

# **TASK 5 – TERRESTRIAL FIELD VALIDATION TEST**

## **SITE HEALTH AND SAFETY PLAN**

*Prepared by:*

Barry W. Botnen

Energy & Environmental Research Center  
University of North Dakota  
Grand Forks, North Dakota 58202-9018

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## **TASK 5 – TERRESTRIAL FIELD VALIDATION TEST**

### **1.0 INTRODUCTION**

#### **1.1 Plan Objectives**

The health and safety of site personnel and the public is a primary concern during field operations at work sites. Thus a comprehensive, carefully managed, and thoroughly documented site Health and Safety Plan (HSP) is crucial for successful project completion.

This HSP provides health and safety criteria and procedures that will be used during all site activities for the length of the project. This HSP describes site operating procedures, hazard evaluation and control, and emergency response procedures.

This HSP has been developed to protect the health and safety of involved personnel and the environment and to be in compliance with Occupational Safety and Health Administration (OSHA) 1910.120 “Hazardous Waste Operations and Emergency Response: Final Rule.” It describes the minimum health and safety procedures to be implemented and followed by site personnel and subcontractors during project activities. The objective of the HSP is to ensure that safe working conditions exist at the work site. The safety organization and procedures have been established based on analysis of potential hazards anticipated at the work site.

All personnel will use this HSP as a field reference manual for safety, health, and emergency response procedures. The complete HSP will be discussed with and reviewed by all site personnel to ensure sufficient awareness of potential hazardous conditions and safety procedures. All site workers will sign a statement documenting their understanding of the HSP and their participation in the project safety meetings.

All site activities will be conducted in a manner such that the risk of exposure to hazards is minimized. The following program includes general safe work practices, personnel protection requirements, medical surveillance, and training requirements. This HSP covers safe work practices for recognized physical hazards (no chemical hazards are anticipated). Additionally, details for emergency response, first-aid capabilities, and fire control are included.

The protection of workers and the environment are essential during implementation of field activities. Primary field activities anticipated for the task are:

- Construction/restoration of wetlands and grasslands.
- Instrumenting areas for the monitoring of natural greenhouse gases.
- Soil sampling.

The provisions of this HSP are mandatory to all Energy & Environmental Research Center (EERC) site personnel as well as subcontractors. All persons participating in the work must comply with all requirements of this HSP.

## **1.2 Environmental Setting**

The project will be conducted in a rural location in the Prairie Pothole Region of the northern Great Plains, which is characterized as tall, mixed, and short grass prairie. Most native grasslands have been converted for agricultural production. Remnant grasslands are characterized by cool season and warm season grasses and forbs.

## **2.0 PERSONNEL TRAINING AND MEDICAL SURVEILLANCE**

### **2.1 Comprehensive Training**

A thorough understanding of the various hazards potentially encountered at the work sites and the personal protective measures needed to protect on-site personnel are the first requirements of a complete HSP.

### **2.2 Safety Briefing**

All site personnel will attend Tailgate Safety Meetings: 1) at the beginning of every workweek, 2) whenever a new person arrives on-site to perform work, or 3) whenever site conditions change. The purpose of this meeting is to discuss the hazards specific to the site and tasks to be performed, as well as to specify the proper level of protection for each work activity. Typical discussions at weekly Tailgate Safety Meetings include the following:

- Review – reviewing planned activities.
- Protective Clothing/Equipment – discussing all protective clothing and protective devices to be used by employees.
- Physical Hazards – addressing hazards associated with the physical work site, such as, slip/trip/fall hazards, elevated locations, weak structures, overhead hazards, underground utilities, and nearby operations that could pose a hazard.
- Emergency Procedures – explaining proper procedures to be followed in the event of an employee injury or other nonroutine event.
- Hospital/Clinic Telephone Number, Paramedic Telephone Number, Hospital Address – recapping key emergency information. This information can be taken directly from the emergency telephone list.
- Special Equipment – indicating proper work techniques and any hazards associated with new or unfamiliar equipment.
- Identification – identifying work zones, evacuation routes, and meeting areas for the work site.

- Other – discussing any remaining safety topics pertinent to the potential hazards of the job.

Safety meetings will be conducted and documented either by the project manager or the field team leader on the Tailgate Safety Meeting form (Appendix A).

