs) and (2) torsional shear at 0.1-100 hz (Vs, Qs) from LBNL's 2/3 slab sample		LBNL
6.10	SEM/EDS from 2/3 slab sample		LBNL
6.11	Powder XRD on a small set of samples from LBNL's 2/3 slab	~5	LBNL
6.12	Micro-CT imaging on selected min-cores from LBNL's 2/3 slab		LBNL
6.12	anisotropy analysis - seismic calibration (requires whole core section from porosity zone, monitoring well only)	1	LBNL
6.13	Carbon isotopes (fragment samples, one per foot in monitoring and injection wells)	540	Columbia
6.14	REE, Trace, major element composition (100g samples, primary seal and reservoir zones)		INL
6.15	Bulk composition XRF		LANL
6.16	Porous Plate capillary pressure test	1-3	TerraTek
6.17	Flow Through tests	~20	MSU

Appendix I.

Potential Reservoir and Seal Identification & Coring Strategy October 29, 2013

Kevin Dome is a large anticlinal structural culmination located along the Sweetgrass Arch in north central Montana. The Duperow Formation is a natural CO₂ reservoir, primarily dolomite with interbedded anhydrites, which occurs deeper and stratigraphically lower than oil and gas production. CO₂ is contained at Kevin Dome in a static buoyancy trap where supercritical CO₂ rests as a buoyant fluid above brine water. The CO₂ rises in the reservoir to the limits of reservoir development in up-dip directions until trapped beneath impermeable seals. Porous and permeable reservoir rocks, although very wide spread, are not continuous across the entire dome. The traps are thus combination stratigraphic/structural traps and involve limits based on both the areal extent of permeable reservoir rock and structural confinement.

The primary seal consists of interbedded anhydrites and tight carbonates of the upper Duperow Formation that are secondarily capped by approximately 150 feet of the Potlatch Anhydrite. The seals in the region are proven effective as evidenced by the large volumes of naturally trapped CO₂ in the formation and by oil and gas in the region trapped in the Nisku Formation (a thin carbonate between the Duperow and Potlatch). Injected CO₂, especially at low to moderate volumes, will show little vertical migration beyond the boundary between the injected formation and the immediately overlying caprock layer assuming no major faulting or fracture networks exist near the point of injection and that nearby existing wells have been plugged and abandoned effectively.

As a naturally-occurring repository of CO₂, the dome is also an attractive target for studying the long-term impact of CO₂ on the surrounding rock. For this reason, core intervals were chosen to capture the interface between upper Duperow sealing rock and the CO₂ reservoir in the production well.

Brief Lithology Descriptions of Potential Reservoirs and Seals

The primary CO₂ reservoir at Kevin Dome is the middle Duperow formation. The lower Mississippian/Upper Devonian (lower Lodgepole/Bakken/Banff/Exshaw formations) through Devonian Souris River Formation strata are most important from the standpoint of trapping CO₂ as a potential sequestration target (Figure 1). The Souris River to Potlatch Anhydrite system includes:

- limited reservoirs/brine aquifers in the **Souris River** formation,
- aquitards in the upper **Souris River** and **lower Duperow** formations,
- a regional lower porosity zone that is a brine aquifer/CO₂ reservoir in the **lower Duperow**,
- aquitards in the **middle Duperow**,
- a second regional upper porosity zone, injection target, that is a brine aquifer/CO₂ reservoir in the **middle Duperow**,
- aquicludes in the **upper Duperow**,
- localized aquifer/oil and gas reservoirs in the **Nisku** formation,
- a regional aquiclude overlying that is the **Potlatch Anhydrite**.

Overlying this Devonian CO₂/brine aquifer system is the Exshaw/Bakken petroleum system. The top seal for the system is a sequence of tight limestones in the lower Lodgepole. This system provides a secondary sealed system above the CO₂ systems providing enhanced sequestration security. Above these units, additional reservoirs and regional seals are present in the Mississippian Madison formation and throughout the Mesozoic system above.

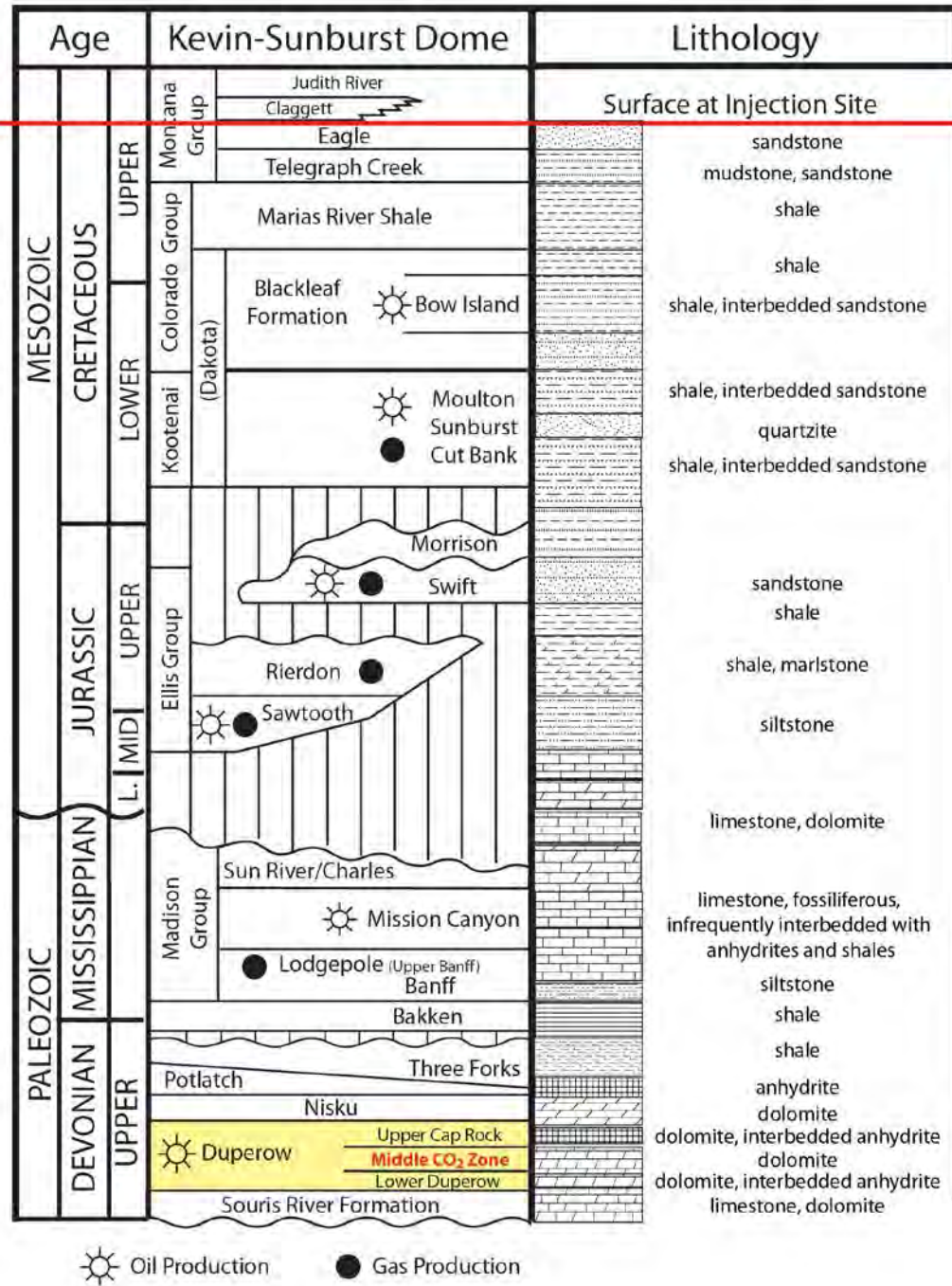


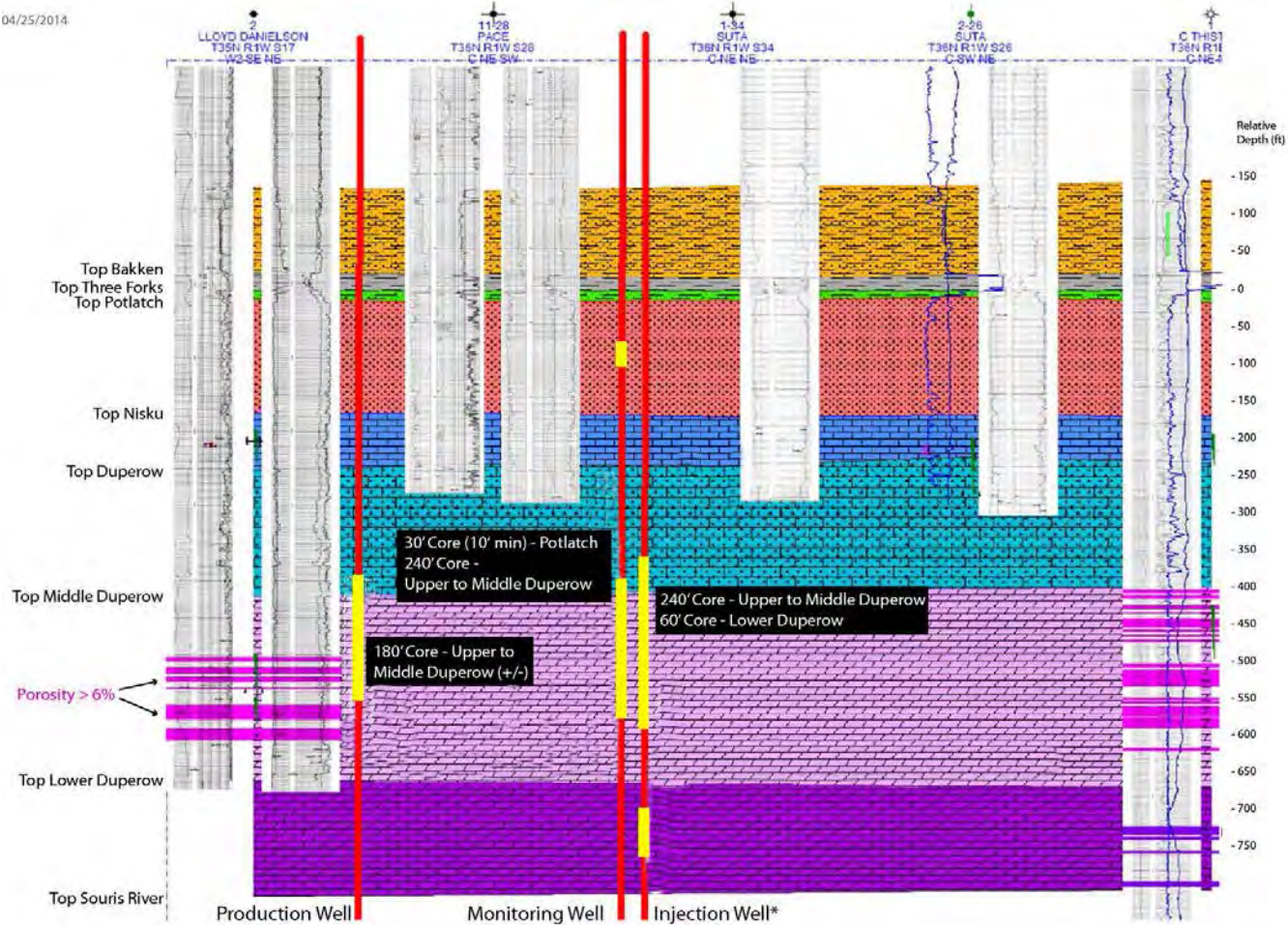
Figure 1. Stratigraphy of Kevin Dome.

Coring Strategy

The current plan for coring targets 730 total feet of core obtained from three wells: (1) BSCSP's first production well, (2) first monitoring well, and (3) the injection well. Figure 2 shows selected core intervals. The approach for each well and targeted core interval is as follows:

(1) Production Well #1	~ 180' Core Continuous from upper Duperow seal through the middle Duperow porosity zone. MSU and LBNL have requested a total (minimum) of 20' in the tight zone (caprock) and 25' in the porosity zone.
(2) Monitoring Well #1 (far geochemical)	~ 30' Core (10' minimum) Potlatch anhydrite. As the secondary seal for the injection zone and primary seal of the Devonian system, core from this interval will be useful for the EPA UIC Class VI permit. LANL will conduct geomechanical testing. ~240 Core Continuous from upper Duperow seal through the middle Duperow porosity zone, picked based on logs. Captures the primary seal and porosity zones near the injection well. MSU, LBNL, and LANL request a total (minimum) of 30' in the caprock and 35' in the porosity zone.
(3) Injection Well	~ 240 Core Continuous from upper Duperow seal through the middle Duperow porosity zone, picked based on logs. Captures the primary seal and porosity zones in the injection well. ~ 60' Core Lower Duperow – proposed interval based on results from well (2). The lower Duperow porosity zone may provide a secondary zone for injection.

04/25/2014



*core intervals are approximate and will be modified by results from logs and well #1 and 2

Figure 2. Selected core intervals for the production well, monitoring well, and injection well.

PROGNOSIS: WALLEWEIN 22-1		
LOCATION: 2407 FWL, 1217 FSL, SECTION 22, T36N-R1W		
K.B. =	3974	
FORMATION	Subsea	Depth
BLACKLEAF	2933	1041
BOW ISLAND	2660	1314
KOOTENAI	2116	1858
SUNBURST	1747	2227
SWIFT	1692	2282
REARDON	1638	2336
SAWTOOTH	1522	2452
MADISON (SUN RIVER DOLOMITE)	1485	2489
MISSION CANYON	1350	2624
LODGEPOLE	779	3195
BANFF	546	3428
BAKKEN	427	3547
THREE FORKS	405	3569
POTLATCH	397	3577
NISKU	236	3738
DUPEROW	181	3793
MIDDLE DUPEROW	9	3965
LOWER DUPEROW	-238	4212
SOURIS RIVER	-497	4471
T.D.	-587	4561
CORE 1	3600-3630	
CORE 2	3843-3903	
CORE 3	3903-3963	
CORE 4	3963-4023	

Figure 3. Drilling prognosis for the Wallewein 22-1 Monitoring Well based on tops picked by Dave Bowen, FX rig specs, logging requirements, and the surveyed well locations. Formation depths at subsequent wells will be provided prior to drilling.

Appendix II

Special Handling Requirements for Microbial Analysis

Per email from Bart Lomans November 25, 2013

Requirements for core sample collection, preparation and shipping/storage:

Sample Type & Sample Requirements:

- Preference for 3-5 smaller pieces (15-20 cm) of intact core rather than one big piece
- Use clean (sterile) latex gloves handling the core sections to possibly avoid any contamination.
- Ideally having these pieces stretching over the complete reservoir depth and homogeneous core sections
- Key-interest in core pieces from the CO₂/water transition zone
- Core should (ideally) be NON-slabbed
- Sub-sampling should be by dry-cutting (or alternatively clean mineral oil, but at least NOT water based!!)
- Core should be preserved (in barrel and/or waxed – if not waxed or in barrel store/ship in air-tight bags)
- Stored at 4°C or room temperature (avoid large cold-warm temperature transitions) (DO NOT FREEZE!!)
- We will be needing metadata (depth, temperature, formation water characteristics, etc.)

Purpose and Scope of Work with Core material (at Shell HOU WTC lab):

- Core will be sub-sampled under sterile conditions
- DNA will be isolated from the sub-samples taken from the non-contaminated inner parts of the core
- DNA (originating from the full mixture of microbes present in the sample) will be sequenced
- Based on sequence analysis we will be able to answer; 1) which microbes are there? 2) How many are there? and 3) what type of reactions they can perform?
- This data provides the opportunity to: 1) further characterize the reservoir (presence of certain group of microbes reflect certain environmental conditions, even from historical perspective), 2) to predict how a reservoir will respond to e.g. water flooding, nitrate injection, etc.

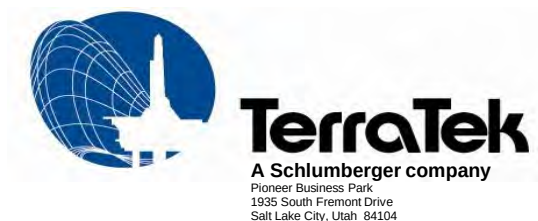
Ship Core Material To:

Nicolas Tsesmetzis or Crystal Warner,
Biodomain labs, BD-1022A,

**Big Sky Carbon Sequestration Partnership (BSCSP) Kevin Dome
Carbon Sequestration Project
Toole County, Montana**

Wallewein 22-1 Core Data

Additional core data has been archived on the BSCSP Archive repository and is also available upon request from the Montana Board of Oil & Gas Commission, or via the BSCSP Core Viewer application (<https://core.bigskyco2.org/>). It is also available for download through the U.S. Department of Energy (DOE) EDX website: <https://edx.netl.doe.gov/dataset>



Routine Core Analysis Report

Prepared for: Altamont Vecta Oil Gas Ltd Big Sky

Well: Wallewein 22-1

Location: Montana, US

Prepared by:

TerraTek, A Schlumberger company

1935 South Fremont Drive

Salt Lake City, Utah 84104

(801) 584-2400

Schlumberger Confidential

Client: Altamont Vecta Oil Gas Ltd Big Sky
Well: Wallewein 22-1
Project No: 811156

Location: Montana, US



TerraTek
A Schlumberger company
Pioneer Business Park
1935 South Fremont Drive
Salt Lake City, Utah 84104

Quality Assurance Process

Schlumberger is committed to providing unsurpassed services in reservoir sampling and analyses while maintaining high standards of safety and quality. Our objective is to deliver the most accurate and reliable sampling processes and fluid and rock property measurements available in the industry. This objective requires persistent innovation and ongoing development of state-of-the-art technologies and equipment.

A rigorous quality assurance program, continuous employee training and enforcement of strict safety standards maintain our compliance with quality, health, safety, and environment (QHSE) requirements. Proactive integration of QHSE objectives and management goals at every level supports the communication and implementation of QHSE policies and standards. Schlumberger requires that qualified engineering technologists perform all laboratory measurements according to specified analytical procedures designed for obtaining accurate and reliable data.

The lab-generated data undergoes the following five levels of quality checks to establish the integrity of the reported results.

- a) Establish quality of measurement during data generation.
- b) Lab supervisor and manager confirm the overall quality of the generated data.
- c) Project manager reviews and processes generated data and generates reports.
- d) Technical advisors confirm consistency of reported data.
- e) Project manager finalizes reports.

Hence, the completion of each project requires that a qualified and experienced team of engineers perform a variety of independent reviews of all technical data to confirm the consistency and accuracy of the report as per pre-established quality checklists designed for each operation and based on the level of complexity. All property measurements and calculation procedures are maintained in company archives for a period of one year. This information is available for review by clients upon request.

The file and laboratory records information is listed below to provide access reference to all records related to this project. For any questions, please do not hesitate to contact the undersigned project manager.

File No.: 811156

Laboratory Procedures

Alexander Leibold
Routine Core Analysis

Reviewed by

X	Clay Williams	TRA Lab Data Processor
X	Chad Fuller	TRA Lab Manager

Project Management

Kelly Vaughn
Core Analysis Manager

Client: Altamont Vecta Oil Gas Ltd Big Sky
Well: Wallewein 22-1 Location: Montana, US
Project No: 811156



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Client: Altamont Vecta Oil Gas Ltd Big Sky

Well: Wallewein 22-1

Location: Montana, US

Project No: 811156



TerraTek
A Schlumberger company

Pioneer Business Park
1935 South Fremont Drive
Salt Lake City, Utah 84104

Routine Core Analysis Summary

43 samples from the Wallewein 22-1 well were tested.

The properties of residual fluid saturations, porosity and permeability of the core sample were obtained through basic core analysis specified in the API RP40 method, Recommended Practices for Core Analysis (1998).

All plugs were Dean-Stark extracted to measure fluid saturation. They were then soxhlet cleaned with chloroform/methanol azeotrope to remove hydrocarbons, drilling fluid contamination, and salt. All plugs were dried in convection oven at 104 degC until the weights stabilized. Afterward, they were kept in a desiccant chamber when not being tested. ***Samples 1-30 were cleaned with toluene and then soxhlet cleaned with chloroform/methanol azeotrope. Samples 31-43 were cleaned only with toluene.

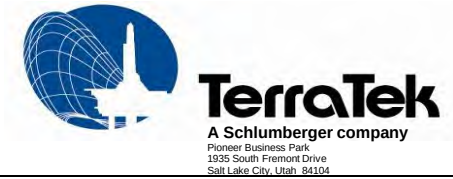
For each sample, steady-state air permeability was measured with nitrogen gas for a single flow rate up to 1 cc/sec at a net confining pressure of 400 psi. Grain volume was measured using helium expansion at ambient conditions based on Boyle's Law. Bulk volume was calculated by measuring the length and width of each plug, a right cylinder. Pore volume was calculated to be the difference between the bulk volume and grain volume. Porosity was calculated to be the pore volume divided by the bulk volume, and the oil and water saturations are the volume of each divided by pore volume.

The routine core properties are summarized in Table 1. The permeability-porosity relationship is shown in Fig. 1. The permeability, porosity, and saturation profiles with depth can be found in Fig. 2 through 4.

Some samples contain gypsum and thus the weight change was less than the total water extracted. This results in a calculated oil saturation of less than 0%. These samples are reported as <0.01%.

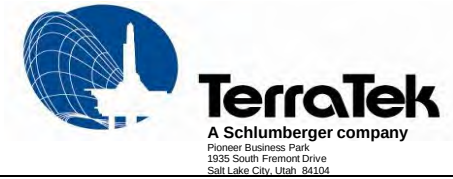
Samples that have fractures which likely gave artificially higher permeability values are: 13, 14, 15, 21, 29, 31B, 33B, 37B and 41B. An attempt was able to be made to heal the fractures with teflon for samples 13, 14, 15, 21, 33B, 41B and could not be attempted for 29, 31B and 37B. A few samples have a lower permeability than the lower resolution of testing ability; these samples are reported as <0.01 mD.

Altamont Vecta Oil Gas Ltd Big Sky
Wallewein 22-1
Routine Core Analysis Results Summary
811156
September 13, 2014



Sample ID	Sample Depth (ft)	Sample Length (cm)	Sample Diameter (cm)	Bulk Density (g/cc)	Dry Bulk Density (g/cc)	Grain Density (g/cc)	Ambient Porosity (%)	Saturation		Gas Permeability Net Stress 400 PSI (mD)	Lithology
								Water (% PV)	Oil (% PV)		
1	3917.40	2.662	2.540	2.794	2.791	2.869	2.71	5.47	7.08	0.01	dol, gy, xl, sl/ anhy
2	3939.30	2.607	2.539	2.786	2.778	2.876	3.43	11.04	16.10	<0.01	dol, dk gy-gy, f gr, sl/ lam
3	3945.60	2.600	2.540	2.808	2.807	2.858	1.79	0.43	6.50	<0.01	dol, gy & lt gy, xl, sl/ vgy
4	3947.20	2.590	2.541	2.746	2.744	2.869	4.37	0.02	5.93	0.02	dol, gy-brn, f gr, anhy
5	3950.70	2.569	2.540	2.817	2.816	2.887	2.45	0.03	5.49	<0.01	anhy dol, gy, xl, vgy
6	3979.12	2.596	2.543	2.691	2.646	2.870	7.79	53.55	4.93	0.41	dol, lt gy, slit, sl/ anhy, dk gy lam
7	3981.70	2.586	2.540	2.792	2.782	2.884	3.55	12.89	17.94	<0.01	anhy dol, gy, xl
8	3995.50	2.598	2.543	2.782	2.778	2.879	3.53	2.15	12.63	0.02	dol, gy, f gr, pof
9	4015.10	2.642	2.541	2.766	2.756	2.876	4.17	16.12	11.17	<0.01	dol, lt gy-lt brn, xl, anhy
10	4022.50	2.657	2.539	2.723	2.713	2.877	5.71	13.03	5.67	0.03	dol, lt gy-lt brn, f gr, anhy
11	4039.68	2.629	2.541	2.640	2.591	2.876	9.91	51.44	<0.01	0.67	dol, lt gy, f gr-slit, anhy, gy lam
12	4040.38	2.644	2.541	2.666	2.641	2.861	7.71	46.41	<0.01	0.10	dol, gy, f gr, sl/ calc, lam
13	4041.00	2.606	2.540	2.569	2.546	2.862	11.05	21.25	<0.01	4.56	dol, gy-brn, f gr, frac
14	4041.80	2.591	2.537	2.630	2.615	2.890	9.51	8.83	8.22	4.44	dol, gy-brn & wh, f gr, anhy, aff, frac
15	4043.68	2.591	2.540	2.635	2.628	2.869	8.41	2.72	6.07	1.09	dol, gy-brn, f gr, pof, cff, frac
16	4045.60	2.581	2.540	2.681	2.680	2.874	6.74	0.00	1.33	0.16	dol, gy-brn, f gr, sl/ anhy, sl/ vgy, pof
17	4046.50	2.614	2.540	2.635	2.633	2.873	8.37	0.01	3.17	0.22	dol, gy-brn, f gr, sl/ anhy, vgy
18	4049.80	2.619	2.540	2.657	2.651	2.859	7.26	3.12	6.60	0.10	dol, gy-brn, f gr, sl/ anhy
19	4050.28	2.609	2.540	2.656	2.645	2.855	7.35	9.26	6.29	0.27	dol, gy-brn, f gr, sl/ anhy, sl/ lam
20	4051.40	2.626	2.541	2.625	2.619	2.857	8.33	0.90	7.84	0.49	dol, gy-brn, f gr, sl/ anhy, sl/ vgy
21	4052.76	2.620	2.540	2.757	2.756	2.865	3.80	0.20	2.56	3.82	dol, gy, f gr, anhy, sl/ vgy, aff, frac
22	4053.87	2.614	2.541	2.712	2.706	2.860	5.41	9.75	2.13	0.21	dol, dk brn-gy, f-m gr, anhy, sl/ vgy, sl/ lam, pof
23	4054.82	2.620	2.540	2.623	2.620	2.862	8.44	0.01	2.93	0.92	dol, dk brn-gy, f-m gr, anhy, vgy
24	4057.10	2.652	2.543	2.681	2.678	2.863	6.47	0.01	5.79	0.25	dol, gy-brn, f-m gr, anhy, vgy
25	4063.06	2.598	2.541	2.664	2.663	2.875	7.39	0.00	1.81	2.10	dol, gy-brn, f gr, sl/ anhy, sl/ vgy, lam

Altamont Vecta Oil Gas Ltd Big Sky
Wallewein 22-1
Routine Core Analysis Results Summary
811156
September 13, 2014



Sample ID	Sample Depth (ft)	Sample Length (cm)	Sample Diameter (cm)	Bulk Density (g/cc)	Dry Bulk Density (g/cc)	Grain Density (g/cc)	Ambient Porosity (%)	Saturation		Gas Permeability Net Stress 400 PSI (mD)	Lithology
								Water (% PV)	Oil (% PV)		
26	4064.40	2.609	2.540	2.524	2.523	2.862	11.84	0.01	1.27	18.6	dol, lt brn-gy, f-m gr, vgy, lam
27	4065.75	2.553	2.543	2.697	2.693	2.860	5.84	1.32	6.99	0.07	dol, gy, f gr, sl/ vgy, lam, pof
28	4071.80	2.609	2.543	2.740	2.740	2.869	4.50	0.17	0.79	0.01	dol, gy-lt brn, f gr, sl/ anhy, sl/ vgy
29	4081.20	2.639	2.541	2.718	2.715	2.883	5.85	0.00	6.46	0.09	anhy dol, gy-brn, f gr
30	4105.75	2.639	2.541	2.715	2.708	2.862	5.40	8.30	6.99	0.03	dol, gy-lt gy, f gr, anhy
31B	4109.00	2.558	2.539	2.755	2.754	2.891	4.74	1.14	3.26	1.88	anhy dol, brn-gy & wh, f gr, sl/ vgy, pof
32B	4117.50	2.584	2.540	2.584	2.547	2.855	10.79	42.47	<0.01	0.26	dol, gy-lt gy, f-m gr, gyp, anhy, sl/ vgy, sl/ lam
33B	4118.40	2.623	2.540	2.508	2.428	2.853	14.88	56.62	<0.01	1.04	dol, lt gy-lt brn, f gr, gyp, anhy, sl/ vgy, sl/ lam, frac
34B	4119.30	2.620	2.537	2.446	2.420	2.866	15.57	22.79	<0.01	0.36	dol, gy-lt brn, f-m gr, gyp, anhy, vgy, sl/ lam
35B	4120.70	2.572	2.537	2.480	2.454	2.855	14.06	30.35	<0.01	8.65	dol, brn-gy, f-m gr, gyp, anhy, vgy
36B	4123.90	2.592	2.537	2.648	2.647	2.856	7.33	0.21	1.72	0.38	dol, gy-dk gy, f-m gr, sl/ calc, sl/ anhy, sl/ gyp, vgy, sl/ lam
37B	4131.70	2.576	2.536	2.493	2.483	2.864	13.32	8.08	<0.01	30.9	dol, dk gy-brn, f-m gr, anhy, gyp, vgy, pof
38B	4133.00	2.579	2.540	2.648	2.627	2.852	7.89	46.56	<0.01	0.57	dol, lt gy-gy, f-m gr, anhy, gyp, sl/ vgy, sl/ lam, aff, gypff
39B	4137.60	2.606	2.540	2.727	2.706	2.866	5.59	53.51	<0.01	4.18	anhy dol, gy & lt gy, f-m gr, gyp, sl/ vgy, lam, aff
40B	4139.30	2.578	2.543	2.742	2.739	2.855	4.08	3.75	4.19	0.03	dol, gy, f gr, sl/ gyp, sl/ anhy, sl/ vgy
41B	4140.40	2.560	2.539	2.504	2.478	2.862	13.42	23.29	<0.01	26.4	dol, lt gy-brn, f-m gr, gyp, anhy, vgy, sl/ lam, frac
42B	4142.90	2.560	2.543	2.582	2.581	2.857	9.65	0.16	0.75	0.01	dol, gy, f gr, anhy, sl/ gyp, sl/ vgy
43B	4143.50	2.548	2.541	2.569	2.568	2.862	10.28	0.04	0.84	0.07	dol, gy, f gr, sl/ anhy, sl/ gyp, sl/ vgy

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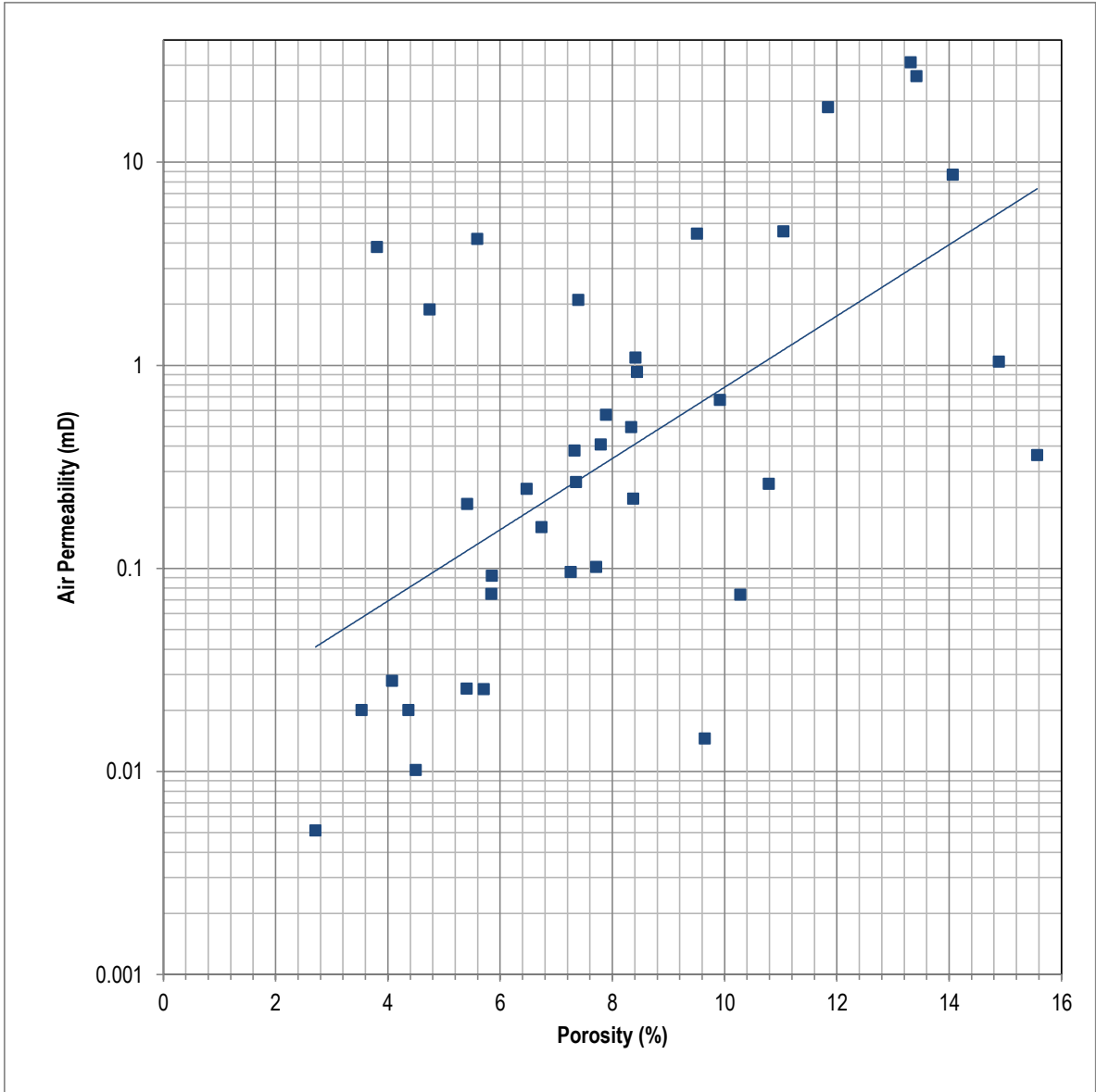
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Client: Altamont Vecta Oil Gas Ltd Big Sky
Well: Wallewein 22-1 Location: Montana, US
Project No: 811156



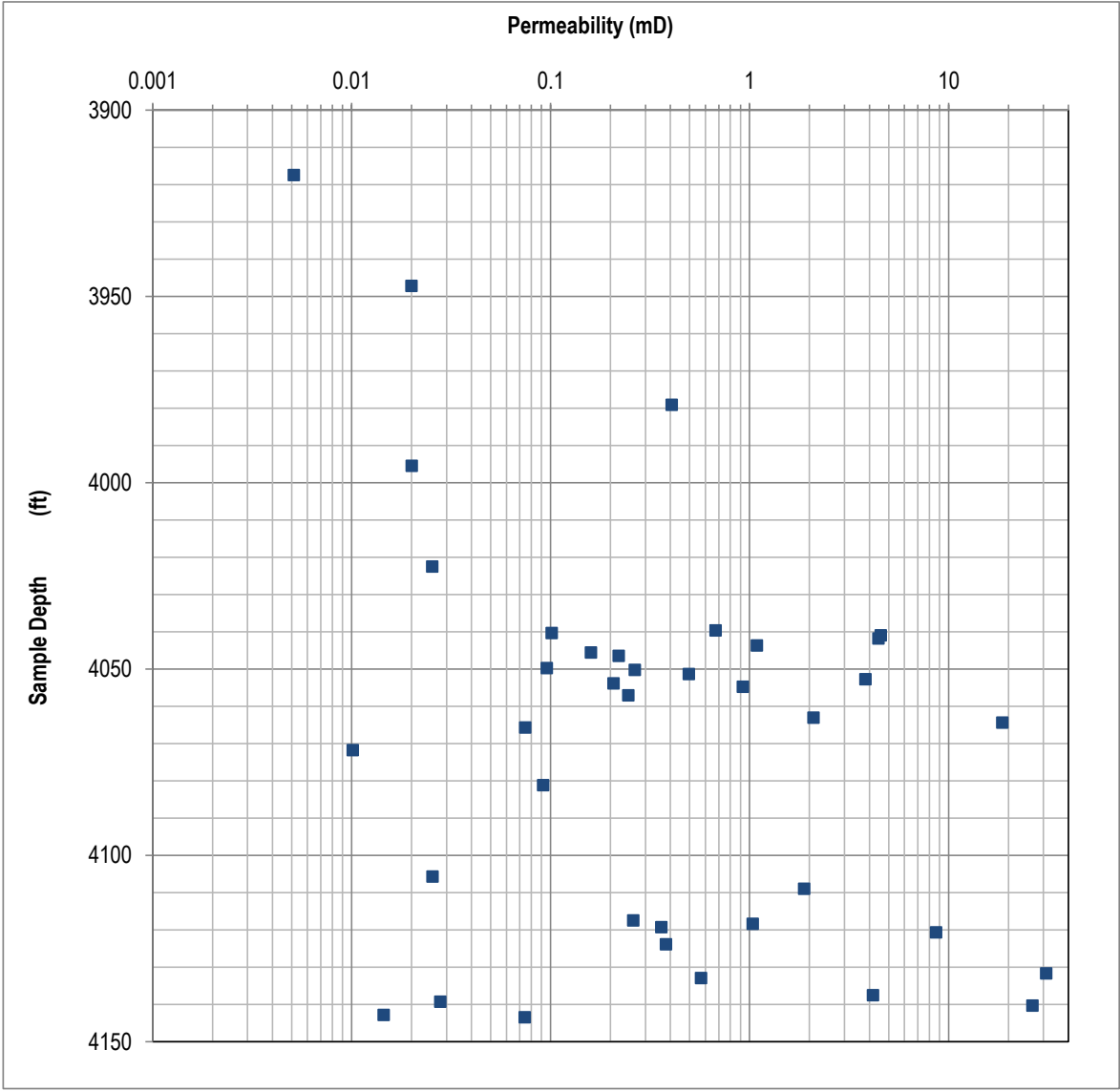
Figure 1. Permeability v. Porosity Cross Plot



Client: Altamont Vecta Oil Gas Ltd Big Sky
Well: Wallewein 22-1 Location: Montana, US
Project No: 811156



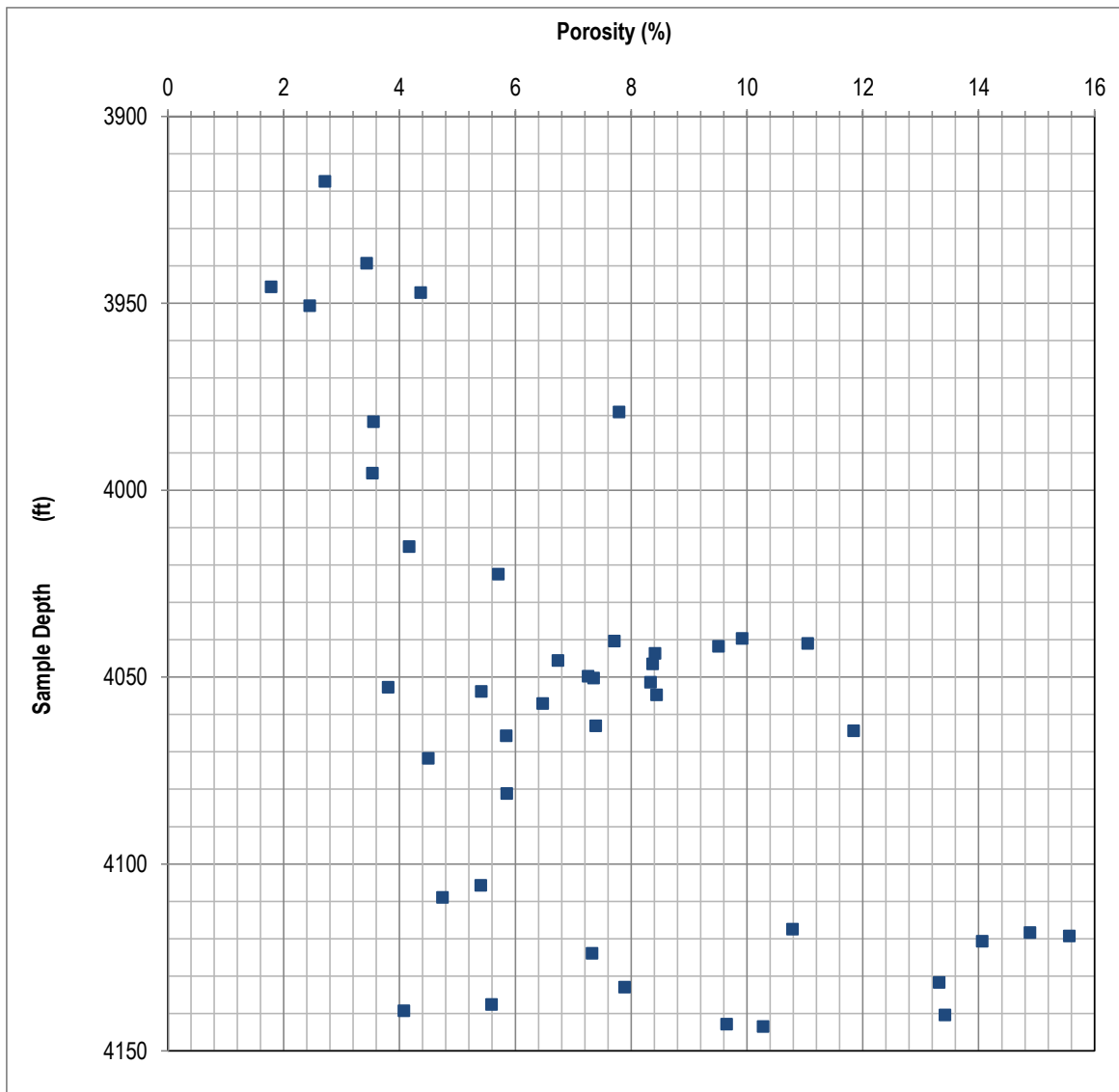
Figure 2. Permeability Profile v. Depth



Client: Altamont Vecta Oil Gas Ltd Big Sky
Well: Wallewein 22-1 Location: Montana, US
Project No: 811156



Figure 3. Porosity Profile v. Depth



Client: Altamont Vecta Oil Gas Ltd Big Sky

Well: Wallewein 22-1

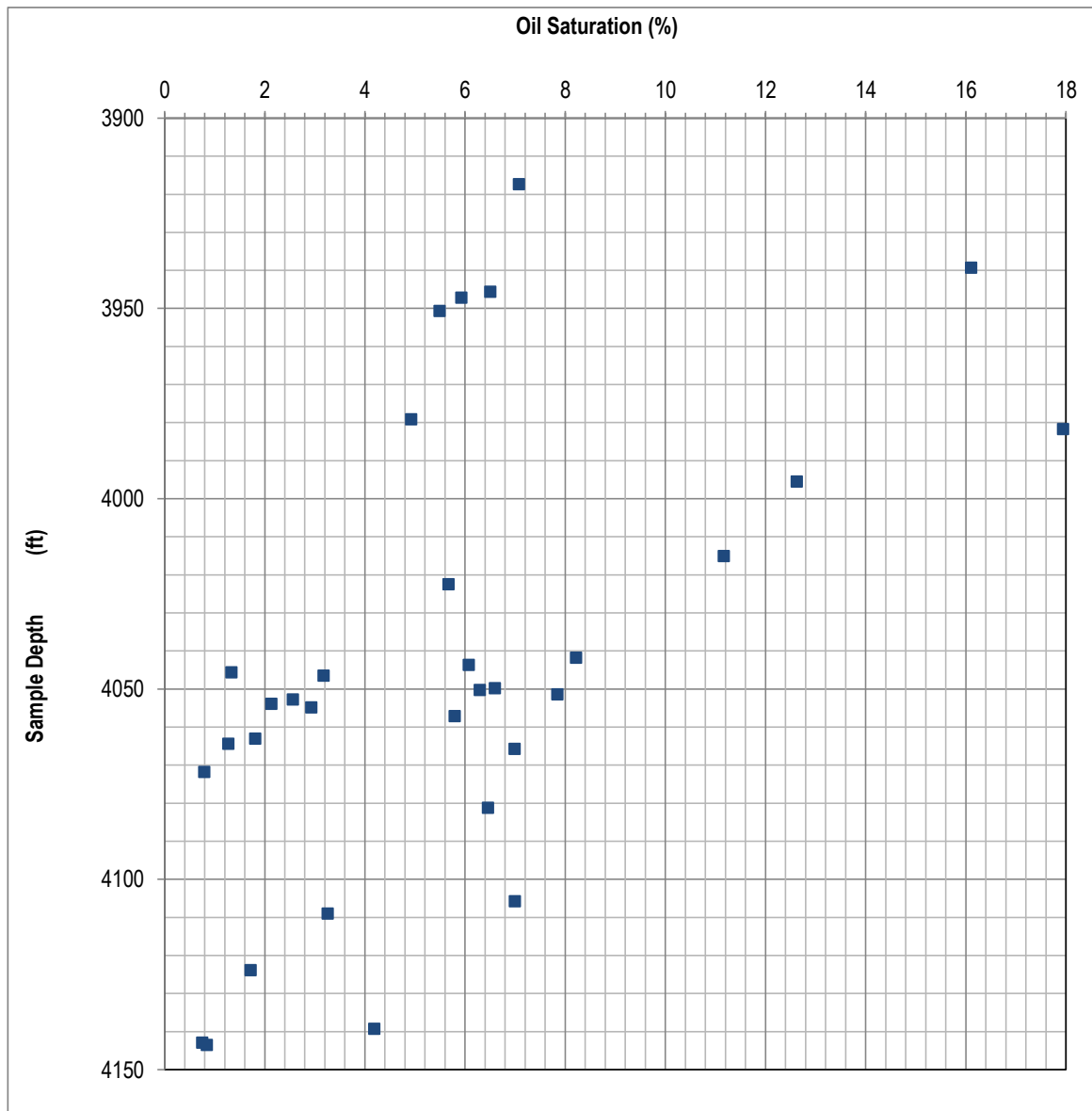
Location: Montana, US

Project No: 811156



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Figure 4. Saturation Profile v. Depth



Description Scheme for Carbonate Sedimentary Rocks:

Rock Type, Color, Grain Size or Crystal Size, Porosity Type, Accessories

Description Scheme for Clastic Sedimentary Rocks:

Rock Type, Color, Grain Size, Cement, Structures and Accessories

Key to Abbreviations:

aff	- anhydrite filled fracture	grnl	- granule	sdv	- sandy
alt	- altered	gy	- gray	sh	- shale
anhv	- anhydrite(ic)	gyp	- gypsum(iferous)	shy	- shaley
arg	- argillaceous	gypff	- gypsum filled fracture	sid	- siderite
bdd	- bedded	hem	- hematite(ic)	sil	- silica(eous)
bent	- bentonite	if	- incipient fracture	sl/	- slightly
bf	- buff	incl	- inclusion	sltst	- siltstone
biot	- bioturbated	intprt	- interparticle	slt	- silt
bit	- bitumen	intrprt	- intraparticle	slty	- silty
bl	- blue(ish)	intxl	- intercrystalline	ss	- sandstone
blk	- black	lam	- laminated	stn	- stain(ed)(ing)
bnd	- banded	lav	- lavender	str	- streak
brec	- breccia(ted)	lig	- lignite(ic)	styl	- stylolite
brn	- brown(ish)	ls	- limestone	suc	- sucrosic
bur	- burrowed	lt	- light	tan	- tan
c	- coarse	m	- medium	v/	- very
calc	- calcite(areous)	mar	- maroon	vc	- very coarse
carb	- carbonaceous	mas	- massive	vf	- very fine
cff	- calcite filled fracture	mdy	- muddy	vgy	- vuggy
cgl	- conglomerate	mic	- micro	wh	- white
chky	- chalky	mc	- micro-crack	wthrd	- weathered
chlor	- chlorite	mnr	- minor	wvy	- wavy
cht	- chert	mica	- micaceous	yel	- yellow
chty	- cherty	mol	- moldic	xl	- crystalline
clst	- clast	ms	- mudstone		
cly	- clay(ey)	mtx	- matrix		
clyst	- claystone	nod	- nodule(s)		
cob	- cobble	o	- oil		
dism	- disseminated	of	- open fracture		
dk	- dark	ool	- oolitic		
dff	- dolomite filled	org	- organic		
frac	- fracture	ormg	- orange		
dol	- dolomite(ic)	pbl	- pebble		
f	- fine	pel	- peloids		
fen	- fenestral	pff	- pyrite filled fracture		
fis	- fissile	pis	- pisolitic		
flu	- fluorescence	pk	- pink		
fos	- fossil(iferous)	pof	- partially open fracture		
frac	- fracture	ppvgs	- pinpoint vugs		
fri	- friable	ptg	- parting(s)		
gff	- gouge filled fracture	purp	- purple		
glauc	- glauconitic	pyr	- pyrite(ic)		
gn	- green	qff	- quartz filled fracture		
grdd	- graded	qtz	- quartz		
gr	- grain(ed)	red	- red(dish)		
		sa	- salty		

Well Tests

SDS Report

COMPANY INFORMATION

Company Name Altamont Oil and Gas
Representative Tom White
Phone [REDACTED]
Fax
Address

E-Mail Address

Service Company Northern Lights Energy Co, Inc.

