Final
Accident Prevention Plan / Site Safety and Health Plan

OU 1 Remedial Investigation Addendum/ Feasibility Study

Former Schilling Air Force Base
Salina, Kansas

January 12, 2007

Prepared for

U.S. Army Corps of Engineers
Kansas City District

Prepared by

MALCOLM PIRNIE

Burns & McDonnell
SINCE 1898

Contract Number: W912DQ-06-D-0006
Project Number: 42244

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APPENDIX

APPENDIX A – Site Safety and Health Plan (SSHP) for Hazardous Waste Operations

LIST OF ACRONYMS AND ABBREVIATIONS

ACGIH	American Conference of Government Industrial Hygienists
AHA	Activity Hazard Analysis
ANSI	American National Standard Institute
APP	Accident Prevention Plan
bgs	below ground surface
BMcD	Burns & McDonnell Engineering Company, Inc.
BTEX	Benzene, Toluene, Ethylbenzene, and total Xylenes
CFR	Code of Federal Regulations
CGI	Combustible Gas Indicator
CIH	Certified Industrial Hygienist
Cis-1,2-DCE	cis-1,2-Dichloroethene
CPR	Cardiopulmonary Resuscitation
dB	Decibels
^{o}C	Degrees Centigrade
^{o}F	Degrees Fahrenheit
DOT	Department of Transportation
EAB	Enhanced Anaerobic Bioremediation
EM	Engineering Manual
EMS	Emergency Medical Service
eV	Electron Volt
FSM	Field Site Manager
ft	Feet
HAZWOPER	Hazardous Waste Operations and Emergency Response
HEPA	High Efficiency Particulate Air
Hr	Hour
HSM	Health and Safety Manager
HTRW	Hazardous, Toxic, or Radioactive Waste
IDW	Investigative Derived Waste
IRP	Installation Restoration Program
LEL	Lower Explosive Limit
LOTO	Lock Out/Tag Out
mg/m^3	Milligrams per cubic meter of air
MSDS	Material Safety Data Sheet
NFPA	National Fire Prevention Association
NIOSH	National Institute for Occupational Safety and Health
NRR	Noise Reduction Rating
NWS	National Weather Service

LIST OF ACRONYMS AND ABBREVIATIONS (continued)

O_2	Oxygen
OSHA	Occupational Safety and Health Administration
OU	Operational Unit
QC	Quality Control
PEL	Permissible Exposure Limit
PID	Photoionization Detector
PM	Project Manager
PPE	Personal Protective Equipment
ppm	Parts per Million
PVC	Polyvinyl chloride
SAA	Salina Airport Authority
SAFB	Schilling Air Force Base
SCBA	Self Contained Breathing Apparatus
SHM	Project Safety and Health Manager
SSHP	Site Safety & Health Plan
SSHS	Site Safety and Health Supervisor
SVE	Soil Vapor Extraction
TCE	Trichloroethene
TLV	Threshold Limit Value
USACE	United States Army Corps of Engineers
VC	Vinyl Chloride
VOCs	Volatile Organic Compounds

LIST OF IMPORTANT TELEPHONE NUMBERS

EMERGENCY NUMBERS

Fire Department:	911
Salina EMS:	911
Salina Police:	911
Poison Control Center:	785-239-7777
Project Safety and Health Manager (Eric Wenger):	816-822-3894
Project Manager (Tracy Cooley):	816-822-3369

UTILITY CLEARANCE NUMBERS

Kansas One-Call:	1-800-344-7233

OTHER PRIMARY CONTACTS

U.S. Army Corps of Engineers Project Manager (Robyn Kiefer):	816-389-3615

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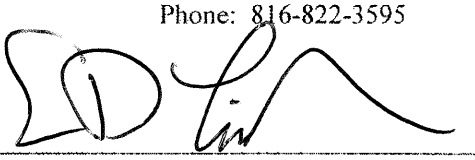
1.0 SIGNATURE SHEET

Accident Prevention Plan for
Former Schilling Air Force Base
Salina, Kansas
Contract No. W912DQ-06-D-0006