### **3.0 PERSONAL PROTECTIVE EQUIPMENT**

No single combination of personal protective clothing and equipment (PPE) can protect field personnel from all hazards. Additionally, the use of PPE can create significant worker hazards such as heat stress; physical and psychological stress; and impaired vision, mobility, and communication. Field personnel must be prepared to upgrade their PPE if an unanticipated hazardous situation is encountered. Careful preentry planning, anticipation of worst-case conditions, and caution during field operations are imperative to an effective PPE program.

#### **3.1 Level of Personal Protective Equipment**

Based on existing knowledge of this work site, no special PPE will be necessary for activities performed under this project. Site personnel will be operating under a level of protection based on recommendations given by OSHA Standards 29 CFR 1910.120 plus appropriate parts of 29 CFR 1910 and CFR 1926.

Selection of equipment for personal protection will be based on the potential for contact with elevated airborne levels of any contaminant, as well as any physical hazard, as stipulated by the project manager. Guidelines will be adhered to, pending evaluation of site conditions. If site conditions change, the Site Manager may upgrade the level of protection after concurrence with the Project Manager. If a situation arises requiring reevaluation of the PPE, work at the site will cease until the Project Manager makes a decision. Under no circumstances will personnel work under uncertain health and safety conditions or without adequate PPE.

#### **3.2 PPE Selection Criteria**

An appropriate level of personal protection is required for all on-site personnel and visitors in accordance with this HSP. Based on evaluation of potential hazardous conditions present at the site, action levels for personal protection will be established. The Field Leader will determine an appropriate level of protection or cease operations based on professional experience and judgment, until any hazards can be better characterized. In general, action levels apply to sites where there is a potential for exposure to volatile organic vapors or physical contact with contaminated media, none of these conditions are anticipated for this project.

## **4.0 MONITORING**

### **4.1 Environmental Monitoring**

In general, primary health and safety concerns during field activities will focus on physical hazards. Climatic conditions can also present a health hazard to site personnel. Heat or cold stress will be considered as atmospheric conditions warrant. In the event that there may be concern about these parameters during site activities, the Site Manager will take all necessary action to protect health and the environment.

### **4.2 Personnel Monitoring**

Personnel monitoring shall commence when the ambient environmental temperature exceeds 90°F or falls below 40°F.

## **5.0 STANDARD SITE OPERATING PROCEDURES**

### **5.1 Safety Plan Responsibilities**

The Site Manager will ensure that each member of the field team is aware of all components of this HSP and is responsible for the following:

- Instructs all workers on safety procedures at the work site
- Controls entry and exit from the site
- Observes the work party for signs of stress or illness and removes affected individuals from work
- Monitors on-site conditions
- Ensures all personnel working on-site are informed of emergency procedures, evacuation routes, and emergency telephone numbers
- Ensures a map to the hospital is available
- Coordinates emergency medical care notification procedure
- Characterizes the site and alerts field personnel to the presence of tripping hazards, barriers, ditches, trenches, or hollows

## **5.2 Standard Safety Procedures**

Awareness of potential hazards and establishment of guidelines to control site hazards is a major component of any HSP. The following requirements are implemented to protect the health and safety of field workers and will be discussed in the Tailgate Safety Meeting:

- All personnel must comply with established safety procedures as discussed in this section. Any staff member who does not comply with safety policy, as established by the Project Manager, will be immediately dismissed from the site.
- All field personnel shall be required to review site information and work procedures for:
  - Expected hazards.
  - Location of telephones and emergency equipment.
  - Emergency medical information including hospital location.
  - Level(s) of personal protection required.
- Drugs (other than prescription, nonnarcotic drugs) will not be taken by personnel where the potential for contact with toxic substances exists, unless specifically approved by a physician. Alcoholic beverage intake is prohibited during the workday. Illegal drug intake is prohibited under any circumstances.
- Routine and emergency evacuation procedures will be planned and reviewed prior to going on-site.
- Work areas have been established based on prevailing site conditions and are subject to change if site conditions change.

## **5.3 Documentation of Changes**

Conditions in the field are sometimes different than those anticipated when this HSP was developed. Those conditions impacting health and safety, or raising concerns, which require changes to this plan, will be approved by the Program Director and documented.