TEST INFORMATION

Type of Test Surface Injection/Fall-off
Date(s) of Test March 19 - 21, 2014
Shut-in Date (Duration)

Job Number
SDS Serial Number

Reported by Jesse Butcher

WELL INFORMATION

Well Name Wallewein #22-1
Well Location Toole County
Field and Pool
Status (Oil, Gas, Water, Injection) Injection
Perforated Intervals
Mid-point of Perforated Intervals (MPP)
Drilling Rig Number

Elevations
Kelly Bushing (KB)
Casing Flange (CF)
KB-CF
Ground Level

Plug Back Total Depth
Total Depth
Production Casing
Production Tubing



Company Name	Altamont Oil and Gas
Well Name	Wallewein #22-1
Type of Test	Surface Injection/Fall-off
Date(s) of Test	March 19 - 21, 2014

METER INFORMATION

COMMENTS

March 19, 2015:

Rig up SDS at surface and manifold. Engauged recorder and Sanjel pressure tested all equipment to 4K, then began pumping injection test. Leave on well for step rate test and fall-off.

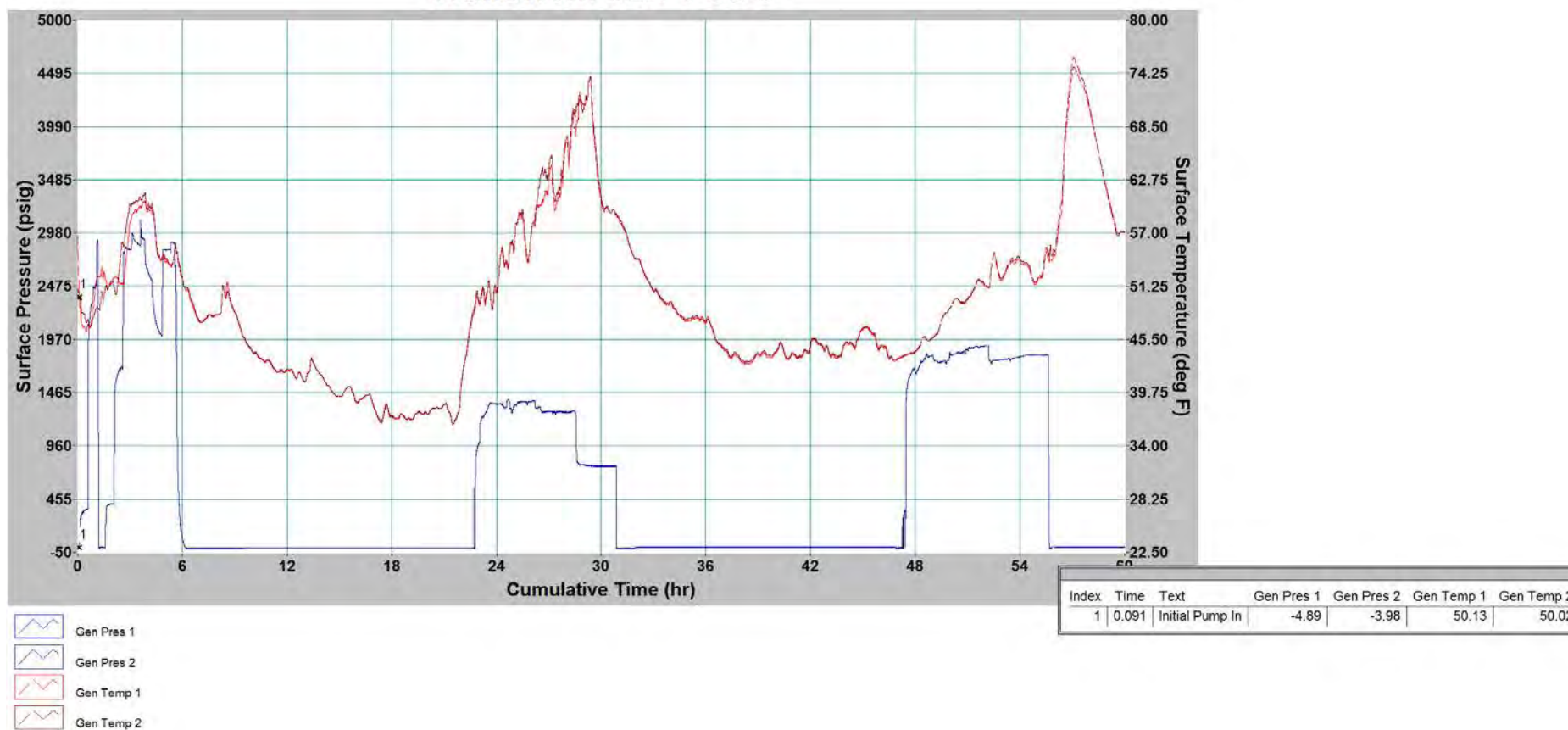
March 21, 2015:

Altamont Supervisor decided to rig down SDS recorder after pump in test, due to the fact that the well was on a vacuum.



Company Name Altamont Oil and Gas
Well Name Wallewein #22-1
Type of Test Surface Injection/Fall-off
Date(s) of Test March 19 - 21, 2014

Wallewein #22-1 SDS





Company Name Altamont Oil and Gas
Well Name Wallewein #22-1
Type of Test Surface Injection/Fall-off
Date(s) of Test March 19 - 21, 2014

Date	Time	Cum. Time	Gen Pres 1	Gen Temp 1	Gen Pres 2	Gen Temp 2
		hr	psig	deg F	psig	deg F
2015/03/19	09:56:00	0.0000	-0.571	56.677	1.582	50.921
2015/03/19	10:01:28	0.0911	Initial Pump In			
2015/03/19	10:01:28	0.0911	-4.895	50.127	-3.979	50.022
2015/03/19	10:34:30	0.6417	2052.510	46.773	2054.053	47.128
2015/03/19	11:13:00	1.2833	-1.092	52.232	1.667	48.994
2015/03/19	11:51:30	1.9250	407.890	51.599	409.877	51.900
2015/03/19	12:30:00	2.5667	1686.033	51.540	1688.354	56.055
2015/03/19	13:08:30	3.2083	2952.030	59.217	2953.388	60.147
2015/03/19	13:47:00	3.8500	2912.314	60.360	2913.869	61.258
2015/03/19	14:25:30	4.4917	2127.892	55.853	2130.194	56.231
2015/03/19	15:04:00	5.1333	2822.017	53.941	2824.280	54.179
2015/03/19	15:42:30	5.7750	522.729	53.727	525.203	53.950
2015/03/19	16:21:00	6.4167	-13.193	50.111	-10.581	50.328
2015/03/19	16:59:30	7.0583	-12.235	47.320	-10.364	47.438
2015/03/19	17:38:00	7.7000	-12.144	47.968	-10.312	48.041
2015/03/19	18:16:30	8.3417	-12.209	51.198	-10.263	51.339
2015/03/19	18:55:00	8.9833	-12.080	48.473	-10.277	48.568
2015/03/19	19:33:30	9.6250	-11.934	45.286	-10.239	45.372
2015/03/19	20:12:00	10.2667	-11.884	43.913	-10.195	44.008
2015/03/19	20:50:30	10.9083	-11.824	43.199	-10.190	43.298
2015/03/19	21:29:00	11.5500	-11.776	42.002	-10.170	42.064
2015/03/19	22:07:30	12.1917	-11.784	42.193	-10.160	42.283
2015/03/19	22:46:00	12.8333	-11.767	41.474	-10.159	41.453
2015/03/19	23:24:30	13.4750	-11.819	43.131	-10.167	43.072
2015/03/20	00:03:00	14.1167	-11.747	41.165	-10.148	41.160
2015/03/20	00:41:30	14.7583	-11.674	39.477	-10.121	39.521
2015/03/20	01:20:00	15.4000	-11.713	40.226	-10.131	40.215
2015/03/20	01:58:30	16.0417	-11.654	38.639	-10.084	38.718
2015/03/20	02:37:00	16.6833	-11.681	39.534	-10.126	39.555
2015/03/20	03:15:30	17.3250	-11.559	36.599	-10.103	36.708
2015/03/20	03:54:00	17.9667	-11.585	37.151	-10.084	37.282
2015/03/20	04:32:30	18.6083	-11.597	37.288	-10.088	37.404
2015/03/20	05:11:00	19.2500	-11.578	36.974	-10.074	37.049
2015/03/20	05:49:30	19.8917	-11.611	37.596	-10.086	37.687



Company Name Altamont Oil and Gas
Well Name Wallewein #22-1
Type of Test Surface Injection/Fall-off
Date(s) of Test March 19 - 21, 2014

Date	Time	Cum. Time	Gen Pres 1	Gen Temp 1	Gen Pres 2	Gen Temp 2
		hr	psig	deg F	psig	deg F
2015/03/20	06:28:00	20.5333	-11.637	38.130	-10.076	38.172
2015/03/20	07:06:30	21.1750	-11.642	38.193	-10.101	38.199
2015/03/20	07:45:00	21.8167	-11.618	37.632	-10.097	37.679
2015/03/20	08:23:30	22.4583	-11.910	46.340	-10.173	46.585
2015/03/20	09:02:00	23.1000	1190.845	49.675	1193.082	49.894
2015/03/20	09:40:30	23.7417	1363.667	48.836	1366.032	48.965
2015/03/20	10:19:00	24.3833	1337.959	54.373	1340.272	54.610
2015/03/20	10:57:30	25.0250	1343.866	55.413	1346.017	55.616
2015/03/20	11:36:00	25.6667	1379.764	55.321	1382.091	55.697
2015/03/20	12:14:30	26.3083	1322.420	60.033	1324.465	60.259
2015/03/20	12:53:00	26.9500	1288.731	61.311	1290.702	62.787
2015/03/20	13:31:30	27.5917	1285.174	61.382	1287.410	62.035
2015/03/20	14:10:00	28.2333	1278.353	66.100	1280.362	66.617
2015/03/20	14:48:30	28.8750	779.966	71.192	782.203	70.684
2015/03/20	15:27:00	29.5167	767.758	68.865	769.608	69.438
2015/03/20	16:05:30	30.1583	764.563	59.321	766.922	59.621
2015/03/20	16:44:00	30.8000	765.820	59.019	768.414	59.142
2015/03/20	17:22:30	31.4417	-12.617	56.823	-10.363	56.944
2015/03/20	18:01:00	32.0833	-0.970	54.278	0.997	54.160
2015/03/20	18:39:30	32.7250	-0.938	51.743	1.015	51.758
2015/03/20	19:18:00	33.3667	-0.914	50.043	1.040	50.184
2015/03/20	19:56:30	34.0083	-0.897	49.359	1.053	49.568
2015/03/20	20:35:00	34.6500	-0.873	47.770	1.057	47.940
2015/03/20	21:13:30	35.2917	-0.867	47.759	1.070	47.935
2015/03/20	21:52:00	35.9333	-0.854	47.303	1.090	47.488
2015/03/20	22:30:30	36.5750	-0.824	45.382	1.063	45.494
2015/03/20	23:09:00	37.2167	-0.826	44.181	1.083	44.367
2015/03/20	23:47:30	37.8583	-0.807	43.613	1.102	43.827
2015/03/21	00:26:00	38.5000	-0.802	42.921	1.109	43.116
2015/03/21	01:04:30	39.1417	-0.791	43.710	1.110	43.887
2015/03/21	01:43:00	39.7833	-0.796	43.599	1.113	43.775
2015/03/21	02:21:30	40.4250	-0.807	44.450	1.110	44.608
2015/03/21	03:00:00	41.0667	-0.815	43.799	1.118	43.946
2015/03/21	03:38:30	41.7083	-0.808	44.294	1.117	44.415



Company Name Altamont Oil and Gas
Well Name Wallewein #22-1
Type of Test Surface Injection/Fall-off
Date(s) of Test March 19 - 21, 2014

Date	Time	Cum. Time	Gen Pres 1	Gen Temp 1	Gen Pres 2	Gen Temp 2
		hr	psig	deg F	psig	deg F
2015/03/21	04:17:00	42.3500	-0.821	45.200	1.105	45.343
2015/03/21	04:55:30	42.9917	-0.807	44.426	1.110	44.582
2015/03/21	05:34:00	43.6333	-0.792	43.648	1.107	43.766
2015/03/21	06:12:30	44.2750	-0.811	45.054	1.104	45.203
2015/03/21	06:51:00	44.9167	-0.814	46.507	1.101	46.603
2015/03/21	07:29:30	45.5583	-0.808	46.067	1.111	46.237
2015/03/21	08:08:00	46.2000	-0.809	44.553	1.130	44.730
2015/03/21	08:46:30	46.8417	-0.689	43.126	1.651	43.278
2015/03/21	09:25:00	47.4833	1414.022	43.814	1416.331	43.898
2015/03/21	10:03:30	48.1250	1674.907	44.402	1677.293	44.469
2015/03/21	10:42:00	48.7667	1805.352	45.325	1807.800	45.340
2015/03/21	11:20:30	49.4083	1751.659	46.893	1754.132	46.925
2015/03/21	11:59:00	50.0500	1822.614	49.058	1825.015	49.053
2015/03/21	12:37:30	50.6917	1849.877	49.414	1852.238	49.515
2015/03/21	13:16:00	51.3333	1888.895	50.821	1891.385	50.929
2015/03/21	13:54:30	51.9750	1907.545	51.271	1909.976	51.409
2015/03/21	14:33:00	52.6167	1772.238	54.004	1774.636	54.205
2015/03/21	15:11:30	53.2583	1784.383	53.160	1786.858	53.341
2015/03/21	15:50:00	53.9000	1801.561	54.211	1803.939	54.478
2015/03/21	16:28:30	54.5417	1821.738	53.241	1824.231	53.446
2015/03/21	17:07:00	55.1833	1821.553	52.187	1824.119	52.385
2015/03/21	17:45:30	55.8250	-0.135	54.028	2.526	54.481
2015/03/21	18:24:00	56.4667	-1.286	61.783	0.936	62.913
2015/03/21	19:02:30	57.1083	-0.966	74.955	1.200	75.916
2015/03/21	19:41:00	57.7500	-0.865	72.214	1.233	72.729
2015/03/21	20:19:30	58.3917	-0.834	66.708	1.224	66.799
2015/03/21	20:58:00	59.0333	-0.796	61.184	1.247	61.007
2015/03/21	21:36:30	59.6750	-0.817	56.989	1.242	56.849
2015/03/21	22:15:00	60.3167	-0.785	55.858	1.280	56.163
2015/03/21	22:53:30	60.9583	-0.779	54.299	1.292	54.326
2015/03/21	23:32:00	61.6000	-0.766	52.345	1.305	52.271
2015/03/22	00:10:30	62.2417	-0.748	50.301	1.314	50.154
2015/03/22	00:49:00	62.8833	-0.709	48.612	1.327	48.447
2015/03/22	01:27:30	63.5250	-0.692	46.975	1.344	46.770



Company Name Altamont Oil and Gas
Well Name Wallewein #22-1
Type of Test Surface Injection/Fall-off
Date(s) of Test March 19 - 21, 2014

Date	Time	Cum. Time	Gen Pres 1	Gen Temp 1	Gen Pres 2	Gen Temp 2
		hr	psig	deg F	psig	deg F
2015/03/22	02:06:00	64.1667	-0.668	45.726	1.358	45.517
2015/03/22	02:44:30	64.8083	-0.687	44.569	1.390	44.355
2015/03/22	03:23:00	65.4500	-0.651	43.238	1.394	43.025
2015/03/22	04:01:30	66.0917	-0.623	41.874	1.416	41.650
2015/03/22	04:40:00	66.7333	-0.618	40.674	1.429	40.462
2015/03/22	05:18:30	67.3750	-0.594	39.278	1.464	39.030
2015/03/22	05:57:00	68.0167	-0.583	38.452	1.486	38.248
2015/03/22	06:35:30	68.6583	-0.568	37.562	1.501	37.361
2015/03/22	07:14:00	69.3000	-0.543	36.717	1.506	36.515
2015/03/22	07:52:30	69.9417	-0.529	35.702	1.524	35.455
2015/03/22	08:31:00	70.5833	-0.519	35.671	1.506	35.546
2015/03/22	09:09:30	71.2250	-0.548	37.567	1.475	37.832
2015/03/22	09:48:00	71.8667	-0.608	41.207	1.427	42.028
2015/03/22	10:26:30	72.5083	-0.631	46.938	1.267	48.438
2015/03/22	11:05:00	73.1500	-0.709	52.635	1.512	61.765
2015/03/22	11:43:30	73.7917	-0.732	56.389	1.359	60.840
2015/03/22	12:22:00	74.4333	-0.751	59.709	1.316	62.702
2015/03/22	13:00:30	75.0750	-0.782	62.763	1.273	65.009
2015/03/22	13:39:00	75.7167	-0.799	65.769	1.272	67.608
2015/03/22	14:17:30	76.3583	-0.790	68.649	1.223	70.241
2015/03/22	14:56:00	77.0000	-0.798	71.022	1.223	72.339
2015/03/22	15:34:30	77.6417	-0.776	72.607	1.164	73.638
2015/03/22	16:13:00	78.2833	-0.753	74.021	1.242	79.181
2015/03/22	16:51:30	78.9250	-0.752	74.644	1.258	77.075
2015/03/22	17:30:00	79.5667	-0.769	74.642	1.244	76.015
2015/03/22	18:08:30	80.2083	-0.755	73.737	1.236	74.536
2015/03/22	18:47:00	80.8500	-0.726	70.885	1.239	71.239
2015/03/22	19:25:30	81.4917	-0.700	66.422	1.244	66.417
2015/03/22	20:04:00	82.1333	-0.689	61.776	1.262	61.460
2015/03/22	20:42:30	82.7750	-0.638	57.407	1.277	56.935
2015/03/22	21:21:00	83.4167	-0.607	53.593	1.316	53.067
2015/03/22	21:59:30	84.0583	-0.588	50.302	1.367	49.794
2015/03/22	22:38:00	84.7000	-0.572	47.511	1.399	47.022
2015/03/22	23:16:30	85.3417	-0.568	45.119	1.402	44.674



Company Name Altamont Oil and Gas
Well Name Wallewein #22-1
Type of Test Surface Injection/Fall-off
Date(s) of Test March 19 - 21, 2014

Date	Time	Cum. Time	Gen Pres 1	Gen Temp 1	Gen Pres 2	Gen Temp 2
		hr	psig	deg F	psig	deg F
2015/03/22	23:55:00	85.9833	-0.538	42.960	1.426	42.546
2015/03/23	00:33:30	86.6250	-0.528	41.151	1.433	40.770
2015/03/23	01:12:00	87.2667	-0.529	39.952	1.463	39.677
2015/03/23	01:50:30	87.9083	-0.510	39.007	1.478	38.772
2015/03/23	02:29:00	88.5500	-0.515	37.851	1.474	37.622
2015/03/23	03:07:30	89.1917	-0.508	36.579	1.472	36.365
2015/03/23	03:46:00	89.8333	-0.509	35.492	1.489	35.290
2015/03/23	04:24:30	90.4750	-0.501	34.644	1.496	34.472
2015/03/23	05:03:00	91.1167	-0.507	33.957	1.488	33.814
2015/03/23	05:41:30	91.7583	-0.503	33.230	1.486	33.068
2015/03/23	06:20:00	92.4000	-0.495	32.542	1.509	32.397
2015/03/23	06:58:30	93.0417	-0.483	32.051	1.498	31.926
2015/03/23	07:37:00	93.6833	-0.505	31.647	1.493	31.549
2015/03/23	08:15:30	94.3250	-0.504	31.600	1.475	31.562
2015/03/23	08:54:00	94.9667	-0.541	32.258	1.462	32.367
2015/03/23	09:32:30	95.6083	-0.589	34.317	1.437	34.678
2015/03/23	10:11:00	96.2500	-0.616	36.752	1.386	37.342
2015/03/23	10:49:30	96.8917	-0.648	39.127	1.344	39.877
2015/03/23	11:28:00	97.5333	-0.716	41.794	1.309	42.766
2015/03/23	12:06:30	98.1750	-0.750	45.041	1.280	46.139
2015/03/23	12:45:00	98.8167	-0.768	47.243	1.235	48.315
2015/03/23	13:23:30	99.4583	-0.802	50.470	1.187	51.731
2015/03/23	14:02:00	100.1000	-0.842	55.274	1.134	56.822
2015/03/23	14:40:30	100.7417	-0.871	58.778	1.125	60.276
2015/03/23	15:19:00	101.3833	-0.878	60.322	1.143	61.583
2015/03/23	15:57:30	102.0250	-0.876	60.258	1.110	61.315
2015/03/23	16:36:00	102.6667	-0.885	60.207	1.132	61.096
2015/03/23	17:14:30	103.3083	-0.850	59.235	1.138	59.868
2015/03/23	17:53:00	103.9500	-0.843	57.596	1.135	57.995
2015/03/23	18:31:30	104.5917	-0.827	55.984	1.163	56.236
2015/03/23	19:10:00	105.2333	-0.786	53.524	1.197	53.537
2015/03/23	19:48:30	105.8750	-0.758	50.485	1.232	50.345
2015/03/23	20:27:00	106.5167	-0.736	47.493	1.274	47.219
2015/03/23	21:05:30	107.1583	-0.696	44.385	1.305	44.006



Company Name Altamont Oil and Gas
Well Name Wallewein #22-1
Type of Test Surface Injection/Fall-off
Date(s) of Test March 19 - 21, 2014

Date	Time	Cum. Time	Gen Pres 1	Gen Temp 1	Gen Pres 2	Gen Temp 2
		hr	psig	deg F	psig	deg F
2015/03/23	21:44:00	107.8000	-0.655	41.303	1.352	40.885
2015/03/23	22:22:30	108.4417	-0.617	38.501	1.398	38.054
2015/03/23	23:01:00	109.0833	-0.578	36.147	1.420	35.720
2015/03/23	23:39:30	109.7250	-0.556	34.124	1.450	33.699
2015/03/24	00:18:00	110.3667	-0.524	32.359	1.465	31.984
2015/03/24	00:56:30	111.0083	-0.497	30.726	1.507	30.356
2015/03/24	01:35:00	111.6500	-0.487	29.425	1.519	29.095
2015/03/24	02:13:30	112.2917	-0.463	28.309	1.548	28.006
2015/03/24	02:52:00	112.9333	-0.423	27.281	1.559	26.995
2015/03/24	03:30:30	113.5750	-0.437	26.782	1.567	26.575
2015/03/24	04:09:00	114.2167	-0.425	26.784	1.569	26.662
2015/03/24	04:47:30	114.8583	-0.438	27.001	1.580	26.967
2015/03/24	05:26:00	115.5000	-0.447	27.279	1.565	27.327
2015/03/24	06:04:30	116.1417	-0.464	27.444	1.552	27.535
2015/03/24	06:43:00	116.7833	-0.437	27.530	1.555	27.643
2015/03/24	07:21:30	117.4250	-0.457	27.586	1.552	27.707
2015/03/24	08:00:00	118.0667	-0.443	27.678	1.556	27.810
2015/03/24	08:38:30	118.7083	-0.460	27.957	1.557	28.127
2015/03/24	09:17:00	119.3500	-0.452	28.335	1.528	28.534
2015/03/24	09:55:30	119.9917	-0.468	28.892	1.536	29.162
2015/03/24	10:34:00	120.6333	-0.491	29.830	1.521	30.192
2015/03/24	11:12:30	121.2750	-0.499	30.943	1.500	31.429
2015/03/24	11:51:00	121.9167	-0.532	32.462	1.481	33.074
2015/03/24	12:29:30	122.5583	-0.589	38.569	1.438	39.734
2015/03/24	13:08:00	123.2000	-0.629	41.410	1.399	42.879
2015/03/24	13:46:30	123.8417	-0.683	43.576	1.374	44.613
2015/03/24	14:25:00	124.4833	-0.689	44.559	1.376	45.388
2015/03/24	15:03:30	125.1250	-0.687	45.387	1.361	46.052
2015/03/24	15:42:00	125.7667	-0.690	46.444	1.353	47.029
2015/03/24	16:20:30	126.4083	-0.683	46.974	1.356	47.513
2015/03/24	16:59:00	127.0500	-0.681	46.272	1.344	46.708
2015/03/24	17:37:30	127.6917	-0.666	45.130	1.382	45.459
2015/03/24	18:16:00	128.3333	-0.639	43.605	1.401	43.815
2015/03/24	18:54:30	128.9750	-0.602	42.077	1.424	42.189



Company Name Altamont Oil and Gas
Well Name Wallewein #22-1
Type of Test Surface Injection/Fall-off
Date(s) of Test March 19 - 21, 2014

Date	Time	Cum. Time	Gen Pres 1	Gen Temp 1	Gen Pres 2	Gen Temp 2
		hr	psig	deg F	psig	deg F
2015/03/24	19:33:00	129.6167	-0.591	40.439	1.464	40.475
2015/03/24	20:11:30	130.2583	-0.564	38.721	1.488	38.702
2015/03/24	20:50:00	130.9000	-0.523	37.198	1.518	37.139
2015/03/24	21:28:30	131.5417	-0.511	35.969	1.550	35.899
2015/03/24	22:07:00	132.1833	-0.477	35.028	1.558	34.965
2015/03/24	22:45:30	132.8250	-0.455	34.301	1.591	34.245
2015/03/24	23:24:00	133.4667	-0.451	33.695	1.598	33.647
2015/03/25	00:02:30	134.1083	-0.438	32.960	1.600	32.901
2015/03/25	00:41:00	134.7500	-0.429	32.192	1.620	32.120
2015/03/25	01:19:30	135.3917	-0.420	31.692	1.624	31.632
2015/03/25	01:58:00	136.0333	-0.412	31.326	1.644	31.274
2015/03/25	02:36:30	136.6750	-0.386	31.032	1.646	31.002
2015/03/25	03:15:00	137.3167	-0.388	30.288	1.663	30.283
2015/03/25	03:53:30	137.9583	-0.355	29.076	1.680	29.057
2015/03/25	04:32:00	138.6000	-0.338	27.840	1.696	27.783
2015/03/25	05:10:30	139.2417	-0.337	26.652	1.714	26.574
2015/03/25	05:49:00	139.8833	-0.321	25.581	1.737	25.474
2015/03/25	06:27:30	140.5250	-0.236	24.499	2.378	25.662
2015/03/25	07:06:00	141.1667	5.218	25.365	30.507	24.874
2015/03/25	07:44:30	141.8083	20.794	24.566	54.727	24.168
2015/03/25	08:23:00	142.4500	24.866	24.290	86.927	24.005
2015/03/25	09:01:30	143.0917	1.784	24.625	63.995	24.472
2015/03/25	09:40:00	143.7333	-0.347	26.249	1.538	26.457
2015/03/25	10:18:30	144.3750	-0.674	29.258	1.306	29.986
2015/03/25	10:57:00	145.0167	-0.505	36.217	1.500	37.746
2015/03/25	11:35:30	145.6583	-0.628	46.112	1.421	47.460
2015/03/25	12:14:00	146.3000	-0.709	54.799	1.371	55.934
2015/03/25	12:52:30	146.9417	-0.779	62.029	1.324	62.530
2015/03/25	13:31:00	147.5833	-0.767	65.561	1.313	65.651
2015/03/25	14:09:30	148.2250	-0.745	65.527	1.294	65.707
2015/03/25	14:48:00	148.8667	-0.738	65.171	1.268	65.720
2015/03/25	15:26:30	149.5083	-0.732	63.846	1.265	64.340
2015/03/25	16:05:00	150.1500	-0.707	62.220	1.277	62.640
2015/03/25	16:43:30	150.7917	-0.714	61.254	1.296	61.830



Company Name Altamont Oil and Gas
Well Name Wallewein #22-1
Type of Test Surface Injection/Fall-off
Date(s) of Test March 19 - 21, 2014

Date	Time	Cum. Time	Gen Pres 1	Gen Temp 1	Gen Pres 2	Gen Temp 2
		hr	psig	deg F	psig	deg F
2015/03/25	17:22:00	151.4333	-0.718	60.441	1.300	60.984
2015/03/25	18:00:30	152.0750	-0.706	59.583	1.297	60.025
2015/03/25	18:39:00	152.7167	-0.703	58.897	1.312	59.203
2015/03/25	19:17:30	153.3583	-0.698	56.991	1.316	57.149
2015/03/25	19:56:00	154.0000	-0.663	54.361	1.336	54.278
2015/03/25	20:34:30	154.6417	-0.657	51.648	1.355	51.425
2015/03/25	21:13:00	155.2833	-0.627	49.520	1.391	49.281
2015/03/25	21:51:30	155.9250	-0.618	48.089	1.403	47.886
2015/03/25	22:30:00	156.5667	-0.614	47.225	1.402	47.058
2015/03/25	23:08:30	157.2083	-0.587	46.688	1.406	46.586
2015/03/25	23:47:00	157.8500	-0.601	46.362	1.407	46.313
2015/03/26	00:25:30	158.4917	-0.557	46.162	1.417	46.152
2015/03/26	01:04:00	159.1333	-0.594	46.037	1.421	46.060
2015/03/26	01:42:30	159.7750	-0.596	45.768	1.414	45.785
2015/03/26	02:21:00	160.4167	-0.605	45.443	1.426	45.463
2015/03/26	02:59:30	161.0583	-0.604	45.319	1.427	45.345
2015/03/26	03:38:00	161.7000	-0.596	44.923	1.422	44.943
2015/03/26	04:16:30	162.3417	-0.594	44.281	1.428	44.257
2015/03/26	04:55:00	162.9833	-0.589	43.699	1.425	43.670
2015/03/26	05:33:30	163.6250	-0.574	43.480	1.427	43.455
2015/03/26	06:12:00	164.2667	-0.589	43.308	1.447	43.287
2015/03/26	06:50:30	164.9083	-0.572	42.414	1.460	42.334
2015/03/26	07:29:00	165.5500	-0.560	40.922	1.471	40.738
2015/03/26	08:07:30	166.1917	-0.552	40.165	1.470	39.990
2015/03/26	08:46:00	166.8333	-0.568	41.031	1.445	40.998
2015/03/26	09:24:30	167.4750	-0.601	43.584	1.425	43.961
2015/03/26	10:03:00	168.1167	-0.708	48.800	1.361	49.530
2015/03/26	10:41:30	168.7583	-0.926	56.904	1.092	57.415
2015/03/26	11:20:00	169.4000	-0.952	58.725	1.064	59.359
2015/03/26	11:58:30	170.0417	-0.715	63.269	1.306	63.404
2015/03/26	12:37:00	170.6833	-0.784	66.575	1.248	67.346
2015/03/26	13:15:30	171.3250	-0.756	70.246	1.239	71.311
2015/03/26	13:54:00	171.9667	-0.795	73.213	1.262	74.307
2015/03/26	14:32:30	172.6083	-0.798	76.041	1.260	77.092



Company Name Altamont Oil and Gas
Well Name Wallewein #22-1
Type of Test Surface Injection/Fall-off
Date(s) of Test March 19 - 21, 2014

Date	Time	Cum. Time	Gen Pres 1	Gen Temp 1	Gen Pres 2	Gen Temp 2
		hr	psig	deg F	psig	deg F
2015/03/26	15:11:00	173.2500	-0.792	78.393	1.294	79.326
2015/03/26	15:49:30	173.8917	-0.765	81.076	1.267	81.869
2015/03/26	16:28:00	174.5333	-0.727	82.284	1.330	86.657
2015/03/26	17:06:30	175.1750	-0.715	80.510	1.323	81.867
2015/03/26	17:45:00	175.8167	-0.737	77.943	1.293	78.365
2015/03/26	18:23:30	176.4583	-0.704	75.598	1.314	75.508
2015/03/26	19:02:00	177.1000	-0.688	72.185	1.317	71.917
2015/03/26	19:40:30	177.7417	-0.673	68.754	1.330	68.402
2015/03/26	20:19:00	178.3833	-0.653	65.320	1.354	64.920
2015/03/26	20:57:30	179.0250	-0.642	62.327	1.347	61.923
2015/03/26	21:36:00	179.6667	-0.635	59.831	1.370	59.471
2015/03/26	22:14:30	180.3083	-0.615	57.866	1.369	57.553
2015/03/26	22:53:00	180.9500	-0.617	56.253	1.372	55.989
2015/03/26	23:31:30	181.5917	-0.597	54.988	1.397	54.798
2015/03/27	00:10:00	182.2333	-0.615	54.176	1.395	54.041
2015/03/27	00:48:30	182.8750	-0.624	53.412	1.394	53.350
2015/03/27	01:27:00	183.5167	-0.614	52.749	1.404	52.735
2015/03/27	02:05:30	184.1583	-0.622	52.395	1.403	52.401
2015/03/27	02:44:00	184.8000	-0.627	52.450	1.380	52.481
2015/03/27	03:22:30	185.4417	-0.621	52.686	1.408	52.769
2015/03/27	04:01:00	186.0833	-0.646	52.634	1.386	52.748
2015/03/27	04:39:30	186.7250	-0.643	52.294	1.389	52.448
2015/03/27	05:18:00	187.3667	-0.643	51.841	1.381	52.005
2015/03/27	05:56:30	188.0083	-0.656	51.294	1.399	51.461
2015/03/27	06:35:00	188.6500	-0.657	50.831	1.400	50.994
2015/03/27	07:13:30	189.2917	-0.636	50.239	1.402	50.387
2015/03/27	07:52:00	189.9333	-0.648	50.183	1.397	50.332
2015/03/27	08:30:30	190.5750	-0.758	54.964	1.343	56.125
2015/03/27	09:09:00	191.2167	-1.007	57.042	1.061	57.830
2015/03/27	09:47:30	191.8583	-0.996	57.915	1.032	58.485
2015/03/27	10:26:00	192.5000	-1.122	61.738	0.518	63.744
2015/03/27	11:04:30	193.1417	-1.151	63.604	0.444	65.505



Pumping Service Report

9198830

Client Name Altamont Oil & Gas Inc.	Well Name Wallewien 22-1	Rig	Job Date March 19,2015	Call Sheet 1056748
Client Representative Mr. Tom White	Surface Well Location Sec 17:T35N:R1W	Down Hole Well Location	Job Type Miscellaneous Pumping	Lead Supervisor Reed, Michael (18123)

Well Profile

Maximum Treating Pressure (psi):	---
Predicted Bottom Hole Static Temperature (°F):	100.00 @ --
Bottom Hole Circulating Temperature (°F):	--- @ --
Bottom Hole Logged Temperature (°F):	--- @ --

Open Hole

Size (in)	Excess (%)	TMD From (ft)	TMD To (ft)	TVD From (ft)	TVD To (ft)
17.000	70.000	0.000	350.000	--	--
8.750	30.000	0.000	4,565.000	--	--

Tubing

Size (in)	Weight (lb/ft)	Grade	Collapse Pressure (psi)	Capacity (bbl)	I.D. (in)	O.D. (in)	Depth From (ft)	Depth To (ft)
2.875	6.500	J-55	7,680.000	--	2.441	3.668	--	--

Fluid & Cement Data

Expected Cement Top: --

Wellbore Fluid

Fluid Type	Viscosity (cP)	Density (lbs/gal)	Yield Point (psi)	Temperature (°F)	Recorded@
Brine Water	--	--	--	--	Mar 18, 2015 12:06

Attachment & Tools

Down Hole Tools

Tool Type	Depth (ft)	Supplier
Float Collar	4,523.000	Sanjel

Units & Personnel

Units

Truck Unit No.	Main Type	Sub Type	Tractor Unit No.	Main Type	Sub Type	Time On Location	Time Off Location
754007	BODY JOB	Iron				03/19/2015 08:20	03/19/2015 14:30
445021	TRAILER	Twin Pumper	745021	TRACTOR	Tandem - Tractor	03/19/2015 08:20	03/19/2015 14:30
754007	BODY JOB	Iron				03/19/2015 08:20	03/19/2015 14:30

Crew and Bonuses

Employee	Start Shift	End Shift	Second Start Shift	Second End Shift
Reed, Michael (18123)	03/19/2015 08:20	03/19/2015 14:30		
Nansel, Thomas (23207)	03/19/2015 08:20	03/19/2015 14:30		
Merkel, Scott (18103)	03/19/2015 08:20	03/19/2015 14:30		
Briggs, Zachary (28757)	03/19/2015 08:20	03/19/2015 14:30		
Caffrey, Paul (26348)	03/19/2015 08:20	03/19/2015 14:30		

Treatment Reports & Remarks

Acidizing • Cementing • Coiled Tubing • Fracturing • Nitrogen

Canada • USA • International

Print Date: March 30, 2015

Service Report: 9198830

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V4.1.0.0



Pumping Service Report

9198830

Treatment Reports & Remarks

Volume To Formation

Stage/Plug/Treatment Interval Name Volume To Formation (bbl)

Treatment Interval1 --

Treatment Report

Event #	Event Time	Event Description	Fluid Type	Rate (bbl/min)	Tubular Pressure (psi)	Annular Pressure (psi)	Stage Volume (bbl)	Total Volume (bbl)
1	Mar 19,2015 08:20	Arrive On Location		--	--	--	--	0.00
2	Mar 19,2015 08:25	Crew Briefing (Rig in)		--	--	--	--	0.00
3	Mar 19,2015 09:15	Rig in Complete		--	--	--	--	0.00
4	Mar 19,2015 09:30	Crew Briefing (Pre Job)		--	--	--	--	0.00
5	Mar 19,2015 09:46	Pump	Brine Water	1.00	--	0.0	1.50	1.50
		Remarks: pump up back side						
6	Mar 19,2015 09:47	Stop		--	1,000.0	--	--	1.50
7	Mar 19,2015 09:53	Pressure Test Start	Brine Water	--	4,650.0	--	--	1.50
8	Mar 19,2015 09:53	Pressure Test Complete		--	--	--	--	1.50
9	Mar 19,2015 09:54	Pump	Brine Water	0.40	320.0	--	13.30	14.80
10	Mar 19,2015 10:25	Pump	Brine Water	0.65	2,000.0	--	18.80	33.60
11	Mar 19,2015 10:54	Pump	Brine Water	0.85	2,900.0	--	4.29	37.89
12	Mar 19,2015 10:59	Stop		--	2,940.0	--	4.29	42.18
		Remarks: change leaking Tee						
13	Mar 19,2015 11:22	Pump	Brine Water	0.40	400.0	--	9.30	51.48
14	Mar 19,2015 11:54	Pump	Brine Water	0.50	1,000.0	--	10.50	61.98
15	Mar 19,2015 12:24	Pump	Brine Water	0.75	2,780.0	--	22.50	84.48
16	Mar 19,2015 12:54	Pump	Brine Water	1.00	2,930.0	--	32.00	116.48
17	Mar 19,2015 13:26	Pump	Brine Water	1.25	2,900.0	--	18.30	134.78
18	Mar 19,2015 13:40	Pump	Brine Water	0.50	2,800.0	--	30.00	164.78
19	Mar 19,2015 14:40	Pump	Brine Water	1.00	2,834.0	--	28.00	192.78
20	Mar 19,2015 15:09	Pump	Brine Water	1.25	2,950.0	--	18.00	210.78
21	Mar 19,2015 15:24	Stop		--	2,900.0	--	--	210.78
		Remarks: 2675 in						
22	Mar 19,2015 15:57	Shut In-Well		--	0.0	--	--	210.78
23	Mar 19,2015 16:00	Job Complete		--	--	--	--	210.78
24	Mar 19,2015 16:10	Pre-Departure Meeting		--	--	--	--	210.78
25	Mar 19,2015 16:30	Leave Location		--	--	--	--	210.78



Treatment Reports & Remarks

Did Float Hold:

Fluid Returns : Not Expected

Type :

Volume (bbl) :

Temperature (°F) : --

FDAS Functioning Correctly : Yes

Was the Program Followed As Per Design? : Yes



Pumping Service Report

9198832

Client Name Altamont Oil & Gas Inc.	Well Name Wallewien 22-1	Rig	Job Date March 20,2015	Call Sheet 1056748
Client Representative Mr. Tom White	Surface Well Location Sec 17:T35N:R1W	Down Hole Well Location	Job Type Miscellaneous Pumping	Lead Supervisor Reed, Michael (18123)

Well Profile

Maximum Treating Pressure (psi):	---
Predicted Bottom Hole Static Temperature (°F):	100.00 @ --
Bottom Hole Circulating Temperature (°F):	--- @ --
Bottom Hole Logged Temperature (°F):	--- @ --

Open Hole

Size (in)	Excess (%)	TMD From (ft)	TMD To (ft)	TVD From (ft)	TVD To (ft)
17.000	70.000	0.000	350.000	--	--
8.750	30.000	0.000	4,565.000	--	--

Tubing

Size (in)	Weight (lb/ft)	Grade	Collapse Pressure (psi)	Capacity (bbl)	I.D. (in)	O.D. (in)	Depth From (ft)	Depth To (ft)
2.875	6.500	J-55	7,680.000	--	2.441	3.668	--	--

Fluid & Cement Data

Expected Cement Top: --

Wellbore Fluid

Fluid Type	Viscosity (cP)	Density (lbs/gal)	Yield Point (psi)	Temperature (°F)	Recorded@
Brine Water	--	--	--	--	Mar 18, 2015 12:06

Attachment & Tools

Down Hole Tools

Tool Type	Depth (ft)	Supplier
Float Collar	4,523.000	Sanjel

Units & Personnel

Units

Truck Unit No.	Main Type	Sub Type	Tractor Unit No.	Main Type	Sub Type	Time On Location	Time Off Location
754007	BODY JOB	Iron				03/20/2015 07:30	03/20/2015 17:30
445021	TRAILER	Twin Pumper	745021	TRACTOR	Tandem - Tractor	03/20/2015 07:30	03/20/2015 17:30

Crew and Bonuses

Employee	Start Shift	End Shift	Second Start Shift	Second End Shift
Reed, Michael (18123)	03/20/2015 07:30	03/20/2015 17:30		
Nansel, Thomas (23207)	03/20/2015 07:30	03/20/2015 17:30		
Merkel, Scott (18103)	03/20/2015 07:30	03/20/2015 17:30		
Briggs, Zachary (28757)	03/20/2015 07:30	03/20/2015 17:30		



Pumping Service Report

9198832

Treatment Reports & Remarks

Volume To Formation

Stage/Plug/Treatment Interval Name Volume To Formation (bbl)

Treatment Interval1 --

Treatment Report

<u>Event #</u>	<u>Event Time</u>	<u>Event Description</u>	<u>Fluid Type</u>	<u>Rate</u> (bbl/min)	<u>Tubular Pressure</u> (psi)	<u>Annular Pressure</u> (psi)	<u>Stage Volume</u> (bbl)	<u>Total Volume</u> (bbl)
1	Mar 20,2015 07:30	Arrive On Location		--	--	--	--	0.00
2	Mar 20,2015 07:35	Crew Briefing (Rig in)		--	--	--	--	0.00
3	Mar 20,2015 07:50	Rig in Complete		--	--	--	--	0.00
4	Mar 20,2015 08:30	Crew Briefing (Pre Job)		--	--	--	--	0.00
5	Mar 20,2015 08:34	Pressure Test Start		--	4,200.0	--	--	0.00
6	Mar 20,2015 08:35	Pressure Test Complete		--	--	--	--	0.00
7	Mar 20,2015 08:35	Pump	Brine Water	0.50	960.0	--	30.50	30.50
8	Mar 20,2015 09:23	Pump	Brine Water	0.50	1,350.0	--	80.00	110.50
9	Mar 20,2015 12:04	Pump	Brine Water	0.50	1,310.0	--	112.00	222.50
10	Mar 20,2015 14:24	Pump	Brine Water	0.50	820.0	--	10.50	233.00
11	Mar 20,2015 14:45	Shut In-Well		--	760.0	--	--	233.00
		Remarks: well went on a suck after 15 seconds						
12	Mar 20,2015 14:57	Job Complete		--	--	--	--	233.00
13	Mar 20,2015 17:40	Leave Location		--	--	--	--	233.00

Did Float Hold:

Fluid Returns : Not Expected

Type :

Volume (bbl) :

Temperature (°F) : --

FDAS Functioning Correctly : Yes

Was the Program Followed As Per Design? : Yes



Pumping Service Report

9199739

Client Name Altamont Oil & Gas Inc.	Well Name Wallewien 22-1	Rig	Job Date March 21,2015	Call Sheet 1056748
Client Representative Mr. Tom White	Surface Well Location Sec 17:T35N:R1W	Down Hole Well Location	Job Type Miscellaneous Pumping	Lead Supervisor Reed, Michael (18123)

Well Profile

Maximum Treating Pressure (psi):	---
Predicted Bottom Hole Static Temperature (°F):	100.00 @ --
Bottom Hole Circulating Temperature (°F):	--- @ --
Bottom Hole Logged Temperature (°F):	--- @ --

Open Hole

Size (in)	Excess (%)	TMD From (ft)	TMD To (ft)	TVD From (ft)	TVD To (ft)
17.000	70.000	0.000	350.000	--	--
8.750	30.000	0.000	4,565.000	--	--

Tubing

Size (in)	Weight (lb/ft)	Grade	Collapse Pressure (psi)	Capacity (bbl)	I.D. (in)	O.D. (in)	Depth From (ft)	Depth To (ft)
2.875	6.500	J-55	7,680.000	--	2.441	3.668	--	--

Fluid & Cement Data

Expected Cement Top: --

Wellbore Fluid

Fluid Type	Viscosity (cP)	Density (lbs/gal)	Yield Point (psi)	Temperature (°F)	Recorded@
Brine Water	--	--	--	--	Mar 18, 2015 12:06

Attachment & Tools

Down Hole Tools

Tool Type	Depth (ft)	Supplier
Float Collar	4,523.000	Sanjel

Units & Personnel

Units

Truck Unit No.	Main Type	Sub Type	Tractor Unit No.	Main Type	Sub Type	Time On Location	Time Off Location
754007	BODY JOB	Iron				03/21/2015 07:30	03/21/2015 18:30
445021	TRAILER	Twin Pumper	745021	TRACTOR	Tandem - Tractor	03/21/2015 07:30	03/21/2015 18:30

Crew and Bonuses

Employee	Start Shift	End Shift	Second Start Shift	Second End Shift
Reed, Michael (18123)	03/21/2015 07:30	03/21/2015 18:30		
Nansel, Thomas (23207)	03/21/2015 07:30	03/21/2015 18:30		
Merkel, Scott (18103)	03/21/2015 07:30	03/21/2015 18:30		
Briggs, Zachary (28757)	03/21/2015 07:30	03/21/2015 18:30		



Pumping Service Report

9199739

Treatment Reports & Remarks

Volume To Formation

Stage/Plug/Treatment Interval Name Volume To Formation (bbl)

Treatment Interval1 --

Treatment Report

<u>Event #</u>	<u>Event Time</u>	<u>Event Description</u>	<u>Fluid Type</u>	<u>Rate</u> (bbl/min)	<u>Tubular Pressure</u> (psi)	<u>Annular Pressure</u> (psi)	<u>Stage Volume</u> (bbl)	<u>Total Volume</u> (bbl)
1	Mar 21,2015 07:30	Arrive On Location		--	--	--	--	0.00
2	Mar 21,2015 07:35	Crew Briefing (Rig in)		--	--	--	--	0.00
3	Mar 21,2015 08:00	Rig in Complete		--	--	--	--	0.00
4	Mar 21,2015 08:45	Crew Briefing (Pre Job)		--	--	--	--	0.00
5	Mar 21,2015 08:53	Pressure Test Start		--	--	--	--	0.00
6	Mar 21,2015 08:54	Pressure Test Complete		--	--	--	--	0.00
7	Mar 21,2015 09:07	Pump	Brine Water	0.50	600.0	--	240.00	240.00
8	Mar 21,2015 15:29	Stop		--	1,850.0	--	--	240.00
		Remarks: computer stoped two time had to restart computer						
9	Mar 21,2015 17:45	Job Complete		--	--	--	--	240.00
10	Mar 21,2015 18:09	Pre-Departure Meeting		--	--	--	--	240.00
11	Mar 21,2015 18:30	Leave Location		--	--	--	--	240.00

Did Float Hold:

Fluid Returns : Not Expected

Type :

Volume (bbl) :

Temperature (°F) : --

FDAS Functioning Correctly : Yes

Was the Program Followed As Per Design? : Yes

Pressure Test Report

COMPANY INFORMATION

Company Name Altamont Oil and Gas
Representative Tom White
Phone [REDACTED]
Fax [REDACTED]
Address [REDACTED]

E-Mail Address [REDACTED]
Service Company Northern Lights Energy Co, Inc.