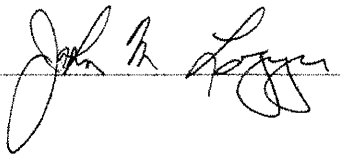
Plan Prepared by:

Ed Lindgren, Technical Manager
Phone: 816-822-3595



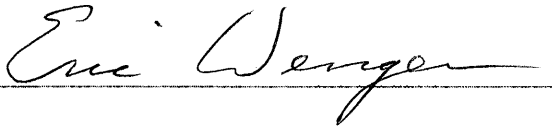
Plan Approval:

John Logigian, Program Manager
Phone: 914-694-2100



Plan Concurrence:

Eric Wenger, Certified Industrial Hygienist
Phone: 816-822-3894



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2.0 BACKGROUND INFORMATION

2.1 CONTRACTOR

Malcolm Pirnie has a contract with the United States Army Corps of Engineers (USACE), Kansas City District through which the Remedial Investigation (RI) and Feasibility Study (FS) at Operable Unit 1 for the Former Schilling Air Force Base (SAFB) (Site) at Salina, Kansas is being performed. Malcolm Pirnie has subcontracted Burns & McDonnell Engineering Company, Inc. (BMcD) to conduct this RI/FS investigation.

2.2 CONTRACT NUMBER

W912DQ-06-D-0006, Task Order 001

2.3 PROJECT NAME

Former Schilling Air Force Base, Salina, Kansas

2.4 PROJECT DESCRIPTION

This project will involve the additional investigation of the nature and extent of chlorinated solvent contamination at the former SAFB site.

Scope-of-work field activities at the Site include but are not limited to; subsurface soil sampling, drilling and installation of monitoring wells; and monitoring wells groundwater sampling. A site map of the work location is included as Figure 1-1.

2.5 CONTRACTOR'S ACCIDENT EXPERIENCE

The following information is provided to outline the accident and safety experience of the Contractor (Burns & McDonnell Engineering).

Year	TRIR	DART	Lost Time Incident	Recordables	EMR
2000	1.61	0.12	0.12	12	0.66
2001	0.65	0.16	0.16	11	0.66
2002	0.58	0.11	0.11	10	0.67
Year	**TRIR**	**DART**	**Lost Time Incident**	**Recordables**	**EMR**

2003	0.99	0.18	0.18	16	0.63
2004	0.38	0.00	0.00	7	0.66
2005	0.25	0.05	0.05	7	0.66
2006	0.00	0.00	0.00	1	0.65

2.6 PHASES OF WORK REQUIRING ACTIVITY HAZARD ANALYSES

The following work activities have been identified for this project:

- Soil boring / drilling
- Groundwater monitoring
- Debris removal

At a minimum, each work activity requires the subcontractor to complete an Activity Hazard Analysis (AHA - see Form 1 in Appendix A) and submit it to the FSM prior to starting the activity. The submitted AHA will remain accessible on the project site for viewing by all site personnel and will be included as part of training during the phases of work.

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3.0 STATEMENT OF SAFETY AND HEALTH POLICY

3.1 BURNS & MCDONNELL POLICY

The safety and health of each and every employee of BMcD and associated subcontractors is of primary importance. Therefore, BMcD issues the following policy statement:

- It is the policy of this company that every employee is entitled to work under the safest possible conditions for the construction industry. To this end, every reasonable effort will be made in the interest of accident prevention, fire protection, and health preservation.

- A comprehensive safety and health program shall be maintained with the objective of reducing the number of accidents and injuries to an absolute minimum, zero recordables and zero lost time. To be successful, such a program must embody the proper attitudes towards accident prevention on the part of both the supervisors and employees. It also requires cooperation in all safety and health matters, not only between supervisor and employee, but also between employee and his or her fellow worker. It is only through cooperation that such programs can work effectively.

- On each job the site safety and health supervisor (SSHS) will be responsible for implementing the safety program. All employees shall adhere to the rules, regulations, and other provisions of our safety program.