## **6.0 EMERGENCY RESPONSE**

### **6.1 General Emergency Response**

A copy of this HSP will be available on-site at all times. All accidents/incidents and near-miss incidents shall be reported to the Program Manager and Site Manager immediately. Emergency notification numbers will be provided. First aid or other actions shall be administered in situations where those rendering assistance are not placed in danger. In the event of an explosion, fire, or other hazardous event, work activities shall cease, and all personnel shall evacuate the area using predesignated evacuation routes and meeting areas. Evacuation shall proceed upwind of the work area to the designated meeting area.



## **6.2 Medical Emergency Procedures**

Medical emergencies are described as situations that present a significant threat to the health of personnel. These can result from accidents, chemical exposures, heat stress, cold stress, and contact with poisonous plants, animals, or insects. Medical emergencies must be dealt with immediately and proper care administered. This may be in the form of first aid and/or emergency hospitalization.

Severely injured personnel are to be transported to a hospital via ambulance or state vehicle. A map showing the location of the nearest hospital will be provided.

## **6.3 Chemical Exposure**

In the event of personnel exposure, skin contact, inhalation, or ingestion, the following procedures shall be followed:

- Skin Contact. Wash and rinse affected area thoroughly with copious amounts of soap and water, then provide appropriate medical attention if required. Eyes should be rinsed for a minimum of 15 minutes following chemical contamination.
- Inhalation. Move to an area of fresh air and, if necessary, decontaminate and transport to hospital.
- Ingestion. Decontaminate and transport to hospital.
- Puncture Wound or Laceration. Decontaminate and transport to hospital for professional medical attention.

## **6.4 Catastrophic Event Procedures**

In the event of an emergency situation, such as fire, explosion, significant release of contaminants, etc., the Site Manager will:

- Cease all work activities and notify all site personnel indicating the initiation of evacuation procedures.
- All personnel will evacuate and assemble in a predesignated safe area. The evacuation will proceed in a direction directly opposite and upwind of the critically affected area.
- Conduct a head count of the assembled workers and ensure any injured individuals receive first aid.
- Notify the following parties as appropriate:
  - Fire department
  - Ambulance
  - Hospital

- EERC Site Manager
- Project Manager

## 6.5 Accidents

Accidents can result from various hazards on a site. These hazards can include tripping, catching, or cutting and may be associated with debris on-site or heavy equipment. Injuries may include the following:

- Broken bones
- Burns
- Sprains
- Puncture wounds
- Electrical shock
- Cut by contaminated or uncontaminated materials
- Snake or insect bites

Any accident involving site workers or other on-site personnel should be handled in the same manner as a medical emergency (Section 6.2).

## 6.6 Adverse Weather

In the event of adverse weather, the Site Manager will determine if work can continue without compromising the health and safety of site personnel. Some of the items to be considered prior to determining if work should continue are as follows:

- Heavy rainfall or hail
- Potential for heat stress
- Tornadoes
- Limited visibility
- Electrical storms
- Potential for accidents

## 6.7 Emergency Communication

Site communication is to be established prior to beginning operations. Both primary and backup systems are to be used—primarily being verbal, with the backup consisting of emergency signals such as hand signals, horns, flashlights, etc.

The following standard hand signals are used when verbal communication is impaired:

Signal	Meaning
Hand Gripping Throat	Out of air, cannot breathe
Grip Partner's Wrist	Leave area immediately
Hands on Top of Head	Need assistance
Thumbs Up	OK, I'm all right, I understand
Thumbs Down	No, negative

## **6.8 Incident Documentation**

All injuries, vehicle accidents, and “near miss” incidents must be reported and investigated promptly to determine the root cause of the incident and to prescribe corrective action.

## **6.9 Emergency Information**

In the event of a medical emergency, dial 911 or transport victim to:

**Ashley Medical Center  
612 Center Avenue North  
Ashley, ND 58413  
701-288-3433**

**APPENDIX A**

**TAILGATE SAFETY MEETING FORM**

## TAILGATE SAFETY MEETING

Company \_\_\_\_\_  
Date \_\_\_\_\_ Time \_\_\_\_\_ Job Number \_\_\_\_\_  
Customer/Site Name \_\_\_\_\_ Address \_\_\_\_\_  
Specific Location \_\_\_\_\_  
Type of Work \_\_\_\_\_  
Chemicals Used \_\_\_\_\_

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### SAFETY TOPICS PRESENTED

Protective Clothing/Equipment \_\_\_\_\_  
Chemical Hazards \_\_\_\_\_  
Physical Hazards \_\_\_\_\_  
Emergency Procedures \_\_\_\_\_  
Hospital/Clinic \_\_\_\_\_ Phone(\_\_\_\_) \_\_\_\_\_  
Hospital Address \_\_\_\_\_  
Special Equipment \_\_\_\_\_  
Other \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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### ATTENDEES