WELL INFORMATION

Well Name Wallewein #22-1
Well Location Toole County
Field and Pool [REDACTED]
Status (Oil, Gas, Water, Injection) Injection
Perforated Intervals [REDACTED]
Mid-point of Perforated Intervals (MPP) [REDACTED]
Drilling Rig Number [REDACTED]
Elevations [REDACTED]
Kelly Bushing (KB) [REDACTED]
Casing Flange (CF) [REDACTED]
KB-CF [REDACTED]
Ground Level [REDACTED]
Plug Back Total Depth [REDACTED]
Total Depth [REDACTED]
Production Casing [REDACTED]
Production Tubing [REDACTED]

TEST INFORMATION

Type of Test BHP Reservoir Inj./Fall-off
Date(s) of Test March 18 - 27, 2015
Dead-weight Gauge Tubing Pressure [REDACTED]
Dead-weight Gauge Casing Pressure [REDACTED]
Shut-in Date (Duration) [REDACTED]
Date / Time on Bottom 3/18/2015 - 16:18:32
Date / Time off Bottom 3/27/2015 - 09:01:07
Probe Serial Number 90354 - Top Gauge 90367 - Btm gauge
Probe Offset from End of Tool String [REDACTED]
Run Depth at Probe Pressure Port 4,018' glm 4,019' glm

PRESSURE TEST RESULTS

Maximum Recorded Probe Pressure [REDACTED]
Maximum Recorded Probe Temperature [REDACTED]
Final Buildup Pressure [REDACTED]
Gradient Survey Information [REDACTED]
Extrapolated Pressure to MPP [REDACTED]
Final Gradient at Depth [REDACTED]
Job Number [REDACTED]



Company Name	Altamont Oil and Gas
Well Name	Wallewein #22-1
Type of Test	BHP Reservoir Inj./Fall-off
Date(s) of Test	March 18 - 27, 2015

PROBE INFORMATION

Probe Serial Number	90354 - Top Gauge
Model	PPS28 Quartz Gauge
Pressure	
Calibrated Pressure Range	16,000 PSI
Accuracy	
Resolution	
Temperature	
Calibrated Temperature Range	350 deg F
Accuracy	
Resolution	
Calibration File Used for Reports	

PROGRAMMING DETAILS

<u>Step</u>	<u>Sample Mode</u>	<u>Period</u>	<u>Duration</u>	<u>Comment</u>
-------------	--------------------	---------------	-----------------	----------------

Program Start Time
Program End Time
Total Samples Taken
Usage for this Test
Generic Data File Name



Company Name Altamont Oil and Gas
Well Name Wallewein #22-1
Type of Test BHP Reservoir Inj./Fall-off
Date(s) of Test March 18 - 27, 2015

PROBE INFORMATION

Probe Serial Number 90367 - Btm gauge
Model PPS28 Quartz Gauge
Pressure
 Calibrated Pressure Range 16,000 PSI
 Accuracy
 Resolution
Temperature
 Calibrated Temperature Range 350 Deg F
 Accuracy
 Resolution
Calibration File Used for Reports

PROGRAMMING DETAILS

<u>Step</u>	<u>Sample Mode</u>	<u>Period</u>	<u>Duration</u>	<u>Comment</u>
-------------	--------------------	---------------	-----------------	----------------

Program Start Time
Program End Time
Total Samples Taken
Usage for this Test
Generic Data File Name



Company Name	Altamont Oil and Gas
Well Name	Wallewein #22-1
Type of Test	BHP Reservoir Inj./Fall-off
Date(s) of Test	March 18 - 27, 2015

COMMENTS

Reported By

Jesse Butcher

March 18, 2015:

MIRU. Run 2.347" gauge ring and tag 2.313" X Nipple at 4,019' glm, fluid level was at 850'glm. Then run tandem Electronic Memory Quartz Gauges and soft-set on X nipple at 4,019' glm, gauges were encapsulated in a spring loaded BHP carrier. Made 5 minute gradient stops going in the hole every 300'. Succesful set, RDMO.

March 19, 2015:

Rig up Electronic Memory (SDS) Surface Gauge with manifold at surface. Sanjel began pump-in test. Leave gauge at surface for the rest of fall-off test.

March 27, 2015:

MIRU. Run BHP pulling tool. Latch and retrieve BHP Quartz Gauges off of X nipple at 4,019' glm. Made 5 minute gradient stops every 300' coming out of the hole. Fluid level was again at 850'. Download good data, RDMO.



Company Name Altamont Oil and Gas
Well Name Wallewein #22-1
Type of Test BHP Reservoir Inj./Fall-off
Date(s) of Test March 18 - 27, 2015

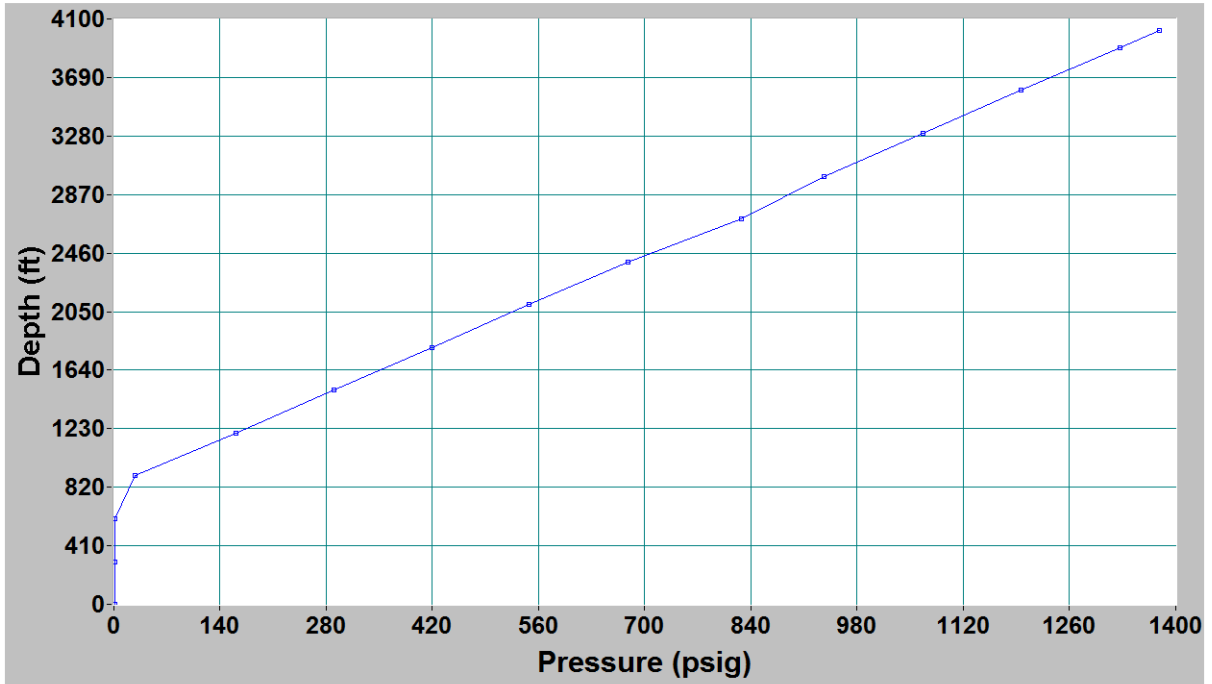
Pressure vs. Depth

Probe Serial Number 90354 - Top Gauge

Stop Time From	Stop Time To	Depth (ft)	Pressure (psig)	Gradient (psi/ft)	(deg F)	(deg F/ft)
		0.000	1.553	-	51.068	-
		299.000	1.548	0.0000	50.064	-0.0034
		599.000	1.547	0.0000	49.833	-0.0008
		899.000	27.925	0.0879	51.596	0.0059
		1199.000	160.469	0.4418	55.557	0.0132
		1499.000	289.938	0.4316	59.691	0.0138
		1799.000	419.690	0.4325	63.724	0.0134
		2099.000	547.771	0.4269	68.267	0.0151
		2399.000	677.419	0.4322	71.795	0.0118
		2699.000	826.825	0.4980	75.543	0.0125
		2999.000	936.767	0.3665	78.304	0.0092
		3299.000	1066.828	0.4335	80.924	0.0087
		3599.000	1196.496	0.4322	83.764	0.0095
		3899.000	1326.115	0.4321	86.438	0.0089
		4018.000	1378.625	0.4413	87.460	0.0086

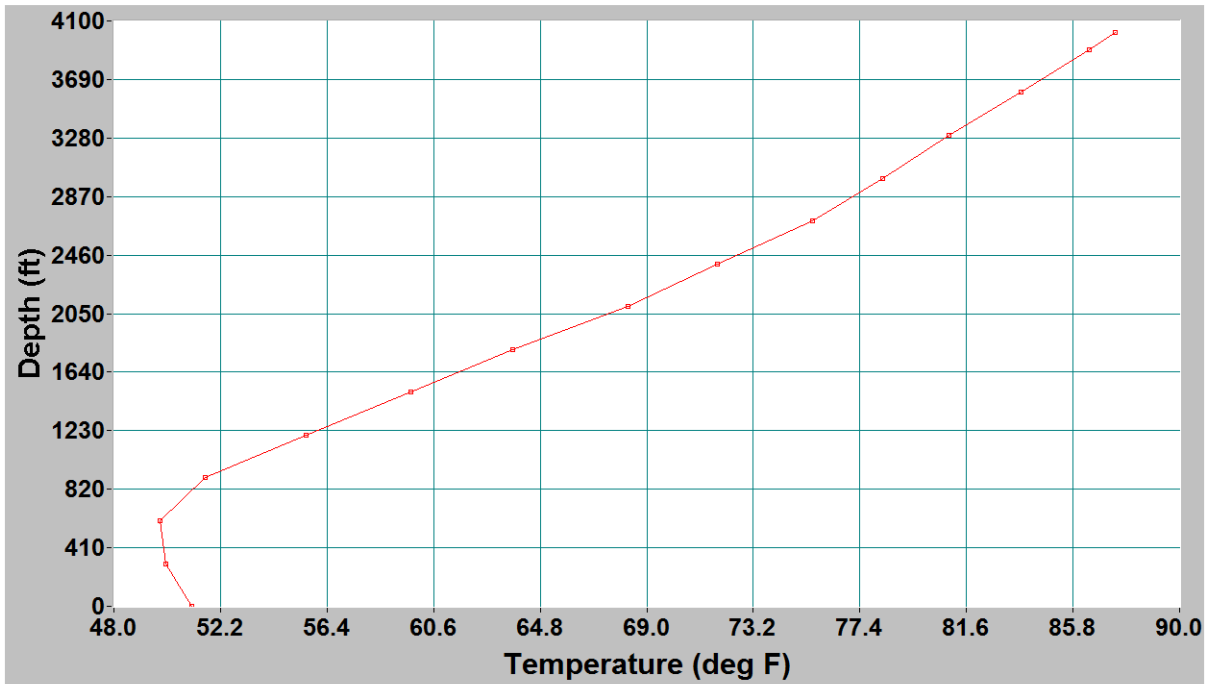
Extrapolated to MPP:	Depth (ft)	Pressure (psig)	(deg F)
	0.000		

90354 - Top Gauge Depth vs. Pressure



RIH Depth 1

90354 - Top Gauge Depth vs. Temperature



RIH Depth 1



Company Name Altamont Oil and Gas
Well Name Wallewein #22-1
Type of Test BHP Reservoir Inj./Fall-off
Date(s) of Test March 18 - 27, 2015

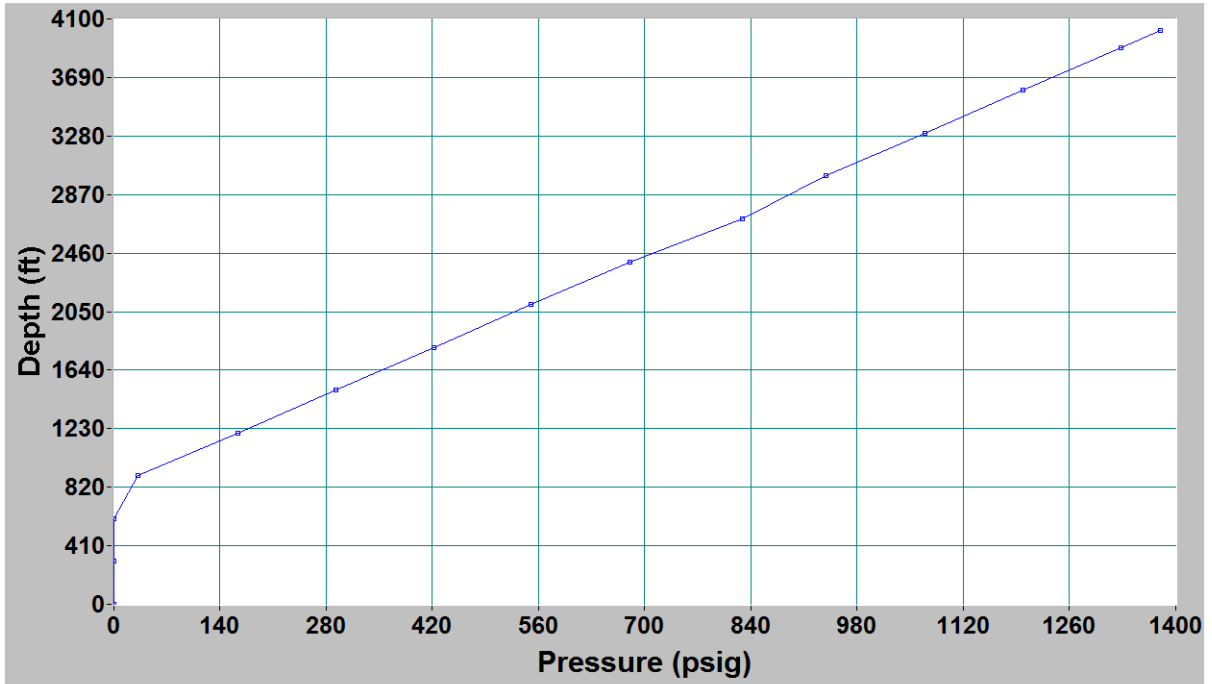
Pressure vs. Depth

Probe Serial Number 90367 - Btm gauge

Stop Time From	Stop Time To	Depth (ft)	Pressure (psig)	Gradient (psi/ft)	(deg F)	(deg F/ft)
		1.000	-0.377	-	50.142	-
		300.000	-0.315	0.0002	49.082	-0.0035
		600.000	-0.203	0.0004	48.910	-0.0006
		900.000	31.060	0.1042	51.363	0.0082
		1200.000	163.676	0.4421	55.756	0.0146
		1500.000	292.803	0.4304	60.019	0.0142
		1800.000	422.430	0.4321	64.093	0.0136
		2100.000	550.316	0.4263	68.619	0.0151
		2400.000	679.746	0.4314	72.138	0.0117
		2700.000	828.957	0.4974	75.893	0.0125
		3000.000	938.730	0.3659	78.575	0.0089
		3300.000	1068.690	0.4332	81.182	0.0087
		3600.000	1198.249	0.4319	84.039	0.0095
		3900.000	1327.724	0.4316	86.690	0.0088
		4019.000	1380.240	0.4413	87.682	0.0083

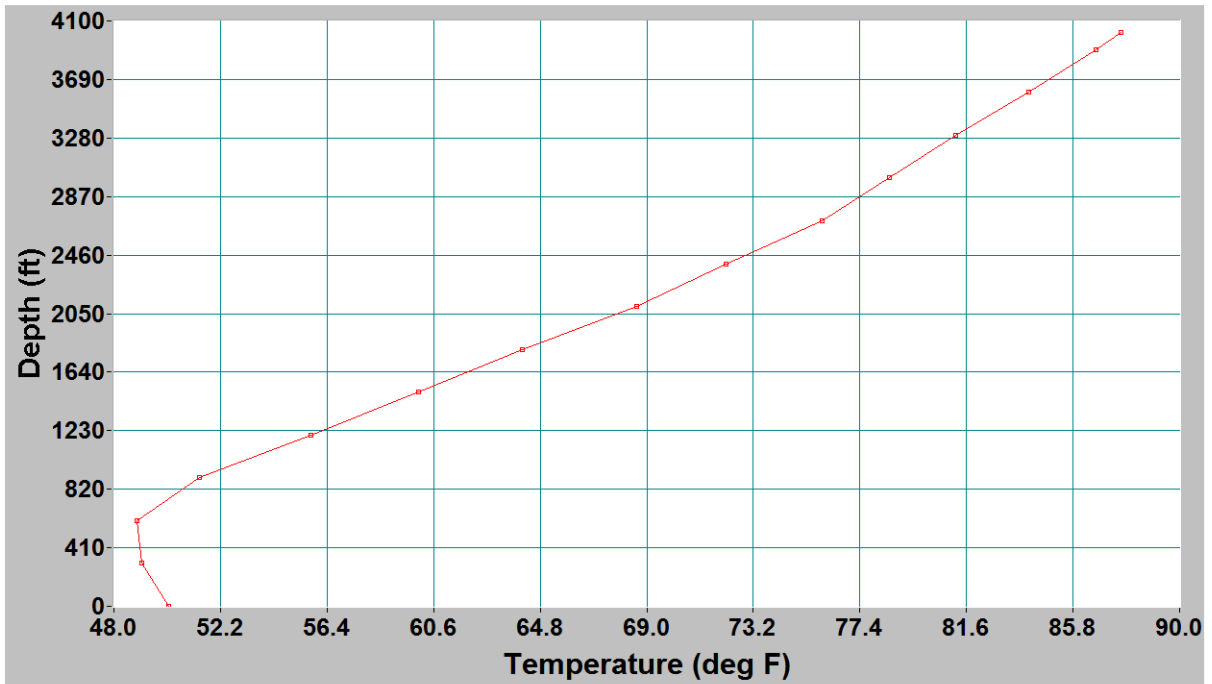
Extrapolated to MPP:	Depth (ft)	Pressure (psig)	(deg F)
	0.000		

90367 - Btm gauge Depth vs. Pressure



RIH Depth 2

90367 - Btm gauge Depth vs. Temperature



RIH Depth 2



Company Name Altamont Oil and Gas
Well Name Wallewein #22-1
Type of Test BHP Reservoir Inj./Fall-off
Date(s) of Test March 18 - 27, 2015

Pressure vs. Depth

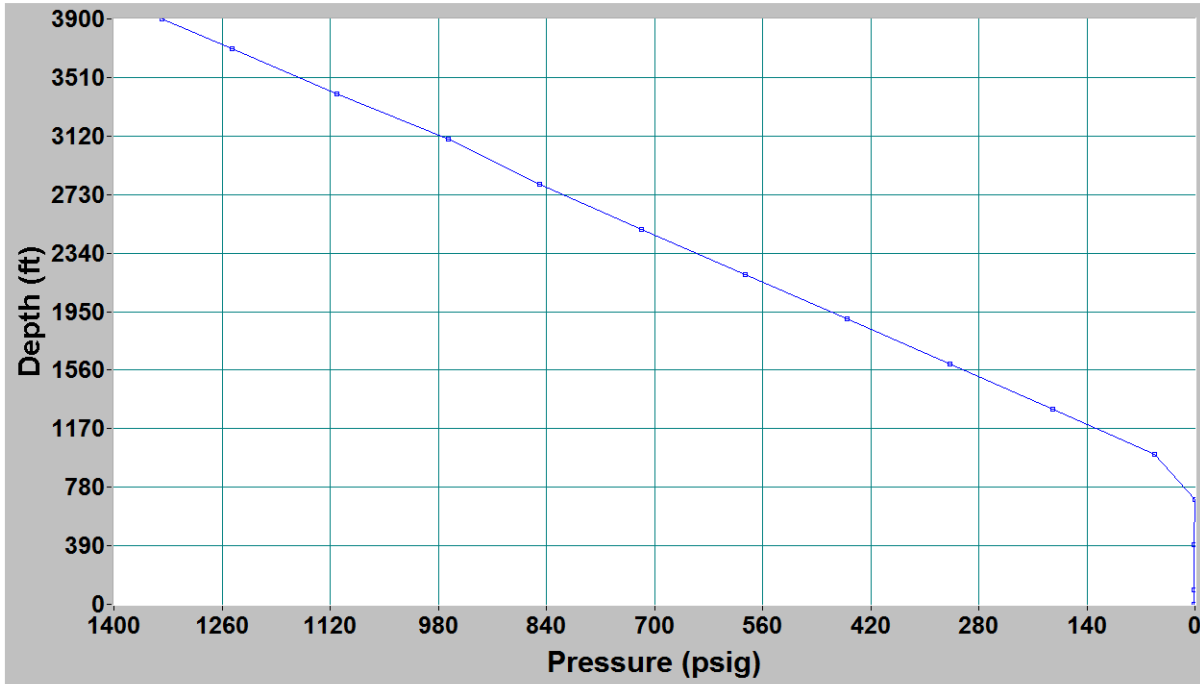
Probe Serial Number 90354 - Top Gauge

(ft)	(psig)	(psi/ft)	(deg F)	(deg F/ft)
3899.000	1337.452	-	88.891	-
3699.000	1246.589	0.4543	88.203	0.0034
3399.000	1111.130	0.4515	86.312	0.0063
3099.000	967.420	0.4790	83.782	0.0084
2799.000	848.752	0.3956	81.352	0.0081
2499.000	716.242	0.4417	79.039	0.0077
2199.000	582.673	0.4452	76.096	0.0098
1899.000	451.088	0.4386	72.786	0.0110
1599.000	317.583	0.4450	69.199	0.0120
1299.000	184.402	0.4439	65.499	0.0123
999.000	52.419	0.4399	61.576	0.0131
699.000	-0.380	0.1760	58.836	0.0091
399.000	1.262	-0.0055	57.332	0.0050
99.000	1.315	-0.0002	56.067	0.0042
0.000	1.323	-0.0001	55.709	0.0036

Extrapolated to MPP:

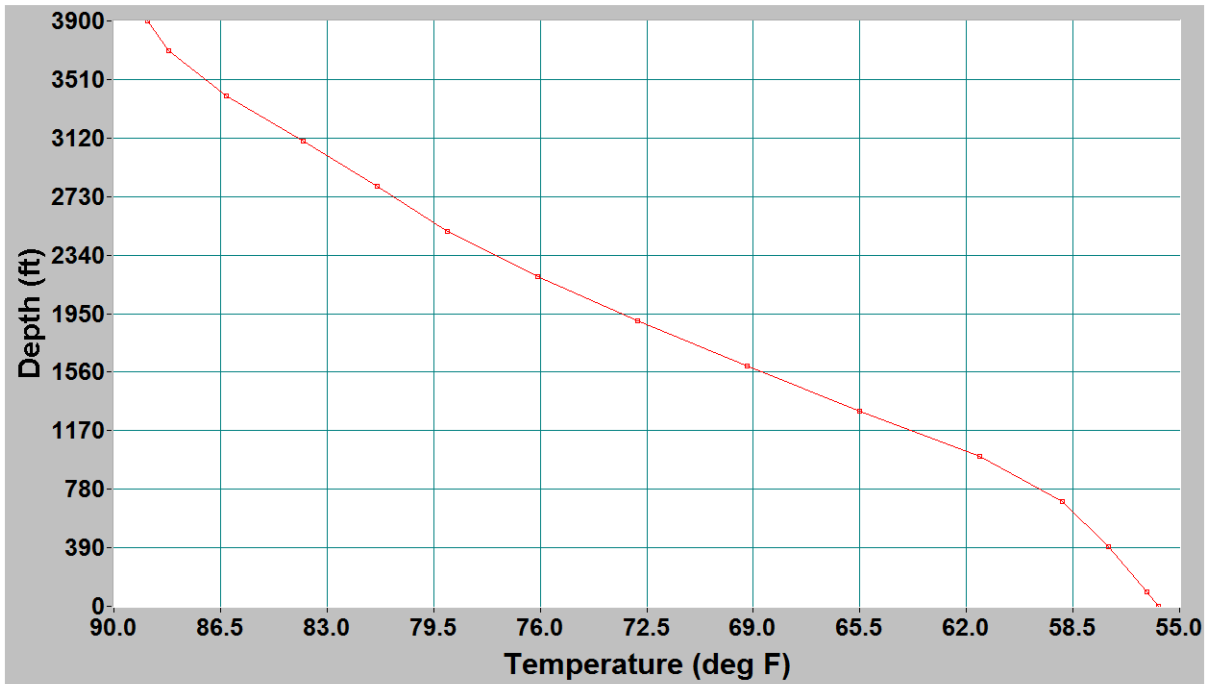
(ft)	(psig)	(deg F)
0.000		

90354 - Top Gauge Depth vs. Pressure



POOH Depth 1

90354 - Top Gauge Depth vs. Temperature



POOH Depth 1



Company Name Altamont Oil and Gas
Well Name Wallewein #22-1
Type of Test BHP Reservoir Inj./Fall-off
Date(s) of Test March 18 - 27, 2015

Pressure vs. Depth

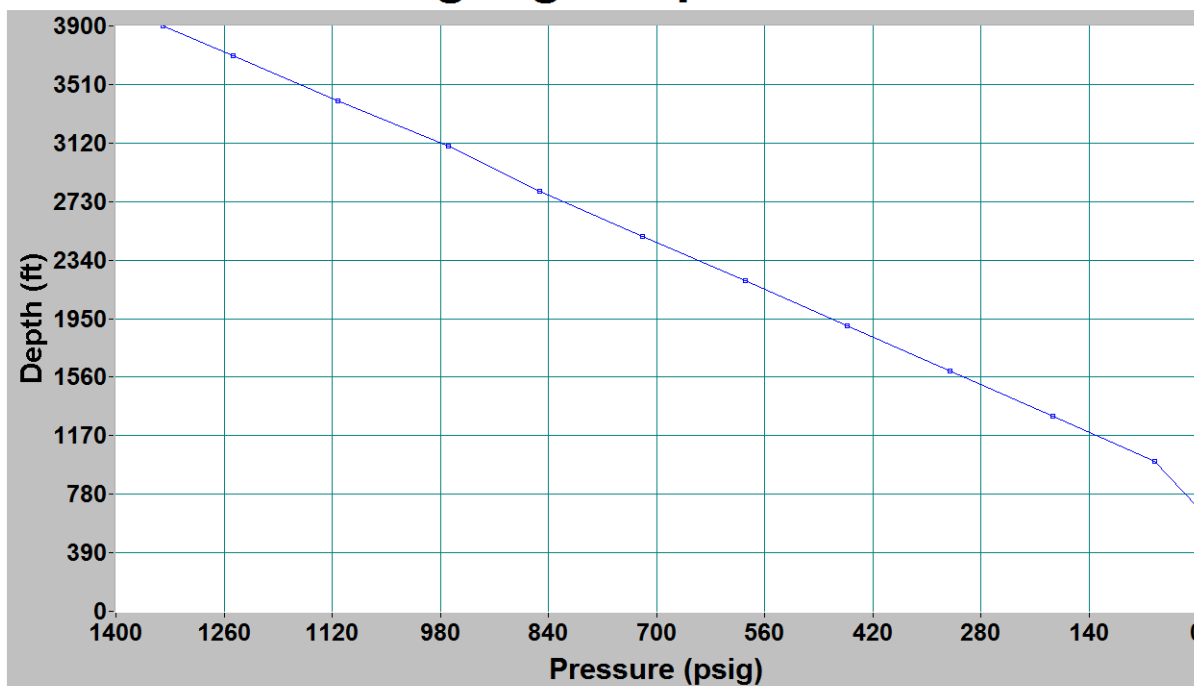
Probe Serial Number 90367 - Btm gauge

(ft)	(psig)	(psi/ft)	(deg F)	(deg F/ft)
3900.000	1339.140	-	88.894	-
3700.000	1248.278	0.4543	88.181	0.0036
3400.000	1112.876	0.4513	86.241	0.0065
3100.000	969.257	0.4787	83.674	0.0086
2800.000	850.673	0.3953	81.240	0.0081
2500.000	718.328	0.4412	78.926	0.0077
2200.000	584.885	0.4448	75.957	0.0099
1900.000	453.442	0.4381	72.626	0.0111
1600.000	320.100	0.4445	69.011	0.0120
1300.000	187.142	0.4432	65.296	0.0124
1000.000	55.363	0.4393	61.334	0.0132
700.000	0.177	0.1840	58.598	0.0091
400.000	0.113	0.0002	57.070	0.0051
100.000	0.056	0.0002	55.703	0.0046
1.000	0.019	0.0004	55.302	0.0041

Extrapolated to MPP:

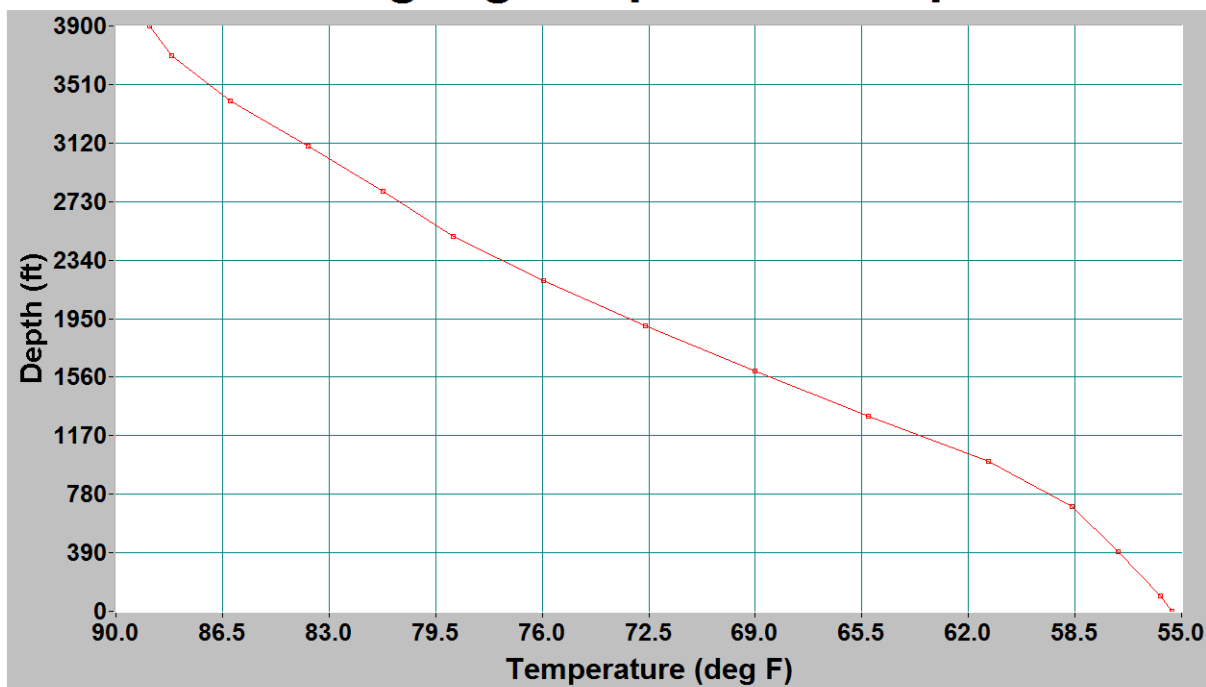
(ft)	(psig)	(deg F)
0.000		

90367 - Btm gauge Depth vs. Pressure



POOH Depth 2

90367 - Btm gauge Depth vs. Temperature

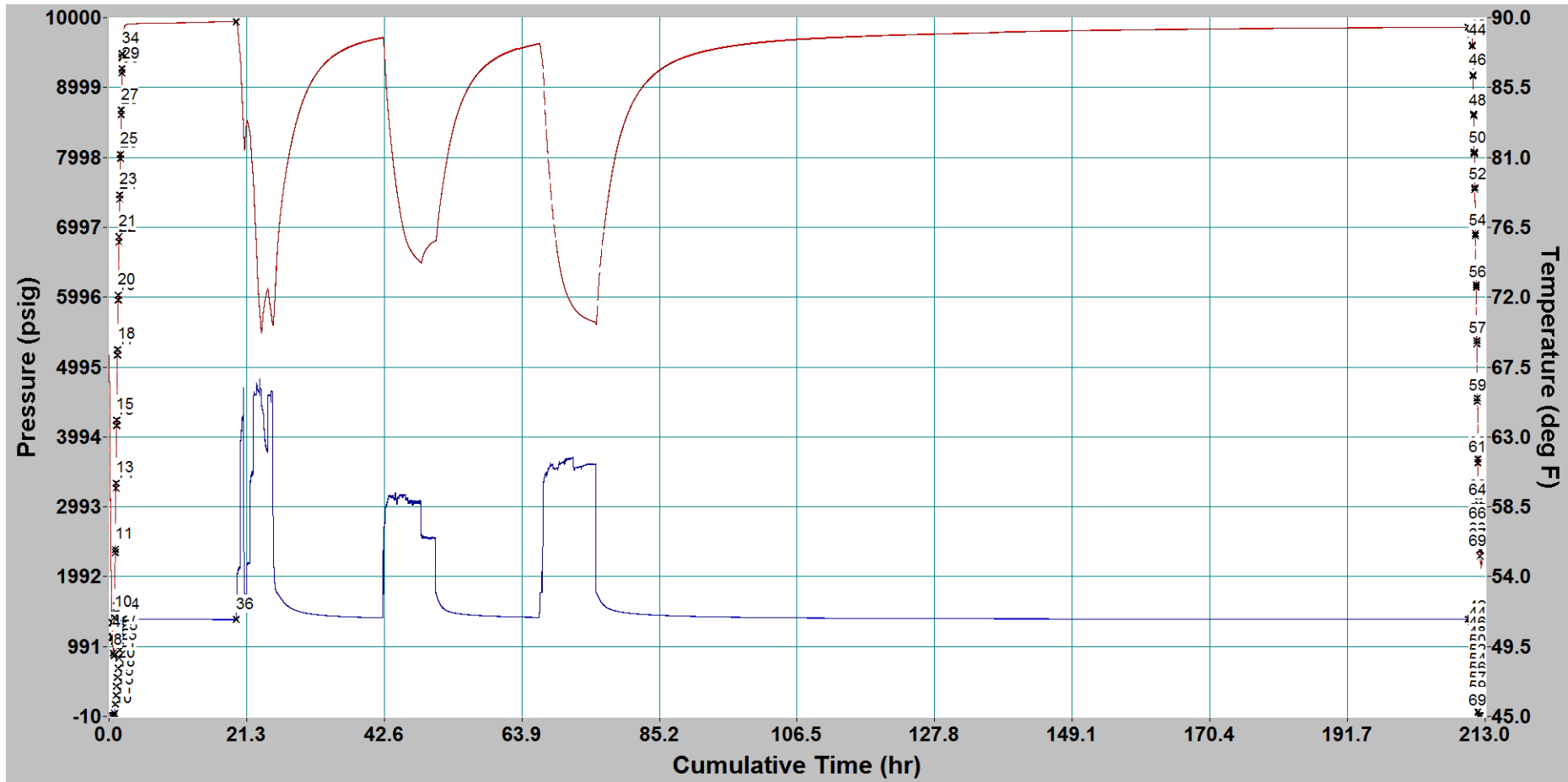


POOH Depth 2



Company Name Altamont Oil and Gas
Well Name Wallewein #22-1
Type of Test BHP Reservoir Inj./Fall-off
Date(s) of Test March 18 - 27, 2015

Wallewein #22-1



- BH Pres 1
- BH Pres 2
- BH Temp 1
- BH Temp 2



Company Name Altamont Oil and Gas
Well Name Wallewein #22-1
Type of Test BHP Reservoir Inj./Fall-off
Date(s) of Test March 18 - 27, 2015

Date	Time	Cum.Time BH1	BH Pres 1	BH Temp 1
		hr	psig	deg F
2015/03/18	14:14:51	0.0000	1.127	67.794
RIH Gradient: 0.000 ft				
2015/03/18	14:45:32	0.5114	1.553	51.068
Top Quartz Gauge start in hole				
2015/03/18	14:45:47	0.5156	1.554	51.014
RIH Gradient: 299.000 ft				
2015/03/18	14:52:37	0.6294	1.548	50.064
2015/03/18	14:57:22	0.7086	1.549	49.862
RIH Gradient: 599.000 ft				
2015/03/18	14:58:52	0.7336	1.547	49.833
RIH Gradient: 899.000 ft				
2015/03/18	15:05:27	0.8433	27.925	51.596
RIH Gradient: 1199.000 ft				
2015/03/18	15:12:32	0.9614	160.469	55.557
RIH Gradient: 1499.000 ft				
2015/03/18	15:19:17	1.0739	289.938	59.691
RIH Gradient: 1799.000 ft				
2015/03/18	15:26:02	1.1864	419.690	63.724
RIH Gradient: 2099.000 ft				
2015/03/18	15:34:02	1.3197	547.771	68.267
2015/03/18	15:39:52	1.4169	677.378	71.273
RIH Gradient: 2399.000 ft				
2015/03/18	15:41:07	1.4378	677.419	71.795
RIH Gradient: 2699.000 ft				
2015/03/18	15:48:22	1.5586	826.825	75.543
RIH Gradient: 2999.000 ft				
2015/03/18	15:55:07	1.6711	936.767	78.304
RIH Gradient: 3299.000 ft				
2015/03/18	16:01:52	1.7836	1066.828	80.924
RIH Gradient: 3599.000 ft				
2015/03/18	16:08:42	1.8975	1196.496	83.764
RIH Gradient: 3899.000 ft				
2015/03/18	16:15:22	2.0086	1326.115	86.438
Top Quartz Gauge on bottom, 4018' glm				
2015/03/18	16:18:32	2.0614	1377.888	87.412
RIH Gradient: 4018.000 ft				
2015/03/18	16:18:42	2.0642	1378.625	87.460
2015/03/18	16:22:22	2.1253	1369.914	88.290
2015/03/18	17:04:47	2.8322	1377.395	89.559
2015/03/18	17:47:22	3.5419	1377.476	89.588
2015/03/18	18:29:47	4.2489	1377.382	89.602
2015/03/18	19:12:22	4.9586	1377.256	89.615
2015/03/18	19:54:52	5.6669	1377.127	89.624
2015/03/18	20:37:17	6.3739	1377.016	89.631
2015/03/18	21:19:52	7.0836	1376.914	89.637
2015/03/18	22:02:17	7.7906	1376.810	89.642
2015/03/18	22:44:47	8.4989	1376.711	89.646
2015/03/18	23:27:22	9.2086	1376.613	89.650
2015/03/19	00:09:52	9.9169	1376.531	89.655
2015/03/19	00:52:17	10.6239	1376.473	89.658
2015/03/19	01:34:52	11.3336	1376.409	89.660
2015/03/19	02:17:17	12.0406	1376.348	89.663
2015/03/19	02:59:52	12.7503	1376.286	89.665
2015/03/19	03:42:22	13.4586	1376.228	89.668

Date	Time	Cum.Time BH2	BH Pres 2	BH Temp 2
		hr	psig	deg F
2015/03/18	14:14:51	0.0000	0.057	68.241
RIH Gradient: 1.000 ft				
2015/03/18	14:45:32	0.5114	-0.377	50.142
Lower Quartz Gauge start in hole				
2015/03/18	14:45:47	0.5156	-0.378	50.083
RIH Gradient: 300.000 ft				
2015/03/18	14:52:37	0.6294	-0.315	49.082
2015/03/18	14:57:22	0.7086	-0.214	48.921
RIH Gradient: 600.000 ft				
2015/03/18	14:58:52	0.7336	-0.203	48.910
RIH Gradient: 900.000 ft				
2015/03/18	15:05:27	0.8433	31.060	51.363
RIH Gradient: 1200.000 ft				
2015/03/18	15:12:32	0.9614	163.676	55.756
RIH Gradient: 1500.000 ft				
2015/03/18	15:19:17	1.0739	292.803	60.019
RIH Gradient: 1800.000 ft				
2015/03/18	15:26:02	1.1864	422.430	64.093
RIH Gradient: 2100.000 ft				
2015/03/18	15:34:02	1.3197	550.316	68.619
2015/03/18	15:39:52	1.4169	679.731	71.650
RIH Gradient: 2400.000 ft				
2015/03/18	15:41:07	1.4378	679.746	72.138
RIH Gradient: 2700.000 ft				
2015/03/18	15:48:22	1.5586	828.957	75.893
RIH Gradient: 3000.000 ft				
2015/03/18	15:55:07	1.6711	938.730	78.575
RIH Gradient: 3300.000 ft				
2015/03/18	16:01:52	1.7836	1068.690	81.182
RIH Gradient: 3600.000 ft				
2015/03/18	16:08:42	1.8975	1198.249	84.039
RIH Gradient: 3900.000 ft				
2015/03/18	16:15:22	2.0086	1327.724	86.690
Lower Quartz Gauge on bottom, 4019' glm				
2015/03/18	16:18:32	2.0614	1379.708	87.636
RIH Gradient: 4019.000 ft				
2015/03/18	16:18:42	2.0642	1380.240	87.682
2015/03/18	16:22:22	2.1253	1371.477	88.452
2015/03/18	17:04:47	2.8322	1378.837	89.568
2015/03/18	17:47:22	3.5419	1378.930	89.594
2015/03/18	18:29:47	4.2489	1378.836	89.608
2015/03/18	19:12:22	4.9586	1378.708	89.619
2015/03/18	19:54:52	5.6669	1378.592	89.629
2015/03/18	20:37:17	6.3739	1378.479	89.636
2015/03/18	21:19:52	7.0836	1378.373	89.642
2015/03/18	22:02:17	7.7906	1378.271	89.647
2015/03/18	22:44:47	8.4989	1378.179	89.651
2015/03/18	23:27:22	9.2086	1378.080	89.655
2015/03/19	00:09:52	9.9169	1377.997	89.659
2015/03/19	00:52:17	10.6239	1377.934	89.662
2015/03/19	01:34:52	11.3336	1377.874	89.665
2015/03/19	02:17:17	12.0406	1377.817	89.668
2015/03/19	02:59:52	12.7503	1377.758	89.670
2015/03/19	03:42:22	13.4586	1377.695	89.674



Company Name Altamont Oil and Gas
Well Name Wallewein #22-1
Type of Test BHP Reservoir Inj./Fall-off
Date(s) of Test March 18 - 27, 2015

Date	Time	Cum.Time BH1	BH Pres 1	BH Temp 1
		hr	psig	deg F
2015/03/19	04:24:47	14.1656	1376.172	89.670
2015/03/19	05:07:17	14.8739	1376.124	89.672
2015/03/19	05:49:51	15.5833	1376.121	89.719
2015/03/19	06:32:21	16.2917	1376.090	89.722
2015/03/19	07:14:51	17.0000	1376.040	89.725
2015/03/19	07:57:21	17.7083	1376.002	89.724
2015/03/19	08:39:51	18.4167	1375.957	89.727
2015/03/19	09:22:21	19.1250	1375.911	89.728
Top Quartz Gauge initial pump in				
2015/03/19	09:57:17	19.7072	1377.159	89.727
2015/03/19	10:04:51	19.8333	1999.875	89.615
2015/03/19	10:47:21	20.5417	4185.014	85.339
2015/03/19	11:29:51	21.2500	1721.045	82.987
2015/03/19	12:12:21	21.9583	3422.832	81.840
2015/03/19	12:54:51	22.6667	4597.185	76.453
2015/03/19	13:37:21	23.3750	4690.211	70.804
2015/03/19	14:19:51	24.0833	3991.248	71.595
2015/03/19	15:02:21	24.7917	4585.806	71.872
2015/03/19	15:44:51	25.5000	2164.491	70.654
2015/03/19	16:27:21	26.2083	1734.701	75.937
2015/03/19	17:09:51	26.9167	1640.037	78.678
2015/03/19	17:52:21	27.6250	1573.275	80.592
2015/03/19	18:34:51	28.3333	1531.401	82.109
2015/03/19	19:17:21	29.0417	1503.865	83.336
2015/03/19	19:59:51	29.7500	1484.309	84.312
2015/03/19	20:42:21	30.4583	1469.691	85.089
2015/03/19	21:24:51	31.1667	1458.341	85.718
2015/03/19	22:07:21	31.8750	1449.260	86.232
2015/03/19	22:49:51	32.5833	1441.872	86.656
2015/03/19	23:32:21	33.2917	1435.758	87.008
2015/03/20	00:14:51	34.0000	1430.638	87.299
2015/03/20	00:57:21	34.7083	1426.266	87.540
2015/03/20	01:39:51	35.4167	1422.503	87.741
2015/03/20	02:22:21	36.1250	1419.208	87.914
2015/03/20	03:04:51	36.8333	1416.321	88.060
2015/03/20	03:47:21	37.5417	1413.743	88.188
2015/03/20	04:29:51	38.2500	1411.449	88.299
2015/03/20	05:12:21	38.9583	1409.380	88.396
2015/03/20	05:54:51	39.6667	1407.523	88.482
2015/03/20	06:37:21	40.3750	1405.836	88.558
2015/03/20	07:19:51	41.0833	1404.269	88.626
2015/03/20	08:02:21	41.7917	1402.851	88.687
2015/03/20	08:44:51	42.5000	2621.993	88.509
2015/03/20	09:27:21	43.2083	3113.518	83.948
2015/03/20	10:09:51	43.9167	3141.764	80.944
2015/03/20	10:52:21	44.6250	3088.767	78.619
2015/03/20	11:34:51	45.3333	3155.100	76.832
2015/03/20	12:17:21	46.0417	3109.835	75.607
2015/03/20	12:59:51	46.7500	3055.067	74.978
2015/03/20	13:42:21	47.4583	3075.959	74.564
2015/03/20	14:24:51	48.1667	3075.777	74.270
2015/03/20	15:07:21	48.8750	2552.225	74.919
2015/03/20	15:49:51	49.5833	2536.167	75.334
2015/03/20	16:32:21	50.2917	2550.448	75.579

Date	Time	Cum.Time BH2	BH Pres 2	BH Temp 2
		hr	psig	deg F
2015/03/19	04:24:47	14.1656	1377.643	89.677
2015/03/19	05:07:17	14.8739	1377.598	89.678
2015/03/19	05:49:51	15.5833	1377.604	89.710
2015/03/19	06:32:21	16.2917	1377.566	89.714
2015/03/19	07:14:51	17.0000	1377.523	89.715
2015/03/19	07:57:21	17.7083	1377.485	89.719
2015/03/19	08:39:51	18.4167	1377.457	89.719
2015/03/19	09:22:21	19.1250	1377.406	89.722
Lower Quartz Gauge initial pump in				
2015/03/19	09:57:17	19.7072	1378.633	89.721
2015/03/19	10:04:51	19.8333	1998.171	89.611
2015/03/19	10:47:21	20.5417	4186.613	85.278
2015/03/19	11:29:51	21.2500	1722.751	82.997
2015/03/19	12:12:21	21.9583	3409.548	81.804
2015/03/19	12:54:51	22.6667	4597.867	76.388
2015/03/19	13:37:21	23.3750	4690.790	70.745
2015/03/19	14:19:51	24.0833	3994.320	71.589
2015/03/19	15:02:21	24.7917	4591.393	71.829
2015/03/19	15:44:51	25.5000	2166.805	70.652
2015/03/19	16:27:21	26.2083	1736.856	75.918
2015/03/19	17:09:51	26.9167	1642.134	78.666
2015/03/19	17:52:21	27.6250	1575.308	80.598
2015/03/19	18:34:51	28.3333	1533.385	82.138
2015/03/19	19:17:21	29.0417	1505.804	83.374
2015/03/19	19:59:51	29.7500	1486.209	84.350
2015/03/19	20:42:21	30.4583	1471.563	85.121
2015/03/19	21:24:51	31.1667	1460.187	85.740
2015/03/19	22:07:21	31.8750	1451.098	86.244
2015/03/19	22:49:51	32.5833	1443.694	86.656
2015/03/19	23:32:21	33.2917	1437.571	86.997
2015/03/20	00:14:51	34.0000	1432.426	87.278
2015/03/20	00:57:21	34.7083	1428.047	87.513
2015/03/20	01:39:51	35.4167	1424.272	87.711
2015/03/20	02:22:21	36.1250	1420.979	87.877
2015/03/20	03:04:51	36.8333	1418.066	88.021
2015/03/20	03:47:21	37.5417	1415.495	88.146
2015/03/20	04:29:51	38.2500	1413.196	88.256
2015/03/20	05:12:21	38.9583	1411.126	88.353
2015/03/20	05:54:51	39.6667	1409.255	88.439
2015/03/20	06:37:21	40.3750	1407.562	88.516
2015/03/20	07:19:51	41.0833	1405.999	88.584
2015/03/20	08:02:21	41.7917	1404.570	88.646
2015/03/20	08:44:51	42.5000	2621.799	88.491
2015/03/20	09:27:21	43.2083	3108.838	83.917
2015/03/20	10:09:51	43.9167	3137.130	80.920
2015/03/20	10:52:21	44.6250	3086.811	78.602
2015/03/20	11:34:51	45.3333	3164.288	76.816
2015/03/20	12:17:21	46.0417	3107.979	75.595
2015/03/20	12:59:51	46.7500	3072.776	74.969
2015/03/20	13:42:21	47.4583	3068.285	74.555
2015/03/20	14:24:51	48.1667	3081.227	74.261
2015/03/20	15:07:21	48.8750	2546.395	74.921
2015/03/20	15:49:51	49.5833	2542.451	75.333
2015/03/20	16:32:21	50.2917	2548.915	75.578



Company Name Altamont Oil and Gas
Well Name Wallewein #22-1
Type of Test BHP Reservoir Inj./Fall-off
Date(s) of Test March 18 - 27, 2015