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4.0 RESPONSIBILITIES AND LINES OF AUTHORITY

4.1 RESPONSIBILITY

Any person on site may shut down a site work operation that poses imminent danger or is immediately dangerous to life or health. When such precautions must be taken, the SSHS shall be immediately notified and actions to remedy the situation shall be implemented.

4.1.1 CONTRACTOR

BMcD is the contractor responsible for conducting work, directing subcontractors, and implementing the Site Safety and Health Plan (SSHP – Appendix A of this APP). BMcD will conduct safety briefings for all personnel working or entering the site.

4.1.2 SITE SAFETY AND HEALTH SUPERVISOR (SSHS)

The SSHS is responsible for implementing and overseeing this plan. The SSHS is responsible for identifying safety and health hazards that may impact site personnel, maintaining proper medical surveillance, providing hazard communication information, training employees in safe operating procedures, emergency response, reviewing accident reports, and reviewing inspection results. The SSHS is also responsible for advising the project safety and health manager (SHM) and project manager on matters concerning the safety and health of employees or the public. The SSHS may be required to perform various types of area or personnel monitoring to verify worker exposure and ensure the proper selection of personal protective equipment (PPE). The SSHS should be consulted before any changes in the recommended procedures or levels of protective clothing are made.

4.1.3 PROGRAM MANAGER

The program manager has primary responsibility for fulfillment of contract terms and oversight of operations to verify that all legal and safety requirements are met. The program manager has the responsibility to keep the project on schedule and within budget and communicate with the client regarding progress toward specified goals.

4.1.4 PROJECT MANAGER

The BMcD project manager (PM) will have primary responsibility to satisfy the technical and administrative requirements of the project and will provide direction and oversight to the field site manager (FSM) and the SSHS. The project manager will be responsible for communicating progress and any problems to the program manager, who in turn will report to the USACE project manager. The project manager is trained in hazardous waste operations and emergency response (HAZWOPER) - and

receives the annual 8-hour refresher HAZWOPER training. The project manager is responsible for procuring and providing the proper safety equipment at the site.

4.1.5 FIELD SITE MANAGER

The FSM is the on-site operations coordinator of the field activities. The FSM is HAZWOPER-trained, HAZWOPER 8-hour Supervisor trained, and receives the annual HAZWOPER 8-hour refresher training. The FSM will also be current on respirator fit-testing, and be current on receiving HAZWOPER medical physical. The FSM will maintain site security, control site access for unauthorized personnel, supervise personnel on the site, coordinate the activities of subcontractor personnel and stop site activities based on unsafe conditions or weather extremes. The FSM will enforce the buddy system where required, and verify that all procedures (safety and health, decontamination, protective equipment, etc.) are followed. The FSM will report to the project manager. The FSM will revise the SSHP by written amendment if site conditions change based on consultations with the SHM, the project manager, and the program manager.

4.1.6 PROJECT SAFETY AND HEALTH MANAGER

The project SHM is a certified industrial hygienist (CIH) who will provide professional support by reviewing all safety and health programs as they apply to this project. The SHM will approve the APP/SSHP and all modifications to the plan as they affect the safety and health of field personnel. The SHM will be consulted on matters relating to emergency response and will provide directions for upgrading and/or downgrading of protection levels as needed.

The project SHM is responsible for providing professional safety and health support and oversight management to the SSHS. The SHM will review and provide support in all concerns regarding the safety and health of field personnel assigned to the project. The SHM will be responsible for evaluating air-monitoring data and recommending changes in engineering controls as needed. The SHM will ensure that all BMcD project personnel have relevant and current safety and health training, and that training is documented. Periodic field audits of the project work site may be conducted by the SHM to evaluate the adequacy of the program and implement any necessary changes. The SHM will review accident reports and the results of inspections.

In addition to the project or program manager, the following individuals will have the authority and responsibility to change the levels of protection and, if necessary, shut down field operations:

- SSHS
- FSM
- SHM

4.1.7 FIELD TEAM MEMBERS

The field team members will be responsible for reading and understanding this plan and following the directives of the SSHS, FSM, and the SHM. The field team members will be responsible for performing all work according to the procedures outlined in this plan and to notify the SSHS, FSM, and SHM of any conditions that may pose a threat to the safety and health of the employees and the community.