Name Printed	Signature

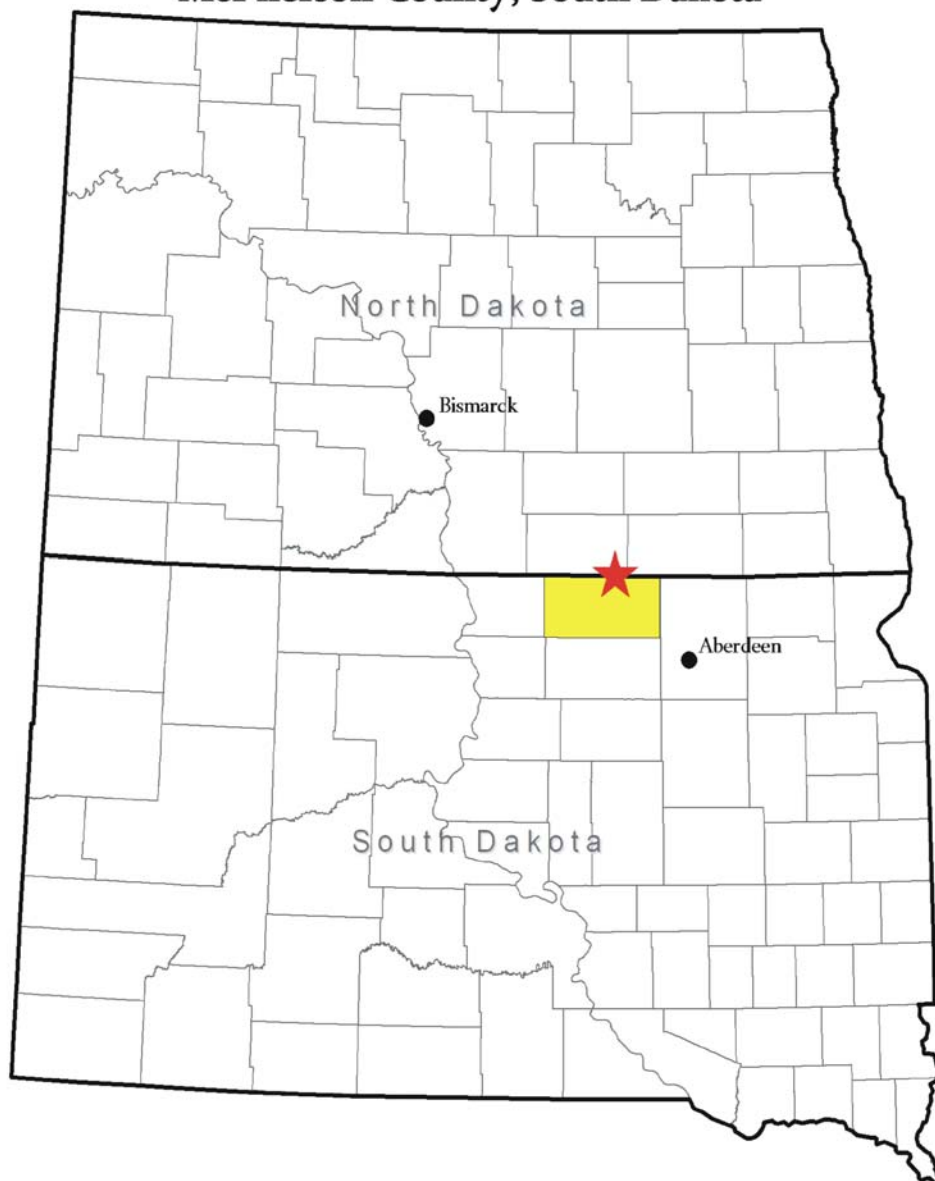
Meeting Conducted by: (print and sign)

Site Manager: \_\_\_\_\_  
\_\_\_\_\_

**APPENDIX B**

**SITE LOCATION MAP**

## Hoffman Property Location McPherson County, South Dakota





# Hoffman Property

EERC BB26667.CDR

Township 128N Range 69W Sec. 1; Township 128N Range 68W Sec. 6 W½, N½ NE ¼

McPherson County, South Dakota