Date	Time	Cum.Time BH1	BH Pres 1	BH Temp 1
		hr	psig	deg F
2015/03/20	17:14:51	51.0000	1639.756	77.190
2015/03/20	17:57:21	51.7083	1537.947	79.346
2015/03/20	18:39:51	52.4167	1497.775	81.101
2015/03/20	19:22:21	53.1250	1477.518	82.537
2015/03/20	20:04:51	53.8333	1464.734	83.651
2015/03/20	20:47:21	54.5417	1455.534	84.516
2015/03/20	21:29:51	55.2500	1448.439	85.198
2015/03/20	22:12:21	55.9583	1442.686	85.744
2015/03/20	22:54:51	56.6667	1437.894	86.187
2015/03/20	23:37:21	57.3750	1433.803	86.548
2015/03/21	00:19:51	58.0833	1430.238	86.848
2015/03/21	01:02:21	58.7917	1427.133	87.098
2015/03/21	01:44:51	59.5000	1424.362	87.310
2015/03/21	02:27:21	60.2083	1421.874	87.491
2015/03/21	03:09:51	60.9167	1419.646	87.646
2015/03/21	03:52:21	61.6250	1417.601	87.781
2015/03/21	04:34:51	62.3333	1415.736	87.899
2015/03/21	05:17:22	63.0419	1413.976	87.996
2015/03/21	05:59:52	63.7503	1412.387	88.049
2015/03/21	06:42:22	64.4586	1410.922	88.132
2015/03/21	07:24:47	65.1656	1409.556	88.205
2015/03/21	08:07:22	65.8753	1408.270	88.273
2015/03/21	08:49:52	66.5836	1407.084	88.335
2015/03/21	09:32:17	67.2906	3366.391	85.781
2015/03/21	10:14:52	68.0003	3551.195	80.758
2015/03/21	10:57:17	68.7072	3565.057	77.319
2015/03/21	11:39:47	69.4156	3524.443	74.841
2015/03/21	12:22:17	70.1239	3629.445	73.226
2015/03/21	13:04:52	70.8336	3667.038	72.218
2015/03/21	13:47:17	71.5406	3678.937	71.583
2015/03/21	14:29:52	72.2503	3552.793	71.140
2015/03/21	15:12:17	72.9572	3566.561	70.851
2015/03/21	15:54:52	73.6669	3587.917	70.667
2015/03/21	16:37:22	74.3753	3600.589	70.530
2015/03/21	17:19:47	75.0822	3597.028	70.414
2015/03/21	18:02:22	75.7919	1691.617	72.798
2015/03/21	18:44:52	76.5003	1587.547	75.957
2015/03/21	19:27:17	77.2072	1539.157	78.230
2015/03/21	20:09:47	77.9156	1512.691	80.067
2015/03/21	20:52:22	78.6253	1495.535	81.515
2015/03/21	21:34:47	79.3322	1483.213	82.643
2015/03/21	22:17:22	80.0419	1473.669	83.533
2015/03/21	22:59:47	80.7489	1466.013	84.242
2015/03/21	23:42:22	81.4586	1459.637	84.823
2015/03/22	00:24:52	82.1669	1454.229	85.302
2015/03/22	01:07:22	82.8753	1449.550	85.701
2015/03/22	01:49:52	83.5836	1445.456	86.039
2015/03/22	02:32:22	84.2919	1441.836	86.324
2015/03/22	03:14:47	84.9989	1438.606	86.567
2015/03/22	03:57:22	85.7086	1435.676	86.778
2015/03/22	04:39:47	86.4156	1433.027	86.963
2015/03/22	05:22:22	87.1253	1430.604	87.122
2015/03/22	06:04:52	87.8336	1428.384	87.263
2015/03/22	06:47:22	88.5419	1426.325	87.390

Date	Time	Cum.Time BH2	BH Pres 2	BH Temp 2
		hr	psig	deg F
2015/03/20	17:14:51	51.0000	1641.806	77.171
2015/03/20	17:57:21	51.7083	1539.964	79.342
2015/03/20	18:39:51	52.4167	1499.755	81.141
2015/03/20	19:22:21	53.1250	1479.450	82.586
2015/03/20	20:04:51	53.8333	1466.635	83.683
2015/03/20	20:47:21	54.5417	1457.408	84.529
2015/03/20	21:29:51	55.2500	1450.278	85.197
2015/03/20	22:12:21	55.9583	1444.521	85.732
2015/03/20	22:54:51	56.6667	1439.708	86.164
2015/03/20	23:37:21	57.3750	1435.612	86.519
2015/03/21	00:19:51	58.0833	1432.049	86.813
2015/03/21	01:02:21	58.7917	1428.921	87.059
2015/03/21	01:44:51	59.5000	1426.151	87.266
2015/03/21	02:27:21	60.2083	1423.662	87.444
2015/03/21	03:09:51	60.9167	1421.408	87.597
2015/03/21	03:52:21	61.6250	1419.373	87.731
2015/03/21	04:34:51	62.3333	1417.498	87.849
2015/03/21	05:17:17	63.0406	1415.724	87.946
2015/03/21	05:59:52	63.7503	1414.136	88.013
2015/03/21	06:42:17	64.4572	1412.672	88.095
2015/03/21	07:24:52	65.1669	1411.294	88.169
2015/03/21	08:07:17	65.8739	1410.009	88.235
2015/03/21	08:49:47	66.5822	1408.814	88.297
2015/03/21	09:32:22	67.2919	3368.582	85.740
2015/03/21	10:14:47	67.9989	3554.028	80.744
2015/03/21	10:57:22	68.7086	3567.182	77.297
2015/03/21	11:39:52	69.4169	3523.588	74.827
2015/03/21	12:22:22	70.1253	3633.821	73.217
2015/03/21	13:04:47	70.8322	3670.658	72.215
2015/03/21	13:47:22	71.5419	3682.862	71.579
2015/03/21	14:29:47	72.2489	3555.089	71.139
2015/03/21	15:12:22	72.9586	3570.209	70.848
2015/03/21	15:54:52	73.6669	3589.271	70.666
2015/03/21	16:37:22	74.3753	3601.544	70.528
2015/03/21	17:19:47	75.0822	3600.981	70.412
2015/03/21	18:02:17	75.7906	1694.171	72.782
2015/03/21	18:44:52	76.5003	1589.717	75.966
2015/03/21	19:27:17	77.2072	1541.286	78.281
2015/03/21	20:09:52	77.9169	1514.726	80.139
2015/03/21	20:52:22	78.6253	1497.560	81.576
2015/03/21	21:34:47	79.3322	1485.198	82.688
2015/03/21	22:17:22	80.0419	1475.623	83.563
2015/03/21	22:59:47	80.7489	1467.955	84.260
2015/03/21	23:42:22	81.4586	1461.552	84.829
2015/03/22	00:24:52	82.1669	1456.128	85.298
2015/03/22	01:07:22	82.8753	1451.442	85.689
2015/03/22	01:49:47	83.5822	1447.348	86.019
2015/03/22	02:32:17	84.2906	1443.714	86.298
2015/03/22	03:14:47	84.9989	1440.466	86.537
2015/03/22	03:57:17	85.7072	1437.533	86.743
2015/03/22	04:39:47	86.4156	1434.872	86.922
2015/03/22	05:22:22	87.1253	1432.446	87.081
2015/03/22	06:04:47	87.8322	1430.218	87.220
2015/03/22	06:47:17	88.5406	1428.161	87.344



Company Name Altamont Oil and Gas
Well Name Wallewein #22-1
Type of Test BHP Reservoir Inj./Fall-off
Date(s) of Test March 18 - 27, 2015

Date	Time	Cum.Time BH1	BH Pres 1	BH Temp 1
		hr	psig	deg F
2015/03/22	07:29:47	89.2489	1424.429	87.502
2015/03/22	08:12:22	89.9586	1422.662	87.603
2015/03/22	08:54:47	90.6656	1421.011	87.694
2015/03/22	09:37:22	91.3753	1419.466	87.777
2015/03/22	10:19:52	92.0836	1418.020	87.852
2015/03/22	11:02:22	92.7919	1416.654	87.920
2015/03/22	11:44:52	93.5003	1415.366	87.983
2015/03/22	12:27:17	94.2072	1414.157	88.041
2015/03/22	13:09:52	94.9169	1413.005	88.095
2015/03/22	13:52:22	95.6253	1411.916	88.145
2015/03/22	14:34:52	96.3336	1410.885	88.191
2015/03/22	15:17:22	97.0419	1409.904	88.235
2015/03/22	15:59:52	97.7503	1408.981	88.276
2015/03/22	16:42:17	98.4572	1408.103	88.314
2015/03/22	17:24:52	99.1669	1407.259	88.350
2015/03/22	18:07:22	99.8753	1406.459	88.384
2015/03/22	18:49:47	100.5822	1405.691	88.415
2015/03/22	19:32:22	101.2919	1404.960	88.445
2015/03/22	20:14:47	101.9989	1404.261	88.473
2015/03/22	20:57:22	102.7086	1403.588	88.500
2015/03/22	21:39:47	103.4156	1402.941	88.525
2015/03/22	22:22:22	104.1253	1402.318	88.549
2015/03/22	23:04:47	104.8322	1401.717	88.572
2015/03/22	23:47:22	105.5419	1401.144	88.594
2015/03/23	00:29:47	106.2489	1400.582	88.615
2015/03/23	01:12:22	106.9586	1400.046	88.633
2015/03/23	01:54:52	107.6669	1399.532	88.649
2015/03/23	02:37:17	108.3739	1399.033	88.665
2015/03/23	03:19:52	109.0836	1398.558	88.681
2015/03/23	04:02:17	109.7906	1398.093	88.696
2015/03/23	04:44:47	110.4989	1397.647	88.711
2015/03/23	05:27:22	111.2086	1397.222	88.724
2015/03/23	06:09:47	111.9156	1396.805	88.737
2015/03/23	06:52:22	112.6253	1396.398	88.749
2015/03/23	07:34:47	113.3322	1395.997	88.762
2015/03/23	08:17:22	114.0419	1395.622	88.773
2015/03/23	08:59:47	114.7489	1395.262	88.785
2015/03/23	09:42:17	115.4572	1394.902	88.798
2015/03/23	10:24:52	116.1669	1394.560	88.809
2015/03/23	11:07:22	116.8753	1394.221	88.820
2015/03/23	11:49:47	117.5822	1393.895	88.831
2015/03/23	12:32:22	118.2919	1393.569	88.842
2015/03/23	13:14:52	119.0003	1393.268	88.853
2015/03/23	13:57:17	119.7072	1392.963	88.863
2015/03/23	14:39:52	120.4169	1392.670	88.873
2015/03/23	15:22:22	121.1253	1392.389	88.883
2015/03/23	16:04:52	121.8336	1392.112	88.892
2015/03/23	16:47:17	122.5406	1391.853	88.900
2015/03/23	17:29:47	123.2489	1391.591	88.910
2015/03/23	18:12:17	123.9572	1391.346	88.919
2015/03/23	18:54:52	124.6669	1391.106	88.927
2015/03/23	19:37:22	125.3753	1390.873	88.935
2015/03/23	20:19:52	126.0836	1390.646	88.942
2015/03/23	21:02:22	126.7919	1390.424	88.949

Date	Time	Cum.Time BH2	BH Pres 2	BH Temp 2
		hr	psig	deg F
2015/03/22	07:29:47	89.2489	1426.252	87.456
2015/03/22	08:12:22	89.9586	1424.481	87.557
2015/03/22	08:54:47	90.6656	1422.827	87.647
2015/03/22	09:37:22	91.3753	1421.275	87.730
2015/03/22	10:19:52	92.0836	1419.823	87.805
2015/03/22	11:02:17	92.7906	1418.457	87.873
2015/03/22	11:44:47	93.4989	1417.169	87.936
2015/03/22	12:27:17	94.2072	1415.949	87.994
2015/03/22	13:09:52	94.9169	1414.793	88.048
2015/03/22	13:52:17	95.6239	1413.702	88.097
2015/03/22	14:34:52	96.3336	1412.663	88.143
2015/03/22	15:17:17	97.0406	1411.686	88.186
2015/03/22	15:59:52	97.7503	1410.755	88.227
2015/03/22	16:42:22	98.4586	1409.867	88.265
2015/03/22	17:24:47	99.1656	1409.018	88.301
2015/03/22	18:07:22	99.8753	1408.221	88.335
2015/03/22	18:49:52	100.5836	1407.450	88.366
2015/03/22	19:32:17	101.2906	1406.716	88.395
2015/03/22	20:14:52	102.0003	1406.015	88.423
2015/03/22	20:57:17	102.7072	1405.335	88.450
2015/03/22	21:39:47	103.4156	1404.689	88.475
2015/03/22	22:22:17	104.1239	1404.066	88.499
2015/03/22	23:04:52	104.8336	1403.465	88.522
2015/03/22	23:47:17	105.5406	1402.876	88.544
2015/03/23	00:29:52	106.2503	1402.324	88.565
2015/03/23	01:12:17	106.9572	1401.787	88.583
2015/03/23	01:54:52	107.6669	1401.267	88.600
2015/03/23	02:37:22	108.3753	1400.765	88.615
2015/03/23	03:19:47	109.0822	1400.287	88.631
2015/03/23	04:02:22	109.7919	1399.824	88.646
2015/03/23	04:44:52	110.5003	1399.377	88.661
2015/03/23	05:27:22	111.2086	1398.944	88.676
2015/03/23	06:09:52	111.9169	1398.529	88.690
2015/03/23	06:52:17	112.6239	1398.124	88.705
2015/03/23	07:34:52	113.3336	1397.714	88.717
2015/03/23	08:17:17	114.0406	1397.346	88.730
2015/03/23	08:59:52	114.7503	1396.976	88.744
2015/03/23	09:42:17	115.4572	1396.622	88.756
2015/03/23	10:24:47	116.1656	1396.270	88.770
2015/03/23	11:07:17	116.8739	1395.939	88.782
2015/03/23	11:49:52	117.5836	1395.608	88.794
2015/03/23	12:32:17	118.2906	1395.290	88.806
2015/03/23	13:14:52	119.0003	1394.971	88.817
2015/03/23	13:57:22	119.7086	1394.668	88.828
2015/03/23	14:39:47	120.4156	1394.373	88.839
2015/03/23	15:22:22	121.1253	1394.093	88.849
2015/03/23	16:04:52	121.8336	1393.815	88.859
2015/03/23	16:47:22	122.5419	1393.554	88.869
2015/03/23	17:29:47	123.2489	1393.300	88.878
2015/03/23	18:12:17	123.9572	1393.050	88.888
2015/03/23	18:54:52	124.6669	1392.806	88.897
2015/03/23	19:37:17	125.3739	1392.574	88.906
2015/03/23	20:19:47	126.0822	1392.345	88.914
2015/03/23	21:02:17	126.7906	1392.121	88.922



Company Name Altamont Oil and Gas
Well Name Wallewein #22-1
Type of Test BHP Reservoir Inj./Fall-off
Date(s) of Test March 18 - 27, 2015

Date	Time	Cum.Time BH1	BH Pres 1	BH Temp 1
		hr	psig	deg F
2015/03/23	21:44:47	127.4989	1390.204	88.955
2015/03/23	22:27:22	128.2086	1389.990	88.962
2015/03/23	23:09:52	128.9169	1389.782	88.968
2015/03/23	23:52:17	129.6239	1389.579	88.974
2015/03/24	00:34:47	130.3322	1389.375	88.981
2015/03/24	01:17:22	131.0419	1389.177	88.987
2015/03/24	01:59:47	131.7489	1388.991	88.993
2015/03/24	02:42:22	132.4586	1388.798	89.000
2015/03/24	03:24:52	133.1669	1388.616	89.006
2015/03/24	04:07:17	133.8739	1388.440	89.012
2015/03/24	04:49:52	134.5836	1388.269	89.018
2015/03/24	05:32:17	135.2906	1388.094	89.025
2015/03/24	06:14:52	136.0003	1387.937	89.033
2015/03/24	06:57:22	136.7086	1387.772	89.044
2015/03/24	07:39:47	137.4156	1387.618	89.065
2015/03/24	08:22:22	138.1253	1387.460	89.080
2015/03/24	09:04:47	138.8322	1387.308	89.090
2015/03/24	09:47:22	139.5419	1387.158	89.099
2015/03/24	10:29:47	140.2489	1387.015	89.107
2015/03/24	11:12:17	140.9572	1386.871	89.114
2015/03/24	11:54:52	141.6669	1386.731	89.120
2015/03/24	12:37:17	142.3739	1386.582	89.126
2015/03/24	13:19:52	143.0836	1386.440	89.131
2015/03/24	14:02:17	143.7906	1386.307	89.137
2015/03/24	14:44:52	144.5003	1386.177	89.142
2015/03/24	15:27:17	145.2072	1386.046	89.147
2015/03/24	16:09:52	145.9169	1385.924	89.152
2015/03/24	16:52:17	146.6239	1385.801	89.157
2015/03/24	17:34:52	147.3336	1385.682	89.162
2015/03/24	18:17:17	148.0406	1385.567	89.167
2015/03/24	18:59:47	148.7489	1385.464	89.171
2015/03/24	19:42:22	149.4586	1385.352	89.176
2015/03/24	20:24:47	150.1656	1385.243	89.180
2015/03/24	21:07:22	150.8753	1385.137	89.185
2015/03/24	21:49:52	151.5836	1385.027	89.189
2015/03/24	22:32:22	152.2919	1384.932	89.194
2015/03/24	23:14:47	152.9989	1384.833	89.198
2015/03/24	23:57:22	153.7086	1384.729	89.202
2015/03/25	00:39:52	154.4169	1384.634	89.206
2015/03/25	01:22:22	155.1253	1384.541	89.210
2015/03/25	02:04:47	155.8322	1384.445	89.214
2015/03/25	02:47:17	156.5406	1384.352	89.217
2015/03/25	03:29:52	157.2503	1384.258	89.221
2015/03/25	04:12:22	157.9586	1384.168	89.225
2015/03/25	04:54:52	158.6669	1384.077	89.228
2015/03/25	05:37:22	159.3753	1383.992	89.231
2015/03/25	06:19:52	160.0836	1383.907	89.235
2015/03/25	07:02:17	160.7906	1383.824	89.238
2015/03/25	07:44:52	161.5003	1383.744	89.241
2015/03/25	08:27:22	162.2086	1383.659	89.245
2015/03/25	09:09:52	162.9169	1383.579	89.248
2015/03/25	09:52:22	163.6253	1383.502	89.251
2015/03/25	10:34:52	164.3336	1383.422	89.254
2015/03/25	11:17:22	165.0419	1383.345	89.258

Date	Time	Cum.Time BH2	BH Pres 2	BH Temp 2
		hr	psig	deg F
2015/03/23	21:44:52	127.5003	1391.900	88.930
2015/03/23	22:27:22	128.2086	1391.690	88.938
2015/03/23	23:09:47	128.9156	1391.476	88.945
2015/03/23	23:52:22	129.6253	1391.269	88.951
2015/03/24	00:34:47	130.3322	1391.068	88.959
2015/03/24	01:17:17	131.0406	1390.873	88.965
2015/03/24	01:59:47	131.7489	1390.681	88.972
2015/03/24	02:42:22	132.4586	1390.494	88.978
2015/03/24	03:24:47	133.1656	1390.307	88.985
2015/03/24	04:07:17	133.8739	1390.131	88.991
2015/03/24	04:49:52	134.5836	1389.950	88.997
2015/03/24	05:32:22	135.2919	1389.783	89.004
2015/03/24	06:14:52	136.0003	1389.622	89.009
2015/03/24	06:57:22	136.7086	1389.456	89.018
2015/03/24	07:39:52	137.4169	1389.299	89.033
2015/03/24	08:22:22	138.1253	1389.143	89.044
2015/03/24	09:04:47	138.8322	1388.990	89.055
2015/03/24	09:47:22	139.5419	1388.841	89.064
2015/03/24	10:29:47	140.2489	1388.689	89.072
2015/03/24	11:12:22	140.9586	1388.547	89.079
2015/03/24	11:54:52	141.6669	1388.404	89.086
2015/03/24	12:37:17	142.3739	1388.259	89.093
2015/03/24	13:19:52	143.0836	1388.119	89.099
2015/03/24	14:02:17	143.7906	1387.983	89.105
2015/03/24	14:44:47	144.4989	1387.852	89.110
2015/03/24	15:27:22	145.2086	1387.716	89.116
2015/03/24	16:09:52	145.9169	1387.594	89.121
2015/03/24	16:52:17	146.6239	1387.477	89.127
2015/03/24	17:34:52	147.3336	1387.349	89.132
2015/03/24	18:17:17	148.0406	1387.235	89.137
2015/03/24	18:59:52	148.7503	1387.132	89.142
2015/03/24	19:42:22	149.4586	1387.016	89.147
2015/03/24	20:24:52	150.1669	1386.902	89.152
2015/03/24	21:07:22	150.8753	1386.800	89.157
2015/03/24	21:49:47	151.5822	1386.697	89.161
2015/03/24	22:32:22	152.2919	1386.598	89.166
2015/03/24	23:14:47	152.9989	1386.493	89.170
2015/03/24	23:57:17	153.7072	1386.393	89.175
2015/03/25	00:39:52	154.4169	1386.296	89.179
2015/03/25	01:22:17	155.1239	1386.205	89.183
2015/03/25	02:04:52	155.8336	1386.106	89.187
2015/03/25	02:47:17	156.5406	1386.012	89.191
2015/03/25	03:29:52	157.2503	1385.915	89.195
2015/03/25	04:12:17	157.9572	1385.821	89.199
2015/03/25	04:54:52	158.6669	1385.736	89.203
2015/03/25	05:37:22	159.3753	1385.648	89.207
2015/03/25	06:19:52	160.0836	1385.560	89.211
2015/03/25	07:02:17	160.7906	1385.477	89.214
2015/03/25	07:44:47	161.4989	1385.400	89.218
2015/03/25	08:27:17	162.2072	1385.321	89.221
2015/03/25	09:09:52	162.9169	1385.233	89.225
2015/03/25	09:52:22	163.6253	1385.147	89.229
2015/03/25	10:34:52	164.3336	1385.076	89.232
2015/03/25	11:17:22	165.0419	1384.997	89.235



Company Name Altamont Oil and Gas
Well Name Wallewein #22-1
Type of Test BHP Reservoir Inj./Fall-off
Date(s) of Test March 18 - 27, 2015

Date	Time	Cum.Time BH1	BH Pres 1	BH Temp 1
		hr	psig	deg F
2015/03/25	11:59:47	165.7489	1383.268	89.261
2015/03/25	12:42:17	166.4572	1383.182	89.263
2015/03/25	13:24:52	167.1669	1383.107	89.266
2015/03/25	14:07:22	167.8753	1383.030	89.269
2015/03/25	14:49:52	168.5836	1382.953	89.272
2015/03/25	15:32:17	169.2906	1382.881	89.275
2015/03/25	16:14:52	170.0003	1382.806	89.278
2015/03/25	16:57:22	170.7086	1382.732	89.281
2015/03/25	17:39:52	171.4169	1382.670	89.283
2015/03/25	18:22:17	172.1239	1382.604	89.286
2015/03/25	19:04:52	172.8336	1382.537	89.289
2015/03/25	19:47:17	173.5406	1382.476	89.291
2015/03/25	20:29:47	174.2489	1382.418	89.294
2015/03/25	21:12:22	174.9586	1382.348	89.296
2015/03/25	21:54:47	175.6656	1382.290	89.299
2015/03/25	22:37:22	176.3753	1382.234	89.301
2015/03/25	23:19:47	177.0822	1382.176	89.304
2015/03/26	00:02:22	177.7919	1382.120	89.306
2015/03/26	00:44:47	178.4989	1382.061	89.309
2015/03/26	01:27:22	179.2086	1382.011	89.311
2015/03/26	02:09:47	179.9156	1381.952	89.313
2015/03/26	02:52:22	180.6253	1381.899	89.316
2015/03/26	03:34:47	181.3322	1381.838	89.318
2015/03/26	04:17:17	182.0406	1381.787	89.320
2015/03/26	04:59:52	182.7503	1381.731	89.323
2015/03/26	05:42:17	183.4572	1381.683	89.325
2015/03/26	06:24:52	184.1669	1381.630	89.327
2015/03/26	07:07:17	184.8739	1381.580	89.329
2015/03/26	07:49:52	185.5836	1381.529	89.331
2015/03/26	08:32:17	186.2906	1381.479	89.333
2015/03/26	09:14:47	186.9989	1381.436	89.335
2015/03/26	09:57:22	187.7086	1381.380	89.337
2015/03/26	10:39:47	188.4156	1381.332	89.339
2015/03/26	11:22:22	189.1253	1381.282	89.341
2015/03/26	12:04:52	189.8336	1381.234	89.343
2015/03/26	12:47:17	190.5406	1381.186	89.345
2015/03/26	13:29:52	191.2503	1381.138	89.347
2015/03/26	14:12:17	191.9572	1381.087	89.349
2015/03/26	14:54:47	192.6656	1381.045	89.351
2015/03/26	15:37:22	193.3753	1380.997	89.353
2015/03/26	16:19:52	194.0836	1380.954	89.355
2015/03/26	17:02:17	194.7906	1380.906	89.356
2015/03/26	17:44:52	195.5003	1380.861	89.358
2015/03/26	18:27:22	196.2086	1380.818	89.360
2015/03/26	19:09:52	196.9169	1380.778	89.362
2015/03/26	19:52:22	197.6253	1380.733	89.364
2015/03/26	20:34:47	198.3322	1380.696	89.365
2015/03/26	21:17:17	199.0406	1380.661	89.367
2015/03/26	21:59:47	199.7489	1380.624	89.369
2015/03/26	22:42:22	200.4586	1380.587	89.371
2015/03/26	23:24:52	201.1669	1380.547	89.372
2015/03/27	00:07:22	201.8753	1380.515	89.374
2015/03/27	00:49:47	202.5822	1380.484	89.376
2015/03/27	01:32:22	203.2919	1380.444	89.377

Date	Time	Cum.Time BH2	BH Pres 2	BH Temp 2
		hr	psig	deg F
2015/03/25	11:59:52	165.7503	1384.912	89.238
2015/03/25	12:42:17	166.4572	1384.832	89.242
2015/03/25	13:24:52	167.1669	1384.755	89.245
2015/03/25	14:07:22	167.8753	1384.678	89.248
2015/03/25	14:49:52	168.5836	1384.599	89.251
2015/03/25	15:32:22	169.2919	1384.528	89.255
2015/03/25	16:14:47	169.9989	1384.457	89.258
2015/03/25	16:57:22	170.7086	1384.383	89.261
2015/03/25	17:39:47	171.4156	1384.318	89.263
2015/03/25	18:22:22	172.1253	1384.246	89.266
2015/03/25	19:04:52	172.8336	1384.181	89.269
2015/03/25	19:47:22	173.5419	1384.121	89.272
2015/03/25	20:29:52	174.2503	1384.059	89.275
2015/03/25	21:12:17	174.9572	1383.999	89.277
2015/03/25	21:54:47	175.6656	1383.939	89.280
2015/03/25	22:37:22	176.3753	1383.877	89.283
2015/03/25	23:19:52	177.0836	1383.822	89.285
2015/03/26	00:02:22	177.7919	1383.760	89.288
2015/03/26	00:44:52	178.5003	1383.706	89.291
2015/03/26	01:27:22	179.2086	1383.652	89.293
2015/03/26	02:09:47	179.9156	1383.595	89.296
2015/03/26	02:52:22	180.6253	1383.538	89.298
2015/03/26	03:34:47	181.3322	1383.481	89.301
2015/03/26	04:17:22	182.0419	1383.429	89.303
2015/03/26	04:59:47	182.7489	1383.373	89.305
2015/03/26	05:42:17	183.4572	1383.324	89.308
2015/03/26	06:24:52	184.1669	1383.265	89.310
2015/03/26	07:07:22	184.8753	1383.216	89.313
2015/03/26	07:49:47	185.5822	1383.168	89.315
2015/03/26	08:32:22	186.2919	1383.116	89.317
2015/03/26	09:14:52	187.0003	1383.065	89.319
2015/03/26	09:57:22	187.7086	1383.022	89.322
2015/03/26	10:39:47	188.4156	1382.968	89.324
2015/03/26	11:22:22	189.1253	1382.925	89.326
2015/03/26	12:04:47	189.8322	1382.872	89.328
2015/03/26	12:47:22	190.5419	1382.820	89.330
2015/03/26	13:29:52	191.2503	1382.772	89.332
2015/03/26	14:12:22	191.9586	1382.726	89.335
2015/03/26	14:54:47	192.6656	1382.681	89.336
2015/03/26	15:37:22	193.3753	1382.630	89.339
2015/03/26	16:19:47	194.0822	1382.587	89.341
2015/03/26	17:02:22	194.7919	1382.536	89.342
2015/03/26	17:44:52	195.5003	1382.491	89.344
2015/03/26	18:27:17	196.2072	1382.453	89.346
2015/03/26	19:09:52	196.9169	1382.408	89.348
2015/03/26	19:52:17	197.6239	1382.374	89.350
2015/03/26	20:34:52	198.3336	1382.331	89.352
2015/03/26	21:17:17	199.0406	1382.288	89.354
2015/03/26	21:59:47	199.7489	1382.254	89.355
2015/03/26	22:42:22	200.4586	1382.217	89.357
2015/03/26	23:24:52	201.1669	1382.177	89.359
2015/03/27	00:07:22	201.8753	1382.140	89.361
2015/03/27	00:49:47	202.5822	1382.106	89.363
2015/03/27	01:32:17	203.2906	1382.074	89.364



Company Name Altamont Oil and Gas
Well Name Wallewein #22-1
Type of Test BHP Reservoir Inj./Fall-off
Date(s) of Test March 18 - 27, 2015

Date	Time	Cum.Time BH1	BH Pres 1	BH Temp 1
		hr	psig	deg F
2015/03/27	02:14:52	204.0003	1380.407	89.379
2015/03/27	02:57:17	204.7072	1380.372	89.380
2015/03/27	03:39:52	205.4169	1380.340	89.382
2015/03/27	04:22:22	206.1253	1380.303	89.384
2015/03/27	05:04:47	206.8322	1380.266	89.385
2015/03/27	05:47:17	207.5406	1380.234	89.386
2015/03/27	06:29:52	208.2503	1380.196	89.388
2015/03/27	07:12:17	208.9572	1380.165	89.389
2015/03/27	07:54:52	209.6669	1380.130	89.391
2015/03/27	08:37:17	210.3739	1380.095	89.392
Top Quartz Gauge Final Fall off				
2015/03/27	08:39:27	210.4100	1380.095	89.392
Top Quartz Gauge off bottom, 4018' glm				
2015/03/27	09:01:07	210.7711	1391.140	89.289
POOH Gradient: 3899.000 ft				
2015/03/27	09:10:02	210.9197	1337.452	88.891
POOH Gradient: 3699.000 ft				
2015/03/27	09:15:52	211.0169	1246.589	88.203
2015/03/27	09:19:52	211.0836	1111.443	86.867
POOH Gradient: 3399.000 ft				
2015/03/27	09:21:42	211.1142	1111.130	86.312
POOH Gradient: 3099.000 ft				
2015/03/27	09:27:37	211.2128	967.420	83.782
POOH Gradient: 2799.000 ft				
2015/03/27	09:33:27	211.3100	848.752	81.352
POOH Gradient: 2499.000 ft				
2015/03/27	09:39:12	211.4058	716.242	79.039
POOH Gradient: 2199.000 ft				
2015/03/27	09:45:02	211.5031	582.673	76.096
POOH Gradient: 1899.000 ft				
2015/03/27	09:50:57	211.6017	451.088	72.786
POOH Gradient: 1599.000 ft				
2015/03/27	09:56:37	211.6961	317.583	69.199
2015/03/27	10:02:22	211.7919	184.415	65.577
POOH Gradient: 1299.000 ft				
2015/03/27	10:02:32	211.7947	184.402	65.499
POOH Gradient: 999.000 ft				
2015/03/27	10:08:17	211.8906	52.419	61.576
POOH Gradient: 699.000 ft				
2015/03/27	10:13:57	211.9850	-0.380	58.836
POOH Gradient: 399.000 ft				
2015/03/27	10:19:42	212.0808	1.262	57.332
POOH Gradient: 99.000 ft				
2015/03/27	10:25:32	212.1781	1.315	56.067
POOH Gradient: 0.000 ft				
2015/03/27	10:27:17	212.2072	1.323	55.709
2015/03/27	10:44:47	212.4989	1.268	56.574

Date	Time	Cum.Time BH2	BH Pres 2	BH Temp 2
		hr	psig	deg F
2015/03/27	02:14:52	204.0003	1382.043	89.366
2015/03/27	02:57:17	204.7072	1382.006	89.368
2015/03/27	03:39:52	205.4169	1381.966	89.370
2015/03/27	04:22:22	206.1253	1381.934	89.371
2015/03/27	05:04:52	206.8336	1381.895	89.373
2015/03/27	05:47:17	207.5406	1381.866	89.375
2015/03/27	06:29:52	208.2503	1381.829	89.376
2015/03/27	07:12:22	208.9586	1381.789	89.378
2015/03/27	07:54:47	209.6656	1381.763	89.380
2015/03/27	08:37:17	210.3739	1381.726	89.381
Lower Quartz Gauge Final Fall off				
2015/03/27	08:39:27	210.4100	1381.732	89.381
Lower Quartz Gauge off bottom, 4019' glm				
2015/03/27	09:01:07	210.7711	1386.998	89.315
POOH Gradient: 3900.000 ft				
2015/03/27	09:10:02	210.9197	1339.140	88.894
POOH Gradient: 3700.000 ft				
2015/03/27	09:15:52	211.0169	1248.278	88.181
2015/03/27	09:19:47	211.0822	1113.212	86.819
POOH Gradient: 3400.000 ft				
2015/03/27	09:21:42	211.1142	1112.876	86.241
POOH Gradient: 3100.000 ft				
2015/03/27	09:27:37	211.2128	969.257	83.674
POOH Gradient: 2800.000 ft				
2015/03/27	09:33:27	211.3100	850.673	81.240
POOH Gradient: 2500.000 ft				
2015/03/27	09:39:12	211.4058	718.328	78.926
POOH Gradient: 2200.000 ft				
2015/03/27	09:45:02	211.5031	584.885	75.957
POOH Gradient: 1900.000 ft				
2015/03/27	09:50:57	211.6017	453.442	72.626
POOH Gradient: 1600.000 ft				
2015/03/27	09:56:37	211.6961	320.100	69.011
2015/03/27	10:02:22	211.7919	187.149	65.371
POOH Gradient: 1300.000 ft				
2015/03/27	10:02:32	211.7947	187.142	65.296
POOH Gradient: 1000.000 ft				
2015/03/27	10:08:17	211.8906	55.363	61.334
POOH Gradient: 700.000 ft				
2015/03/27	10:13:57	211.9850	0.177	58.598
POOH Gradient: 400.000 ft				
2015/03/27	10:19:42	212.0808	0.113	57.070
POOH Gradient: 100.000 ft				
2015/03/27	10:25:32	212.1781	0.056	55.703
POOH Gradient: 1.000 ft				
2015/03/27	10:27:17	212.2072	0.019	55.302
2015/03/27	10:44:47	212.4989	0.273	55.386

HALLFORD WTI, LLC
(Well Test Interpretation)

Altamont Oil & Gas

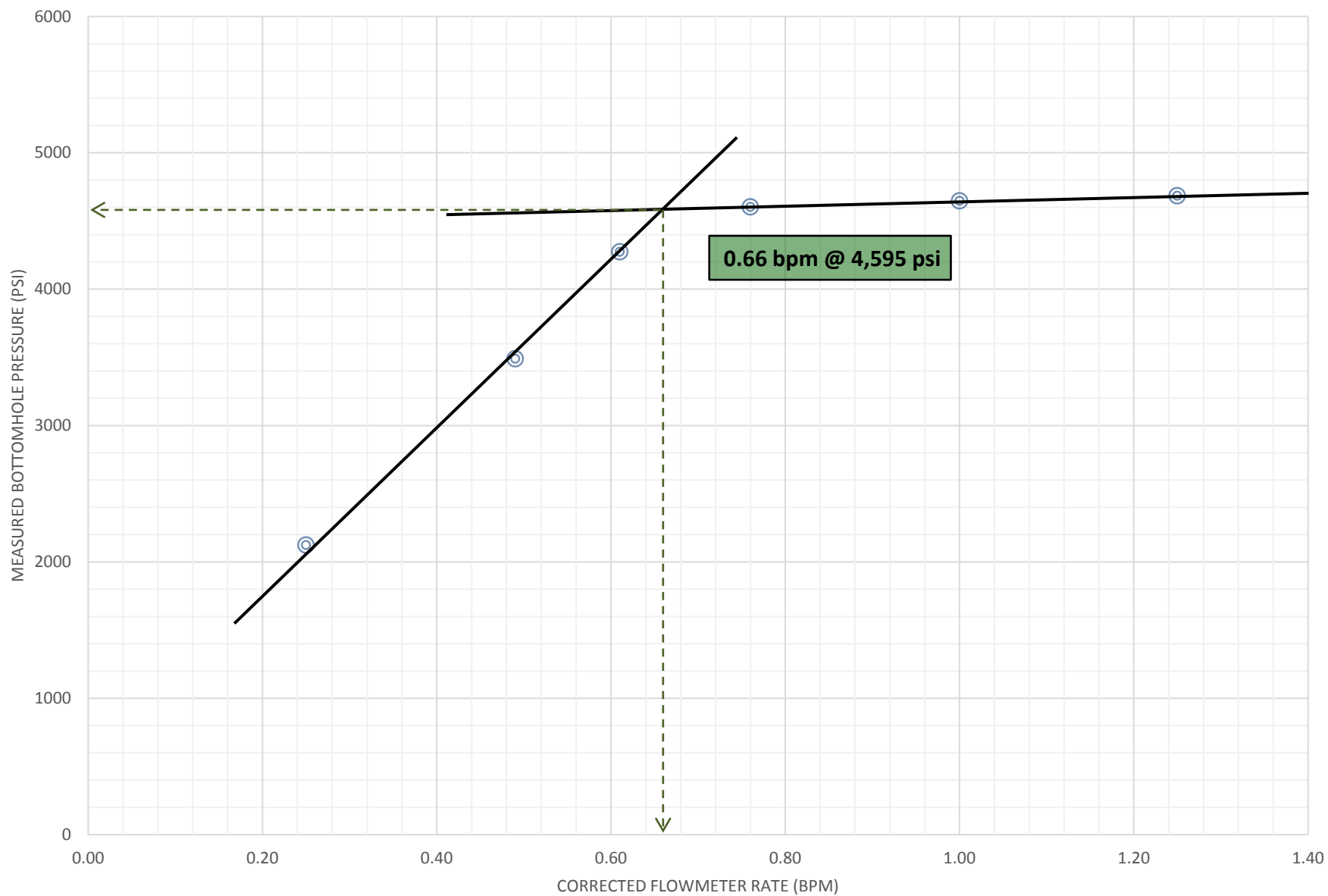
Wallewein #22-1

Toole County, Montana

Fall-off Test Conducted March 18, 2015

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Wallewein #22-1 Step-Rate Test (SRT) Analysis





Comments

Altamont Oil & Gas - Walle...

Company Altamont Oil & Gas
Well Wallewein #22-1Field
Test Name / # Step Rate Test & Buildup

A step-rate injection and pressure fall-off test was conducted by Northern Lights Energy Company and Sanjel on the Wallewein 22-1 well in Toole County, Montana, from March 18, 2015, to March 27, 2015. Tandem electronic quartz gauges were run into the well on March 18, taking gradient stops every 300 feet going into the well. Gauges were set at 4019 ft, and injection of 3% NaCl water began on March 19, 2015, at 09:57 a.m. After completion of all testing, gradient stops were also taken every 300 ft while coming out of the well.

During the step-rate test, injection began at 0.4 bpm (-576 bipd), and stepped up to 0.5 bpm (-720 bipd), then 0.75 bpm (-1080 bipd), then 1 bpm (-1440 bipd) and finally 1.25 bpm (-1800 bipd). A plot of bottomhole pressure (Psi) vs injection rate (bpm) for the end of each injection step indicates the formation break at 0.66 bpm (-1037 bipd) and corresponding bottomhole pressure of 4595 psi.

Due to operational difficulties with the flowmeter, the injection rates for day 2 and day 3 were initially reported to be -854 bwipd on day 2, and a final rate of -2000 bwipd on day 3. It was subsequently determined that day 2 and 3 rates were incorrect, thus, it was believed that determining the average injection rate based on volumes pumped would be most accurate. Therefore, for day 2 of injection, an average injection rate of 664 bwipd was used for a pumped volume of 225 bbls, and for day 3, an average injection rate of 686 bwipd was used for a pumped volume of 248 bbls.

After injection, the final fall-off period was extended to 135 hrs. Analysis of the diagnostic log-log plot of delta pressure and pressure derivative for the final fall-off period indicates the presence of a heterogeneous reservoir, with increasing wellbore storage in very early time and a two-porosity transition taking place in late time, with the fall-off pressure response going into the two-porosity transition but not yet coming out. Thus, the value for Omega is non-unique, and for purposes of this interpretation, it has been assumed that the value for Omega, the ratio of fissure volume to bulk reservoir volume, is 0.001, or 0.1% of the bulk reservoir volume is contained within the fractures. It should be noted that the pressure response during the extended fall-off test is non-unique, as other reservoir models could produce a similar response for the downward trending derivative at the end of the test. For example, the downward trending pressure derivative could be indicative of the pressure response seeing an increase in the overall transmissibility (Kh/u), some distance away from the wellbore.

The final fall-off period was matched using an infinite system, two-porosity slab geometry reservoir model with skin and variable wellbore storage. See analysis results and plots on the following pages of this report.

Based on the match, the tested interval appears to have the characteristics of a heterogeneous reservoir with good permeability to the injected water, with effective permeability of 19 md to the injected water, and a skin factor of -1.3, which is a normal skin value for a naturally-fractured reservoir. Also, the negative skin value is normal for an acidized zone, which had been conducted prior to the test. The value for Omega, of 0.001, or 0.1% of bulk reservoir volume contained within fractures, has been assumed, since the fall-off response was going into the two-porosity transition (or dip) and not yet coming out. Therefore, the fall-off response didn't reach the radial flow regime for the Total System (fissures + matrix). The value for Lambda is very small, at $2.1E-8$, whereas, a normal Lambda value is generally $1E-06$. Thus, the small Lambda indicates poorer communication or connectivity of blocks to fissures, which is why the two-porosity transition happens late in the test.

For questions or discussion of this interpretation, please contact Debora Hallford at 303-596-4515.



History listings

Altamont Oil & Gas - Walle...

Company Altamont Oil & Gas
Well Wallewein #22-1Field
Test Name / # Step Rate Test & Buildup

Date	ToD	FP #	Water rate STB/D	Duration hr
03/18/2015	14:14:51	1	0	19.4
03/19/2015	09:38:51	2	-1440	0.0167
03/19/2015	09:39:51	3	0	0.274326
03/19/2015	09:56:19	4	-576	0.375074
03/19/2015	10:18:49	5	-936	0.4833
03/19/2015	10:47:49	6	-1224	0.00618894
03/19/2015	10:48:11	7	0	0.559254
03/19/2015	11:21:44	8	-576	0.433857
03/19/2015	11:47:46	9	-720	0.5
03/19/2015	12:17:46	10	-1080	0.5
03/19/2015	12:47:46	11	-1440	0.5
03/19/2015	13:17:46	12	-1800	0.233
03/19/2015	13:31:45	13	-720	1
03/19/2015	14:31:45	14	-1440	0.4833
03/19/2015	15:00:45	15	-1800	0.512474
03/19/2015	15:31:30	16	0	17.0844
03/20/2015	08:36:34	17	-664	8.15356
03/20/2015	16:45:47	18	0	16.0945
03/21/2015	08:51:27	19	-686	8.70791
03/21/2015	17:33:55	20	0	135.103



Main results

Analysis 5 - 2-phi

Company Altamont Oil & Gas
Well Wallewein #22-1Field
Test Name / # Step Rate Test & Buildup

Test date / time 3/18/2015
Formation interval Duperow
Perforated interval 4040' to 4057'
Gauge type / # electronic #90367 (bottom)
Gauge depth 4019
Analyzed by Debora Hallford
Analysis date / time

TEST TYPE Standard

Porosity Phi (%) 5
Well Radius rw 0.328 ft
Pay Zone h 17 ft

Form. compr. 3E-6 psi-1

Fluid type Water

Volume Factor B 1 B/STB
Viscosity 1 cp
Total Compr. ct 3E-6 psi-1

Default values are used!

Selected Model

Model Option Standard Model
Well Vertical, Changing Storage (Hegeman)
Reservoir Two porosity Slab
Boundary Infinite

Main Model Parameters

TMatch 14.9 [hr]-1
PMatch 0.00331 [psia]-1
C 0.00635 bbl/psi
Total Skin -1.3
k.h, total 321 md.ft
k, average 18.9 md
Pi 1362.23 psia

Model Parameters

Well & Wellbore parameters (Wallewein #22-1)

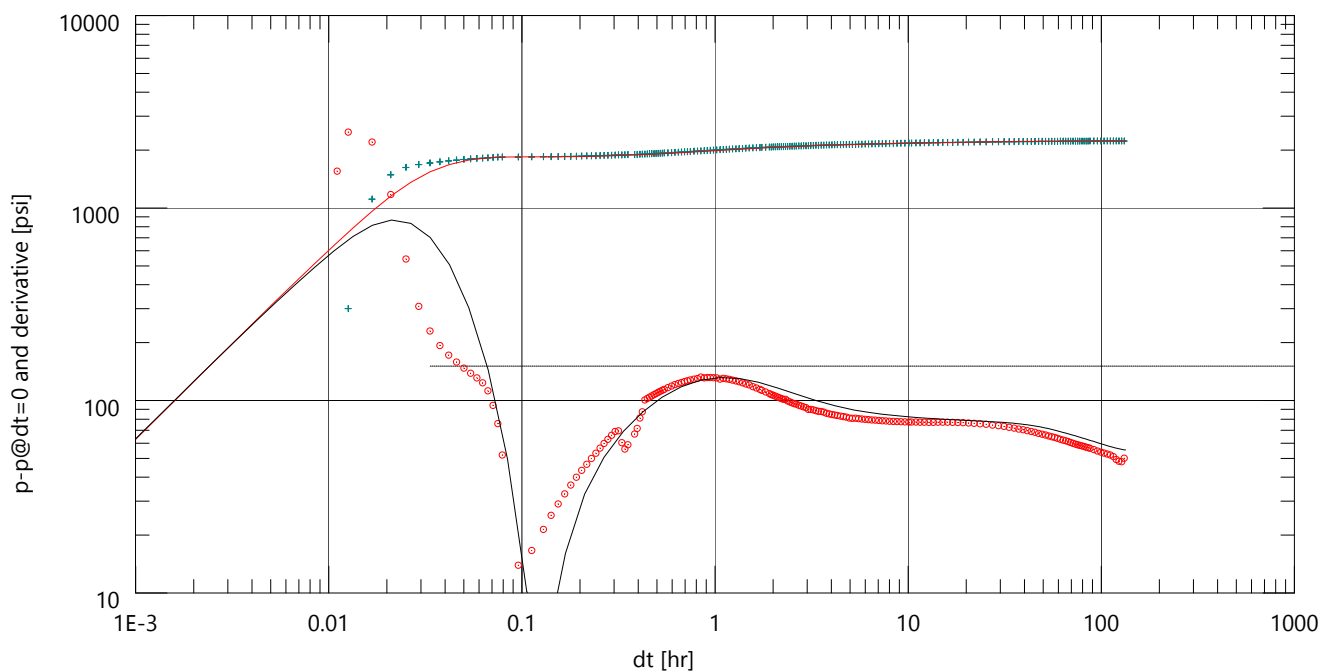
C 0.00635 bbl/psi
Ci/Cf 0.0716
delta_t 0.114 hr
Skin -1.3

Reservoir & Boundary parameters

Pi 1362.23 psia
k.h 321 md.ft
k 18.9 md
Omega 1E-3
Lambda 2.11E-8

Derived & Secondary Parameters

Delta P (Total Skin) -392.99 psi
Delta P Ratio (Total Skin) -0.176019 Fraction



btmgauge fall-off #5

Rate 0 STB/D
Rate change 686 STB/D
P@dt=0 3608.97 psia
Pi 1362.23 psia
Smoothing 0.1

Default values are used!