4.2 LINES OF AUTHORITY FOR PROJECT SAFETY

Figure 4-1 provides a graphic presentation of the lines of authority for project safety.

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5.0 SUBCONTRACTORS AND SUPPLIERS

5.1 SUBCONTRACTORS AND SUPPLIER LIST

Specific subcontractors that have been selected for this project are as follows:

- GeoCore – Drilling subcontractor
- Environmental Priority Service – Direct-push subcontractor
- Carlson-Baughman – Surveying
- Analytical Management Laboratory - Analytical (Soil and Water)

5.2 SUBCONTRACTOR CONTROL AND COORDINATION

Any person on site may shut down a site work operation that poses imminent danger or is immediately dangerous to life or health. When such precautions must be taken, the SSHS shall be immediately notified and actions to remedy the situation shall be implemented.

Each subcontractor shall be issued a copy of this APP/SHSP and be required to comply with the requirements set forth herein. Subcontractors and Suppliers will comply fully with all laws, orders, regulations and statutes with respect to safety, accident prevention, safety equipment and practices. In particular, subcontractors/suppliers agree to comply with the most recent version of USACE Safety and Health Requirements Manual (EM) 385-1-1, Federal Occupational Safety and Health Administration (OSHA) Standards for Construction and General Industry (29 CFR 1926 and 29 CFR 1910) and State codes, as well as this APP/SHSP. Subcontractor will conduct inspections to determine that safe working conditions and equipment exist and accepts sole responsibility for providing a safe place to work for its employees and for employees of its subcontractors and suppliers and for the adequacy of and required use of all safety equipment.

Subcontractor/ Suppliers will comply with all safety, pollution control, noise control and environmental laws and regulations. Subcontractor/Supplier personnel will attend safety meetings organized on site by Contractor and submit all required safety submittals in a timely manner.

The subcontractor is responsible to give names and training qualifications for subcontractor competent/ qualified person(s) on Forms 2 and 3 (see Appendix B). These forms will be submitted to BMcD prior to allowing subcontractor to start work. A Competent person is one who can recognize hazards or potential hazards and has the authority to correct or abate the hazard. In addition, qualifications for being a competent person shall include at least the OSHA 10-Hour Construction Safety Course.

5.3 SUBCONTRACTOR SAFETY RESPONSIBILITIES

Key Subcontractor responsibilities (not necessarily all) are outlined below. All forms are included as part of Appendix A:

Activity/Job Hazard Analysis (AHA) (Form 1)

Complete the pre-task AHA for each phase of work activity and submit to the FSM prior to starting the work activity. Subcontractor will also send a representative to attend any appropriate pre-planning meetings to discuss and review the AHA with BMcD as part of the quality control inspection(s).

Project Orientation Training (Form 2)

Each contractor will submit Form 2 to acknowledge familiarization with site safety and health procedures.

Certification of Training (Form 3)

Prior to every employee being allowed to start work at the site, complete the record of safety training for each employee and submit to the FSM.

Competent Person Designation (Form 4)

Identify the Competent/Qualified persons and submit Form 4 to the FSM prior to starting work.

Hazardous Material Control Report (Form 5)

For every hazardous material brought on site, submit to the FSM the Hazardous Material Control Report (Form 5). This includes listing actual (estimated) quantities of hazardous materials to be stored on site, mapping the location of storage, and providing two copies of Material Safety Data Sheets (MSDS) for each material.

Access and Haul Roads Plan (Form 6)

Required if subcontractor must construct any access or haul roads for the project. Submit plan to BMcD for USACE approval prior to construction of roadways.

Crane Operations Report (Form 7)

Not expected on this site. Required if any cranes are brought on site.

Confined Space Report (Form 8)

Not expected on this project. Form 8 is required prior to entry of any confined spaces.

Trench and Excavation Report (Form 9)

Not expected on this site. Required if conducting trenching/excavations on site.

Fall Protection Report (Form 10)

Subcontractors are required to complete this form and submit it to the BMcD FSM.

Silica Exposure Reduction Report (Form 11)

This report is to be completed by each Subcontractor and will state whether or not they plan to conduct any activities where the release of silica dust may be possible. This includes saw cutting of concrete, demolition of concrete, sandblasting, etc. This report is to be submitted to the FSM. If suspect silica-producing activities will be conducted, then a Silica Exposure Reduction Plan must be prepared by the Subcontractor to prevent silica inhalation exposures. Silica exposure may cause silicosis of the lungs.

Weekly Toolbox Safety Training (Form 12)

Use Form 12 to document topics and personnel present for weekly safety training.

Incident Report (Form 13)

Subcontractor will report any accidents, incidents, near misses (near hits) occurring on their work to the site FSM immediately according to the procedures in Chapter 9.2.

Violation Notice (Form 14)

This form will be used as a written notification to a subcontractor of a potential safety or health hazard.

Work Area Inspection Checklist (Form 15)

The SHSS or FSM may use this form to periodically evaluate safety and health conditions on the site.

Monthly Exposure Report (Form 16)

Use this form to record man-hours worked on the project site.

Safety Performance Report (Form 17)

Not required for this project.

Project Safety & Health Assessment (Form 18)

This form may be used to record conditions on the site during periodic audits by the SHM or PM.

Weekly Subcontractor Safety Report (Form 19)

Subcontractors are required to complete and submit a "Subcontractor Safety Report" (Form 18) to the FSM.

AHA Log (Form 20)

Contractor may use this log to track the status of AHA submittals.

Subcontractor Verification Form (Form 21)

All project subcontractors must submit this form to BMcD prior to starting work.

Pre-Task Analysis (Form 22)

This form will be completed by the front line supervisor for each major work task.

Amendment Form (Form 23)

Use the amendment form to modify or amend this APP.

Agreement and Acknowledgement Statement (Form 24)

This form will be signed by all personnel working on the site, to acknowledge their having read the APP and that they understand the contents of the document.

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6.0 TRAINING

6.1 TRAINING SUBJECTS

6.1.1 Training of Burns & McDonnell Field Personnel

All BMcD personnel are required to attend new employee orientation training. This training includes:

- Hazard Communication
- Emergency Action Procedures
- Safety Training Requirements
- Ergonomics
- Corporate Safety & Health Policy

In addition all BMcD field personnel are required to successfully complete the OSHA 10-Hour Construction Safety Training. The following topics are included in OSHA 10-hour Construction Safety Course given by the BMcD Corporate Safety & Health Department to employees:

- Introduction to OSHA
- Hazard Communication/Lead & Asbestos
- Cranes/Rigging
- PPE
- Confined Space Entry
- Legal Issues
- Fall Protection
- Electrical Safety
- Material Handling
- Excavations, Trenching, and Shoring
- Ladders/Stairs
- Scaffolds
- Steel Erection

6.1.2 Training of All Site Personnel

Communication is necessary to help prevent accidents and insure a safe working environment. Material Safety Data Sheets will be made readily available for all hazardous substances associated with the project. Training on these substances and their safe usage shall be conducted.

6.1.2.1 New Employee Indoctrination

Every job site is unique; therefore all workers (BMcD employees and subcontractor employees) are required to attend Project Orientation training prior to being allowed access to the site. Orientation classes may be scheduled by contacting the SSHS. Topics to be covered during this training class are listed on Form 2. "Project Orientation Training" and include emergency procedures and location of the material safety data sheet (MSDS). At the conclusion of training, each employee will be asked to sign the form with the understanding they have understood the topics covered and have had an opportunity to ask questions. Each worker may then receive a BMcD hard-hat safety sticker to identify them as having received the site-specific training.

Exceptions for those not required to attend the orientation include those persons who will be continuously escorted onsite for less than 8 hours, or a onetime visit. Some examples may include persons coming onsite to service the toilets, the hand wash, delivery of drinking water, etc.