Selected Model

Model Option Standard Model
Well Vertical, Changing Storage (Hegeman)
Reservoir Two porosity Slab
Boundary Infinite

Main Model Parameters

TMatch 14.9 [hr]⁻¹
PMatch 0.00331 [psia]⁻¹
C 0.00635 bbl/psi
Total Skin -1.3
k.h, total 321 md.ft
k, average 18.9 md
Pi 1362.23 psia

Model Parameters

Well & Wellbore parameters (Wallewein #22-1)

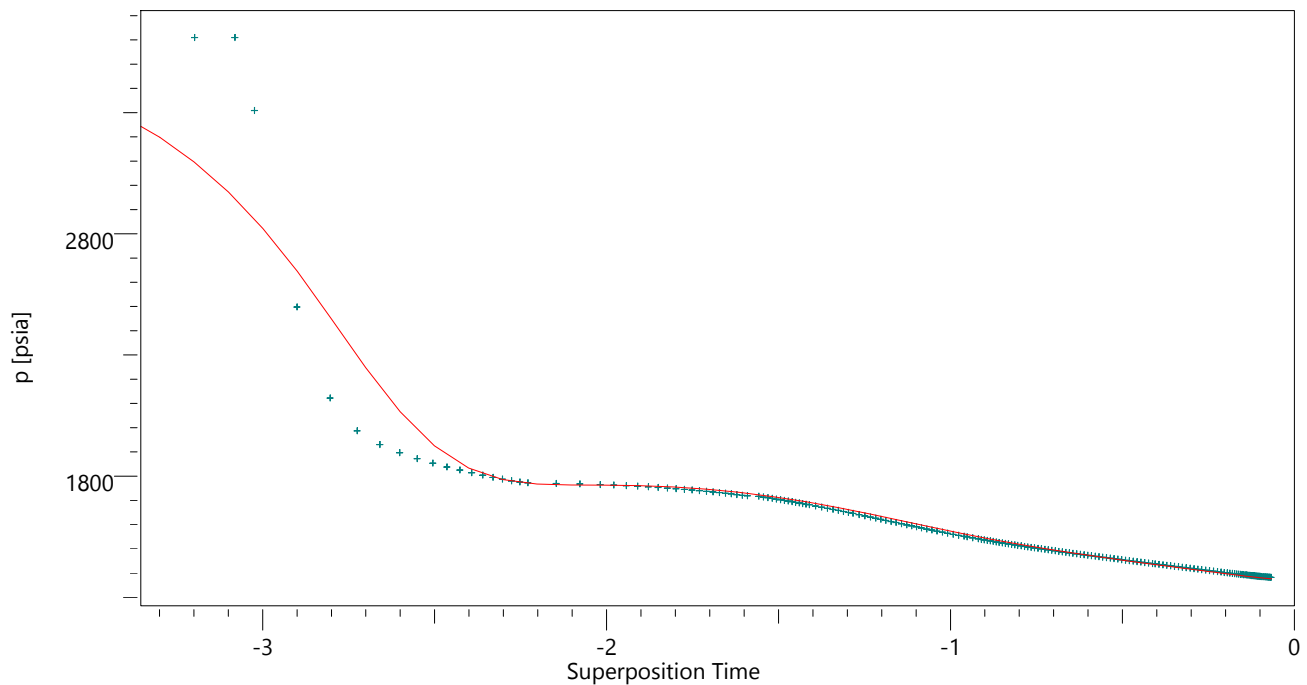
C 0.00635 bbl/psi
Ci/Cf 0.0716
delta_t 0.114 hr
Skin -1.3

Reservoir & Boundary parameters

Pi 1362.23 psia
k.h 321 md.ft
k 18.9 md
Omega 1E-3
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Well Vertical, Changing Storage (Hegeman)
Reservoir Two porosity Slab
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PMatch 0.00331 [psia]⁻¹
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Total Skin -1.3
k.h, total 321 md.ft
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Model Parameters

Well & Wellbore parameters (Wallewein #22-1)

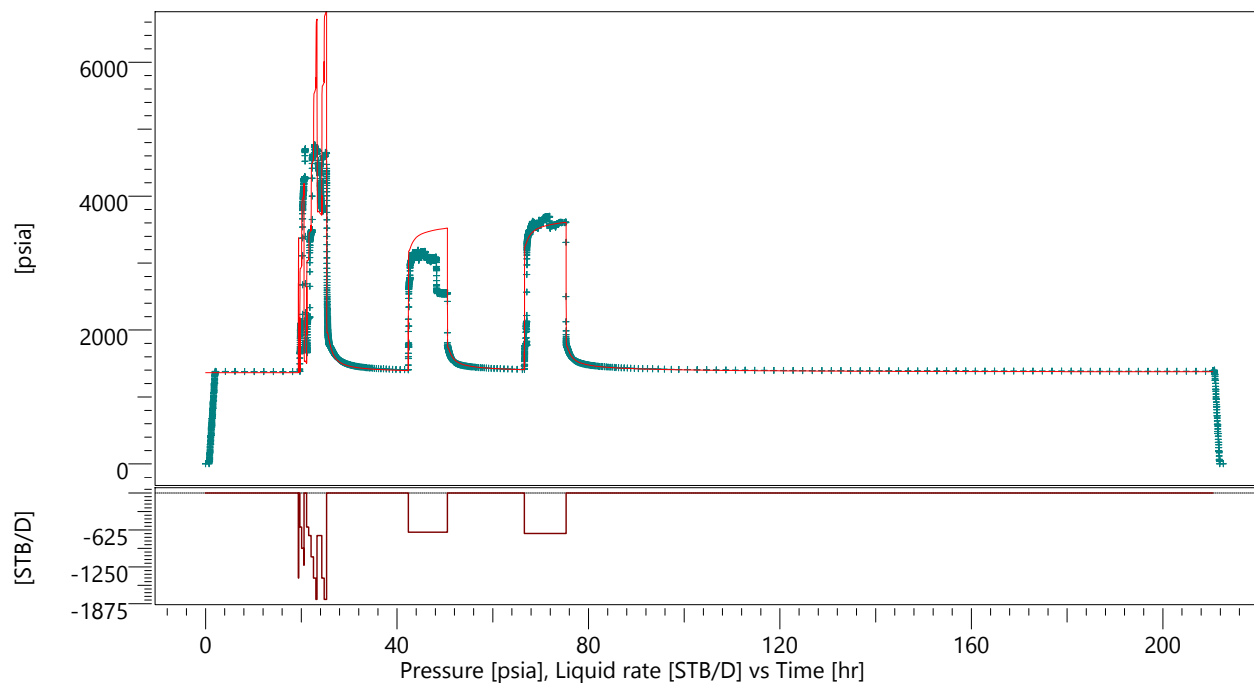
C 0.00635 bbl/psi
Ci/Cf 0.0716
delta_t 0.114 hr
Skin -1.3

Reservoir & Boundary parameters

Pi 1362.23 psia
k.h 321 md.ft
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Lambda 2.11E-8

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Delta P (Total Skin) -392.99 psi
Delta P Ratio (Total Skin) -0.176019 Fraction



btmgauge fall-off #5

Rate 0 STB/D
Rate change 686 STB/D
P@dt=0 3608.97 psia
Pi 1362.23 psia
Smoothing 0.1

Default values are used!

Selected Model

Model Option Standard Model
Well Vertical, Changing Storage (Hegeman)
Reservoir Two porosity Slab
Boundary Infinite

Main Model Parameters

TMatch 14.9 [hr]⁻¹
PMatch 0.00331 [psia]⁻¹
C 0.00635 bbl/psi
Total Skin -1.3
k.h, total 321 md.ft
k, average 18.9 md
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Model Parameters

Well & Wellbore parameters (Wallewein #22-1)

C 0.00635 bbl/psi
Ci/Cf 0.0716
delta_t 0.114 hr
Skin -1.3

Reservoir & Boundary parameters

Pi 1362.23 psia
k.h 321 md.ft
k 18.9 md
Omega 1E-3
Lambda 2.11E-8

Derived & Secondary Parameters

Delta P (Total Skin) -392.99 psi
Delta P Ratio (Total Skin) -0.176019 Fraction



Pressure listings

Analysis 5 - 2-phi



Company Altamont Oil & Gas
Well Wallewein #22-1

Field
Test Name / # Step Rate Test & Buildup

Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr
0.217505	0.0110769	705.134	1.45691	1379.42	2.07358	2031.63	19.8652
-0.195913	0.761077	722.356	1.46108	1379.27	2.08191	2033.9	19.8694
13.3262	0.765244	739.826	1.46524	1375.32	2.08608	2028.42	19.8736
26.3196	0.76941	757.444	1.46941	1370.11	2.09024	2032.25	19.8777
31.304	0.773577	775.142	1.47358	1367.62	2.09441	2042.63	19.8819
30.9712	0.852744	792.993	1.47774	1370.04	2.12358	2049.99	19.8861
35.1554	0.85691	811.067	1.48191	1372.18	2.14441	2050.25	19.8902
48.8641	0.861077	828.052	1.48608	1372.61	2.14858	2042.65	19.8944
65.5009	0.865244	828.824	1.56941	1377.46	2.15274	2047.97	19.8986
82.5145	0.86941	834.343	1.57358	1378.85	4.15691	2062.08	19.9027
99.9536	0.873577	848.389	1.57774	1378.51	6.16108	2065.07	19.9069
117.157	0.877744	866.802	1.58191	1378.22	8.16524	2059.08	19.9111
134.946	0.88191	885.052	1.58608	1377.97	10.1694	2052.3	19.9152
152.676	0.886077	903.122	1.59024	1377.8	12.1736	2061.61	19.9194
163.633	0.890244	921.502	1.59441	1377.65	14.1777	2074.99	19.9236
165.278	0.973577	937.932	1.59858	1377.57	16.1777	2075.35	19.9277
182.181	0.977744	938.724	1.68191	1377.47	18.1819	2069.76	19.9319
201.56	0.98191	949.826	1.68608	1379.46	19.7194	2061.03	19.9361
221.592	0.986077	968.449	1.69024	1380.78	19.7226	2065.94	19.9402
242.075	0.990244	987.746	1.69441	1387.57	19.7236	2076.92	19.9444
263.458	0.99441	1007.25	1.69858	1415.19	19.7277	2086.35	19.9486
285.056	0.998577	1027.11	1.70274	1495.3	19.7319	2086.2	19.9527
292.494	1.00274	1047.17	1.70691	1580.31	19.7361	2076.21	19.9569
292.245	1.08191	1067.19	1.71108	1658.52	19.7402	2072.19	19.9611
295.212	1.08608	1068.49	1.79441	1658.1	19.7444	2069	19.9652
311.986	1.09024	1076.9	1.79858	1654.58	19.7486	2079.27	19.9694
331.732	1.09441	1094.91	1.80274	1651.58	19.7527	2090.13	19.9736
351.274	1.09858	1113.46	1.80691	1649.09	19.7569	2094.13	19.9777
370.876	1.10274	1132.32	1.81108	1646.51	19.7611	2089.58	19.9819
391.704	1.10691	1151.22	1.81524	1643.8	19.7652	2080.32	19.9861
412.674	1.11108	1170.22	1.81941	1643.76	19.7694	2078.37	19.9902
422.049	1.11524	1189.21	1.82358	1659.45	19.7736	2075.63	19.9944
422.9	1.19858	1198.2	1.82774	1678.12	19.7777	2084.46	19.9986
436.617	1.20274	1198.15	1.90691	1700.51	19.7819	2094.51	20.0027
454.594	1.20691	1201.58	1.91108	1720.19	19.7861	2100.79	20.0069
473.17	1.21108	1219.74	1.91524	1734.29	19.7902	2098.17	20.0111
492.325	1.21524	1239.39	1.91941	1753.11	19.7944	2090.49	20.0152
511.491	1.21941	1259.53	1.92358	1780.86	19.7986	2087.37	20.0194
530.717	1.22358	1279.43	1.92774	1811.87	19.8027	2081.95	20.0236
549.516	1.22774	1300.91	1.93191	1842.83	19.8069	2086.55	20.0277
551.144	1.33191	1322.9	1.93608	1868.41	19.8111	2091.55	20.0319
566.334	1.33608	1327.55	1.94024	1895.31	19.8152	2102.25	20.0361
576.413	1.34024	1327.5	2.01941	1920.6	19.8194	2106.61	20.0402
589.475	1.34441	1333.18	2.02358	1936.21	19.8236	2106.19	20.0444
603.103	1.34858	1347.04	2.02774	1954.55	19.8277	2102.99	20.0486
620.121	1.35274	1360.99	2.03191	1967.44	19.8319	2098.36	20.0527
637.955	1.35691	1353.1	2.03608	1984.74	19.8361	2098.5	20.0569
655.77	1.36108	1363.86	2.04024	1989.1	19.8402	2094.27	20.0611
674.406	1.36524	1377.61	2.04441	1998.4	19.8444	2098.43	20.0652
679.753	1.36941	1379.7	2.04858	2012.11	19.8486	2098.28	20.0694
679.553	1.44858	1379.74	2.06524	2014.33	19.8569	2106.21	20.0736
687.645	1.45274	1374.25	2.06941	2022.47	19.8611	2109.66	20.0777



Pressure listings

Analysis 5 - 2-phi

Company Altamont Oil & Gas
Well Wallewein #22-1Field
Test Name / # Step Rate Test & Buildup

Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr
2115.06	20.0819	3816.51	20.3361	4183.83	20.5611	4272.96	20.7777
2114.74	20.0902	3825.12	20.3402	4187.13	20.5652	4263.36	20.7819
2112.2	20.0944	3844.31	20.3444	4192.37	20.5694	4273.26	20.7861
2108.63	20.0986	3856.75	20.3486	4212.47	20.5736	4264.67	20.7902
2108.47	20.1027	3871.65	20.3527	4220.59	20.5777	4519.8	20.7944
2103.83	20.1069	3874.51	20.3569	4237.73	20.5819	4602.55	20.7986
2105.96	20.1111	3874.72	20.3611	4255.54	20.5861	4647.92	20.8027
2102.32	20.1152	3890.53	20.3652	4240.23	20.5902	4664.44	20.8069
2108.16	20.1194	3901.69	20.3694	4251.13	20.5944	4669.04	20.8111
2108.29	20.1236	3914.16	20.3736	4245.89	20.5986	4678.17	20.8152
2115.46	20.1277	3914.49	20.3777	4248.26	20.6027	4675.8	20.8194
2117.22	20.1319	3923.52	20.3819	4260.36	20.6069	4677.29	20.8236
2120.3	20.1361	3947.75	20.3861	4250.4	20.6111	4683.25	20.8277
2118.43	20.1486	3963.4	20.3902	4266.24	20.6152	4688.27	20.8319
2115.19	20.1527	3971.88	20.3944	4255.66	20.6194	4688.26	20.8361
2115.24	20.1569	3969.01	20.3986	4245.57	20.6236	4700.6	20.8402
2111.31	20.1611	3984.25	20.4027	4242.85	20.6277	4703.72	20.8444
2114.64	20.1652	3996.48	20.4069	4229.33	20.6319	4692.79	20.8486
2110.69	20.1694	3996.69	20.4152	4234.8	20.6361	4699.75	20.8527
2116.21	20.1736	4009.34	20.4194	4234.68	20.6402	4699.98	20.8569
2114.32	20.1777	4020.62	20.4236	4229.62	20.6444	4694.78	20.8611
2120.66	20.1819	4015.38	20.4277	4238.86	20.6486	4694.3	20.8694
2120.59	20.1861	4015.62	20.4319	4228.03	20.6527	4694.19	20.8714
2124.61	20.1902	4028.36	20.4361	4232.82	20.6569	4253.55	20.8736
2124.08	20.2111	4039.95	20.4402	4241.48	20.6611	3397.48	20.8777
2121.47	20.2152	4037.4	20.4444	4231.38	20.6652	2688.07	20.8819
2121.84	20.2194	4050.98	20.4486	4246.98	20.6694	2255.76	20.8861
2118.04	20.2236	4065.11	20.4527	4253.52	20.6736	2039.81	20.8902
2121.48	20.2277	4064.42	20.4611	4256	20.6777	1934.4	20.8944
2116.8	20.2319	4078.48	20.4652	4266.55	20.6819	1873.89	20.8986
2121.47	20.2361	4084.61	20.4694	4256.92	20.6861	1833.47	20.9027
2116.71	20.2402	4070.17	20.4736	4264.67	20.6902	1805.23	20.9069
2123.74	20.2444	4076.19	20.4777	4269.12	20.6944	1787.39	20.9111
2119.84	20.2486	4091.55	20.4819	4263.05	20.6986	1777.91	20.9152
2126.3	20.2527	4079.79	20.4861	4273.74	20.7027	1774.23	20.9194
2125.91	20.2569	4082.27	20.4902	4264.63	20.7069	1771.95	20.9402
2130.19	20.2611	4085.58	20.4944	4273.2	20.7111	1769.42	20.9569
2130.01	20.2652	4076.97	20.4986	4280.78	20.7152	1767.08	20.9611
2132.93	20.2694	4067.02	20.5027	4276.55	20.7194	1764.88	20.9652
2130.86	20.2861	4076.59	20.5069	4286.03	20.7236	1772.22	20.9694
2130.57	20.2893	4088.05	20.5111	4272.55	20.7277	1770.2	20.9777
2231.98	20.2902	4082.52	20.5152	4281.29	20.7319	1766.86	20.9861
2672.22	20.2944	4088.93	20.5194	4280.98	20.7361	1763.52	20.9944
3106.58	20.2986	4103.71	20.5236	4277.27	20.7402	1760.15	21.0027
3373.37	20.3027	4107.75	20.5277	4287.67	20.7444	1756.7	21.0111
3536.83	20.3069	4108.14	20.5319	4266.42	20.7486	1753.3	21.0194
3658.72	20.3111	4126.41	20.5361	4266.74	20.7527	1749.85	21.0277
3736.45	20.3152	4143.04	20.5402	4269.13	20.7569	1746.4	21.0361
3784.82	20.3194	4145.67	20.5444	4261.41	20.7611	1742.92	21.0444
3800.27	20.3236	4169.91	20.5486	4270.4	20.7652	1739.45	21.0527
3801.71	20.3277	4186.58	20.5527	4260.18	20.7694	1735.94	21.0611
3816.78	20.3319	4171.28	20.5569	4266.41	20.7736	1732.49	21.0694



Pressure listings

Analysis 5 - 2-phi

Company Altamont Oil & Gas
Well Wallewein #22-1Field
Test Name / # Step Rate Test & Buildup

Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr
1729.03	21.0777	2165.73	21.3819	2185.22	21.6361	3373.09	21.9027
1725.56	21.0861	2161.6	21.3861	2190.28	21.6402	3361.91	21.9069
1722.12	21.0944	2166.51	21.3902	2193.63	21.6611	3372.62	21.9111
1718.67	21.1027	2163.83	21.3944	2188.02	21.6652	3388.1	21.9152
1715.25	21.1111	2168.43	21.3986	2190.99	21.6694	3380.74	21.9194
1711.85	21.1194	2166.42	21.4027	2183.12	21.6736	3382.17	21.9277
1708.45	21.1277	2171.06	21.4069	2190.59	21.6777	3393.63	21.9319
1705.08	21.1361	2168.89	21.4111	2184.56	21.6819	3404.9	21.9361
1701.61	21.1444	2172.76	21.4152	2190.73	21.6861	3388.81	21.9402
1698.22	21.1527	2172.56	21.4277	2194.05	21.6986	3393.96	21.9444
1694.76	21.1611	2176.5	21.4319	2195.69	21.7069	3398.24	21.9486
1691.21	21.1694	2173.59	21.4361	2189.51	21.7111	3410.27	21.9527
1687.53	21.1777	2176.99	21.4402	2192.59	21.7152	3420.22	21.9569
1683.92	21.1861	2173.86	21.4444	2184.38	21.7194	3404.14	21.9611
1680.38	21.1944	2177.45	21.4486	2191.52	21.7236	3406.3	21.9652
1676.87	21.2027	2173.88	21.4527	2185.77	21.7277	3409.55	21.9694
1673.43	21.2111	2177.87	21.4569	2191.89	21.7319	3418.76	21.9736
1670.02	21.2194	2173.79	21.4611	2195.38	21.7444	3430.11	21.9777
1666.88	21.2277	2178.19	21.4652	2195.85	21.7527	3413.5	21.9819
1663.62	21.2361	2174.03	21.4694	2188.03	21.7569	3415.96	21.9861
1660.41	21.2444	2179.06	21.4736	2192.27	21.7611	3418.41	21.9902
1668.04	21.2486	2174.27	21.4777	2183.75	21.7652	3425.91	21.9944
1692.87	21.2527	2179.82	21.4819	2192.03	21.7694	3437.87	21.9986
1707.27	21.2569	2174.69	21.4861	2187.69	21.7736	3421.08	22.0027
1722.75	21.2611	2180.9	21.4902	2192.5	21.7777	3423.63	22.0069
1737.51	21.2652	2177	21.4944	2193.35	21.7861	3423.78	22.0111
1757.02	21.2694	2182.48	21.4986	2195.82	21.7902	3434	22.0152
1765.62	21.2736	2179.8	21.5027	2197.24	21.7926	3446.38	22.0194
1778.87	21.2777	2183.8	21.5069	2332.42	21.7944	3433.63	22.0236
1797.58	21.2819	2183.47	21.5111	2651.22	21.7986	3435.22	22.0277
1817.12	21.2861	2186.19	21.5152	2868.63	21.8027	3430.76	22.0319
1848.73	21.2902	2186.13	21.5194	3005.61	21.8069	3440.68	22.0361
1885.22	21.2944	2188.33	21.5236	3080.16	21.8111	3457.16	22.0402
1926.55	21.2986	2190.32	21.5444	3152.33	21.8152	3453.75	22.0444
1968.93	21.3027	2185.81	21.5486	3188.93	21.8194	3457.91	22.0486
2012.87	21.3069	2188.64	21.5527	3230.52	21.8236	3448.09	22.0527
2047.81	21.3111	2182.33	21.5569	3268.38	21.8277	3457.15	22.0569
2079.06	21.3152	2186.68	21.5611	3262.89	21.8319	3464.42	22.0611
2094.33	21.3194	2180.26	21.5652	3317.27	21.8361	3466.97	22.0652
2113.79	21.3236	2186.42	21.5694	3326.89	21.8402	3475.43	22.0694
2129.13	21.3277	2180.67	21.5736	3316.07	21.8444	3461.34	22.0736
2135.58	21.3319	2187.03	21.5777	3317.28	21.8527	3464.24	22.0777
2140.61	21.3361	2184.59	21.5819	3333.39	21.8569	3457.34	22.0819
2140.22	21.3402	2188.64	21.5861	3348.91	21.8611	3465.09	22.0861
2147.28	21.3444	2192.15	21.5986	3334.65	21.8652	3475.79	22.0902
2151.16	21.3486	2193.12	21.6069	3339.53	21.8694	3475.45	22.0944
2158.53	21.3527	2187.66	21.6111	3348.5	21.8736	3483.79	22.0986
2162.63	21.3569	2190.82	21.6152	3356.16	21.8777	3472.27	22.1027
2165.7	21.3652	2183.26	21.6194	3362.25	21.8819	3476.1	22.1069
2163.58	21.3694	2188.61	21.6236	3346.18	21.8861	3471.2	22.1111
2165.75	21.3736	2181.74	21.6277	3356.54	21.8902	3478.07	22.1152
2161.99	21.3777	2189.31	21.6319	3372.34	21.8944	3487.08	22.1194



Pressure listings

Analysis 5 - 2-phi

Company Altamont Oil & Gas
Well Wallewein #22-1Field
Test Name / # Step Rate Test & Buildup

Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr
3475.94	22.1236	4571.18	22.3402	4605.12	22.6986	4680.64	22.9861
3475.7	22.1277	4575.51	22.3444	4602.36	22.7027	4675.97	22.9902
3456.07	22.1319	4577.69	22.3486	4600.14	22.7111	4672.72	22.9944
3439.58	22.1361	4577.54	22.3527	4599.95	22.7152	4676.05	22.9986
3444.95	22.1402	4569.73	22.3569	4602.64	22.7194	4676.09	23.0027
3463.36	22.1444	4566.81	22.3611	4599.14	22.7444	4668.62	23.0069
3473.58	22.1486	4568.53	22.3694	4599.05	22.7486	4668.49	23.0111
3476.55	22.1527	4573.39	22.3736	4601.44	22.7527	4671.57	23.0152
3470.7	22.1569	4579.82	22.3777	4598.37	22.7736	4671.97	23.0194
3484.15	22.1611	4583.34	22.3819	4596.19	22.7819	4666.03	23.0236
3494.22	22.1652	4587.37	22.3861	4645.36	22.7861	4668.24	23.0277
3475.76	22.1694	4589.63	22.3902	4727.44	22.7902	4670.87	23.0319
3480.31	22.1736	4589.95	22.3944	4750.95	22.7944	4668.65	23.0361
3495.3	22.1777	4592.55	22.3986	4761.07	22.7986	4665.27	23.0402
3487.55	22.1819	4595.42	22.4027	4763.15	22.8027	4668.27	23.0444
3484.15	22.1861	4600.59	22.4069	4761.5	22.8069	4668.59	23.0486
3483.73	22.1902	4605.93	22.4111	4752.8	22.8111	4662.42	23.0527
3494.11	22.1944	4611.55	22.4152	4752.65	22.8152	4661.36	23.0569
3498.78	22.1986	4616.08	22.4194	4755.12	22.8194	4668.33	23.0611
3477.39	22.2027	4615.17	22.4361	4755.07	22.8236	4668.36	23.0652
3483.21	22.2069	4624.29	22.4402	4748.17	22.8277	4662.5	23.0694
3497.93	22.2111	4624.43	22.4444	4745.17	22.8319	4664.69	23.0736
3482.43	22.2152	4615.56	22.4486	4747.53	22.8361	4667.31	23.0777
3479.62	22.2194	4613.55	22.4569	4747.44	22.8402	4661.88	23.0819
3487.57	22.2236	4613.02	22.4611	4742.4	22.8444	4657.25	23.0861
3492.43	22.2277	4609.34	22.4652	4738.87	22.8486	4659.53	23.0902
3491.99	22.2319	4611.47	22.4902	4742.28	22.8527	4659.72	23.0944
3480.44	22.2361	4611.68	22.4944	4742.23	22.8569	4653.53	23.0986
3480.1	22.2402	4608.71	22.4986	4736.29	22.8611	4655.57	23.1111
3483.93	22.2444	4606.62	22.5027	4732.99	22.8652	4650.96	23.1152
3457.57	22.2486	4608.77	22.5236	4736.4	22.8694	4654.42	23.1194
3461.67	22.2527	4609.3	22.5277	4736.92	22.8736	4657.7	23.1236
3477.29	22.2569	4606.28	22.5319	4731.45	22.8777	4653.71	23.1277
3456.79	22.2611	4599.13	22.5361	4730.07	22.8819	4651.66	23.1319
3461.39	22.2652	4599.27	22.5486	4734.19	22.8861	4655.34	23.1361
3479.34	22.2694	4602.53	22.5527	4734.63	22.8902	4655.45	23.1402
3461.23	22.2736	4605.58	22.5611	4728.8	22.8944	4649.01	23.1444
3461.29	22.2777	4605.35	22.5652	4730.1	22.9069	4649.15	23.1486
3479.57	22.2819	4602.54	22.5694	4701.04	22.9111	4652.25	23.1527
3464.44	22.2861	4601.84	22.5819	4698.06	22.9152	4652.67	23.1569
3648.79	22.2902	4605.27	22.5861	4702.28	22.9194	4647.19	23.1611
3999.74	22.2944	4605.51	22.5902	4701.96	22.9236	4649.83	23.1652
4267.48	22.2986	4608.03	22.5944	4692.37	22.9277	4643.98	23.1694
4414.56	22.3027	4607.97	22.5986	4693.61	22.9402	4642.05	23.1736
4486.3	22.3069	4604.72	22.6027	4687.09	22.9444	4647.08	23.1777
4528.74	22.3111	4604.32	22.6277	4686.66	22.9569	4641.25	23.1819
4546.23	22.3152	4601.76	22.6319	4679.24	22.9611	4645.5	23.1861
4562.75	22.3194	4597.78	22.6361	4679.5	22.9652	4648.43	23.1902
4568.24	22.3236	4596.62	22.6486	4681.75	22.9694	4646.38	23.1944
4572.78	22.3277	4600.57	22.6527	4681.59	22.9736	4644.25	23.1986
4568.83	22.3319	4598.48	22.6819	4675.9	22.9777	4647.97	23.2027
4568.56	22.3361	4602.94	22.6861	4679	22.9819	4649.47	23.2069



Pressure listings

Analysis 5 - 2-phi

Company Altamont Oil & Gas
Well Wallewein #22-1Field
Test Name / # Step Rate Test & Buildup

Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr
4643.51	23.2111	4669.17	23.5527	4356.64	23.8319	3999.04	24.0902
4645.21	23.2236	4668.73	23.5569	4354.82	23.8361	3994.44	24.0944
4638.97	23.2277	4674.7	23.5611	4351.93	23.8402	3988.93	24.0986
4642.65	23.2361	4531.37	23.5652	4348.76	23.8444	3987.24	24.1069
4642.33	23.2402	4502.68	23.5694	4345.44	23.8486	3984.86	24.1111
4638.67	23.2444	4492.76	23.5736	4342.98	23.8569	3974.47	24.1152
4639.71	23.2486	4488	23.5777	4340.62	23.8694	3965.61	24.1194
4642.07	23.2527	4481.89	23.5819	4338.21	23.8819	3962.58	24.1236
4637.27	23.2569	4475.77	23.5861	4335.68	23.8861	3958.29	24.1277
4636.91	23.2611	4472.97	23.5902	4332.62	23.8902	3954.88	24.1319
4639.4	23.2652	4471.19	23.5944	4328.92	23.8944	3957.34	24.1361
4639.34	23.2694	4469.07	23.5986	4325.21	23.8986	3955.25	24.1402
4632.48	23.2736	4467.45	23.6027	4322.84	23.9027	3942.85	24.1444
4634.57	23.2777	4462.9	23.6069	4320.2	23.9152	3935.17	24.1486
4637.01	23.2819	4457.03	23.6111	4318.17	23.9236	3932.84	24.1527
4631.59	23.2861	4455.32	23.6152	4316.16	23.9319	3929.61	24.1569
4631.61	23.2902	4452.67	23.6194	4314.67	23.9402	3934.15	24.1611
4634.6	23.2944	4447.92	23.6236	4312.51	23.9444	3931.24	24.1652
4631.85	23.2986	4444.29	23.6277	4309.91	23.9486	3919.44	24.1694
4629.46	23.3027	4442.98	23.6402	4307.09	23.9527	3917.56	24.1736
4631.78	23.3069	4440.28	23.6444	4304.36	23.9569	3913.8	24.1777
4631.96	23.3111	4434.27	23.6486	4260.2	23.9611	3918.3	24.1819
4627.19	23.3152	4431.86	23.6569	4226.97	23.9652	3917.91	24.1861
4692.77	23.3194	4430.22	23.6652	4205.06	23.9694	3905.43	24.1902
4697.88	23.3236	4428.16	23.6694	4190.68	23.9736	3903.31	24.1944
4697.99	23.3277	4424.48	23.6736	4179.5	23.9777	3900.27	24.1986
4694.45	23.3319	4420.59	23.6777	4169.59	23.9819	3906.22	24.2027
4697.42	23.3361	4418.14	23.6861	4159.94	23.9861	3897.26	24.2069
4697.17	23.3486	4415.48	23.6986	4150.65	23.9902	3889.55	24.2111
4694.96	23.3527	4411.47	23.7027	4141.71	23.9944	3887.9	24.2152
4697.02	23.3569	4406.98	23.7069	4133.91	23.9986	3891.73	24.2194
4697.07	23.3652	4404.27	23.7111	4126.39	24.0027	3893.29	24.2236
4693.65	23.3694	4403.39	23.7194	4119.05	24.0069	3881.39	24.2277
4694.66	23.3819	4395.93	23.7236	4111.95	24.0111	3882.61	24.2361
4690.88	23.3861	4397.74	23.7277	4104.94	24.0152	3887.25	24.2402
4691.79	23.3986	4390.24	23.7319	4097.87	24.0194	3874.62	24.2444
4687.29	23.4027	4392.9	23.7361	4090.97	24.0236	3876.28	24.2569
4688.03	23.4277	4385.44	23.7402	4084.29	24.0277	3861.98	24.2611
4683.93	23.4319	4389.04	23.7444	4077.36	24.0319	3863.43	24.2694
4686.21	23.4402	4381.06	23.7486	4071.49	24.0361	3868.24	24.2736
4683.57	23.4444	4383.96	23.7527	4066.11	24.0402	3856.27	24.2777
4683.45	23.4652	4375.73	23.7569	4060.11	24.0444	3856.13	24.2819
4680.77	23.4694	4379.22	23.7611	4053.78	24.0486	3862.79	24.2861
4681.64	23.5027	4380.68	23.7652	4047.1	24.0527	3857.34	24.2902
4676.64	23.5069	4372.85	23.7694	4041.4	24.0569	3851.83	24.2944
4679.27	23.5111	4374.87	23.7736	4037.68	24.0611	3849.91	24.2986
4679.44	23.5152	4374.38	23.7861	4035.58	24.0652	3857.67	24.3027
4677.25	23.5194	4369.41	23.7902	4033.58	24.0694	3843.56	24.3069
4677.51	23.5361	4369	23.7944	4029.42	24.0736	3841.87	24.3111
4674.6	23.5402	4366.28	23.7986	4020.54	24.0777	3848.29	24.3152
4670.47	23.5444	4360.87	23.8027	4010.36	24.0819	3844.78	24.3194
4672.47	23.5486	4358.85	23.8111	4002.68	24.0861	3837.75	24.3236



Pressure listings

Analysis 5 - 2-phi

Company Altamont Oil & Gas
Well Wallewein #22-1Field
Test Name / # Step Rate Test & Buildup

Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr
3837.38	24.3277	3776.2	24.5444	4590.78	24.9736	3756	25.3611
3846.57	24.3319	3792	24.5486	4590.84	24.9777	3644.18	25.3652
3834.4	24.3361	4217.16	24.5527	4594.32	24.9819	3521.49	25.3694
3832.71	24.3402	4474.31	24.5569	4591.27	24.9861	3395.72	25.3736
3838.59	24.3444	4553.13	24.5611	4591.21	24.9902	3274.87	25.3777
3831.23	24.3486	4583.6	24.5652	4593.35	24.9944	3169.5	25.3819
3826.46	24.3527	4597.01	24.5694	4593.31	24.9986	3077.47	25.3861
3828.98	24.3569	4593.85	24.5736	4589.49	25.0027	2994.82	25.3902
3832.32	24.3611	4592.29	24.5777	4593.86	25.0069	2919.94	25.3944
3824.03	24.3652	4597.32	24.5819	4593.4	25.0111	2856.08	25.3986
3823.97	24.3694	4597.63	24.5861	4590.19	25.0152	2800.99	25.4027
3831.93	24.3736	4593.36	24.5902	4593.75	25.0194	2751.68	25.4069
3819.32	24.3777	4593.81	24.5944	4593.52	25.0236	2707.51	25.4111
3818.92	24.3819	4597.04	24.5986	4590.73	25.0277	2667.08	25.4152
3827.46	24.3861	4598.97	24.6027	4592.98	25.0319	2629.74	25.4194
3812.58	24.3902	4593.33	24.6069	4595.49	25.0361	2595.16	25.4236
3812.23	24.3944	4592.81	24.6111	4614.46	25.0402	2563.18	25.4277
3820.57	24.3986	4596.49	24.6152	4651.82	25.0444	2532.68	25.4319
3812.85	24.4027	4596.19	24.6194	4649.76	25.0736	2503.97	25.4361
3810.97	24.4069	4591.53	24.6236	4647.53	25.0819	2476.8	25.4402
3817.98	24.4111	4592.88	24.6277	4647.75	25.1319	2451	25.4444
3811.89	24.4152	4596.03	24.6319	4645.47	25.1361	2426.58	25.4486
3808.06	24.4194	4592.94	24.6361	4643.42	25.1777	2403.26	25.4527
3812.52	24.4236	4590.8	24.6402	4643.66	25.1902	2381.17	25.4569
3806.71	24.4277	4595.1	24.6444	4641.03	25.1944	2360.26	25.4611
3802.3	24.4319	4596.99	24.6486	4644.05	25.2069	2340.05	25.4652
3807.89	24.4361	4590.93	24.6527	4641.68	25.2111	2320.94	25.4694
3805.16	24.4402	4590.62	24.6569	4641.78	25.2444	2302.62	25.4736
3801.45	24.4444	4594.39	24.6611	4639.57	25.2486	2285.16	25.4777
3805.59	24.4486	4590.96	24.7194	4642.31	25.2611	2268.33	25.4819
3803.53	24.4527	4590.85	24.7277	4639.12	25.2652	2252.21	25.4861
3798.57	24.4569	4587.99	24.7319	4641.19	25.2777	2236.74	25.4902
3800.91	24.4611	4588.89	24.7402	4639.29	25.2819	2221.77	25.4944
3798.06	24.4652	4584.52	24.7444	4634.43	25.2861	2207.28	25.4986
3791.64	24.4694	4589.55	24.7486	4634.77	25.2902	2193.38	25.5027
3796.59	24.4736	4589.64	24.7569	4473.03	25.2944	2179.86	25.5069
3796.45	24.4777	4587.34	24.7611	4411.52	25.2986	2166.8	25.5111
3792.32	24.4819	4590.02	24.7652	4381.25	25.3027	2153.99	25.5152
3797.4	24.4861	4591.78	24.8944	4361.11	25.3069	2141.39	25.5194
3793.81	24.4902	4586.64	24.8986	4341.14	25.3111	2128.9	25.5236
3789.37	24.4944	4591.29	24.9027	4318.28	25.3152	2116.09	25.5277
3794.83	24.4986	4591.28	24.9069	4292.79	25.3194	2103.25	25.5319
3787.08	24.5027	4587.45	24.9111	4265.55	25.3236	2089.83	25.5361
3783.7	24.5069	4591.29	24.9152	4235.98	25.3277	2076.1	25.5402
3793.18	24.5111	4591.31	24.9194	4201.25	25.3319	2062.61	25.5444
3783.77	24.5152	4588.72	24.9236	4187.36	25.3336	2050.38	25.5486
3783.58	24.5194	4590.36	24.9277	4159.84	25.3361	2039.57	25.5527
3794.16	24.5236	4593.18	24.9319	4113.97	25.3402	2029.86	25.5569
3781.6	24.5277	4588.33	24.9361	4062.47	25.3444	2021.16	25.5611
3779.83	24.5319	4591.29	24.9402	4003.6	25.3486	2013.14	25.5652
3789.14	24.5361	4590.66	24.9652	3934.68	25.3527	2005.66	25.5694
3774.74	24.5402	4594.75	24.9694	3852.72	25.3569	1998.55	25.5736



Pressure listings

Analysis 5 - 2-phi

Company Altamont Oil & Gas
Well Wallewein #22-1Field
Test Name / # Step Rate Test & Buildup

Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr
1991.52	25.5777	1803.46	25.7944	1675.04	26.6652	1560.66	27.8486
1984.26	25.5819	1801.41	25.7986	1672.83	26.6819	1558.55	27.8819
1977	25.5861	1797.52	25.8069	1670.64	26.6986	1556.48	27.9152
1970.07	25.5902	1793.8	25.8152	1668.45	26.7152	1554.44	27.9486
1963.54	25.5944	1790.26	25.8236	1666.29	26.7319	1552.3	27.9819
1957.3	25.5986	1786.67	25.8319	1664.14	26.7486	1550.18	28.0194
1951.23	25.6027	1782.81	25.8402	1661.84	26.7652	1548.15	28.0569
1945.48	25.6069	1779.96	25.8527	1659.73	26.7819	1546.07	28.0944
1940	25.6111	1777.53	25.8652	1657.27	26.8027	1544.04	28.1319
1934.79	25.6152	1776.46	25.8986	1655.19	26.8194	1541.84	28.1736
1929.77	25.6194	1771.62	25.9027	1653.13	26.8361	1539.69	28.2152
1925.24	25.6236	1768.5	25.9069	1651.09	26.8527	1537.6	28.2569
1920.94	25.6277	1766.36	25.9486	1649.06	26.8694	1535.57	28.2986
1916.69	25.6319	1764.19	25.9777	1647.06	26.8861	1533.39	28.3444
1912.45	25.6361	1762.1	26.0027	1644.58	26.9069	1531.28	28.3902
1908.45	25.6402	1759.77	26.0277	1642.14	26.9277	1529.22	28.4361
1904.51	25.6444	1757.67	26.0486	1639.72	26.9486	1527.22	28.4819
1900.63	25.6486	1755.44	26.0694	1637.34	26.9694	1525.08	28.5319
1896.9	25.6527	1753.11	26.0902	1634.97	26.9902	1523.01	28.5819
1893.2	25.6569	1750.68	26.1111	1632.63	27.0111	1520.99	28.6319
1889.62	25.6611	1748.67	26.1277	1630.32	27.0319	1518.85	28.6861
1886.12	25.6652	1746.49	26.1486	1628.04	27.0527	1516.76	28.7402
1882.72	25.6694	1744	26.1652	1625.79	27.0736	1514.74	28.7944
1879.39	25.6736	1741.81	26.1819	1623.57	27.0944	1512.62	28.8527
1876.24	25.6777	1739.63	26.1986	1621.37	27.1152	1510.56	28.9111
1873.04	25.6819	1737.42	26.2152	1619.21	27.1361	1508.56	28.9694
1869.87	25.6861	1735.17	26.2319	1617.08	27.1569	1506.49	29.0319
1866.77	25.6902	1732.9	26.2486	1614.97	27.1777	1504.47	29.0944
1863.71	25.6944	1730.61	26.2652	1612.9	27.1986	1502.39	29.1611
1860.73	25.6986	1728.31	26.2819	1610.86	27.2194	1500.37	29.2277
1857.77	25.7027	1725.99	26.2986	1608.85	27.2402	1498.31	29.2944
1854.87	25.7069	1723.67	26.3152	1606.46	27.2652	1496.23	29.3652
1852.04	25.7111	1721.32	26.3319	1604.11	27.2902	1494.12	29.4486
1849.27	25.7152	1718.97	26.3486	1601.8	27.3152	1492.02	29.5277
1846.47	25.7194	1716.63	26.3652	1599.53	27.3402	1489.99	29.6069
1843.75	25.7236	1714.28	26.3819	1597.3	27.3652	1487.92	29.6902
1841.08	25.7277	1711.93	26.3986	1595.09	27.3902	1485.83	29.7777
1838.43	25.7319	1709.57	26.4152	1592.93	27.4152	1483.81	29.8652
1835.84	25.7361	1707.22	26.4319	1590.81	27.4402	1481.77	29.9569
1833.3	25.7402	1704.87	26.4486	1588.72	27.4652	1479.71	30.0527
1830.77	25.7444	1702.52	26.4652	1586.65	27.4902	1477.64	30.1527
1828.31	25.7486	1700.17	26.4819	1584.63	27.5152	1475.57	30.2569
1825.87	25.7527	1697.83	26.4986	1582.31	27.5444	1473.49	30.3652
1823.47	25.7569	1695.5	26.5152	1580.03	27.5736	1471.43	30.4777
1821.12	25.7611	1693.18	26.5319	1577.8	27.6027	1469.37	30.5944
1818.75	25.7652	1690.87	26.5486	1575.61	27.6319	1467.32	30.7152
1816.47	25.7694	1688.57	26.5652	1573.48	27.6611	1465.29	30.8402
1814.22	25.7736	1686.29	26.5819	1571.37	27.6902	1463.27	30.9694
1811.99	25.7777	1684.01	26.5986	1569.31	27.7194	1461.22	31.1027
1809.81	25.7819	1681.75	26.6152	1567.29	27.7486	1459.18	31.2277
1807.65	25.7861	1679.51	26.6319	1565.03	27.7819	1457.16	31.3986
1805.53	25.7902	1677.28	26.6486	1562.82	27.8152	1455.15	31.5527



Pressure listings

Analysis 5 - 2-phi

Company Altamont Oil & Gas
Well Wallewein #22-1Field
Test Name / # Step Rate Test & Buildup

Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr
1453.13	31.7152	2342.16	42.4889	2761.75	42.7097	3012.64	42.9305
1451.11	31.8861	2471.77	42.493	2765.57	42.7139	3001.18	42.9347
1449.1	32.0652	2538.76	42.4972	2771.72	42.718	3014.45	42.9389
1447.09	32.2527	2569.11	42.5014	2776.06	42.7222	3005.93	42.943
1445.06	32.4527	2602.99	42.5055	2763.08	42.7264	3017.34	42.9472
1443.04	32.6652	2620.52	42.5097	2772.81	42.7305	3017.4	42.9514
1441.01	32.8902	2631.14	42.5139	2777.93	42.7347	3010.29	42.9555
1438.99	33.1277	2628.2	42.518	2778.21	42.7389	3017.91	42.9597
1436.96	33.3819	2646.52	42.5222	2767.33	42.743	3005.53	42.9639
1434.96	33.6486	2656.48	42.5264	2779.53	42.7472	3020.65	42.968
1432.94	33.9361	2652.35	42.5305	2784.94	42.7514	3016.34	42.9722
1430.92	34.2444	2656.96	42.5347	2818.45	42.7555	3018.69	42.9764
1428.9	34.5736	2666.47	42.5389	2882.91	42.7597	3021.82	42.9805
1426.89	34.9277	2674.4	42.543	2924.98	42.7639	3016.43	42.9847
1424.88	35.3069	2664.54	42.5472	2931.03	42.768	3033.88	42.9889
1422.88	35.7152	2680.79	42.5514	2953.13	42.7722	3028.48	42.993
1420.87	36.1611	2689.28	42.5555	2950.93	42.7764	3039.22	42.9972
1418.86	36.6444	2688.67	42.5639	2969.72	42.7805	3039.51	43.0014
1416.85	37.1694	2701.38	42.568	2971.31	42.7847	3030.97	43.0055
1414.85	37.7444	2709.28	42.5722	2965.09	42.7889	3042.75	43.0097
1412.84	38.3777	2693.3	42.5764	2976.64	42.793	3034.97	43.0139
1410.83	39.0777	2708.98	42.5805	2968.22	42.7972	3046.26	43.018
1408.99	39.7861	2715.86	42.5847	2985.08	42.8014	3046.28	43.0222
1408.98	39.7889	2710.65	42.5889	2985.12	42.8055	3037.82	43.0264
1406.97	40.643	2710.42	42.593	2979.18	42.8097	3049.28	43.0305
1404.97	41.5972	2721	42.5972	2986.9	42.8139	3041.59	43.0347
1404.27	42.3764	2727.46	42.6014	2976.97	42.818	3052.98	43.0389
1407.63	42.3805	2713.99	42.6055	2992.46	42.8222	3053.14	43.043
1476.06	42.3847	2727.1	42.6097	2992.87	42.8264	3044.82	43.0472
1573.39	42.3889	2732.69	42.6139	2988.99	42.8305	3056.95	43.0514
1599.49	42.393	2727.8	42.618	2998.32	42.8347	3049.19	43.0555
1651.22	42.3972	2724.29	42.6222	2989.8	42.8389	3059.69	43.0597
1743.03	42.4014	2733.7	42.6264	3006.16	42.843	3061.33	43.0639
2161.49	42.4055	2740.49	42.6305	3006.29	42.8472	3051.72	43.068
1976.25	42.4097	2728.19	42.6347	2998.6	42.8514	3066.07	43.0722
1789.17	42.4139	2740.16	42.6389	3010	42.8555	3059.89	43.0764
1748.93	42.418	2745.64	42.643	3002.22	42.8597	3065.5	43.0805
1760.46	42.4222	2745.5	42.6472	3015.79	42.8639	3063.73	43.0847
1760.29	42.4264	2738.05	42.6514	3018.04	42.868	3050.72	43.0889
1757.44	42.4305	2750.55	42.6555	3008.44	42.8722	3065.93	43.093
1754.75	42.4347	2757.21	42.6597	3021.2	42.8764	3060.09	43.0972
1751.93	42.4389	2744.99	42.6639	3013.6	42.8805	3061.69	43.1014
1749.16	42.443	2752.09	42.668	3021.51	42.8847	3064.03	43.1055
1746.39	42.4472	2757.87	42.6722	3021.93	42.8889	3053.1	43.1097
1743.63	42.4514	2759.86	42.6764	3010.39	42.893	3068.9	43.1139
1740.83	42.4555	2747.35	42.6805	3025.48	42.8972	3064.05	43.118
1771.03	42.4597	2760.14	42.6847	3020.67	42.9014	3067.38	43.1222
1779.77	42.4639	2765.95	42.6889	3023.21	42.9055	3070.49	43.1264
1780.42	42.4764	2760.65	42.693	3023.09	42.9097	3060.13	43.1305
1780.55	42.4801	2755.71	42.6972	3005.81	42.9139	3076.31	43.1347
1805.04	42.4805	2766.29	42.7014	3018.48	42.918	3072.12	43.1389
2059.42	42.4847	2773.12	42.7055	3011.54	42.9222	3077	43.143



Pressure listings

Analysis 5 - 2-phi

Company Altamont Oil & Gas
Well Wallewein #22-1Field
Test Name / # Step Rate Test & Buildup

Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr
3081.06	43.1472	3151.27	43.3722	3147.3	43.5889	3141.63	43.8055
3072.25	43.1514	3141.18	43.3764	3142.5	43.593	3134.62	43.8097
3089.94	43.1555	3152.93	43.3805	3141.41	43.5972	3139.05	43.8139
3089.69	43.1639	3151.99	43.3847	3148.54	43.6014	3142.75	43.818
3094.34	43.168	3140.35	43.3889	3145.03	43.6055	3136.51	43.8222
3084.69	43.1722	3152.78	43.393	3138.58	43.6097	3139.31	43.8264
3100.15	43.1764	3151.38	43.3972	3148.86	43.6139	3141.91	43.8305
3100.18	43.1805	3140.84	43.4014	3146.43	43.618	3134.97	43.8347
3093.45	43.1847	3152.92	43.4055	3137.46	43.6222	3139.53	43.8389
3104.54	43.1889	3148.82	43.4097	3150.12	43.6264	3144.79	43.843
3098.59	43.193	3144.81	43.4139	3146.7	43.6305	3137.58	43.8472
3108.73	43.1972	3150.3	43.418	3134.36	43.6347	3137.71	43.8514
3109.11	43.2014	3142.59	43.4222	3149.61	43.6389	3143.74	43.8555
3098.43	43.2055	3146.99	43.4264	3147.02	43.643	3138.7	43.8597
3116.53	43.2097	3148.82	43.4305	3133.88	43.6472	3138.84	43.8639
3115.04	43.2139	3140.42	43.4347	3149.13	43.6514	3144.75	43.868
3112.13	43.218	3150.76	43.4389	3147.32	43.6555	3139.28	43.8722
3121.36	43.2222	3148.8	43.443	3135.96	43.6597	3139.58	43.8764
3113.24	43.2264	3137.94	43.4472	3146.47	43.6639	3145.78	43.8805
3125.07	43.2305	3150.92	43.4514	3146.33	43.668	3140.65	43.8847
3127.79	43.2347	3148.64	43.4555	3136.57	43.6722	3140.49	43.8889
3117.88	43.2389	3140.24	43.4597	3140.79	43.6764	3147.28	43.893
3134.2	43.243	3150.92	43.4639	3142.26	43.6805	3142.23	43.8972
3130.42	43.2472	3146.8	43.468	3133.45	43.6847	3142.01	43.9014
3120.28	43.2514	3146.06	43.4722	3139.27	43.6889	3147.42	43.9055
3131.11	43.2555	3150.71	43.4764	3141.35	43.693	3143.1	43.9097
3125.31	43.2597	3146.19	43.4805	3132.52	43.6972	3143.24	43.9139
3127.54	43.2639	3146.47	43.4847	3138.79	43.7014	3148.41	43.918
3130.52	43.268	3151.37	43.4889	3139.34	43.7055	3143.18	43.9222
3121.45	43.2722	3145.62	43.493	3130.91	43.7097	3143.81	43.9264
3134.83	43.2764	3146.49	43.4972	3138.93	43.7139	3149.4	43.9305
3131.8	43.2805	3151.13	43.5014	3139.38	43.718	3143.44	43.9347
3123.76	43.2847	3144.26	43.5055	3129.5	43.7222	3146.72	43.9389
3142.22	43.2889	3147.09	43.5097	3138.77	43.7264	3149.99	43.943
3142.34	43.2972	3150.57	43.5139	3139.12	43.7305	3142.12	43.9472
3151.64	43.3014	3143.09	43.518	3131.17	43.7347	3148.63	43.9514
3148.97	43.3055	3146.83	43.5222	3139	43.7389	3151.13	43.9555
3155.52	43.3097	3150.55	43.5264	3139.17	43.743	3144.3	43.9597
3152.21	43.3139	3143.78	43.5305	3131.47	43.7472	3142.87	43.9639
3140.5	43.318	3146.93	43.5347	3139.49	43.7514	3150.62	43.968
3150.44	43.3222	3151.41	43.5389	3139.3	43.7555	3145.16	43.9722
3148.83	43.3264	3142.06	43.543	3130.89	43.7597	3128.52	43.9764
3137.64	43.3305	3142.45	43.5472	3140.44	43.7639	3122.56	43.9805
3153.18	43.3347	3145.11	43.5514	3140.27	43.768	3129.29	43.9847
3150.51	43.3389	3137.54	43.5555	3131.66	43.7722	3133.58	43.9889
3140.06	43.343	3141.2	43.5597	3139.14	43.7764	3129.76	43.993
3151.36	43.3472	3145.65	43.5639	3139.41	43.7805	3129.66	43.9972
3145.9	43.3514	3138.97	43.568	3132.06	43.7847	3125.17	44.0014
3145.97	43.3555	3141.66	43.5722	3139.65	43.7889	3115.91	44.0055
3150.28	43.3597	3146.3	43.5764	3139.98	43.793	3115.71	44.0097
3140.77	43.3639	3141.35	43.5805	3131.77	43.7972	3125.89	44.0139
3153.16	43.368	3141.76	43.5847	3138.77	43.8014	3131.56	44.018