6.1.2.2 Weekly Safety Meeting

Weekly safety meetings shall be conducted to reiterate safety precautions, accident prevention procedures, and review AHA sheets. This weekly training will be documented on Form 12 or an equivalent form.

6.1.2.3 Mandatory Training

Training requirements will vary for workers, depending on their tasks. Therefore, subcontractors are to provide a "Certification of Training" (Form 3) for every employee working on the project. This form will be submitted to the FSM prior to the employee starting work. Some of the mandatory training (must be current) required on this project includes:

- Hazwoper Training (current certificate)
- Hazwoper 8-hour Supervisor training for supervisors
- First Aid/Adult Cardiopulmonary Resuscitation (CPR)
- Hazard Communication Training
- Personal Protective Equipment Training
- OSHA 10-Hour Construction Safety (Competent Persons and Safety Officers)

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7.0 SAFETY AND HEALTH INSPECTIONS

7.1 INSPECTIONS AND AUDITS

The SSHS, designee, or the Subcontractor will conduct a daily safety and health inspections of the project site. The "Work Area Inspection Checklist" (Form 15) may be used to record the results of the inspection, or the results may be recorded into the field log book. Any noted deficiencies will have corrective action initiated by the FSM. Corrective actions are to be initiated by the FSM or the BMcD project manager immediately with a note as to who was contacted to correct the item and what corrective action was taken and when it occurred.

Periodically, a quality control (QC) Safety and Health audit may be completed by the project SHM. This audit is included as Form 18 of this plan, Project Safety and Health Assessment.

7.2 INSPECTOR QUALIFICATIONS

The SHSS will possess a Hazwoper 8-hour certificate, be current on Hazwoper annual refresher training, and have successfully completed the OSHA 10-hour Construction Safety course. In addition, the SHSS will have at least 1 year of experience working on Hazardous waste sites. Any designee will have similar credentials. The QC Safety and Health audit will normally be conducted by a CIH, having at least a masters degree and 5 years of experience. In addition, the CIH will be current on Hazwoper training and have completed the OSHA 10-hour construction safety course. Records of employee qualifications are kept in the BMcD Safety & Health Department.

7.3 IMMINENT DANGER

For any dangers that are serious and/or immediately dangerous to life or health, work shall be stopped until corrective actions are taken.

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8.0 SAFETY AND HEALTH EXPECTATIONS AND COMPLIANCE

8.1 PROJECT SAFETY GOALS AND POLICY

BMcD's goal for this project is that it be completed without a loss-day injury. OSHA, State and local safety regulations will be incorporated in this program as required.

Each Subcontractor is responsible for managing its own safety and health program and related programs. Subcontractors are also responsible for monitoring and enforcing the project disciplinary procedures, or disciplinary procedures which are more stringent, for employees performing non-conformance work in relation to safety and health. Subcontractors shall monitor the work of their employees to assure the employee's actions do not create an unsafe condition, which may result in harm to themselves, other persons on site or result in property damage.

Failure of Subcontractor management to enforce the disciplinary policies established in this manual may result in disciplinary action taken against Subcontractor management by Burns & McDonnell.

8.2 MONITORING

The enforcement of the Burns & McDonnell Project Safety and Health Program (an outline of Subcontractor minimum requirements) and all related local, state, federal or otherwise stated safety and health rules, regulations and policies is a vital aspect to achieving a safe and healthful work environment. For this reason, Burns & McDonnell will monitor the construction activities of the Subcontractors on site and enforce all aspects of the Burns & McDonnell Project Safety and Health Program.

Project Safety and Health audits will be performed as discussed in Chapter 7.1 of this plan. All findings shall be immediately corrected with written verification of the corrections submitted to the Burns & McDonnell FSM within 24 hours.