Pressure listings

Analysis 5 - 2-phi

Company Altamont Oil & Gas
Well Wallewein #22-1Field
Test Name / # Step Rate Test & Buildup

Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr
3128.55	44.0222	3188.43	44.3847	3085.35	44.6055	3155.44	44.8889
3128.77	44.0264	3183.98	44.3889	3070.87	44.6097	3146.39	44.893
3121.89	44.0305	3189.48	44.393	3089.39	44.6139	3153.72	44.8972
3129.58	44.0347	3180.49	44.3972	3094.14	44.618	3156.44	44.9014
3143.31	44.0389	3160.52	44.4014	3074.82	44.6222	3152.9	44.9055
3139.19	44.043	3170.66	44.4055	3086.11	44.6264	3146.91	44.9097
3147.11	44.0472	3165.91	44.4097	3088.55	44.6305	3158.66	44.9139
3150.67	44.0514	3155.14	44.4139	3088.24	44.6347	3156.33	44.918
3141.7	44.0555	3159.98	44.418	3072.18	44.6389	3143.65	44.9222
3153.63	44.0597	3164.08	44.4222	3089.88	44.643	3157.83	44.9264
3153.29	44.0639	3160.46	44.4264	3094.75	44.6472	3157.78	44.9305
3141.65	44.068	3154.03	44.4305	3074.22	44.6514	3151.64	44.9347
3134.87	44.0722	3156.4	44.4347	3086.86	44.6555	3151.4	44.9389
3110.29	44.0764	3148.49	44.4389	3089.47	44.6597	3159.13	44.943
3104.72	44.0805	3138.57	44.443	3086.4	44.6639	3157.22	44.9472
3102.23	44.0847	3108.24	44.4472	3075.39	44.668	3145.44	44.9514
3098.68	44.0889	3104.45	44.4514	3091.35	44.6722	3159.32	44.9555
3099.68	44.143	3107.9	44.4555	3100.56	44.6764	3157.15	44.9597
3102.07	44.1472	3107.74	44.4597	3104.88	44.6805	3148.2	44.9639
3104.27	44.1555	3104.15	44.4639	3108.17	44.6847	3154.1	44.968
3106.38	44.1597	3087.45	44.468	3111.13	44.6889	3158.06	44.9722
3106.56	44.1639	3091.82	44.4722	3111.89	44.6972	3155.85	44.9764
3108.73	44.168	3101.69	44.4764	3115.32	44.7014	3145.87	44.9805
3110.33	44.2264	3103.49	44.4847	3117.2	44.7055	3160.02	44.9847
3112.39	44.2305	3088.2	44.4889	3119.66	44.7097	3157.82	44.9889
3112.84	44.2347	3086.41	44.493	3123.42	44.7139	3146.54	44.993
3114.88	44.2389	3099.97	44.4972	3126.83	44.718	3154.96	44.9972
3113.42	44.2597	3099.98	44.5014	3129.82	44.7222	3158.66	45.0014
3111.22	44.2639	3104.14	44.5055	3132.46	44.7264	3156.35	45.0055
3108.64	44.268	3091.73	44.5097	3135.18	44.7305	3149.32	45.0097
3106.18	44.2722	3083.96	44.5139	3132.96	44.7764	3165.57	45.0139
3103.19	44.2764	3098.44	44.518	3131.88	44.7805	3163.85	45.018
3137.93	44.2805	3099.83	44.5222	3129.58	44.7847	3152.39	45.0222
3147.96	44.2847	3104.12	44.5264	3126.85	44.7889	3156.75	45.0264
3164.08	44.2889	3097.38	44.5305	3123.21	44.793	3162.42	45.0305
3165.66	44.293	3082.76	44.5347	3118.71	44.7972	3162.25	45.0347
3173.58	44.2972	3094.27	44.5389	3119.29	44.8139	3148.89	45.0389
3173.48	44.3014	3100.89	44.543	3122.25	44.818	3163.21	45.043
3179.56	44.3055	3100.87	44.5472	3124.75	44.8222	3160.93	45.0472
3178.13	44.3097	3075.81	44.5514	3127.51	44.8264	3153.38	45.0514
3182.49	44.3139	3075.61	44.5555	3130.01	44.8305	3155.06	45.0555
3179.53	44.318	3070.75	44.5597	3127.41	44.843	3163.28	45.0597
3183.16	44.3222	3057.45	44.5639	3131.84	44.8472	3163.07	45.0639
3179.92	44.3264	3063.47	44.568	3130.35	44.8514	3150.21	45.068
3183.99	44.3305	3046.06	44.5722	3145.23	44.8555	3164.13	45.0722
3180.33	44.3347	3058.07	44.5764	3149.83	44.8597	3164	45.0764
3184.14	44.3389	3037.67	44.5805	3146.54	44.8639	3159.29	45.0805
3180.26	44.343	3065.47	44.5847	3146.37	44.868	3156.57	45.0847
3184.61	44.3472	3079.43	44.5889	3155.29	44.8722	3168.88	45.0889
3184.47	44.3722	3063.96	44.593	3155	44.8764	3166.4	45.093
3186.81	44.3764	3082.03	44.5972	3144.25	44.8805	3154.49	45.0972
3184.35	44.3805	3085.51	44.6014	3158.23	44.8847	3163.92	45.1014



Pressure listings

Analysis 5 - 2-phi

Company Altamont Oil & Gas
Well Wallewein #22-1Field
Test Name / # Step Rate Test & Buildup

Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr
3167.03	45.1055	3166.32	45.3305	3166.14	45.568	3167.62	45.7889
3164.44	45.1097	3154.55	45.3347	3164.65	45.5722	3167.84	45.7972
3153.46	45.1139	3162.74	45.3389	3152.89	45.5764	3160.48	45.8014
3167.94	45.118	3165.18	45.343	3164.97	45.5805	3172.15	45.8055
3164.46	45.1222	3163.18	45.3472	3163.6	45.5847	3168.87	45.8097
3158.85	45.1264	3154.06	45.3514	3158.46	45.5889	3161.56	45.8139
3159.27	45.1305	3167.44	45.3555	3158.45	45.593	3163.9	45.818
3165.77	45.1347	3164.27	45.3597	3164.73	45.5972	3171.71	45.8222
3165.98	45.1389	3156.41	45.3639	3164.78	45.6014	3170.06	45.8264
3154.81	45.143	3160.63	45.368	3153.86	45.6055	3157.44	45.8305
3165.58	45.1472	3166.42	45.3722	3164.84	45.6097	3169.87	45.8347
3164.34	45.1514	3164.78	45.3764	3164.09	45.6139	3169.82	45.8389
3159.72	45.1555	3152.74	45.3805	3159.69	45.618	3165.85	45.843
3159.04	45.1597	3166.13	45.3847	3157.85	45.6222	3159.7	45.8472
3166.52	45.1639	3164.26	45.3889	3166.86	45.6264	3173.03	45.8514
3165.46	45.168	3158.35	45.393	3165.7	45.6305	3170.23	45.8555
3154.66	45.1722	3156.52	45.3972	3154.55	45.6347	3160.13	45.8597
3165.5	45.1764	3167.09	45.4014	3163.23	45.6389	3164.87	45.8639
3164.81	45.1805	3164.89	45.4055	3162.49	45.6472	3170.24	45.868
3160.39	45.1847	3152.46	45.4097	3154.8	45.6514	3170.01	45.8722
3157.45	45.1889	3162.55	45.4139	3168.2	45.6555	3156.28	45.8764
3166.82	45.193	3164.86	45.418	3165.28	45.6597	3169.51	45.8805
3165.89	45.1972	3162.85	45.4222	3155.77	45.6639	3169.17	45.8847
3154.55	45.2014	3149.15	45.4264	3161.61	45.668	3164.52	45.8889
3164.53	45.2055	3140.09	45.4305	3165.74	45.6722	3160.49	45.893
3162.61	45.2139	3133.08	45.4347	3165.42	45.6764	3166.77	45.8972
3156.8	45.218	3128.23	45.4389	3153.92	45.6805	3134.55	45.9014
3167.17	45.2222	3128.64	45.443	3167.6	45.6847	3117.72	45.9055
3166.32	45.2264	3133.32	45.4472	3164.92	45.6889	3120.42	45.9097
3156.62	45.2305	3138.62	45.4514	3158.43	45.693	3119.99	45.9139
3162.99	45.2347	3141.36	45.4555	3158.37	45.6972	3105.44	45.918
3163.7	45.243	3140.17	45.4805	3167.48	45.7014	3095.27	45.9222
3155.98	45.2472	3137.11	45.4847	3165.4	45.7055	3109.6	45.9264
3167.48	45.2514	3151.61	45.4889	3153.63	45.7097	3107.96	45.9347
3165.01	45.2555	3159.26	45.493	3165.79	45.7139	3088.96	45.9389
3157.92	45.2597	3159.27	45.4972	3165.62	45.718	3103.8	45.943
3161.64	45.2639	3151.76	45.5014	3161.91	45.7222	3105.33	45.9472
3165.57	45.268	3166.57	45.5055	3157.14	45.7264	3111.35	45.9514
3165.33	45.2722	3164.4	45.5097	3169.51	45.7305	3095.62	45.9555
3154.82	45.2764	3156.52	45.5139	3167.34	45.7347	3095.26	45.9597
3167.05	45.2805	3160.06	45.518	3156.86	45.7389	3107.84	45.9639
3165.33	45.2847	3167.32	45.5222	3164.55	45.743	3109.49	45.968
3159.53	45.2889	3166.96	45.5264	3169.05	45.7472	3104.3	45.9722
3159.15	45.293	3153.33	45.5305	3168.84	45.7514	3089.14	45.9764
3166.8	45.2972	3165.89	45.5347	3157.12	45.7555	3106.33	45.9805
3166.61	45.3014	3165.77	45.5389	3170.71	45.7597	3106.32	45.9847
3154.39	45.3055	3161.81	45.543	3168.72	45.7639	3110.86	45.9889
3165.29	45.3097	3156.73	45.5472	3162.29	45.768	3093.82	45.993
3165.33	45.3139	3168.65	45.5514	3161.92	45.7722	3097.39	45.9972
3161.77	45.318	3165.99	45.5555	3171.39	45.7764	3107.34	46.0014
3156.2	45.3222	3157.02	45.5597	3169.68	45.7805	3109.42	46.0055
3168.64	45.3264	3161.88	45.5639	3157.78	45.7847	3100.93	46.0097



Pressure listings

Analysis 5 - 2-phi

Company Altamont Oil & Gas
Well Wallewein #22-1Field
Test Name / # Step Rate Test & Buildup

Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr
3091.95	46.0139	3088.38	46.2347	3068.31	46.4514	3081.12	46.668
3107.89	46.018	3078.7	46.2389	3070.56	46.4555	3069.95	46.6722
3107.85	46.0264	3090.43	46.243	3051.35	46.4597	3072.68	46.6764
3090.37	46.0305	3063.88	46.2472	3065.4	46.4639	3073.39	46.6805
3103.29	46.0347	3083	46.2514	3042.83	46.468	3054.87	46.6847
3105.67	46.0389	3067.11	46.2555	3075.37	46.4722	3073.52	46.6889
3111.79	46.043	3083.04	46.2597	3060.11	46.4764	3054.02	46.693
3096.93	46.0472	3079.49	46.2639	3069.02	46.4805	3081.84	46.6972
3093.74	46.0514	3082.14	46.268	3069.17	46.4847	3074.83	46.7014
3108.8	46.0555	3089.63	46.2722	3052.43	46.4889	3069.21	46.7055
3109.18	46.0597	3067.31	46.2764	3064.98	46.493	3072.57	46.7097
3113.87	46.0639	3085.61	46.2805	3044	46.4972	3052.94	46.7139
3100.01	46.068	3055.55	46.2847	3076.23	46.5014	3074.84	46.718
3096.01	46.0722	3083.22	46.2889	3061.32	46.5055	3055.21	46.7222
3111.33	46.0764	3067.56	46.293	3074.58	46.5097	3081.32	46.7264
3110.98	46.0805	3071.03	46.2972	3074.71	46.5139	3074.21	46.7305
3116.28	46.0847	3071.29	46.3014	3057.4	46.518	3068.3	46.7347
3107.93	46.0889	3052.79	46.3055	3069.06	46.5222	3071.22	46.7389
3095.53	46.093	3065.82	46.3097	3047.52	46.5264	3052.61	46.743
3107.43	46.0972	3043.76	46.3139	3081.05	46.5305	3075.47	46.7472
3112.31	46.1014	3075.57	46.318	3067.91	46.5347	3057.61	46.7514
3114.52	46.1055	3060.56	46.3222	3074.58	46.5389	3080.84	46.7555
3114.44	46.1097	3071.91	46.3264	3076.81	46.543	3075.83	46.7597
3099.99	46.1139	3071.89	46.3305	3056.61	46.5472	3067.51	46.7639
3100.64	46.118	3056.08	46.3347	3071.74	46.5514	3071.86	46.768
3111.85	46.1222	3064.76	46.3389	3049.01	46.5555	3052.62	46.7722
3112.2	46.1264	3042.87	46.343	3082.16	46.5597	3076.12	46.7764
3115.65	46.1305	3072.38	46.3472	3070.79	46.5639	3058.01	46.7805
3105.57	46.1347	3054.27	46.3514	3071.18	46.568	3079.7	46.7847
3096.57	46.1389	3074.89	46.3555	3073.35	46.5722	3077.09	46.7889
3109.78	46.143	3071.17	46.3597	3051.73	46.5764	3065.38	46.793
3112.17	46.1472	3058.7	46.3639	3073.37	46.5805	3071.21	46.7972
3115.85	46.1514	3065.8	46.368	3053.79	46.5847	3049.03	46.8014
3111.48	46.1555	3043.94	46.3722	3081.71	46.5889	3078.17	46.8055
3097.5	46.1597	3070.37	46.3764	3075.33	46.593	3059.65	46.8097
3102.76	46.1639	3049.51	46.3805	3067.91	46.5972	3081.42	46.8139
3113.51	46.168	3075.04	46.3847	3071.09	46.6014	3076.89	46.818
3113.3	46.1722	3069.48	46.3889	3051.6	46.6055	3065.17	46.8222
3116.42	46.1764	3060.89	46.393	3076.55	46.6097	3071.4	46.8264
3103.32	46.1805	3065.19	46.3972	3059.32	46.6139	3051.1	46.8305
3097.14	46.1847	3046.38	46.4014	3079.33	46.618	3076.37	46.8347
3112.52	46.1889	3068.48	46.4055	3077.23	46.6222	3057.46	46.8389
3112.36	46.193	3049.37	46.4097	3063.61	46.6264	3082.41	46.843
3117.61	46.1972	3075.21	46.4139	3071.06	46.6305	3076.38	46.8472
3107.88	46.2014	3067.33	46.418	3049.7	46.6347	3066.18	46.8514
3096.35	46.2055	3064.33	46.4222	3079.13	46.6389	3071.43	46.8555
3109.45	46.2097	3066.75	46.4264	3063.2	46.643	3050.36	46.8597
3106.32	46.2139	3048.64	46.4305	3076.11	46.6472	3074.08	46.8639
3076.07	46.218	3066.32	46.4347	3076.1	46.6514	3053.32	46.868
3089.53	46.2222	3045.56	46.4389	3060.25	46.6555	3081.55	46.8722
3078.26	46.2264	3076.78	46.443	3070.4	46.6597	3073.27	46.8764
3088.72	46.2305	3064.59	46.4472	3050.46	46.6639	3066.82	46.8805



Pressure listings

Analysis 5 - 2-phi

Company Altamont Oil & Gas
Well Wallewein #22-1Field
Test Name / # Step Rate Test & Buildup

Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr
3068.23	46.8847	3049.1	47.1014	3056.1	47.3222	3071.09	47.5389
3047.18	46.8889	3069.36	47.1055	3078.05	47.3264	3053.27	47.543
3068.54	46.893	3069.23	47.1097	3072.75	47.3305	3070.78	47.5472
3046.6	46.8972	3060.3	47.1139	3065.78	47.3347	3068.2	47.5514
3078.01	46.9014	3067.13	47.118	3069.86	47.3389	3056.84	47.5555
3065.85	46.9055	3048.59	47.1222	3051.65	47.343	3062.13	47.5597
3024.61	46.9097	3069.62	47.1264	3071.77	47.3472	3044.24	47.5639
3048.35	46.9139	3048.69	47.1305	3051.16	47.3514	3065.81	47.568
3054.58	46.918	3079.24	47.1347	3079.42	47.3555	3046.61	47.5722
3058.1	46.9222	3068.49	47.1389	3069.38	47.3597	3072.84	47.5764
3041.58	46.9264	3070.05	47.143	3069.94	47.3639	3063.34	47.5805
3058.08	46.9305	3073.03	47.1472	3071.99	47.368	3063.74	47.5847
3040.16	46.9347	3054.22	47.1514	3055.52	47.3722	3066.09	47.5889
3073.62	46.9389	3069.16	47.1555	3069.03	47.3764	3049.96	47.593
3058.39	46.943	3046.31	47.1597	3049.27	47.3805	3062.48	47.5972
3072.7	46.9472	3077.91	47.1639	3078.59	47.3847	3041.56	47.6014
3072.61	46.9514	3061.64	47.168	3066.45	47.3889	3070.44	47.6055
3059.69	46.9555	3074.4	47.1722	3072.71	47.393	3055.03	47.6097
3066.63	46.9597	3074.09	47.1764	3073.26	47.3972	3066.75	47.6139
3046.45	46.9639	3060.24	47.1805	3055.7	47.4014	3067.06	47.618
3073.29	46.968	3067.79	47.1847	3068.36	47.4055	3054.54	47.6222
3060.04	46.9722	3047.74	47.1889	3046.74	47.4097	3062.02	47.6264
3069.09	46.9764	3074.68	47.193	3078.46	47.4139	3042.47	47.6305
3069.49	46.9805	3057.54	47.1972	3062.39	47.418	3067.14	47.6347
3045.06	46.9847	3078.03	47.2014	3075.88	47.4222	3047.59	47.6389
3068.68	46.9889	3073.86	47.2055	3075.69	47.4264	3071.9	47.643
3052.3	46.993	3063.32	47.2097	3059.69	47.4305	3064.22	47.6472
3076.87	46.9972	3069.02	47.2139	3068.68	47.4347	3061.64	47.6514
3070.84	47.0014	3050.23	47.218	3046.43	47.4389	3064.24	47.6555
3063.84	47.0055	3071.9	47.2222	3076.83	47.443	3047.28	47.6597
3069.58	47.0097	3052.6	47.2264	3059.15	47.4472	3062.73	47.6639
3049.12	47.0139	3078.74	47.2305	3078.1	47.4514	3042.71	47.668
3069.44	47.018	3070.36	47.2347	3074.87	47.4555	3072.09	47.6722
3047.2	47.0222	3072.18	47.243	3062.96	47.4597	3058.54	47.6764
3078.83	47.0264	3053.98	47.2472	3069.09	47.4639	3067.2	47.6805
3065.71	47.0305	3070.34	47.2514	3046.75	47.468	3067.48	47.6847
3070.77	47.0347	3049.2	47.2555	3071.13	47.4722	3054.46	47.6889
3072.39	47.0389	3079.28	47.2597	3051.13	47.4764	3061.63	47.693
3055.98	47.043	3066.94	47.2639	3074.53	47.4805	3041.3	47.6972
3066.45	47.0472	3072.27	47.268	3067.17	47.4847	3067.67	47.7014
3066.1	47.0514	3072.96	47.2722	3060.3	47.4889	3047.29	47.7055
3031.24	47.0555	3058.41	47.2764	3064.76	47.493	3073.29	47.7097
3062.14	47.0597	3068.38	47.2805	3045.06	47.4972	3065.66	47.7139
3048.22	47.0639	3048.7	47.2847	3063.98	47.5014	3061.87	47.718
3054.77	47.068	3076.8	47.2889	3043.16	47.5055	3063.91	47.7222
3017.65	47.0722	3060.4	47.293	3073.5	47.5097	3044.31	47.7264
3049.6	47.0764	3073.98	47.2972	3062.51	47.5139	3062.05	47.7305
3049.21	47.0805	3074.16	47.3014	3065.17	47.518	3038.95	47.7347
3055.08	47.0847	3061.41	47.3055	3067.85	47.5222	3069.37	47.7389
3018.4	47.0889	3068.23	47.3097	3049.71	47.5264	3050.31	47.743
3039.97	47.093	3048.81	47.3139	3062.51	47.5305	3068.23	47.7472
3054.29	47.0972	3074.5	47.318	3039.77	47.5347	3064.38	47.7514



Pressure listings

Analysis 5 - 2-phi

Company Altamont Oil & Gas
Well Wallewein #22-1Field
Test Name / # Step Rate Test & Buildup

Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr
3057.13	47.7555	3068.03	47.9722	3043.8	48.1889	2582.53	48.4055
3061.22	47.7597	3048.62	47.9764	3060.34	48.193	2574.43	48.4097
3044.48	47.7639	3069.21	47.9805	3058.35	48.1972	2567.36	48.4139
3061.43	47.768	3046.24	47.9847	3051.95	48.2014	2568.53	48.4222
3040.7	47.7722	3075.37	47.9889	3045.77	48.2055	2580.97	48.4264
3069.82	47.7764	3054.07	47.993	3063.23	48.2097	2573.31	48.4305
3053.31	47.7805	3079.96	47.9972	3063.36	48.2139	2567.66	48.4347
3067.45	47.7847	3066.55	48.0014	3038.32	48.218	2562.69	48.4389
3065.61	47.7889	3074.6	48.0055	3069.19	48.2222	2568.82	48.443
3056.68	47.793	3074.38	48.0097	3065.74	48.2264	2545.94	48.4472
3061.39	47.7972	3064	48.0139	3032.05	48.2305	2568.13	48.4514
3043.94	47.8014	3071.63	48.018	3071.54	48.2347	2545.98	48.4555
3062.29	47.8055	3056.31	48.0222	3061.89	48.2389	2559.77	48.4597
3040.08	47.8097	3070.71	48.0264	3031.81	48.243	2543.06	48.4639
3071.12	47.8139	3050.37	48.0305	3061.18	48.2472	2564.59	48.468
3054.98	47.818	3076.49	48.0347	3007.96	48.2514	2545.8	48.4722
3068.23	47.8222	3055.01	48.0389	2947.67	48.2555	2555.68	48.4764
3067.88	47.8264	3082.42	48.043	2926.4	48.2597	2547.97	48.4805
3055.23	47.8305	3069.36	48.0472	2914.38	48.2639	2559.2	48.4847
3061.09	47.8347	3079.35	48.0514	2907.68	48.268	2558.49	48.493
3041.05	47.8389	3077.98	48.0555	2886.29	48.2722	2555.89	48.4972
3064.46	47.843	3070.61	48.0597	2811.33	48.2764	2555.3	48.5014
3042.47	47.8472	3076.27	48.0639	2737.02	48.2805	2570.61	48.5055
3072.8	47.8514	3060.61	48.068	2674.7	48.2847	2567.45	48.5097
3058.89	47.8555	3072.1	48.0722	2659.2	48.2889	2567.45	48.5139
3066.47	47.8597	3050.63	48.0764	2624.16	48.293	2557.84	48.518
3066.09	47.8639	3077.18	48.0805	2608.07	48.2972	2554.4	48.5222
3054.54	47.868	3055.11	48.0847	2618.44	48.3014	2568.7	48.5264
3062.78	47.8722	3083.97	48.0889	2606.42	48.3055	2565.61	48.5305
3045.81	47.8764	3066.45	48.093	2595.5	48.3097	2568.58	48.5347
3063.25	47.8805	3082.97	48.0972	2591.67	48.3139	2558.73	48.5389
3041.89	47.8847	3078.01	48.1014	2592.15	48.318	2554.44	48.543
3069.08	47.8889	3076.76	48.1055	2599.57	48.3222	2564.81	48.5472
3047.65	47.893	3080.19	48.1097	2588.36	48.3264	2566.8	48.5555
3074.21	47.8972	3066.34	48.1139	2578.64	48.3305	2558.79	48.5597
3059.06	47.9014	3076.41	48.118	2587.82	48.3347	2553.03	48.5639
3068.64	47.9055	3056.65	48.1222	2587.7	48.3389	2564.67	48.568
3068.61	47.9097	3077.4	48.1264	2592.55	48.343	2564.26	48.5722
3060.1	47.9139	3054.27	48.1305	2582.83	48.3472	2568.81	48.5764
3066.76	47.918	3082.7	48.1347	2574.07	48.3514	2559.68	48.5805
3051.34	47.9222	3060.74	48.1389	2581.6	48.3555	2552.95	48.5847
3062.94	47.9264	3087.11	48.143	2581.38	48.3597	2561.63	48.5889
3043.75	47.9305	3071.35	48.1472	2587.57	48.3639	2561.64	48.593
3067.21	47.9347	3080.38	48.1514	2577.68	48.368	2568.44	48.5972
3044.55	47.9389	3080.07	48.1555	2570.61	48.3722	2560.39	48.6014
3075.02	47.943	3067.85	48.1597	2576.98	48.3764	2553.08	48.6055
3057.93	47.9472	3074.24	48.1639	2577.28	48.3805	2558.52	48.6097
3075.29	47.9514	3055.57	48.168	2584.6	48.3847	2560.06	48.6139
3068.89	47.9555	3075.5	48.1722	2576.02	48.3889	2569.12	48.618
3068.93	47.9597	3053.75	48.1764	2567.71	48.393	2560.32	48.6222
3073.2	47.9639	3077.2	48.1805	2571.33	48.3972	2550.69	48.6264
3060.01	47.968	3062.58	48.1847	2573.3	48.4014	2557.55	48.6305



Pressure listings

Analysis 5 - 2-phi

Company Altamont Oil & Gas
Well Wallewein #22-1Field
Test Name / # Step Rate Test & Buildup

Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr
2559.36	48.6347	2551.89	48.8514	2545.71	49.0764	2541.24	49.2972
2565.88	48.6389	2545.11	48.8555	2549.2	49.0847	2552.63	49.3014
2557.05	48.643	2555.64	48.8597	2558.13	49.0889	2550.85	49.3097
2550.67	48.6472	2555.74	48.8639	2550.72	49.093	2542.59	49.3139
2558.44	48.6514	2560.4	48.868	2545.41	49.0972	2541.35	49.318
2558.59	48.6555	2550.95	48.8722	2547.36	49.1014	2556.24	49.3222
2566.01	48.6597	2543.68	48.8764	2549.6	49.1055	2551.76	49.3264
2557.63	48.6639	2556.3	48.8805	2557.27	49.1097	2547.63	49.3305
2551.14	48.668	2556.22	48.8847	2550.6	49.1139	2542.76	49.3347
2556.35	48.6722	2559.47	48.8889	2544.73	49.118	2543.99	49.3389
2558.2	48.6764	2549.07	48.893	2548.74	49.1222	2556.55	49.343
2566.01	48.6805	2543.88	48.8972	2548.94	49.1264	2550.16	49.3472
2557.83	48.6847	2558.06	48.9014	2557.02	49.1305	2543.82	49.3514
2549.16	48.6889	2555.67	48.9055	2550.4	49.1347	2544.31	49.3555
2556.39	48.693	2557.08	48.9097	2544.75	49.1389	2546.54	49.3597
2557.95	48.6972	2547.18	48.9139	2547.99	49.143	2555.93	49.3639
2565.84	48.7014	2544.32	48.918	2548.78	49.1472	2549.41	49.368
2557.23	48.7055	2558.72	48.9222	2558	49.1514	2543.6	49.3722
2549.96	48.7097	2555.85	48.9264	2550.84	49.1555	2546.38	49.3805
2555.33	48.7139	2556.02	48.9305	2544.34	49.1597	2555.73	49.3847
2555.72	48.718	2546.19	48.9347	2547.16	49.1639	2549.22	49.3889
2565.3	48.7222	2542.1	48.9389	2549.04	49.168	2542.94	49.393
2557.25	48.7264	2560.03	48.943	2557.66	49.1722	2546.03	49.3972
2549.2	48.7305	2555.61	48.9472	2551.1	49.1764	2547.92	49.4014
2553.99	48.7347	2552.86	48.9514	2544.84	49.1805	2554.73	49.4055
2556.01	48.7389	2544.84	48.9555	2547.84	49.1847	2545.85	49.4097
2564.57	48.743	2544.75	48.9597	2548.17	49.1889	2539.72	49.4139
2556.47	48.7472	2560.86	48.9639	2558.55	49.193	2550.88	49.418
2547.8	48.7514	2554.84	48.968	2550.09	49.1972	2551.33	49.4264
2553.97	48.7555	2550.4	48.9722	2541.13	49.2014	2542.54	49.4305
2556.47	48.7597	2544.43	48.9764	2550.41	49.2055	2540.62	49.4347
2564.47	48.7639	2545.86	48.9805	2550.79	49.2097	2555.05	49.4389
2555.35	48.768	2560.37	48.9847	2555.18	49.2139	2550.57	49.443
2547.85	48.7722	2554.42	48.9889	2543.91	49.218	2548.42	49.4472
2554.66	48.7764	2548.3	48.993	2539.2	49.2222	2542.02	49.4514
2554.97	48.7805	2545.61	48.9972	2556.28	49.2264	2542.34	49.4555
2563.28	48.7847	2545.81	49.0014	2552.81	49.2305	2555.39	49.4597
2554.45	48.7889	2558.99	49.0055	2550.8	49.2347	2550.27	49.4639
2548.18	48.793	2553.18	49.0097	2541.96	49.2389	2546.01	49.468
2554.59	48.7972	2548.16	49.0139	2542.33	49.243	2543.26	49.4722
2554.96	48.8014	2547.53	49.0222	2557.32	49.2472	2542.93	49.4764
2563.21	48.8055	2559.23	49.0264	2551.6	49.2514	2555.72	49.4805
2553.84	48.8097	2552.19	49.0305	2544.24	49.2555	2550.01	49.4847
2545.72	48.8139	2545.66	49.0347	2544.62	49.2597	2544.64	49.4889
2554.43	48.818	2546.53	49.0389	2548.04	49.2639	2544.99	49.4972
2555.98	48.8222	2548.85	49.043	2555.6	49.268	2556.35	49.5014
2562.61	48.8264	2558.31	49.0472	2548.46	49.2722	2548.96	49.5055
2553.37	48.8305	2551.75	49.0514	2542.14	49.2764	2542.54	49.5097
2545.54	48.8347	2546.42	49.0555	2549.24	49.2805	2545.32	49.5139
2555.2	48.8389	2548.36	49.0639	2549.52	49.2847	2547.73	49.518
2555.23	48.843	2557.85	49.068	2553.61	49.2889	2553.49	49.5222
2561.17	48.8472	2551.58	49.0722	2545.14	49.293	2545.39	49.5264



Pressure listings

Analysis 5 - 2-phi

Company Altamont Oil & Gas
Well Wallewein #22-1Field
Test Name / # Step Rate Test & Buildup

Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr
2540.14	49.5305	2548.16	49.7597	2541.83	49.9847	2542.68	50.2139
2549.54	49.5347	2551.54	49.7639	2547.79	49.9889	2544.13	50.218
2549.38	49.5389	2542.74	49.768	2549.43	49.993	2556.63	50.2222
2552.3	49.543	2539.81	49.7722	2553.82	49.9972	2551.09	50.2264
2544.16	49.5472	2551.48	49.7764	2546.16	50.0014	2544.76	50.2305
2540.6	49.5514	2549.77	49.7847	2541.19	50.0055	2546	50.2389
2550.89	49.5555	2541.46	49.7889	2551.5	50.0097	2556.18	50.243
2550.51	49.5639	2539.56	49.793	2552.16	50.018	2549.34	50.2472
2542.05	49.568	2553.69	49.7972	2543.68	50.0222	2542.09	50.2514
2539.5	49.5722	2550.17	49.8014	2541.56	50.0264	2548.58	50.2555
2553.46	49.5764	2548.2	49.8055	2554.2	50.0305	2549.38	50.2597
2550.67	49.5805	2541.24	49.8097	2551.6	50.0347	2553.46	50.2639
2549.5	49.5847	2540.68	49.8139	2550.32	50.0389	2543.87	50.268
2541.42	49.5889	2554.91	49.818	2542.97	50.043	2539.75	50.2722
2540.79	49.593	2549.41	49.8222	2542.25	50.0472	2554.38	50.2764
2554.5	49.5972	2546.41	49.8264	2556.88	50.0514	2551.53	50.2805
2550.05	49.6014	2541.87	49.8305	2551.82	50.0555	2550.42	50.2847
2548.62	49.6055	2541.9	49.8347	2546.24	50.0597	2542.74	50.2889
2541.65	49.6097	2554.81	49.8389	2543.6	50.0639	2542.33	50.293
2541.14	49.6139	2549.55	49.843	2545.18	50.068	2556.35	50.2972
2554.08	49.618	2545.37	49.8472	2557.16	50.0722	2551.1	50.3014
2550.15	49.6222	2542.25	49.8514	2550.58	50.0764	2545.49	50.3055
2548.04	49.6264	2542.07	49.8555	2543.63	50.0805	2545.75	50.3139
2541.38	49.6305	2555.08	49.8597	2546.13	50.0847	2555.9	50.318
2540.94	49.6347	2550.02	49.8639	2548.91	50.0889	2549.65	50.3222
2555.09	49.6389	2545.14	49.868	2554.65	50.093	2541.73	50.3264
2549.51	49.643	2542.96	49.8722	2546.72	50.0972	2548.57	50.3305
2545.96	49.6472	2544.11	49.8764	2541	50.1014	2548.87	50.3347
2541.58	49.6514	2554.77	49.8805	2551.29	50.1055	2553.22	50.3389
2542.6	49.6555	2547.85	49.8847	2552.79	50.1139	2544.8	50.343
2555.28	49.6597	2540.14	49.8889	2543.94	50.118	2540.92	50.3472
2549.4	49.6639	2547.21	49.893	2541.6	50.1222	2553.1	50.3514
2543.45	49.668	2549.18	49.8972	2553.96	50.1264	2550.99	50.3555
2544.1	49.6764	2554.04	49.9014	2551.94	50.1305	2549.69	50.3597
2554.78	49.6805	2544.21	49.9055	2551.57	50.1347	2542.51	50.3639
2548.73	49.6847	2538.25	49.9097	2542.57	50.1389	2542	50.368
2543.23	49.6889	2553.19	49.9139	2542.03	50.143	2556.28	50.3722
2544	49.6972	2551	49.918	2556.58	50.1472	2551.37	50.3764
2554.73	49.7014	2551.19	49.9222	2550.89	50.1514	2545.54	50.3805
2548.29	49.7055	2542.03	49.9264	2544.8	50.1555	2545.87	50.3889
2542.86	49.7097	2540.29	49.9305	2545.44	50.1597	2556.24	50.393
2543.21	49.7139	2555.89	49.9347	2548	50.1639	2548.94	50.3972
2545.35	49.718	2551.85	49.9389	2555.72	50.168	2541.44	50.4014
2555.08	49.7222	2547.96	49.943	2547.49	50.1722	2548.14	50.4055
2547.88	49.7264	2542.18	49.9472	2540.08	50.1764	2549.88	50.4097
2540.88	49.7305	2542.27	49.9514	2551.53	50.1805	2552.79	50.4139
2544.93	49.7347	2556.32	49.9555	2552.08	50.1889	2543.35	50.418
2546.61	49.7389	2550.68	49.9597	2542.86	50.193	2540.77	50.4222
2553.48	49.743	2544.62	49.9639	2541.65	50.1972	2556.41	50.4264
2546.58	49.7472	2546.36	49.9722	2556.1	50.2014	2551.29	50.4305
2539.68	49.7514	2556.63	49.9764	2551.21	50.2055	2545.03	50.4347
2548.08	49.7555	2549.61	49.9805	2547.69	50.2097	2542.06	50.4389



Pressure listings

Analysis 5 - 2-phi

Company Altamont Oil & Gas
Well Wallewein #22-1Field
Test Name / # Step Rate Test & Buildup

Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr
2546.56	50.443	1710.98	50.7514	1587.05	51.3055	1474	53.4055
2557.52	50.4472	1708.43	50.7597	1584.58	51.3222	1471.95	53.518
2547.88	50.4514	1705.89	50.768	1582.16	51.3389	1469.88	53.6389
2539.83	50.4555	1703.39	50.7764	1579.79	51.3555	1467.87	53.7639
2550.78	50.4597	1700.91	50.7847	1577.49	51.3722	1465.86	53.893
2551.39	50.468	1698.44	50.793	1575.24	51.3889	1463.82	54.018
2541.23	50.4722	1696	50.8014	1573.04	51.4055	1461.78	54.193
2540.94	50.4764	1693.58	50.8097	1570.59	51.4222	1459.74	54.3555
2557.01	50.4805	1691.18	50.818	1568.27	51.443	1457.73	54.5264
2551.97	50.4847	1688.82	50.8264	1566.26	51.4597	1455.7	54.7097
2546.48	50.4889	1686.47	50.8347	1563.79	51.4805	1453.67	54.9055
2542.22	50.493	1684.15	50.843	1561.39	51.5014	1451.65	55.1139
2544.64	50.4972	1681.85	50.8514	1559.06	51.5222	1449.64	55.3347
2557.66	50.5014	1679.56	50.8597	1556.79	51.543	1447.62	55.5722
2548.47	50.5055	1677.29	50.868	1554.59	51.5639	1445.6	55.8264
2540.38	50.5097	1675.05	50.8764	1552.45	51.5847	1443.6	56.0972
2549.22	50.5139	1672.83	50.8847	1550.37	51.6055	1441.58	56.3889
2550.83	50.518	1670.62	50.893	1548.34	51.6264	1439.57	56.7014
2553.6	50.5222	1668.45	50.9014	1545.99	51.6514	1437.55	57.0389
2542.78	50.5264	1666.29	50.9097	1543.71	51.6764	1435.53	57.4014
2539.16	50.5305	1664.16	50.918	1541.52	51.7014	1433.53	57.7889
2556.66	50.5347	1662.05	50.9264	1539.39	51.7264	1431.52	58.2097
2552.37	50.5389	1659.96	50.9347	1537.34	51.7514	1429.51	58.6639
2547.17	50.543	1657.89	50.943	1535.02	51.7805	1427.51	59.1555
2543.26	50.5462	1655.84	50.9514	1532.8	51.8097	1425.5	59.6889
2426.94	50.5472	1653.81	50.9597	1530.65	51.8389	1423.5	60.268
1957.27	50.5514	1651.8	50.968	1528.58	51.868	1421.49	60.9014
1806.96	50.5555	1648.83	50.9805	1526.3	51.9014	1419.49	61.593
1775.08	50.5597	1645.92	50.993	1524.12	51.9347	1417.48	62.3514
1770.52	50.5639	1643.07	51.0055	1522.02	51.968	1415.48	63.1597
1768.27	50.568	1640.25	51.018	1519.84	52.0014	1413.48	64.0722
1766.26	50.5764	1637.48	51.0305	1517.72	52.0389	1411.48	65.0805
1763.77	50.5847	1634.75	51.043	1515.52	52.0805	1409.47	66.1972
1761.25	50.593	1632.06	51.0555	1513.31	52.1222	1411.1	66.6222
1758.69	50.6014	1629.42	51.068	1511.19	52.1639	1426.08	66.6264
1756.08	50.6097	1626.82	51.0805	1509.17	52.2055	1459.45	66.6305
1753.44	50.618	1624.26	51.093	1507.05	52.2514	1466.02	66.6347
1750.78	50.6264	1621.75	51.1055	1505.03	52.2972	1471.24	66.6389
1748.09	50.6347	1619.28	51.118	1502.93	52.3472	1473.44	66.643
1745.4	50.643	1616.87	51.1305	1500.78	52.4014	1474.92	66.6597
1742.7	50.6514	1614.49	51.143	1498.73	52.4555	1487.24	66.6639
1740	50.6597	1612.14	51.1555	1496.63	52.5139	1528.26	66.668
1737.31	50.668	1609.85	51.168	1494.5	52.5764	1544.58	66.6722
1734.62	50.6764	1607.6	51.1805	1492.49	52.6389	1560.99	66.6764
1731.94	50.6847	1605.38	51.193	1490.41	52.7055	1577.72	66.6805
1729.27	50.693	1603.21	51.2055	1488.3	52.768	1593.75	66.6847
1726.6	50.7014	1601.06	51.218	1486.23	52.8555	1612.22	66.6889
1723.95	50.7097	1598.95	51.2305	1484.19	52.9347	1630.11	66.693
1721.31	50.718	1596.88	51.243	1482.16	53.018	1647.73	66.6972
1718.7	50.7264	1594.85	51.2555	1480.14	53.1055	1665.5	66.7014
1716.1	50.7347	1592.19	51.2722	1478.06	53.2014	1683.31	66.7055
1713.53	50.743	1589.6	51.2889	1476.01	53.3014	1702.26	66.7097



Pressure listings

Analysis 5 - 2-phi

Company Altamont Oil & Gas
Well Wallewein #22-1Field
Test Name / # Step Rate Test & Buildup

Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr
1718.2	66.7139	1830.71	67.1389	3400.46	67.3764	3480.14	67.6597
1733.41	66.718	2215.28	67.143	3404.64	67.3805	3482.77	67.6639
1748.97	66.7222	2565.51	67.1472	3406.57	67.3889	3487.36	67.668
1762.07	66.7264	2827.24	67.1514	3409.59	67.393	3493.86	67.6722
1766.71	66.7305	2971.19	67.1555	3409.42	67.3972	3492.81	67.6847
1764.67	66.9389	3061.74	67.1597	3412.37	67.4014	3490.75	67.6889
1766.22	66.9472	3118.29	67.1639	3415.68	67.4055	3490.6	67.693
1775	66.9514	3153.08	67.168	3415.97	67.4097	3484.85	67.6972
1798.57	66.9555	3181.44	67.1722	3420.61	67.4139	3452.65	67.7014
1873.81	66.9597	3198.01	67.1764	3422.45	67.418	3436.46	67.7055
1964.28	66.9639	3213.76	67.1805	3418.39	67.4222	3430.52	67.7097
2018.42	66.968	3228.33	67.1847	3419.79	67.4347	3427.06	67.7139
2045.74	66.9722	3241.27	67.1889	3424.07	67.4389	3422.24	67.718
2061.73	66.9764	3252.11	67.193	3425.04	67.4472	3423.92	67.7389
1799.26	66.9805	3259.7	67.1972	3428.21	67.4514	3428.2	67.743
1775.08	66.9847	3270.43	67.2014	3429.43	67.4597	3431.02	67.7472
1768.84	66.9889	3277.41	67.2055	3432.82	67.4639	3432.05	67.7514
1765.9	66.993	3287.14	67.2097	3432.96	67.468	3439.65	67.7555
1763.64	66.9972	3292.29	67.2139	3436.31	67.4722	3446.96	67.7597
1770.14	67.0014	3299.16	67.218	3439.42	67.4764	3451.46	67.7639
1777.96	67.0055	3301.98	67.2222	3439.52	67.4805	3452.7	67.7722
1784.37	67.0089	3309.32	67.2264	3442.77	67.4847	3455.37	67.7764
1800.15	67.0097	3309.7	67.2305	3444.86	67.4889	3454.08	67.7847
1886.86	67.0139	3314.09	67.2347	3444.74	67.493	3451.42	67.7889
1977.13	67.018	3317.14	67.2389	3448.47	67.4972	3454.83	67.8055
2026.74	67.0222	3323.44	67.243	3451.78	67.5014	3458.78	67.8097
2053.71	67.0264	3326.01	67.2472	3455.14	67.5097	3459.21	67.8139
2070.69	67.0305	3331.44	67.2514	3451.9	67.518	3461.57	67.818
2082.71	67.0347	3333.57	67.2555	3453.69	67.5305	3463.7	67.8222
2090.31	67.0389	3338.54	67.2597	3456.09	67.5347	3466.21	67.8264
2095.15	67.043	3341.43	67.2639	3456.15	67.543	3467.47	67.8347
2101.25	67.0472	3346.05	67.268	3460.14	67.5472	3470.59	67.8389
2105.58	67.0514	3350.25	67.2722	3463.91	67.5555	3473.24	67.843
2108.1	67.0555	3353.35	67.2764	3468.45	67.5597	3473.35	67.8472
2111.88	67.0597	3357.55	67.2805	3468.67	67.5639	3475.98	67.8514
2114.88	67.0639	3359.08	67.2847	3470.94	67.568	3477.13	67.8597
2116.64	67.068	3363.83	67.2889	3474.16	67.5722	3481.13	67.8639
2119.12	67.0722	3363.88	67.293	3475.88	67.5805	3483.55	67.868
2122.56	67.0805	3368.24	67.2972	3478.78	67.5847	3483.36	67.8847
2126.2	67.0889	3371.58	67.3097	3475.88	67.5889	3481.32	67.8889
2126.64	67.093	3373.17	67.3139	3473.46	67.593	3484.79	67.893
2128.69	67.0972	3377.34	67.318	3470.97	67.5972	3492.01	67.8972
2128.84	67.0975	3377.47	67.3222	3468.09	67.6014	3491.09	67.9055
2129.81	67.1055	3381.34	67.3264	3468.18	67.6055	3497.26	67.9097
1981.19	67.1097	3382.02	67.3347	3465.22	67.6097	3498.42	67.918
2010.65	67.1139	3385.77	67.3389	3460.67	67.6139	3503.67	67.9222
1818.62	67.118	3386	67.343	3463.2	67.6305	3503.58	67.9305
1775.04	67.1222	3390.5	67.3472	3466.9	67.6347	3508.68	67.9347
1769.72	67.1264	3393.61	67.3555	3468.44	67.643	3508.22	67.9472
1769.48	67.1305	3397.67	67.3597	3472.68	67.6472	3505.8	67.9514
1775.63	67.1347	3397.63	67.3639	3472.91	67.6514	3506.25	67.968
1780.98	67.1383	3400.27	67.368	3475	67.6555	3522.24	67.9722



Pressure listings

Analysis 5 - 2-phi

Company Altamont Oil & Gas
Well Wallewein #22-1Field
Test Name / # Step Rate Test & Buildup

Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr
3530.17	67.9764	3588.52	68.2847	3546.34	68.793	3603.02	69.6472
3536.4	67.9805	3592.3	68.2889	3548.54	68.7972	3605.93	69.6514
3542.84	67.9847	3592.64	68.293	3547.51	68.8305	3609.62	69.6555
3545.64	67.9889	3597.36	68.2972	3550.96	68.8347	3613.94	69.6597
3550.42	67.993	3597.37	68.3014	3548.57	68.8389	3616.5	69.6639
3554.56	67.9972	3599.42	68.3055	3548.35	68.843	3630.74	69.668
3554.03	68.0097	3607.52	68.3097	3546.28	68.8472	3634.78	69.6722
3548.82	68.0139	3611.84	68.3139	3546.84	68.9514	3638.85	69.6764
3540.3	68.018	3614.62	68.318	3543.15	68.9555	3636.94	69.6805
3532.16	68.0222	3617.98	68.3222	3539.76	68.9597	3634.11	69.6847
3530.03	68.0264	3618.82	68.3347	3533.9	68.9639	3626.57	69.6889
3532.4	68.043	3620.96	68.3389	3533.52	68.968	3608.32	69.693
3532.19	68.0472	3618.88	68.368	3530.35	68.9722	3597.18	69.6972
3535.72	68.0514	3609.99	68.3722	3532.39	68.9764	3599.75	69.7014
3536.06	68.0597	3602.02	68.3764	3529.63	69.0097	3602.85	69.7055
3539.88	68.0639	3595.39	68.3805	3531.62	69.0847	3603.5	69.7097
3540.33	68.0722	3593.3	68.3847	3534.28	69.0889	3607.42	69.7139
3543.25	68.0764	3593.85	68.393	3536.59	69.0972	3605.24	69.7222
3541.16	68.0805	3587.23	68.3972	3536.82	69.1097	3604.79	69.7472
3541.01	68.0889	3583.77	68.4014	3540.13	69.1139	3601.27	69.7514
3538.66	68.093	3584.64	68.4264	3537.52	69.1264	3600.83	69.7639
3539.74	68.1055	3586.74	68.4305	3539.65	69.1597	3603.29	69.768
3542.58	68.1097	3588.58	68.4389	3542.24	69.1889	3601.06	69.7805
3545.48	68.1305	3590.91	68.443	3539.87	69.193	3598.32	69.7847
3545.12	68.1472	3590.66	68.4972	3542.81	69.2055	3601.15	69.7889
3550.31	68.1514	3593.03	68.5014	3545.24	69.2347	3599.98	69.8055
3555.37	68.1555	3594.55	68.5514	3542.81	69.2389	3603.94	69.8097
3555.52	68.1597	3597.67	68.5555	3543.06	69.268	3604.23	69.818
3558.66	68.1639	3599.68	68.5597	3545.35	69.2722	3606.91	69.8222
3560.82	68.1722	3598.63	68.5805	3548.34	69.3472	3607.15	69.8264
3565.97	68.1764	3595.31	68.5847	3545.93	69.3514	3610.59	69.8305
3566.04	68.1805	3592.9	68.6014	3548.1	69.368	3613.31	69.8514
3575.28	68.1847	3593.29	68.6097	3551.36	69.4139	3613.78	69.9055
3575.67	68.193	3595.34	68.6139	3537.98	69.418	3615.83	69.9097
3579.83	68.1972	3595.47	68.6264	3529.06	69.4222	3618.86	69.9722
3579.91	68.2014	3597.95	68.6305	3524.95	69.4264	3620.81	69.993
3583.08	68.2055	3599.09	68.6472	3521.12	69.4305	3623.79	69.9972
3584.73	68.2139	3601.52	68.6514	3518.55	69.443	3623.32	70.0472
3587.02	68.218	3604.05	68.6805	3518.47	69.4639	3625.93	70.0514
3584.52	68.2222	3605.5	68.7014	3523.53	69.468	3628.52	70.0764
3573.33	68.2264	3589.32	68.7055	3535.58	69.4722	3631.35	70.1097
3564.55	68.2305	3580.81	68.7097	3541.1	69.4764	3633.61	70.1347
3559.1	68.2347	3572.36	68.7139	3543.63	69.4805	3636.15	70.168
3556.75	68.2389	3568.91	68.718	3544.94	69.4889	3635.72	70.1889
3554.07	68.2472	3565.4	68.7222	3549.79	69.493	3632.68	70.193
3554.44	68.2597	3561.89	68.7347	3552.93	69.5139	3627.93	70.1972
3556.96	68.2639	3561.85	68.7389	3553.63	69.6222	3626.91	70.2389
3557.69	68.2651	3556.27	68.743	3555.95	69.6264	3624.37	70.243
3560.89	68.268	3552.75	68.7472	3555.61	69.6305	3627.66	70.3055
3565.42	68.2722	3550.73	68.7514	3558.02	69.6347	3630.03	70.3264
3580.08	68.2764	3549.15	68.7597	3570.51	69.6389	3632.35	70.3305
3584.57	68.2805	3546.49	68.7639	3592.47	69.643	3633.46	70.3389



Pressure listings

Analysis 5 - 2-phi

Company Altamont Oil & Gas
Well Wallewein #22-1Field
Test Name / # Step Rate Test & Buildup

Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr
3635.96	70.343	3663.18	70.6514	3688.52	71.5097	3561.58	72.768
3635.73	70.3597	3663.63	70.668	3683.69	71.5139	3562.35	72.7847
3637.97	70.3639	3654.37	70.6722	3681.43	71.568	3565.39	72.7889
3636.48	70.3764	3647.25	70.6764	3681.44	71.5722	3567.53	72.818
3633.07	70.3805	3644	70.6805	3684.25	71.5764	3567.08	72.8389
3631.18	70.3889	3644.78	70.718	3687.75	71.593	3564.93	72.843
3628.26	70.393	3654.3	70.7222	3690.79	71.6139	3567.01	72.8597
3628.87	70.418	3664.82	70.7264	3693.32	71.618	3569.2	72.9472
3636.15	70.4222	3670.36	70.7305	3695.95	71.7555	3571.73	72.968
3639.41	70.4264	3676	70.7347	3693.71	71.768	3571.92	72.9889
3637.17	70.4305	3679.72	70.7389	3693.23	71.8222	3569.55	72.993
3634.83	70.4389	3681.8	70.7472	3695.75	71.8264	3571.62	73.0014
3634.36	70.443	3682.69	70.7639	3695.57	71.868	3572.16	73.0847
3640.21	70.4472	3679.51	70.768	3693.36	71.8722	3574.24	73.0889
3643.57	70.4555	3681.21	70.7889	3691.2	71.8889	3565.47	73.093
3648.48	70.4597	3673.62	70.793	3680.34	71.893	3553.24	73.0972
3648.85	70.4722	3668.27	70.7972	3625.47	71.8972	3547.54	73.1014
3642.4	70.4764	3666.18	70.8014	3594.03	71.9014	3544.6	73.1055
3639.66	70.4805	3662.74	70.8097	3577.89	71.9055	3541.18	73.1097
3639.33	70.4889	3662.93	70.8139	3564.67	71.9097	3539.65	73.1222
3642.57	70.493	3665.01	70.818	3559.32	71.9139	3537.07	73.1264
3630.52	70.4972	3666.92	70.8264	3555.22	71.918	3536.1	73.143
3621.08	70.5014	3669.34	70.8305	3551.94	71.9222	3541.75	73.1472
3612.69	70.5055	3671.38	70.8972	3551.77	71.9264	3552.04	73.1514
3607.54	70.5097	3671.44	70.9014	3548.98	71.9305	3559.55	73.1555
3603.94	70.5139	3673.86	70.9055	3549.15	72.0014	3559.99	73.1597
3604.21	70.518	3671.82	70.9389	3542.98	72.0055	3564.64	73.1639
3601.34	70.5222	3673.85	71.0347	3532.31	72.0097	3565.1	73.168
3604.44	70.5264	3675.24	71.0597	3527.1	72.0139	3567.48	73.1722
3609.59	70.5305	3677.24	71.0639	3522.33	72.018	3569.58	73.2055
3611.3	70.5347	3678.73	71.0805	3519.01	72.0222	3569.38	73.2097
3614.92	70.5389	3682.61	71.0847	3516.31	72.0472	3571.8	73.2139
3616.34	70.5472	3687.52	71.0889	3516.86	72.0555	3573.7	73.2805
3618.63	70.5514	3689.73	71.093	3523.75	72.0597	3576.03	73.2847
3618.69	70.5555	3691.9	71.1764	3532.86	72.0639	3578.29	73.3264
3625.74	70.5597	3690.13	71.1889	3540.17	72.068	3579.32	73.3805
3638.6	70.5639	3687.77	71.193	3542.65	72.0722	3581.91	73.3847
3651.31	70.568	3689.78	71.218	3547.72	72.0764	3581.91	73.5264
3659.68	70.5722	3688.22	71.2597	3547.59	72.0805	3584.65	73.5305
3670.56	70.5764	3681.69	71.2639	3550.04	72.0847	3584.63	73.5889
3672.86	70.5805	3678.55	71.268	3549.77	72.118	3586.77	73.593
3664.39	70.5847	3676.06	71.2722	3552.36	72.1222	3588.81	73.6722
3664.01	70.5889	3672.75	71.2764	3555.58	72.243	3591.69	73.6764
3658.76	70.593	3673.08	71.318	3553	72.2472	3591.72	73.7347
3655.19	70.5972	3675.3	71.3222	3555.3	72.2597	3593.85	73.7389
3655.18	70.6014	3678.09	71.3347	3557.32	72.4222	3596.04	73.8222
3651.28	70.6055	3678.31	71.368	3555.22	72.4264	3597.14	73.9014
3651.43	70.6097	3680.54	71.3722	3556.44	72.4555	3599.27	73.9055
3655.08	70.6139	3683.14	71.3764	3558.84	72.4597	3601.4	73.9889
3657.96	70.6347	3685.45	71.3972	3558.75	72.5222	3604.01	74.0097
3660.28	70.6389	3687.47	71.443	3561.16	72.5264	3606.78	74.0555
3659.79	70.6472	3689.5	71.4847	3559.03	72.7639	3604.7	74.0597



Pressure listings

Analysis 5 - 2-phi

Company Altamont Oil & Gas
Well Wallewein #22-1Field
Test Name / # Step Rate Test & Buildup

Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr
3607.02	74.0764	1718.5	75.6722	1594.43	76.4639	1485.08	79.3514
3606.06	74.3347	1716.47	75.7014	1592.34	76.4847	1483.05	79.4805
3602.68	74.3389	1713.56	75.7139	1590.29	76.5055	1481.03	79.6222
3602.46	74.343	1710.69	75.7264	1588.29	76.5264	1479.01	79.7847
3600.21	74.3472	1707.86	75.7389	1585.95	76.5514	1476.99	79.943
3603.39	74.3972	1705.06	75.7514	1583.67	76.5764	1474.97	80.1097
3605.66	74.5639	1702.3	75.7639	1581.45	76.6014	1472.96	80.2847
3603.54	74.9305	1699.58	75.7764	1579.29	76.6264	1470.95	80.468
3600.93	74.9847	1696.89	75.7889	1577.19	76.6514	1468.92	80.6639
3602.19	75.1889	1694.23	75.8014	1575.15	76.6764	1466.91	80.868
3606.05	75.193	1691.61	75.8139	1572.84	76.7055	1464.9	81.0847
3606.33	75.2097	1689.02	75.8264	1570.59	76.7347	1462.87	81.3139
3608.97	75.2139	1686.46	75.8389	1568.41	76.7639	1460.86	81.5555
3609.42	75.3264	1683.94	75.8514	1566.29	76.793	1458.85	81.8097
3609.46	75.329	1681.45	75.8639	1564.23	76.8222	1456.83	82.0805
3308.67	75.3305	1678.99	75.8764	1561.96	76.8555	1454.81	82.368
2497.64	75.3347	1676.55	75.8889	1559.76	76.8889	1452.8	82.6722
2121.89	75.3389	1674.15	75.9014	1557.62	76.9222	1450.79	82.993
1986.56	75.343	1671.78	75.9139	1555.55	76.9555	1448.79	83.3347
1930.02	75.3472	1669.45	75.9264	1553.39	76.9889	1446.77	83.7014
1896.25	75.3514	1667.14	75.9389	1551.27	77.0264	1444.77	84.0889
1872.02	75.3555	1664.87	75.9514	1549.04	77.068	1442.77	84.5014
1853.18	75.3597	1662.62	75.9639	1547.01	77.1055	1440.76	84.943
1837.75	75.3639	1660.41	75.9764	1544.84	77.1472	1438.74	85.418
1824.65	75.368	1658.22	75.9889	1542.74	77.1889	1437.41	85.7514
1813.4	75.3722	1656.06	76.0014	1540.71	77.2305	1437.38	85.7586
1803.51	75.3764	1653.94	76.0139	1538.56	77.2764	1435.38	86.2877
1794.74	75.3805	1651.84	76.0264	1536.5	77.3222	1433.37	86.8586
1786.98	75.3847	1649.78	76.0389	1534.32	77.3722	1431.37	87.4711
1780.29	75.3889	1647.75	76.0514	1532.23	77.4222	1429.37	88.1294
1775.19	75.393	1645.74	76.0639	1530.22	77.4722	1427.36	88.8419
1772.09	75.3972	1643.11	76.0805	1528.12	77.5264	1425.36	89.6127
1769.52	75.4139	1640.54	76.0972	1526.1	77.5805	1423.36	90.4461
1767.27	75.4305	1638	76.1139	1524.01	77.6389	1421.36	91.3502
1764.72	75.4472	1635.51	76.1305	1522	77.6972	1419.35	92.3336
1762.63	75.4597	1633.06	76.1472	1519.93	77.7597	1417.35	93.4086
1760.39	75.4722	1630.65	76.1639	1517.81	77.8264	1415.35	94.5836
1758.04	75.4847	1628.3	76.1805	1515.76	77.893	1413.34	95.8752
1755.6	75.4972	1625.98	76.1972	1513.73	77.9555	1411.34	97.3127
1753.09	75.5097	1623.71	76.2139	1511.66	78.0347	1409.34	98.9086
1750.52	75.5222	1621.48	76.2305	1509.59	78.1139	1407.33	100.704
1747.9	75.5347	1619.3	76.2472	1507.56	78.193	1405.35	102.709
1745.27	75.5472	1616.86	76.2639	1505.51	78.2764	1403.57	104.713
1742.6	75.5597	1614.53	76.2847	1503.45	78.3639	1401.98	106.717
1739.91	75.5722	1612.51	76.3014	1501.39	78.4555	1400.54	108.721
1737.2	75.5847	1610.5	76.318	1499.33	78.5514	1399.24	110.725
1734.47	75.5972	1608.04	76.3389	1497.27	78.6514	1398.07	112.729
1731.74	75.6097	1605.64	76.3597	1495.23	78.7555	1396.99	114.734
1729	75.6222	1603.3	76.3805	1493.2	78.8639	1396.01	116.738
1726.26	75.6347	1601	76.4014	1491.18	78.9764	1395.09	118.742
1723.51	75.6472	1598.76	76.4222	1489.12	79.0972	1394.25	120.746
1720.76	75.6597	1596.57	76.443	1487.09	79.2222	1393.48	122.75



Pressure listings

Analysis 5 - 2-phi

Company Altamont Oil & Gas
Well Wallewein #22-1Field
Test Name / # Step Rate Test & Buildup

Pressure psia	Time hr	Pressure psia	Time hr	Pressure psia	Time hr
1392.78	124.754	1394.05	210.721	453.957	211.529
1392.14	126.759	1396.37	210.759	453.489	211.613
1391.53	128.763	1398.49	210.779	453.48	211.613
1390.95	130.767	1387.19	210.784	413.881	211.617
1390.42	132.771	1392.28	210.788	365.489	211.621
1389.91	134.775	1387.6	210.792	320.243	211.625
1389.44	136.779	1387.26	210.8	320.201	211.701
1389	138.784	1374.99	210.804	320.009	211.709
1388.58	140.788	1360.04	210.809	285.272	211.713
1388.18	142.792	1344.97	210.813	241.808	211.717
1387.8	144.796	1340.19	210.817	197.048	211.721
1387.44	146.8	1339.37	210.919	187.675	211.725
1387.12	148.804	1339.21	210.929	187.182	211.804
1386.81	150.809	1328.62	210.934	187.163	211.807
1386.52	152.813	1303.65	210.938	164.762	211.809
1386.24	154.817	1269.08	210.942	117.019	211.813
1385.97	156.821	1249	210.946	66.5822	211.817
1385.72	158.825	1248.41	211.025	55.9047	211.821
1385.47	160.829	1248.39	211.029	55.3664	211.9
1385.24	162.834	1245.25	211.029	55.3479	211.902
1385.02	164.838	1202.98	211.034	36.9672	211.904
1384.79	166.842	1157.43	211.038	0.24246	211.909
1384.57	168.846	1110.83	211.042	0.24812	212.638
1384.37	170.85	1113.69	211.046		
1384.18	172.854	1113	211.121		
1384.01	174.859	1112.94	211.125		
1383.84	176.863	1084.59	211.129		
1383.68	178.867	1042.32	211.134		
1383.52	180.871	998.781	211.138		
1383.36	182.875	969.852	211.142		
1383.22	184.879	969.448	211.221		
1383.08	186.884	969.448	211.225		
1382.94	188.888	962.969	211.225		
1382.8	190.892	922.183	211.229		
1382.66	192.896	884.307	211.234		
1382.53	194.9	851.132	211.238		
1382.41	196.904	850.706	211.321		
1382.3	198.909	850.702	211.322		
1382.19	200.913	809.509	211.325		
1382.09	202.917	761.915	211.329		
1381.99	204.921	717.38	211.334		
1381.89	206.925	718.448	211.409		
1381.8	208.929	718.314	211.417		
1381.42	210.421	684.277	211.421		
1388.68	210.425	640.213	211.425		
1393.64	210.429	593.445	211.429		
1393.69	210.429	585.322	211.434		
1391.6	210.479	584.937	211.513		
1389.55	210.559	584.915	211.515		
1387.51	210.679	565.5	211.517		
1387.34	210.688	521.604	211.521		
1391.68	210.692	482.733	211.525		

BOTTOMHOLE PRESSURE LOG

FIELD REPORT NO. WALLBTM

INSTRUMENT NO. 90367 btm

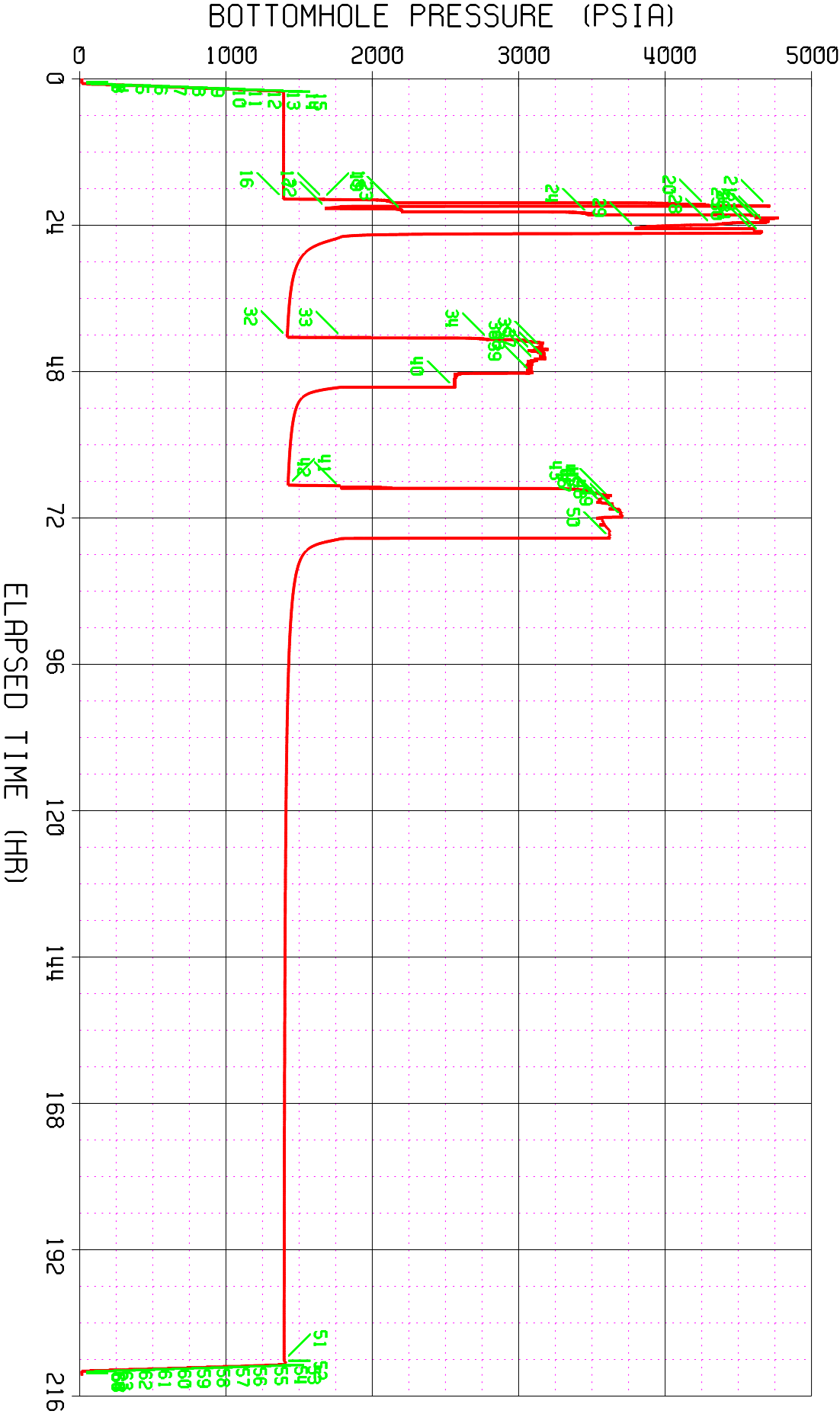
DEPTH : 4019 FT

CAPACITY : 16000 PSI

PORT OPENING : OUTSIDE

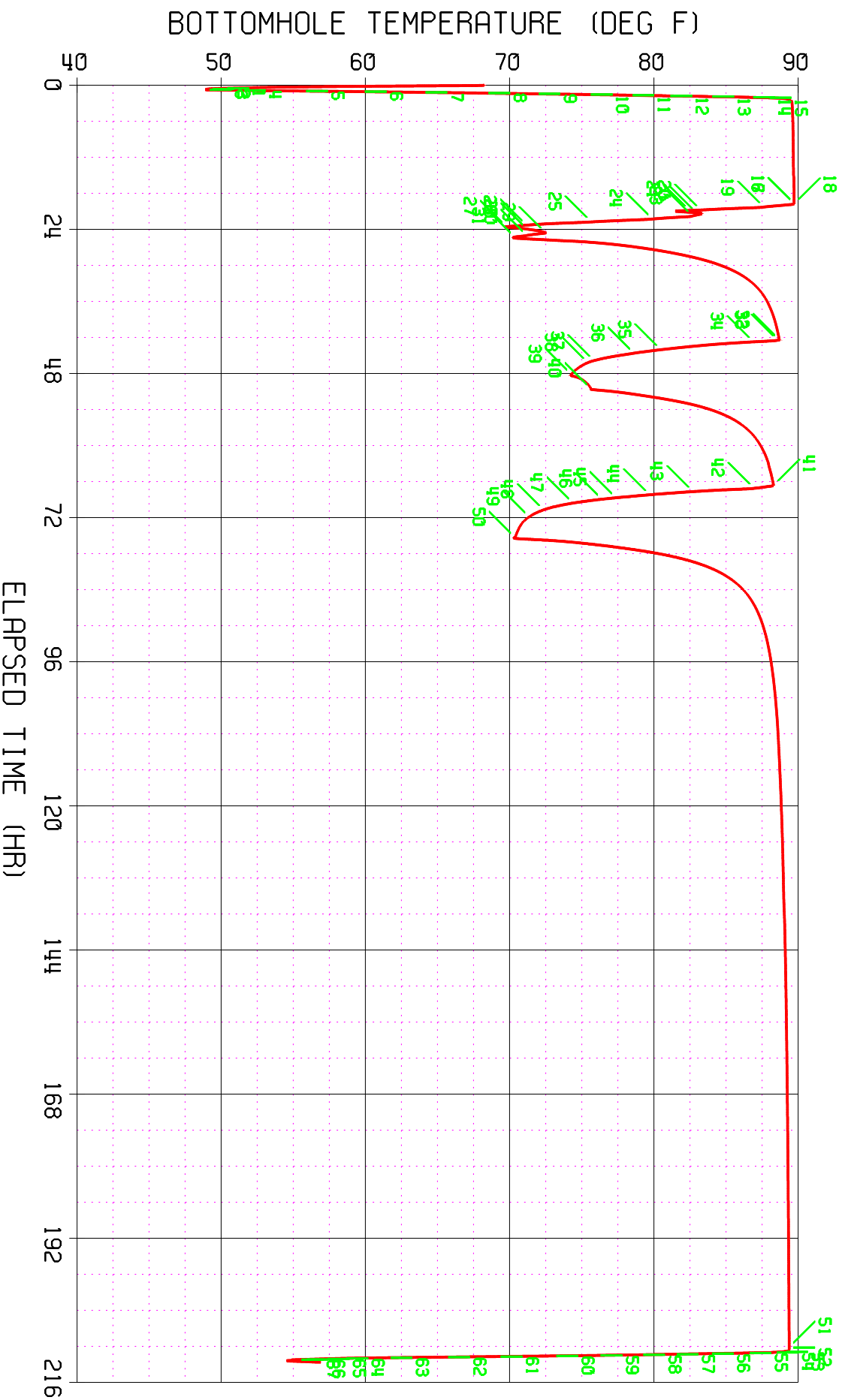
COMPANY : ALTAMONT OIL & GAS

WELL : WALLEMEIN 22-1



BOTTOMHOLE TEMPERATURE LOG

FIELD REPORT NO. WALLBTM COMPANY : ALTAMONT OIL & GAS
INSTRUMENT NO. 90367 btm WELL : WALLEMEIN 22-1
DEPTH : 4019 FT



BOTTOMHOLE PRESSURE LOG

FIELD REPORT NO. WALLBTM

INSTRUMENT NO. 90367 btm

DEPTH : 4019 FT

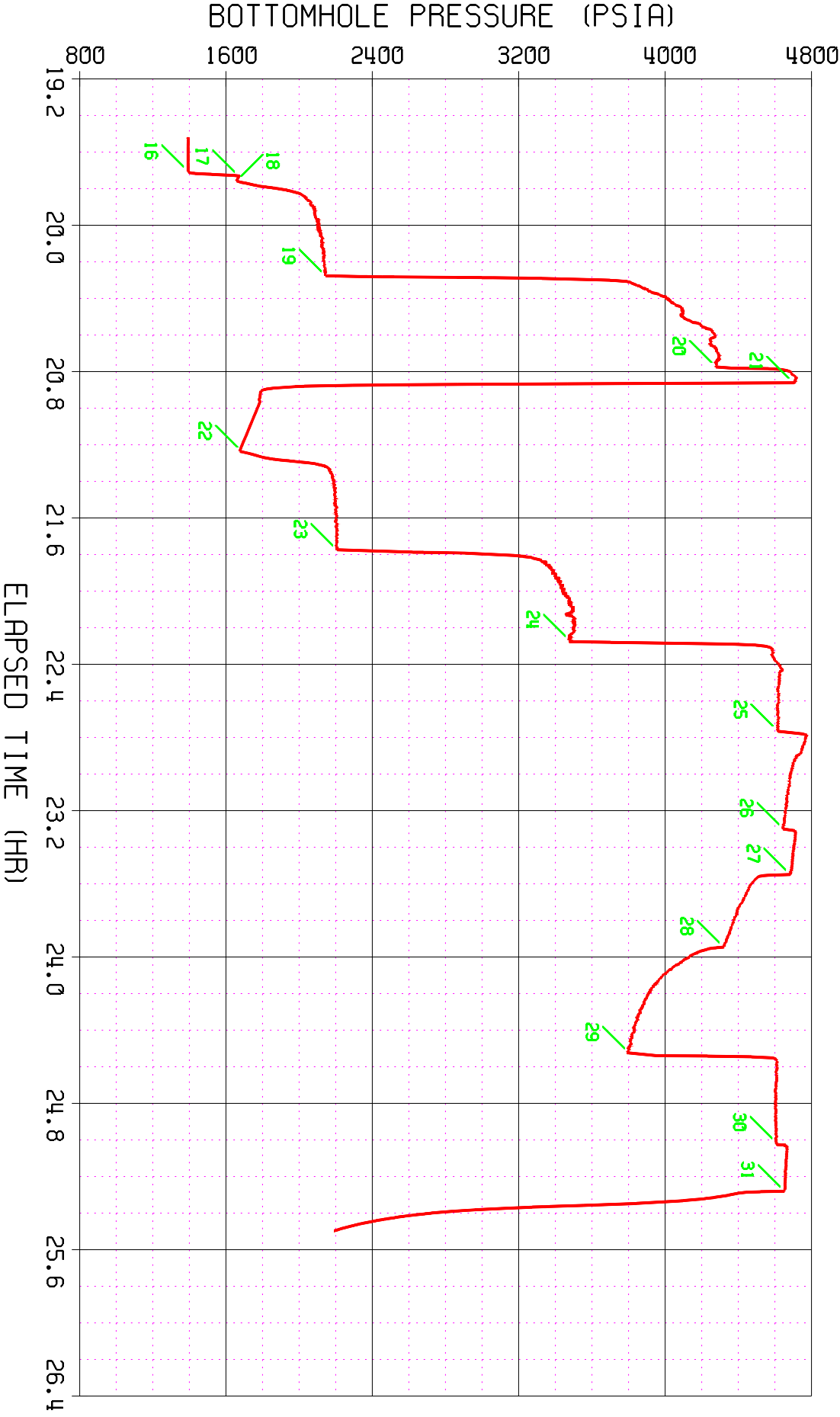
CAPACITY : 16000 PSI

PORT OPENING : OUTSIDE

COMPANY : ALTAMONT OIL & GAS

WELL : WALLEMEIN 22-1

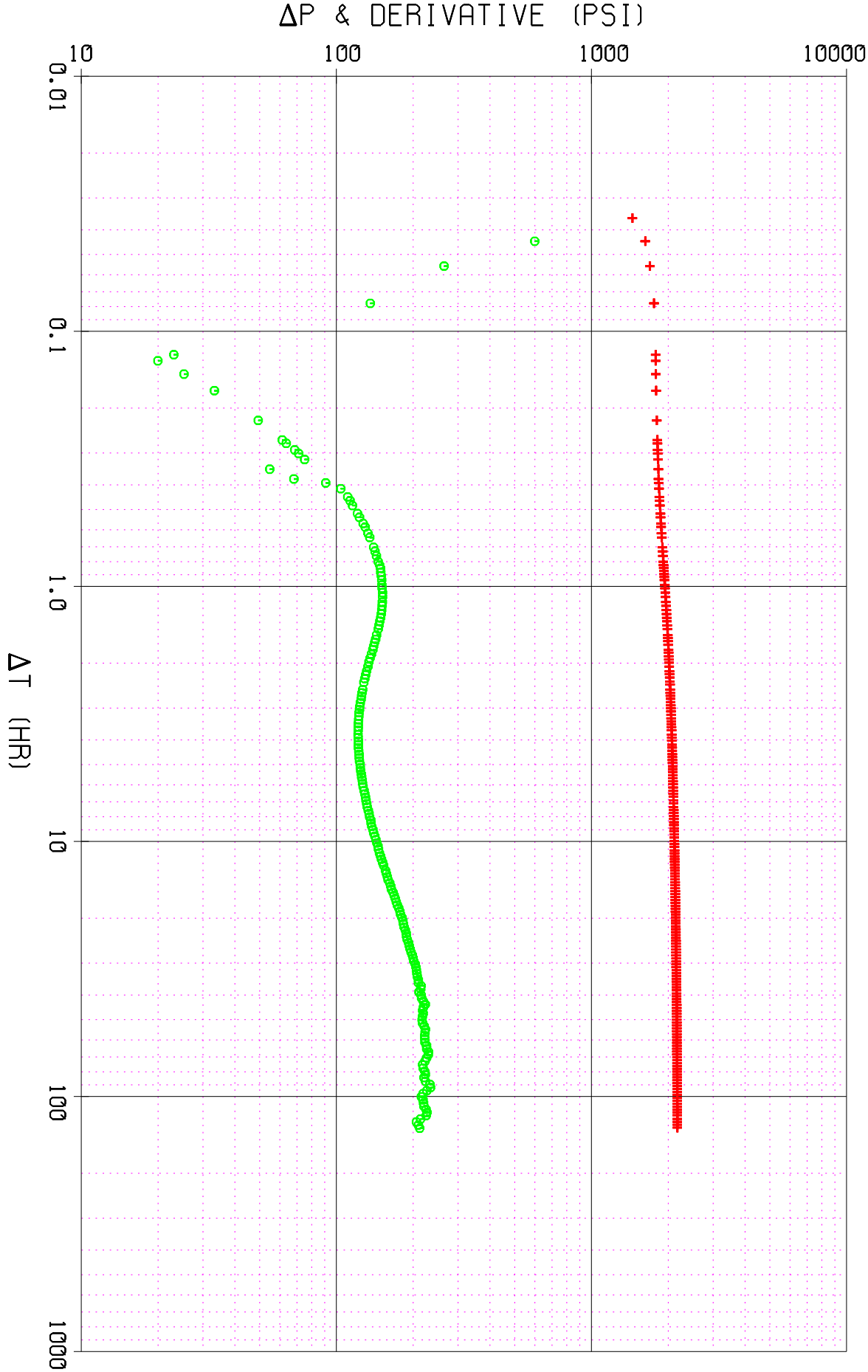
EXPANDED PLOT OF STEP-RATE TEST



LOG LOG PLOT

COMPANY : ALTAMONT OIL & GAS
WELL : WALLEWEIN 22-1
FIELD REPORT NO. WALLBITM
INSTRUMENT NO. 90367 btm

SHUTIN #3 : PRODUCING TIME (TP) : 4.11 HR
FINRL FLOW PRESSURE (Pwf) : 3566 PSIA
PLOT ELAPSED TIME RANGE: 75.33 TO 210.15 HR
ΔT TIME RANGE: 0.04 TO 134.86 HR



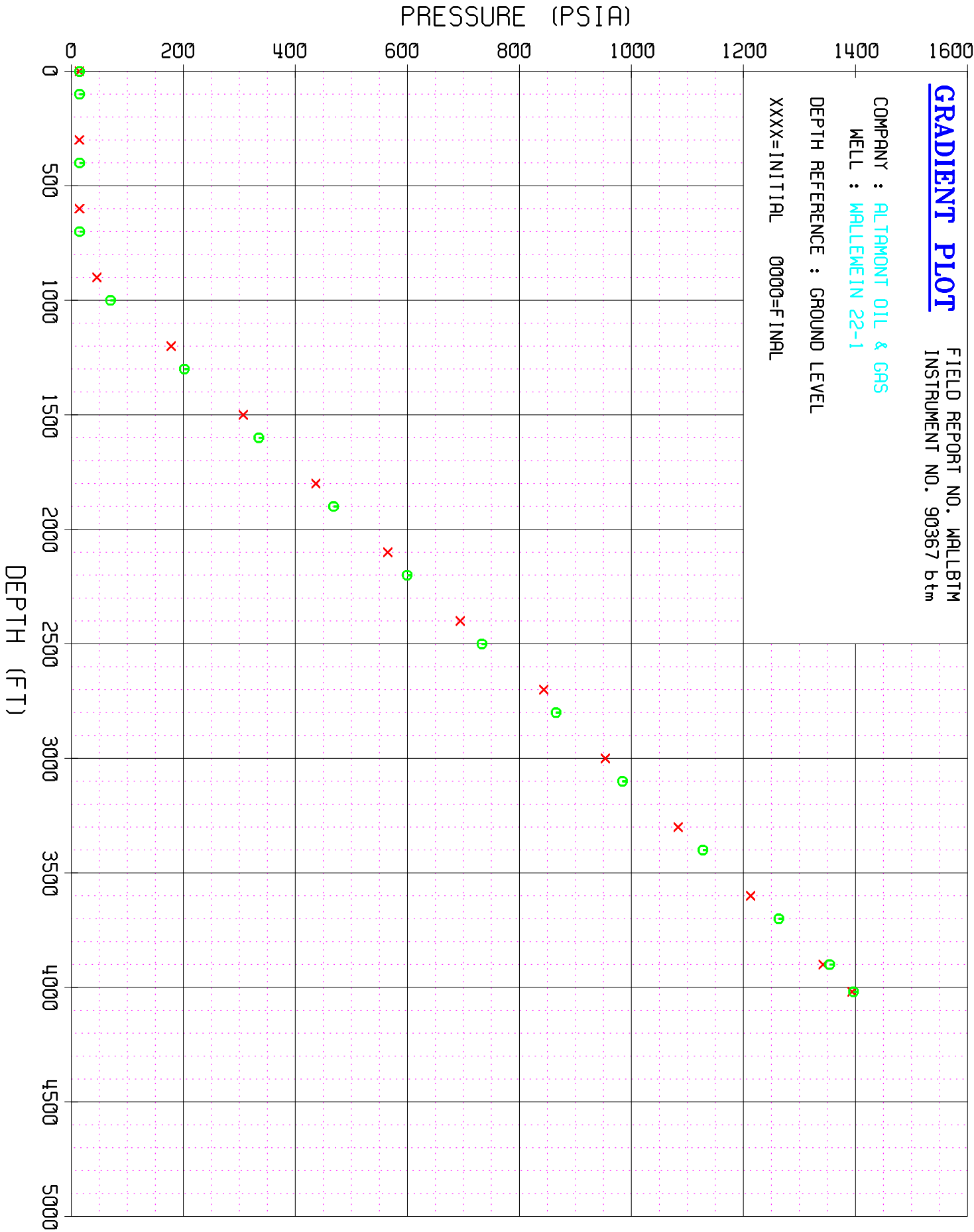
FIELD REPORT NO. WLLBTM
INSTRUMENT NO. 90367 btm

GRADIENT PLOT

COMPANY : ALTAMONT OIL & GAS
WELL : WALLEWEIN 22-1

DEPTH REFERENCE : GROUND LEVEL

XXXX=INITIAL 0000=FINAL

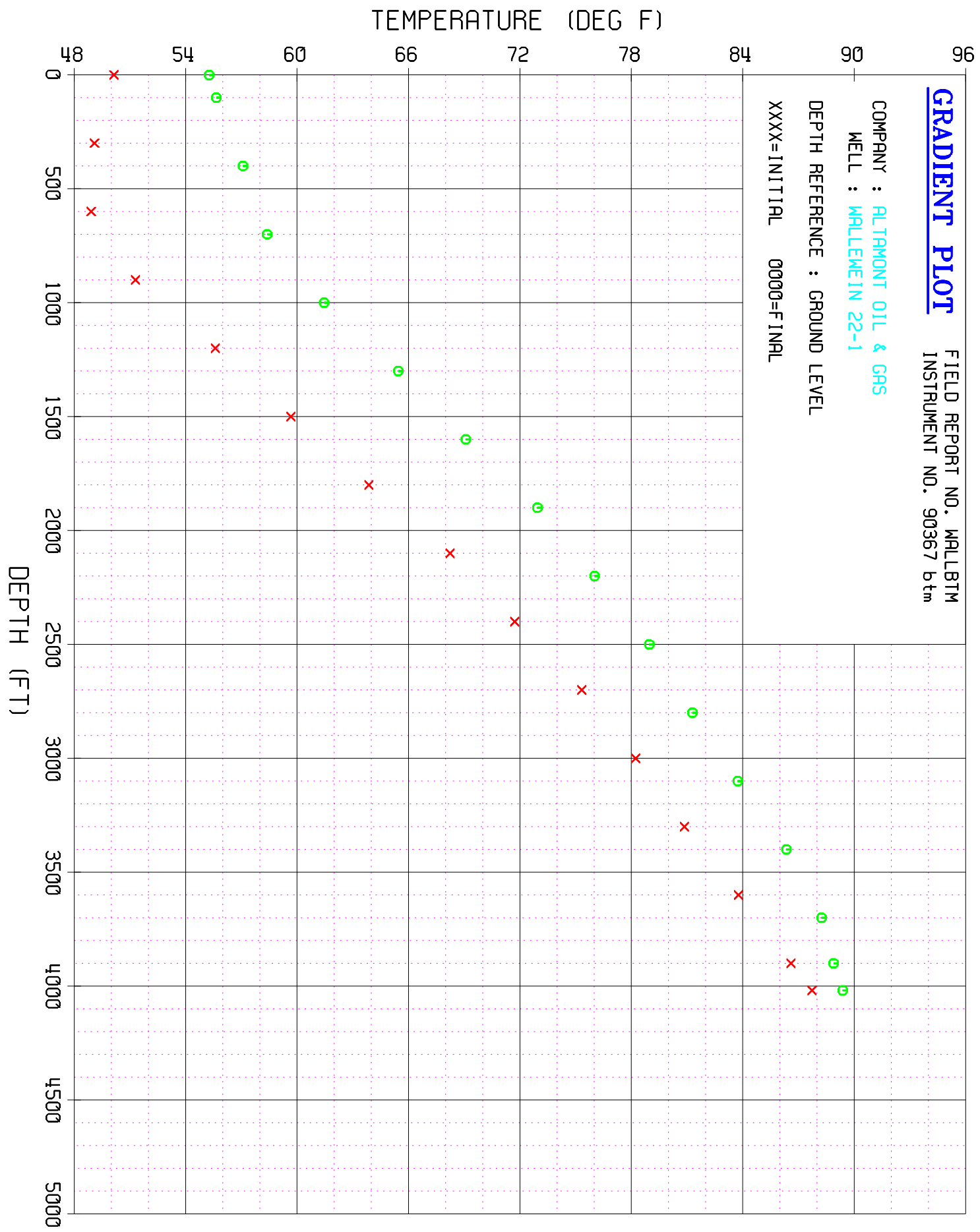


GRADIENT PLOT

FIELD REPORT NO. WLLBTM
INSTRUMENT NO. 90367 btm

COMPANY : ALTAMONT OIL & GAS
WELL : WALLEMEIN 22-1

DEPTH REFERENCE : GROUND LEVEL
XXXX=INITIAL 0000=FINAL



 ** WELL TEST DATA PRINTOUT **

COMPANY: ALTAMONT OIL & GAS
 WELL: WALLEWEIN 22-1

FIELD REPORT NO. WALLBTM
 INSTRUMENT NO. 90367 btm

RECORDER CAPACITY: 16000 PSI PORT OPENING: OUTSIDE DEPTH: 4019 FT

LABEL POINT INFORMATION

#	TIME OF DAY		DATE	EXPLANATION	ELAPSED TIME, HR	BOT HOLE		DEPTH FT
	HH:MM:SS	DD-MMM				PRESSURE PSIA	TEMP. DEG F	
1	14:45:32	18-MAR		GRADIENT STOP	0.511	14	50.1	0.0
2	14:52:32	18-MAR		GRADIENT STOP	0.628	14	49.1	300.0
3	14:58:52	18-MAR		GRADIENT STOP	0.734	15	48.9	600.0
4	15:05:17	18-MAR		GRADIENT STOP	0.840	46	51.3	900.0
5	15:12:12	18-MAR		GRADIENT STOP	0.956	178	55.6	1200.0
6	15:18:32	18-MAR		GRADIENT STOP	1.061	307	59.7	1500.0
7	15:25:32	18-MAR		GRADIENT STOP	1.178	437	63.9	1800.0
8	15:33:02	18-MAR		GRADIENT STOP	1.303	565	68.2	2100.0
9	15:40:02	18-MAR		GRADIENT STOP	1.420	694	71.7	2400.0
10	15:46:57	18-MAR		GRADIENT STOP	1.535	844	75.3	2700.0
11	15:53:57	18-MAR		GRADIENT STOP	1.652	953	78.2	3000.0
12	16:00:47	18-MAR		GRADIENT STOP	1.765	1083	80.9	3300.0
13	16:07:52	18-MAR		GRADIENT STOP	1.884	1213	83.8	3600.0
14	16:15:02	18-MAR		GRADIENT STOP	2.003	1342	86.6	3900.0
15	16:18:52	18-MAR		GRADIENT STOP	2.067	1394	87.7	4019.0
16	9:57:08	19-MAR		START FLOW	19.705	1393	89.7	
17	9:58:48	19-MAR		END FLOW & START SHUT-IN	19.733	1670	89.7	
18	10:00:17	19-MAR		END SHUT-IN & START FLOW	19.757	1657	89.7	
19	10:31:25	19-MAR		END FLOW & START FLOW	20.276	2145	87.6	
20	11:01:19	19-MAR		END FLOW & START FLOW	20.774	4278	83.2	
21	11:06:28	19-MAR		END FLOW & START SHUT-IN	20.860	4700	82.5	
22	11:29:08	19-MAR		END FLOW & START FLOW	21.238	1687	82.9	
23	12:01:21	19-MAR		END FLOW & START FLOW	21.775	2208	82.7	
24	12:31:07	19-MAR		END FLOW & START FLOW	22.271	3480	79.9	
25	13:00:33	19-MAR		END FLOW & START FLOW	22.762	4613	75.7	
26	13:32:51	19-MAR		END FLOW & START FLOW	23.300	4647	71.2	
27	13:47:46	19-MAR		END FLOW & START FLOW	23.549	4684	69.8	
28	14:11:35	19-MAR		FLOW POINT	23.945	4320	71.2	
29	14:46:16	19-MAR		END FLOW & START FLOW	24.524	3803	72.5	
30	15:15:49	19-MAR		END FLOW & START FLOW	25.016	4609	71.2	
31	15:31:42	19-MAR		END FLOW & START SHUT-IN	25.281	4653	70.4	
32	8:36:52	20-MAR		END SHUT-IN & START FLOW	42.367	1420	88.7	
33	8:42:49	20-MAR		END FLOW & START FLOW	42.466	1795	88.6	
34	8:58:35	20-MAR		END FLOW & START FLOW	42.729	2796	86.9	
35	10:17:00	20-MAR		END FLOW & START FLOW	44.036	3154	80.5	
36	10:51:38	20-MAR		END FLOW & START FLOW	44.613	3092	78.6	
37	12:06:29	20-MAR		END FLOW & START FLOW	45.860	3186	75.8	
38	12:27:29	20-MAR		END FLOW & START FLOW	46.210	3114	75.4	
39	14:21:53	20-MAR		END FLOW & START FLOW	48.117	3087	74.3	
40	16:46:55	20-MAR		END FLOW & START SHUT-IN	50.535	2556	75.6	
41	8:51:07	21-MAR		END SHUT-IN & START FLOW	66.604	1424	88.3	
42	9:22:02	21-MAR		END FLOW & START FLOW	67.120	1784	86.9	
43	9:54:52	21-MAR		END FLOW & START FLOW	67.667	3507	82.7	

#	TIME OF DAY HH:MM:SS	DATE DD-MMM	EXPLANATION	ELAPSED TIME, HR	BOT HOLE PRESSURE PSIA	BOT HOLE TEMP. DEG F	DEPTH FT
44	10:26:37	21-MAR	END FLOW & START FLOW	68.196	3599	79.7	
45	10:56:17	21-MAR	END FLOW & START FLOW	68.691	3620	77.4	
46	11:11:02	21-MAR	END FLOW & START FLOW	68.936	3561	76.4	
47	11:49:42	21-MAR	END FLOW & START FLOW	69.581	3566	74.4	
48	12:57:32	21-MAR	END FLOW & START FLOW	70.711	3670	72.3	
49	14:07:37	21-MAR	END FLOW & START FLOW	71.880	3711	71.4	
50	17:32:22	21-MAR	END FLOW & START SHUT-IN	75.292	3624	70.4	
51	8:23:57	27-MAR	END SHUT-IN	210.152	1396	89.4	
52	8:26:22	27-MAR	GRADIENT STOP	210.192	1396	89.4	4019.0
53	9:10:02	27-MAR	GRADIENT STOP	210.920	1354	88.9	3900.0
54	9:15:17	27-MAR	GRADIENT STOP	211.007	1263	88.2	3700.0
55	9:21:17	27-MAR	GRADIENT STOP	211.107	1128	86.3	3400.0
56	9:27:27	27-MAR	GRADIENT STOP	211.210	984	83.7	3100.0
57	9:33:17	27-MAR	GRADIENT STOP	211.307	865	81.3	2800.0
58	9:39:02	27-MAR	GRADIENT STOP	211.403	733	79.0	2500.0
59	9:44:52	27-MAR	GRADIENT STOP	211.500	600	76.0	2200.0
60	9:50:12	27-MAR	GRADIENT STOP	211.589	468	72.9	1900.0
61	9:56:27	27-MAR	GRADIENT STOP	211.693	335	69.1	1600.0
62	10:02:12	27-MAR	GRADIENT STOP	211.789	202	65.4	1300.0
63	10:08:02	27-MAR	GRADIENT STOP	211.886	70	61.5	1000.0
64	10:14:37	27-MAR	GRADIENT STOP	211.996	15	58.4	700.0
65	10:19:37	27-MAR	GRADIENT STOP	212.079	15	57.1	400.0
66	10:25:47	27-MAR	GRADIENT STOP	212.182	15	55.7	100.0
67	10:27:27	27-MAR	GRADIENT STOP	212.210	15	55.3	1.0

SUMMARY OF FLOW PERIODS

PERIOD	START ELAPSED TIME, HR	END ELAPSED TIME, HR	DURATION HR	START PRESSURE PSIA	END PRESSURE PSIA	INITIAL PRESSURE PSIA
1	19.705	19.733	0.028	1393	1670	1393
2	19.757	20.276	0.519	1657	2145	1657
3	20.276	20.774	0.498	2145	4278	2145
4	20.774	20.860	0.086	4278	4700	4278
5	42.367	42.466	0.099	1420	1795	1420
6	42.466	42.729	0.263	1795	2796	1795
7	42.729	44.036	1.307	2796	3154	2796
8	44.036	44.613	0.577	3154	3092	3154
9	44.613	45.860	1.247	3092	3186	3092
10	45.860	46.210	0.350	3186	3114	3186

SUMMARY OF SHUTIN PERIODS

PERIOD	START ELAPSED TIME, HR	END ELAPSED TIME, HR	DURATION HR	START PRESSURE PSIA	END PRESSURE PSIA	FINAL FLOW PRESSURE PSIA	PRODUCING TIME, HR
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1	19.733	19.757	0.025	1670	1657	1670	0.028
2	20.860	42.367	21.507	4700	1420	4700	1.131
3	50.535	66.604	16.070	2556	1424	3114	4.974
4	75.292	210.152	134.860	3624	1396	3114	4.974

TEST PHASE: FLOW PERIOD # 1

TIME OF DAY HH:MM:SS	DATE DD-MMM	ELAPSED TIME, HR	DELTA TIME, HR	BOT HOLE TEMP. DEG F	BOT HOLE PRESSURE PSIA
9:57:08	19-MAR	19.705	0.000	89.7	1393
9:58:48	19-MAR	19.733	0.028	89.7	1670

TEST PHASE: SHUTIN PERIOD # 1

FINAL FLOW PRESSURE = 1670 PSIA
PRODUCING TIME = 0.028 HR

TIME OF DAY HH:MM:SS	DATE DD-MMM	ELAPSED TIME, HR	DELTA TIME, HR	BOT HOLE TEMP. DEG F	BOT HOLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
9:58:48	19-MAR	19.733	0.000	89.7	1670	0	
9:59:35	19-MAR	19.746	0.013	89.7	1664	7	0.4970
10:00:11	19-MAR	19.755	0.023	89.7	1658	13	0.3444
10:00:17	19-MAR	19.757	0.025	89.7	1657	13	0.3280

TEST PHASE: FLOW PERIOD # 2

TIME OF DAY HH:MM:SS	DATE DD-MMM	ELAPSED TIME, HR	DELTA TIME, HR	BOT HOLE TEMP. DEG F	BOT HOLE PRESSURE PSIA
10:00:17	19-MAR	19.757	0.000	89.7	1657
10:15:21	19-MAR	20.008	0.251	88.8	2102
10:30:24	19-MAR	20.259	0.502	87.7	2144
10:31:25	19-MAR	20.276	0.519	87.6	2145

TEST PHASE: FLOW PERIOD # 3

TIME OF DAY HH:MM:SS	DATE DD-MMM	ELAPSED TIME, HR	DELTA TIME, HR	BOT HOLE TEMP. DEG F	BOT HOLE PRESSURE PSIA
10:31:25	19-MAR	20.276	0.000	87.6	2145
10:46:33	19-MAR	20.528	0.252	85.4	4147
11:01:19	19-MAR	20.774	0.498	83.2	4278

TEST PHASE: FLOW PERIOD # 4

TIME OF DAY HH:MM:SS	DATE DD-MMM	ELAPSED TIME, HR	DELTA TIME, HR	BOT HOLE TEMP. DEG F	BOT HOLE PRESSURE PSIA
11:01:19	19-MAR	20.774	0.000	83.2	4278
11:06:28	19-MAR	20.860	0.086	82.5	4700

TEST PHASE: SHUTIN PERIOD # 2

FINAL FLOW PRESSURE = 4700 PSIA

PRODUCING TIME = 1.131 HR

TIME OF DAY HH:MM:SS	DATE DD-MMM	ELAPSED TIME, HR	DELTA TIME, HR	BOT HOLE TEMP. DEG F	BOT HOLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
11:06:28	19-MAR	20.860	0.000	82.5	4700	0	
11:07:12	19-MAR	20.872	0.012	82.2	2497	2202	1.9729
11:08:17	19-MAR	20.891	0.030	82.0	1858	2842	1.5854
11:09:02	19-MAR	20.903	0.043	81.9	1795	2905	1.4394
11:10:00	19-MAR	20.919	0.059	81.7	1788	2912	1.3059
11:10:48	19-MAR	20.932	0.072	81.6	1786	2913	1.2220
11:11:26	19-MAR	20.943	0.083	81.5	1785	2914	1.1668
11:12:44	19-MAR	20.965	0.104	81.5	1786	2914	1.0734
11:13:57	19-MAR	20.985	0.125	81.5	1778	2922	1.0031
11:15:14	19-MAR	21.006	0.146	81.6	1769	2931	0.9418
11:16:48	19-MAR	21.032	0.172	81.7	1758	2942	0.8791
11:18:01	19-MAR	21.053	0.193	81.9	1750	2950	0.8373
11:19:19	19-MAR	21.074	0.214	82.0	1741	2959	0.7980
11:20:49	19-MAR	21.099	0.239	82.2	1730	2969	0.7581
11:22:03	19-MAR	21.120	0.260	82.3	1722	2978	0.7288
11:23:19	19-MAR	21.141	0.281	82.4	1713	2986	0.7013
11:24:32	19-MAR	21.161	0.301	82.6	1705	2995	0.6774
11:26:06	19-MAR	21.187	0.327	82.7	1693	3006	0.6490
11:27:28	19-MAR	21.210	0.350	82.8	1684	3016	0.6265
11:28:46	19-MAR	21.232	0.372	82.9	1676	3024	0.6067
11:30:34	19-MAR	21.262	0.402	83.1	1779	2921	0.5816
11:31:46	19-MAR	21.282	0.422	83.1	1888	2812	0.5661
11:33:03	19-MAR	21.303	0.443	83.2	2086	2613	0.5506
11:34:23	19-MAR	21.326	0.465	83.3	2158	2541	0.5355
11:35:45	19-MAR	21.348	0.488	83.3	2171	2529	0.5208
11:37:00	19-MAR	21.369	0.509	83.4	2187	2513	0.5082
11:43:11	19-MAR	21.472	0.612	83.2	2189	2511	0.4546
11:49:12	19-MAR	21.573	0.712	83.1	2197	2503	0.4130
11:55:15	19-MAR	21.673	0.813	82.8	2207	2492	0.3786
12:01:17	19-MAR	21.774	0.914	82.7	2207	2492	0.3499
12:07:22	19-MAR	21.875	1.015	82.4	3383	1317	0.3252
12:13:24	19-MAR	21.976	1.116	81.7	3432	1268	0.3040
12:19:35	19-MAR	22.079	1.218	81.0	3486	1213	0.2851
12:25:35	19-MAR	22.179	1.318	80.4	3508	1192	0.2690
12:31:38	19-MAR	22.280	1.419	79.9	3703	996	0.2545
12:37:39	19-MAR	22.380	1.520	79.2	4602	98	0.2416
12:43:55	19-MAR	22.484	1.624	78.1	4623	77	0.2295
12:50:00	19-MAR	22.586	1.726	77.1	4622	77	0.2189
12:56:06	19-MAR	22.687	1.827	76.2	4621	79	0.2092
13:02:06	19-MAR	22.788	1.927	75.5	4776	-76	0.2005
13:08:17	19-MAR	22.891	2.030	74.4	4739	-40	0.1923
13:14:22	19-MAR	22.992	2.132	73.3	4689	11	0.1849
13:20:24	19-MAR	23.093	2.232	72.4	4673	27	0.1780
13:26:32	19-MAR	23.195	2.334	71.7	4662	37	0.1716
13:32:50	19-MAR	23.300	2.439	71.2	4644	56	0.1654
13:39:26	19-MAR	23.410	2.549	70.5	4704	-4	0.1595
13:45:27	19-MAR	23.510	2.650	69.9	4691	9	0.1544
13:51:45	19-MAR	23.615	2.755	69.7	4463	236	0.1494
13:57:45	19-MAR	23.715	2.855	70.2	4406	293	0.1449
14:03:53	19-MAR	23.817	2.957	70.7	4370	330	0.1407

TEST PHASE: SHUTIN PERIOD # 2

FINAL FLOW PRESSURE = 4700 PSIA

PRODUCING TIME = 1.131 HR

TIME OF DAY HH:MM:SS	DATE DD-MMM	ELAPSED TIME, HR	DELTA TIME, HR	BOT HOLE TEMP. DEG F	BOT HOLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
14:10:04	19-MAR	23.920	3.060	71.1	4332	367	0.1366
14:40:04	19-MAR	24.420	3.560	72.3	3817	883	0.1198
15:10:05	19-MAR	24.920	4.060	71.4	4604	95	0.1067
15:40:09	19-MAR	25.422	4.561	70.3	2542	2158	0.0962
16:10:34	19-MAR	25.929	5.068	74.1	1782	2918	0.0875
16:40:42	19-MAR	26.431	5.570	76.9	1720	2979	0.0803
17:10:42	19-MAR	26.931	6.070	78.7	1655	3044	0.0742
17:40:52	19-MAR	27.434	6.573	80.1	1605	3094	0.0689
18:11:08	19-MAR	27.938	7.078	81.3	1569	3130	0.0644
18:41:27	19-MAR	28.443	7.583	82.3	1543	3156	0.0604
19:11:45	19-MAR	28.948	8.088	83.2	1524	3176	0.0568
19:41:46	19-MAR	29.449	8.588	84.0	1509	3191	0.0537
20:11:48	19-MAR	29.949	9.089	84.6	1496	3203	0.0509
20:41:50	19-MAR	30.450	9.589	85.1	1486	3213	0.0484
21:12:24	19-MAR	30.959	10.099	85.6	1478	3222	0.0461
21:42:40	19-MAR	31.464	10.603	86.0	1471	3229	0.0440
22:12:56	19-MAR	31.968	11.108	86.3	1465	3235	0.0421
22:43:15	19-MAR	32.473	11.613	86.6	1459	3240	0.0404
23:14:30	19-MAR	32.994	12.134	86.9	1455	3245	0.0387
23:44:52	19-MAR	33.500	12.640	87.1	1451	3249	0.0372
0:15:15	20-MAR	34.007	13.146	87.3	1447	3252	0.0358
0:45:18	20-MAR	34.507	13.647	87.4	1444	3256	0.0346
1:15:27	20-MAR	35.010	14.150	87.6	1441	3258	0.0334
1:45:47	20-MAR	35.515	14.655	87.7	1438	3261	0.0323
2:15:50	20-MAR	36.016	15.156	87.8	1436	3263	0.0313
2:46:02	20-MAR	36.520	15.659	88.0	1434	3266	0.0303
3:16:45	20-MAR	37.032	16.171	88.1	1432	3268	0.0294
3:46:49	20-MAR	37.533	16.672	88.1	1430	3269	0.0285
4:16:49	20-MAR	38.033	17.172	88.2	1429	3271	0.0277
4:46:49	20-MAR	38.533	17.672	88.3	1427	3273	0.0269
5:17:05	20-MAR	39.037	18.177	88.4	1426	3274	0.0262
5:47:08	20-MAR	39.538	18.678	88.4	1424	3275	0.0255
6:17:39	20-MAR	40.047	19.186	88.5	1423	3277	0.0249
6:48:08	20-MAR	40.555	19.694	88.5	1422	3278	0.0243
7:18:08	20-MAR	41.055	20.194	88.6	1421	3279	0.0237
7:48:46	20-MAR	41.565	20.705	88.6	1420	3280	0.0231
8:19:25	20-MAR	42.076	21.216	88.7	1419	3281	0.0226
8:36:52	20-MAR	42.367	21.507	88.7	1420	3280	0.0223

TEST PHASE: FLOW PERIOD # 5

TIME OF DAY HH:MM:SS	DATE DD-MMM	ELAPSED TIME, HR	DELTA TIME, HR	BOT HOLE TEMP. DEG F	BOT HOLE PRESSURE PSIA
8:36:52	20-MAR	42.367	0.000	88.7	1420
8:42:49	20-MAR	42.466	0.099	88.6	1795

TEST PHASE: FLOW PERIOD # 6

TIME OF DAY HH:MM:SS	DATE DD-MMM	ELAPSED TIME, HR	DELTA TIME, HR	BOT HOLE TEMP. DEG F	BOT HOLE PRESSURE PSIA
8:42:49	20-MAR	42.466	0.000	88.6	1795
8:57:59	20-MAR	42.719	0.253	87.0	2789
8:58:35	20-MAR	42.729	0.263	86.9	2796

TEST PHASE: FLOW PERIOD # 7

TIME OF DAY HH:MM:SS	DATE DD-MMM	ELAPSED TIME, HR	DELTA TIME, HR	BOT HOLE TEMP. DEG F	BOT HOLE PRESSURE PSIA
8:58:35	20-MAR	42.729	0.000	86.9	2796
9:13:39	20-MAR	42.980	0.251	85.2	3049
9:28:49	20-MAR	43.233	0.504	83.8	3139
9:43:57	20-MAR	43.485	0.756	82.7	3166
9:58:58	20-MAR	43.735	1.007	81.6	3157
10:14:16	20-MAR	43.990	1.261	80.7	3140
10:17:00	20-MAR	44.036	1.307	80.5	3154

TEST PHASE: FLOW PERIOD # 8

TIME OF DAY HH:MM:SS	DATE DD-MMM	ELAPSED TIME, HR	DELTA TIME, HR	BOT HOLE TEMP. DEG F	BOT HOLE PRESSURE PSIA
10:17:00	20-MAR	44.036	0.000	80.5	3154
10:32:17	20-MAR	44.291	0.255	79.6	3194
10:47:19	20-MAR	44.541	0.505	78.8	3077
10:51:38	20-MAR	44.613	0.577	78.6	3092

TEST PHASE: FLOW PERIOD # 9

TIME OF DAY HH:MM:SS	DATE DD-MMM	ELAPSED TIME, HR	DELTA TIME, HR	BOT HOLE TEMP. DEG F	BOT HOLE PRESSURE PSIA
10:51:38	20-MAR	44.613	0.000	78.6	3092
11:06:41	20-MAR	44.864	0.251	78.0	3157
11:21:50	20-MAR	45.116	0.503	77.3	3180
11:37:15	20-MAR	45.373	0.760	76.7	3172
11:52:20	20-MAR	45.625	1.012	76.2	3180
12:06:29	20-MAR	45.860	1.247	75.8	3186

TEST PHASE: FLOW PERIOD #10

TIME OF DAY HH:MM:SS	DATE DD-MMM	ELAPSED TIME, HR	DELTA TIME, HR	BOT HOLE TEMP. DEG F	BOT HOLE PRESSURE PSIA
12:06:29	20-MAR	45.860	0.000	75.8	3186
12:21:40	20-MAR	46.114	0.253	75.5	3124
12:27:29	20-MAR	46.210	0.350	75.4	3114

TEST PHASE: SHUTIN PERIOD # 3

FINAL FLOW PRESSURE = 3114 PSIA

PRODUCING TIME = 4.974 HR

TIME OF DAY HH:MM:SS	DATE DD-MMM	ELAPSED TIME, HR	DELTA TIME, HR	BOT HOLE TEMP. DEG F	BOT HOLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
16:46:55	20-MAR	50.535	0.000	75.6	2556	558	
16:47:33	20-MAR	50.545	0.010	75.6	1813	1301	2.6766
16:48:10	20-MAR	50.555	0.021	75.6	1784	1330	2.3798
16:48:51	20-MAR	50.567	0.032	75.6	1781	1334	2.1922
16:49:35	20-MAR	50.579	0.044	75.6	1777	1337	2.0539
16:50:24	20-MAR	50.593	0.058	75.6	1773	1341	1.9384
16:51:20	20-MAR	50.608	0.073	75.6	1768	1346	1.8368
16:52:02	20-MAR	50.620	0.085	75.6	1764	1350	1.7739
16:52:50	20-MAR	50.633	0.098	75.6	1760	1354	1.7118
16:54:36	20-MAR	50.662	0.128	75.7	1750	1364	1.6006
16:55:51	20-MAR	50.683	0.149	75.8	1744	1371	1.5369
16:57:07	20-MAR	50.705	0.170	75.9	1737	1377	1.4809
16:58:19	20-MAR	50.724	0.190	76.0	1731	1384	1.4343
16:59:32	20-MAR	50.745	0.210	76.1	1724	1390	1.3922
17:00:55	20-MAR	50.768	0.233	76.2	1717	1397	1.3487
17:02:18	20-MAR	50.791	0.256	76.3	1711	1404	1.3098
17:03:45	20-MAR	50.815	0.280	76.4	1704	1410	1.2726
17:05:02	20-MAR	50.836	0.302	76.5	1698	1416	1.2426
17:06:15	20-MAR	50.857	0.322	76.6	1692	1422	1.2159
17:07:39	20-MAR	50.880	0.345	76.7	1686	1428	1.1875
17:08:57	20-MAR	50.902	0.367	76.8	1680	1434	1.1628
17:10:13	20-MAR	50.923	0.388	76.9	1675	1439	1.1402
17:11:48	20-MAR	50.949	0.415	77.0	1668	1446	1.1138
17:13:13	20-MAR	50.973	0.438	77.1	1663	1451	1.0916
17:14:49	20-MAR	51.000	0.465	77.2	1657	1457	1.0681
17:16:28	20-MAR	51.027	0.493	77.3	1651	1464	1.0453
17:17:41	20-MAR	51.047	0.513	77.3	1646	1468	1.0295
17:23:43	20-MAR	51.148	0.613	77.7	1626	1488	0.9595
17:29:45	20-MAR	51.248	0.714	78.0	1609	1505	0.9014
17:35:51	20-MAR	51.350	0.815	78.3	1594	1520	0.8513
17:42:06	20-MAR	51.454	0.920	78.6	1580	1534	0.8068
17:48:11	20-MAR	51.556	1.021	78.9	1569	1545	0.7688
17:54:17	20-MAR	51.657	1.123	79.2	1559	1555	0.7349
18:00:25	20-MAR	51.760	1.225	79.5	1551	1564	0.7042
18:06:26	20-MAR	51.860	1.325	79.7	1543	1571	0.6770
18:12:26	20-MAR	51.960	1.425	80.0	1537	1578	0.6523
18:18:31	20-MAR	52.061	1.527	80.3	1531	1583	0.6292
18:24:34	20-MAR	52.162	1.627	80.5	1525	1589	0.6082
18:30:45	20-MAR	52.265	1.730	80.8	1521	1593	0.5882
18:36:49	20-MAR	52.366	1.832	81.0	1516	1598	0.5701
18:42:54	20-MAR	52.468	1.933	81.3	1513	1601	0.5531
18:48:55	20-MAR	52.568	2.033	81.5	1509	1605	0.5374
18:54:57	20-MAR	52.668	2.134	81.7	1506	1608	0.5226
19:00:58	20-MAR	52.769	2.234	81.9	1503	1611	0.5087
19:07:03	20-MAR	52.870	2.335	82.1	1500	1614	0.4955
19:13:16	20-MAR	52.974	2.439	82.3	1498	1616	0.4828
19:19:22	20-MAR	53.075	2.541	82.5	1495	1619	0.4710
19:25:25	20-MAR	53.176	2.642	82.7	1493	1621	0.4599
19:31:52	20-MAR	53.284	2.749	82.9	1491	1623	0.4486
19:38:13	20-MAR	53.390	2.855	83.0	1489	1625	0.4381

TEST PHASE: SHUTIN PERIOD # 3

FINAL FLOW PRESSURE = 3114 PSIA
PRODUCING TIME = 4.974 HR

TIME OF DAY HH:MM:SS	DATE DD-MMM	ELAPSED TIME, HR	DELTA TIME, HR	BOT HOLE TEMP. DEG F	BOT HOLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
19:44:24	20-MAR	53.493	2.958	83.2	1487	1627	0.4284
19:50:45	20-MAR	53.598	3.064	83.3	1485	1629	0.4189
20:21:15	20-MAR	54.107	3.572	84.0	1477	1637	0.3789
20:51:16	20-MAR	54.607	4.072	84.6	1471	1643	0.3466
21:21:16	20-MAR	55.107	4.572	85.1	1466	1648	0.3197
21:51:22	20-MAR	55.609	5.074	85.5	1462	1652	0.2967
22:21:34	20-MAR	56.112	5.577	85.8	1458	1656	0.2769
22:51:34	20-MAR	56.612	6.077	86.1	1455	1659	0.2597
23:21:37	20-MAR	57.113	6.578	86.4	1452	1662	0.2446
23:51:49	20-MAR	57.616	7.082	86.6	1449	1665	0.2311
0:22:06	21-MAR	58.121	7.586	86.8	1447	1667	0.2190
0:52:42	21-MAR	58.631	8.096	87.0	1444	1670	0.2080
1:23:04	21-MAR	59.137	8.602	87.2	1442	1672	0.1982
1:53:10	21-MAR	59.639	9.104	87.3	1440	1674	0.1893
2:23:10	21-MAR	60.139	9.604	87.4	1439	1675	0.1813
2:54:12	21-MAR	60.656	10.121	87.5	1437	1677	0.1736
3:24:19	21-MAR	61.158	10.623	87.6	1435	1679	0.1668
3:54:26	21-MAR	61.660	11.125	87.7	1434	1680	0.1605
4:24:43	21-MAR	62.165	11.630	87.8	1433	1681	0.1546
4:54:43	21-MAR	62.665	12.130	87.9	1431	1683	0.1492
5:25:02	21-MAR	63.170	12.635	87.9	1430	1684	0.1442
5:55:37	21-MAR	63.680	13.145	88.0	1429	1685	0.1394
6:25:37	21-MAR	64.179	13.645	88.1	1428	1686	0.1350
6:59:17	21-MAR	64.741	14.206	88.1	1427	1687	0.1304
7:30:17	21-MAR	65.257	14.723	88.2	1426	1688	0.1264
8:00:42	21-MAR	65.764	15.230	88.2	1425	1689	0.1228
8:31:47	21-MAR	66.282	15.748	88.3	1424	1690	0.1192
8:51:07	21-MAR	66.604	16.070	88.3	1424	1690	0.1171

TEST PHASE: SHUTIN PERIOD # 4

FINAL FLOW PRESSURE = 3114 PSIA
PRODUCING TIME = 4.974 HR

TIME OF DAY HH:MM:SS	DATE DD-MMM	ELAPSED TIME, HR	DELTA TIME, HR	BOT HOLE TEMP. DEG F	BOT HOLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
17:32:22	21-MAR	75.292	0.000	70.4	3624	-510	
17:34:32	21-MAR	75.328	0.036	70.3	2120	994	2.1435
17:35:42	21-MAR	75.348	0.056	70.3	1873	1242	1.9573
17:37:02	21-MAR	75.370	0.078	70.3	1809	1305	1.8132
17:39:47	21-MAR	75.416	0.124	70.3	1783	1332	1.6157
17:41:12	21-MAR	75.439	0.147	70.3	1779	1335	1.5416
17:42:37	21-MAR	75.463	0.171	70.4	1775	1339	1.4788
17:45:47	21-MAR	75.516	0.224	70.7	1764	1350	1.3666
17:48:22	21-MAR	75.559	0.267	71.0	1755	1359	1.2935
17:49:52	21-MAR	75.584	0.292	71.2	1750	1364	1.2566
17:51:27	21-MAR	75.610	0.318	71.4	1744	1370	1.2212
17:53:12	21-MAR	75.639	0.347	71.7	1738	1376	1.1855
17:55:07	21-MAR	75.671	0.379	71.9	1735	1379	1.1498
17:57:12	21-MAR	75.706	0.414	72.2	1728	1387	1.1146

TEST PHASE: SHUTIN PERIOD # 4

FINAL FLOW PRESSURE = 3114 PSIA

PRODUCING TIME = 4.974 HR

TIME OF DAY HH:MM:SS	DATE DD-MMM	ELAPSED TIME, HR	DELTA TIME, HR	BOT HOLE TEMP. DEG F	BOT HOLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
17:59:07	21-MAR	75.738	0.446	72.4	1720	1394	1.0849
18:01:17	21-MAR	75.774	0.482	72.7	1712	1402	1.0540
18:03:27	21-MAR	75.810	0.518	72.9	1705	1409	1.0254
18:09:32	21-MAR	75.911	0.619	73.5	1685	1429	0.9558
18:16:07	21-MAR	76.021	0.729	74.0	1666	1448	0.8933
18:23:12	21-MAR	76.139	0.847	74.6	1647	1467	0.8371
18:29:47	21-MAR	76.249	0.957	75.0	1632	1482	0.7923
18:35:52	21-MAR	76.350	1.058	75.4	1620	1494	0.7559
18:42:32	21-MAR	76.461	1.169	75.8	1608	1506	0.7205
18:48:32	21-MAR	76.561	1.269	76.2	1599	1515	0.6919
18:54:32	21-MAR	76.661	1.369	76.5	1590	1524	0.6658
19:00:32	21-MAR	76.761	1.469	76.9	1582	1532	0.6420
19:07:02	21-MAR	76.870	1.578	77.2	1575	1539	0.6184
19:13:57	21-MAR	76.985	1.693	77.6	1568	1546	0.5953
19:21:22	21-MAR	77.109	1.817	78.0	1561	1553	0.5727
19:27:47	21-MAR	77.215	1.924	78.3	1556	1558	0.5546
19:36:07	21-MAR	77.354	2.062	78.7	1549	1565	0.5330
19:42:37	21-MAR	77.463	2.171	79.0	1545	1569	0.5174
19:48:52	21-MAR	77.567	2.275	79.3	1541	1573	0.5033
19:55:07	21-MAR	77.671	2.379	79.6	1537	1577	0.4901
20:04:42	21-MAR	77.831	2.539	79.9	1532	1582	0.4712
20:12:27	21-MAR	77.960	2.668	80.2	1528	1586	0.4570
20:18:32	21-MAR	78.061	2.769	80.5	1525	1589	0.4466
20:25:12	21-MAR	78.173	2.881	80.7	1522	1592	0.4357
20:32:17	21-MAR	78.291	2.999	80.9	1520	1594	0.4247
20:38:22	21-MAR	78.392	3.100	81.1	1517	1597	0.4158
21:08:37	21-MAR	78.896	3.604	82.0	1507	1607	0.3766
21:38:37	21-MAR	79.396	4.104	82.8	1499	1615	0.3448
22:09:32	21-MAR	79.911	4.619	83.4	1492	1622	0.3174
22:40:37	21-MAR	80.429	5.137	84.0	1486	1628	0.2941
23:11:02	21-MAR	80.936	5.644	84.4	1481	1633	0.2745
23:41:32	21-MAR	81.445	6.153	84.8	1476	1638	0.2573
0:12:27	22-MAR	81.960	6.668	85.2	1472	1642	0.2421
0:43:17	22-MAR	82.474	7.182	85.5	1469	1645	0.2286
1:14:32	22-MAR	82.995	7.703	85.7	1465	1649	0.2164
1:45:22	22-MAR	83.509	8.217	86.0	1462	1652	0.2056
2:15:52	22-MAR	84.017	8.725	86.2	1460	1654	0.1959
2:48:27	22-MAR	84.560	9.268	86.4	1457	1657	0.1866
3:19:02	22-MAR	85.070	9.778	86.6	1455	1659	0.1786
3:49:07	22-MAR	85.571	10.279	86.7	1453	1661	0.1714
4:22:47	22-MAR	86.132	10.840	86.8	1451	1663	0.1640
4:56:17	22-MAR	86.691	11.399	87.0	1449	1665	0.1573
5:32:07	22-MAR	87.288	11.996	87.1	1447	1667	0.1507
6:02:27	22-MAR	87.793	12.501	87.2	1445	1669	0.1455
6:32:42	22-MAR	88.298	13.006	87.3	1444	1671	0.1407
7:02:47	22-MAR	88.799	13.507	87.4	1442	1672	0.1362
7:35:22	22-MAR	89.342	14.050	87.5	1441	1673	0.1316
8:05:57	22-MAR	89.852	14.560	87.5	1439	1675	0.1276
8:36:07	22-MAR	90.354	15.062	87.6	1438	1676	0.1239
9:06:17	22-MAR	90.857	15.565	87.7	1437	1677	0.1204

TEST PHASE: SHUTIN PERIOD # 4

FINAL FLOW PRESSURE = 3114 PSIA

PRODUCING TIME = 4.974 HR

TIME OF DAY HH:MM:SS	DATE DD-MMM	ELAPSED TIME, HR	DELTA TIME, HR	BOT HOLE TEMP. DEG F	BOT HOLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
9:36:47	22-MAR	91.366	16.074	87.7	1436	1678	0.1171
10:07:07	22-MAR	91.871	16.579	87.8	1435	1679	0.1140
10:38:52	22-MAR	92.400	17.108	87.8	1434	1680	0.1108
11:09:42	22-MAR	92.914	17.622	87.9	1433	1681	0.1080
11:40:17	22-MAR	93.424	18.132	87.9	1432	1682	0.1053
12:11:02	22-MAR	93.936	18.644	88.0	1431	1683	0.1027
12:41:32	22-MAR	94.445	19.153	88.0	1430	1684	0.1003
13:12:17	22-MAR	94.957	19.665	88.1	1429	1685	0.0979
13:42:52	22-MAR	95.467	20.175	88.1	1429	1685	0.0957
14:14:07	22-MAR	95.988	20.696	88.1	1428	1686	0.0935
14:44:57	22-MAR	96.502	21.210	88.2	1427	1687	0.0915
15:14:57	22-MAR	97.002	21.710	88.2	1426	1688	0.0896
15:44:57	22-MAR	97.502	22.210	88.2	1426	1688	0.0878
16:15:27	22-MAR	98.010	22.718	88.2	1425	1689	0.0860
16:46:07	22-MAR	98.521	23.229	88.3	1424	1690	0.0843
17:16:42	22-MAR	99.031	23.739	88.3	1424	1690	0.0826
17:47:22	22-MAR	99.542	24.250	88.3	1423	1691	0.0810
18:19:32	22-MAR	100.078	24.786	88.3	1423	1691	0.0794
18:49:52	22-MAR	100.584	25.292	88.4	1422	1692	0.0780
19:20:17	22-MAR	101.091	25.799	88.4	1422	1692	0.0766
19:50:27	22-MAR	101.593	26.301	88.4	1421	1693	0.0752
20:21:12	22-MAR	102.106	26.814	88.4	1421	1693	0.0739
20:51:42	22-MAR	102.614	27.322	88.4	1420	1694	0.0726
21:22:32	22-MAR	103.128	27.836	88.5	1420	1694	0.0714
21:54:57	22-MAR	103.668	28.376	88.5	1419	1695	0.0702
22:27:12	22-MAR	104.206	28.914	88.5	1419	1695	0.0689
22:57:27	22-MAR	104.710	29.418	88.5	1418	1696	0.0679
23:30:57	22-MAR	105.268	29.976	88.5	1418	1696	0.0667
0:00:57	23-MAR	105.768	30.476	88.6	1417	1697	0.0657
0:32:12	23-MAR	106.289	30.997	88.6	1417	1697	0.0646
1:03:07	23-MAR	106.804	31.512	88.6	1417	1697	0.0637
1:33:12	23-MAR	107.306	32.014	88.6	1416	1698	0.0627
2:03:12	23-MAR	107.806	32.514	88.6	1416	1698	0.0618
2:33:37	23-MAR	108.313	33.021	88.6	1416	1699	0.0609
3:05:57	23-MAR	108.852	33.560	88.6	1415	1699	0.0600
3:36:27	23-MAR	109.360	34.068	88.6	1415	1699	0.0592
4:07:17	23-MAR	109.874	34.582	88.7	1414	1700	0.0584
4:37:22	23-MAR	110.375	35.083	88.7	1414	1700	0.0576
5:07:57	23-MAR	110.885	35.593	88.7	1414	1700	0.0568
5:38:07	23-MAR	111.388	36.096	88.7	1414	1701	0.0561
6:08:17	23-MAR	111.891	36.599	88.7	1413	1701	0.0553
6:39:47	23-MAR	112.416	37.124	88.7	1413	1701	0.0546
7:10:47	23-MAR	112.932	37.640	88.7	1413	1701	0.0539
7:41:12	23-MAR	113.439	38.147	88.7	1412	1702	0.0532
8:11:22	23-MAR	113.942	38.650	88.7	1412	1702	0.0526
8:42:47	23-MAR	114.466	39.174	88.7	1412	1702	0.0519
9:13:27	23-MAR	114.977	39.685	88.7	1412	1703	0.0513
9:51:57	23-MAR	115.618	40.326	88.8	1411	1703	0.0505
10:22:37	23-MAR	116.129	40.837	88.8	1411	1703	0.0499
10:52:47	23-MAR	116.632	41.340	88.8	1411	1703	0.0493

TEST PHASE: SHUTIN PERIOD # 4

FINAL FLOW PRESSURE = 3114 PSIA

PRODUCING TIME = 4.974 HR

TIME OF DAY HH:MM:SS	DATE DD-MMM	ELAPSED TIME, HR	DELTA TIME, HR	BOT HOLE TEMP. DEG F	BOT HOLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
11:23:57	23-MAR	117.152	41.860	88.8	1411	1704	0.0488
11:58:27	23-MAR	117.727	42.435	88.8	1410	1704	0.0481
12:28:47	23-MAR	118.232	42.940	88.8	1410	1704	0.0476
13:04:12	23-MAR	118.823	43.531	88.8	1410	1704	0.0470
13:36:42	23-MAR	119.364	44.072	88.8	1410	1705	0.0464
14:06:57	23-MAR	119.868	44.576	88.8	1409	1705	0.0459
14:37:22	23-MAR	120.375	45.083	88.8	1409	1705	0.0455
15:08:32	23-MAR	120.895	45.603	88.8	1409	1705	0.0450
15:42:22	23-MAR	121.459	46.167	88.8	1409	1705	0.0444
16:12:37	23-MAR	121.963	46.671	88.9	1408	1706	0.0440
16:42:47	23-MAR	122.466	47.174	88.9	1408	1706	0.0435
17:13:42	23-MAR	122.981	47.689	88.9	1408	1706	0.0431
17:45:42	23-MAR	123.514	48.222	88.9	1408	1706	0.0426
18:15:42	23-MAR	124.014	48.722	88.9	1408	1706	0.0422
18:45:42	23-MAR	124.514	49.222	88.9	1408	1707	0.0418
19:15:42	23-MAR	125.014	49.722	88.9	1407	1707	0.0414
19:46:32	23-MAR	125.528	50.236	88.9	1407	1707	0.0410
20:18:07	23-MAR	126.054	50.762	88.9	1407	1707	0.0406
20:50:37	23-MAR	126.596	51.304	88.9	1407	1707	0.0402
21:22:32	23-MAR	127.128	51.836	88.9	1407	1707	0.0398
21:52:37	23-MAR	127.629	52.337	88.9	1407	1708	0.0394
22:22:37	23-MAR	128.129	52.837	88.9	1406	1708	0.0391
22:52:37	23-MAR	128.629	53.337	88.9	1406	1708	0.0387
23:22:52	23-MAR	129.134	53.842	88.9	1406	1708	0.0384
0:04:07	24-MAR	129.821	54.529	88.9	1406	1708	0.0379
0:36:17	24-MAR	130.357	55.065	89.0	1406	1708	0.0376
1:08:42	24-MAR	130.898	55.606	89.0	1406	1708	0.0372
1:40:52	24-MAR	131.434	56.142	89.0	1405	1709	0.0369
2:10:57	24-MAR	131.935	56.643	89.0	1405	1709	0.0366
2:44:37	24-MAR	132.496	57.204	89.0	1405	1709	0.0362
3:19:42	24-MAR	133.081	57.789	89.0	1405	1709	0.0359
3:59:12	24-MAR	133.739	58.447	89.0	1405	1709	0.0355
4:30:27	24-MAR	134.260	58.968	89.0	1405	1709	0.0352
5:07:47	24-MAR	134.882	59.590	89.0	1405	1709	0.0348
5:38:12	24-MAR	135.389	60.097	89.0	1404	1710	0.0345
6:10:42	24-MAR	135.931	60.639	89.0	1404	1710	0.0342
6:49:07	24-MAR	136.571	61.279	89.0	1404	1710	0.0339
7:21:52	24-MAR	137.117	61.825	89.0	1404	1710	0.0336
7:52:17	24-MAR	137.624	62.332	89.0	1404	1710	0.0333
8:22:47	24-MAR	138.132	62.840	89.0	1404	1710	0.0331
8:53:37	24-MAR	138.646	63.354	89.1	1404	1710	0.0328
9:37:12	24-MAR	139.372	64.080	89.1	1404	1710	0.0325
10:17:27	24-MAR	140.043	64.751	89.1	1403	1711	0.0321
10:57:42	24-MAR	140.714	65.422	89.1	1403	1711	0.0318
11:27:57	24-MAR	141.218	65.926	89.1	1403	1711	0.0316
11:58:17	24-MAR	141.724	66.432	89.1	1403	1711	0.0314
12:28:17	24-MAR	142.224	66.932	89.1	1403	1711	0.0311
13:18:22	24-MAR	143.059	67.767	89.1	1403	1711	0.0308
13:49:57	24-MAR	143.585	68.293	89.1	1403	1711	0.0305
14:23:07	24-MAR	144.138	68.846	89.1	1403	1711	0.0303

TEST PHASE: SHUTIN PERIOD # 4

FINAL FLOW PRESSURE = 3114 PSIA

PRODUCING TIME = 4.974 HR

TIME OF DAY HH:MM:SS	DATE DD-MMM	ELAPSED TIME, HR	DELTA TIME, HR	BOT HOLE TEMP. DEG F	BOT HOLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
14:56:22	24-MAR	144.692	69.400	89.1	1403	1712	0.0301
15:29:07	24-MAR	145.238	69.946	89.1	1402	1712	0.0298
15:59:07	24-MAR	145.738	70.446	89.1	1402	1712	0.0296
16:29:07	24-MAR	146.238	70.946	89.1	1402	1712	0.0294
17:02:27	24-MAR	146.793	71.501	89.1	1402	1712	0.0292
17:32:47	24-MAR	147.299	72.007	89.1	1402	1712	0.0290
18:18:22	24-MAR	148.059	72.767	89.1	1402	1712	0.0287
18:51:12	24-MAR	148.606	73.314	89.1	1402	1712	0.0285
19:21:17	24-MAR	149.107	73.815	89.1	1402	1712	0.0283
19:51:27	24-MAR	149.610	74.318	89.2	1402	1712	0.0281
20:34:27	24-MAR	150.327	75.035	89.2	1402	1712	0.0279
21:07:02	24-MAR	150.870	75.578	89.2	1402	1713	0.0277
21:38:02	24-MAR	151.386	76.094	89.2	1401	1713	0.0275
22:13:32	24-MAR	151.978	76.686	89.2	1401	1713	0.0273
22:57:52	24-MAR	152.717	77.425	89.2	1401	1713	0.0270
23:30:32	24-MAR	153.261	77.969	89.2	1401	1713	0.0269
0:00:37	25-MAR	153.763	78.471	89.2	1401	1713	0.0267
0:35:17	25-MAR	154.341	79.049	89.2	1401	1713	0.0265
1:12:17	25-MAR	154.957	79.665	89.2	1401	1713	0.0263
1:42:47	25-MAR	155.466	80.174	89.2	1401	1713	0.0261
2:15:07	25-MAR	156.004	80.712	89.2	1401	1713	0.0260
2:45:27	25-MAR	156.510	81.218	89.2	1401	1713	0.0258
3:22:37	25-MAR	157.129	81.837	89.2	1401	1713	0.0256
3:58:52	25-MAR	157.734	82.442	89.2	1401	1714	0.0254
4:28:57	25-MAR	158.235	82.943	89.2	1400	1714	0.0253
5:06:12	25-MAR	158.856	83.564	89.2	1400	1714	0.0251
5:39:52	25-MAR	159.417	84.125	89.2	1400	1714	0.0250
6:09:52	25-MAR	159.917	84.625	89.2	1400	1714	0.0248
6:39:52	25-MAR	160.417	85.125	89.2	1400	1714	0.0247
7:10:07	25-MAR	160.921	85.629	89.2	1400	1714	0.0245
7:41:47	25-MAR	161.449	86.157	89.2	1400	1714	0.0244
8:38:47	25-MAR	162.399	87.107	89.2	1400	1714	0.0241
9:10:12	25-MAR	162.923	87.630	89.2	1400	1714	0.0240
9:40:22	25-MAR	163.425	88.133	89.2	1400	1714	0.0238
10:11:37	25-MAR	163.946	88.654	89.2	1400	1714	0.0237
10:59:22	25-MAR	164.742	89.450	89.2	1400	1714	0.0235
11:32:47	25-MAR	165.299	90.007	89.2	1400	1714	0.0234
12:05:32	25-MAR	165.845	90.553	89.2	1400	1714	0.0232
12:36:37	25-MAR	166.363	91.071	89.2	1400	1715	0.0231
13:14:32	25-MAR	166.995	91.703	89.2	1399	1715	0.0229
13:45:12	25-MAR	167.506	92.214	89.2	1399	1715	0.0228
14:19:47	25-MAR	168.082	92.790	89.2	1399	1715	0.0227
14:53:37	25-MAR	168.646	93.354	89.2	1399	1715	0.0225
15:58:12	25-MAR	169.722	94.430	89.3	1399	1715	0.0223
16:32:22	25-MAR	170.292	95.000	89.3	1399	1715	0.0222
17:03:02	25-MAR	170.803	95.511	89.3	1399	1715	0.0220
17:35:27	25-MAR	171.343	96.051	89.3	1399	1715	0.0219
18:05:27	25-MAR	171.843	96.551	89.3	1399	1715	0.0218
18:45:42	25-MAR	172.514	97.222	89.3	1399	1715	0.0217
19:15:52	25-MAR	173.017	97.725	89.3	1399	1715	0.0216

TEST PHASE: SHUTIN PERIOD # 4

FINAL FLOW PRESSURE = 3114 PSIA

PRODUCING TIME = 4.974 HR

TIME OF DAY HH:MM:SS	DATE DD-MMM	ELAPSED TIME, HR	DELTA TIME, HR	BOT HOLE TEMP. DEG F	BOT HOLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
19:52:27	25-MAR	173.627	98.335	89.3	1399	1715	0.0214
20:22:27	25-MAR	174.127	98.835	89.3	1399	1715	0.0213
20:54:17	25-MAR	174.657	99.365	89.3	1399	1715	0.0212
21:28:57	25-MAR	175.235	99.943	89.3	1399	1715	0.0211
22:46:47	25-MAR	176.532	101.240	89.3	1399	1716	0.0208
23:19:32	25-MAR	177.078	101.786	89.3	1399	1716	0.0207
23:49:47	25-MAR	177.582	102.290	89.3	1398	1716	0.0206
0:20:02	26-MAR	178.086	102.794	89.3	1398	1716	0.0205
0:50:27	26-MAR	178.593	103.301	89.3	1398	1716	0.0204
1:20:32	26-MAR	179.095	103.803	89.3	1398	1716	0.0203
1:50:47	26-MAR	179.599	104.307	89.3	1398	1716	0.0202
2:20:57	26-MAR	180.102	104.810	89.3	1398	1716	0.0201
2:52:12	26-MAR	180.622	105.330	89.3	1398	1716	0.0200
3:41:02	26-MAR	181.436	106.144	89.3	1398	1716	0.0199
4:13:37	26-MAR	181.979	106.687	89.3	1398	1716	0.0198
4:44:57	26-MAR	182.502	107.210	89.3	1398	1716	0.0197
5:15:52	26-MAR	183.017	107.725	89.3	1398	1716	0.0196
5:47:57	26-MAR	183.552	108.260	89.3	1398	1716	0.0195
6:19:47	26-MAR	184.082	108.790	89.3	1398	1716	0.0194
6:52:57	26-MAR	184.635	109.343	89.3	1398	1716	0.0193
7:29:22	26-MAR	185.242	109.950	89.3	1398	1716	0.0192
8:04:22	26-MAR	185.825	110.533	89.3	1398	1716	0.0191
9:15:57	26-MAR	187.018	111.726	89.3	1398	1716	0.0189
9:50:47	26-MAR	187.599	112.307	89.3	1398	1716	0.0188
10:26:42	26-MAR	188.197	112.905	89.3	1398	1716	0.0187
11:02:42	26-MAR	188.798	113.505	89.3	1398	1716	0.0186
11:36:32	26-MAR	189.361	114.069	89.3	1398	1716	0.0185
12:11:12	26-MAR	189.939	114.647	89.3	1398	1717	0.0184
12:45:07	26-MAR	190.504	115.212	89.3	1398	1717	0.0184
13:25:02	26-MAR	191.170	115.878	89.3	1397	1717	0.0183
14:22:47	26-MAR	192.132	116.840	89.3	1397	1717	0.0181
14:56:22	26-MAR	192.692	117.400	89.3	1397	1717	0.0180
15:35:27	26-MAR	193.343	118.051	89.3	1397	1717	0.0179
16:08:52	26-MAR	193.900	118.608	89.3	1397	1717	0.0178
16:39:12	26-MAR	194.406	119.114	89.3	1397	1717	0.0178
17:09:12	26-MAR	194.906	119.614	89.3	1397	1717	0.0177
17:44:32	26-MAR	195.495	120.203	89.3	1397	1717	0.0176
18:30:42	26-MAR	196.264	120.972	89.3	1397	1717	0.0175
19:59:17	26-MAR	197.741	122.449	89.3	1397	1717	0.0173
20:41:32	26-MAR	198.445	123.153	89.3	1397	1717	0.0172
21:11:32	26-MAR	198.945	123.653	89.3	1397	1717	0.0171
21:49:57	26-MAR	199.585	124.293	89.4	1397	1717	0.0170
22:20:02	26-MAR	200.086	124.794	89.4	1397	1717	0.0170
22:56:12	26-MAR	200.689	125.397	89.4	1397	1717	0.0169
23:26:12	26-MAR	201.189	125.897	89.4	1397	1717	0.0168
0:04:02	27-MAR	201.820	126.528	89.4	1397	1717	0.0167
0:34:02	27-MAR	202.320	127.028	89.4	1397	1717	0.0167
1:04:17	27-MAR	202.824	127.532	89.4	1397	1717	0.0166
1:45:17	27-MAR	203.507	128.215	89.4	1397	1717	0.0165
2:15:17	27-MAR	204.007	128.715	89.4	1397	1717	0.0165

TEST PHASE: SHUTIN PERIOD # 4

FINAL FLOW PRESSURE = 3114 PSIA

PRODUCING TIME = 4.974 HR

TIME OF DAY HH:MM:SS	DATE DD-MMM	ELAPSED TIME, HR	DELTA TIME, HR	BOT HOLE TEMP. DEG F	BOT HOLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
2:46:32	27-MAR	204.528	129.236	89.4	1397	1717	0.0164
3:17:42	27-MAR	205.048	129.755	89.4	1397	1717	0.0163
3:47:47	27-MAR	205.549	130.257	89.4	1397	1717	0.0163
4:17:47	27-MAR	206.049	130.757	89.4	1397	1717	0.0162
4:56:57	27-MAR	206.702	131.410	89.4	1397	1717	0.0161
5:26:57	27-MAR	207.202	131.910	89.4	1397	1717	0.0161
5:57:02	27-MAR	207.703	132.411	89.4	1397	1718	0.0160
6:37:37	27-MAR	208.379	133.087	89.4	1397	1718	0.0159
7:08:17	27-MAR	208.891	133.599	89.4	1397	1718	0.0159
7:53:47	27-MAR	209.649	134.357	89.4	1396	1718	0.0158
8:23:57	27-MAR	210.152	134.860	89.4	1396	1718	0.0157

 ** WELL TEST DATA PRINTOUT **

COMPANY: ALTAMONT OIL & GAS
 WELL: WALLEWEIN 22-1

FIELD REPORT NO. WALLBTM
 INSTRUMENT NO. 90367 btm

RECORDER CAPACITY: 16000 PSI
 DEPTH REFERENCE: GROUND LEVEL

GRADIENT INFORMATION

TIME OF DAY HH:MM:SS	DATE DD-MMM	ELAPSED TIME, HR	DEPTH FROM REF. FT	PRESSURE AT DEPTH PSIA	PRES. GRADIENT PSI/FT	TEMPERATURE AT DEPTH DEG F	TEMP. GRADIENT DEG F/FT
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14:45:32	18-MAR	0.511	0.0	14		50.1	
14:52:32	18-MAR	0.628	300.0	14	0.00020	49.1	-0.00350
14:58:52	18-MAR	0.734	600.0	15	0.00040	48.9	-0.00060
15:05:17	18-MAR	0.840	900.0	46	0.104	51.3	0.00797
15:12:12	18-MAR	0.956	1200.0	178	0.442	55.6	0.0143
15:18:32	18-MAR	1.061	1500.0	307	0.429	59.7	0.0136
15:25:32	18-MAR	1.178	1800.0	437	0.432	63.9	0.0140
15:33:02	18-MAR	1.303	2100.0	565	0.428	68.2	0.0146
15:40:02	18-MAR	1.420	2400.0	694	0.431	71.7	0.0116
15:46:57	18-MAR	1.535	2700.0	844	0.497	75.3	0.0120
15:53:57	18-MAR	1.652	3000.0	953	0.366	78.2	0.00967
16:00:47	18-MAR	1.765	3300.0	1083	0.433	80.9	0.00877
16:07:52	18-MAR	1.884	3600.0	1213	0.432	83.8	0.00970
16:15:02	18-MAR	2.003	3900.0	1342	0.431	86.6	0.00943
16:18:52	18-MAR	2.067	4019.0	1394	0.436	87.7	0.00950
8:26:22	27-MAR	210.192	4019.0	1396		89.4	
9:10:02	27-MAR	210.920	3900.0	1354	0.358	88.9	0.00412
9:15:17	27-MAR	211.007	3700.0	1263	0.454	88.2	0.00325
9:21:17	27-MAR	211.107	3400.0	1128	0.451	86.3	0.00630
9:27:27	27-MAR	211.210	3100.0	984	0.479	83.7	0.00873
9:33:17	27-MAR	211.307	2800.0	865	0.395	81.3	0.00813
9:39:02	27-MAR	211.403	2500.0	733	0.441	79.0	0.00773
9:44:52	27-MAR	211.500	2200.0	600	0.445	76.0	0.00983
9:50:12	27-MAR	211.589	1900.0	468	0.438	72.9	0.0103
9:56:27	27-MAR	211.693	1600.0	335	0.445	69.1	0.0128
10:02:12	27-MAR	211.789	1300.0	202	0.443	65.4	0.0121
10:08:02	27-MAR	211.886	1000.0	70	0.439	61.5	0.0133
10:14:37	27-MAR	211.996	700.0	15	0.184	58.4	0.0102
10:19:37	27-MAR	212.079	400.0	15	-0.00007	57.1	0.00433
10:25:47	27-MAR	212.182	100.0	15	0.00027	55.7	0.00480
10:27:27	27-MAR	212.210	1.0	15	0.00020	55.3	0.00384