8.3 ENFORCEMENT

Subcontractors are responsible for enforcing all safety and health policies adopted on this project. Burns & McDonnell will take disciplinary action against Subcontractor management for failing to enforce such policies. The following actions may be taken against Subcontractor management and personnel for non-compliance issues:

Verbal instruction may be used at the discretion of the designated safety supervisor for conditions or practices which are less than serious and are not likely to cause an accident or incident. Violations may fit into four classes defined as follows:

Non-serious – Any condition or practice which is not likely to cause death or serious physical harm to any person.

Serious – Any condition or practice which is causing or likely to cause death or serious physical harm to any person.

Stop Work/Imminent Danger – The existence of any condition or practice which would reasonably be expected to cause death or serious physical harm before such condition or practice can be corrected. This is a "stop work" situation. All persons shall be withdrawn from the affected area, and no one is allowed in the area except those people deemed necessary to correct the condition or practice and whom are using the necessary controls to guard them from the hazard.

Repeat – Violations which have been verbally stated or written to an employee or Subcontractor more than once.

Abatement of safety and health violation notices shall take place within the allotted time given to abate the unsafe condition. If the Subcontractor fails to comply with the abatement policy within the allotted time period, without submittal of an alternate solution, Burns & McDonnell may take corrective action procedures and back charge expense to the Subcontractor who created the unsafe condition.

All Subcontractors on site shall have a violation policy and procedures that shall meet, at a minimum, the following standards:

8.4 VIOLATION POLICY

Violations issued are subject to the OSHA regulations which regulate construction sites, the Subcontractor Safety and Health Program and the Burns & McDonnell Project Safety and Health Program. The possible consequences subjective to the violation are as follows:

Non-Serious Violations

First Offense is verbal warning. Use log book documentation for future reference.

Second Offense is written warning. Form 14, "Violation Notice" may be used to provide written notice.

Third Offense is time off project or dismissal.

Serious Violations and Repeat Violations

First Offense is subject to time off project or dismissal at the discretion of the FSM and/or the PM.

Burns & McDonnell reserves the right to request the dismissal of project personnel who commit serious or repeat safety or health violations.

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9.0 ACCIDENT REPORTING

9.1 EXPOSURE DATA REPORTING (MAN-HOURS WORKED)

The site SSHS, with help from the BMcD project manager, will complete each month a "Monthly Exposure Report" (Form 16).

9.2 ACCIDENT INVESTIGATIONS, REPORTS, AND LOGS

For all incidences including accidents, work-related illnesses, or near misses (near hits), Subcontractor will notify the SSHS. Within 24 hours, the subcontractor will provide a written accident report to BMcD, who will complete and send an "Incident Report" (Form 13) to the project manager and the ECC program manager. Accidents must also be reported to the USACE on Form USACE ENG 3394 (copy not included in this plan).

9.3 NOTIFICATION OF MAJOR ACCIDENTS

In the event of a major accident, work-related illness, or near miss (near hit), the subcontractor will immediately notify the SSHS. This includes lost-work time cases, lost work-day cases. In the event of a fatality, or if three or more are injured from a particular incident, OSHA must be notified within 8-hours. For major accidents, the SSHS will notify the project manager within 4 hours of the event, reporting will follow the procedure described above.

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10.0 MEDICAL SUPPORT

10.1 ADDRESS AND DIRECTIONS TO HOSPITAL

See the SSHP (Appendix A of this APP) for the address and detailed directions to the hospital.

10.2 ON-SITE MEDICAL SUPPORT

It shall be the policy of BMcD to have first aid kits on hand at areas most accessible to employees and in the proximity of those areas where accidents are most likely to occur. Each site or location will be responsible for keeping the first aid kits adequately supplied. First aid kits will be provided at a ratio of one for every 25 employees or less.

The SSHS will ensure that first aid kits are available on the worksite and that these locations are known to all employees on the premises. Checks of the first aid equipment will be made as part of the "Work Areas Inspection Checklist" (Form 15).

As a measure to provide immediate first aid attention to personnel who suffer minor injuries, at least two selected site personnel are trained in first aid (if the site has more than one person present). The First Aid/CPR trained individuals include the FSM and the SHSS.

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11.0 PERSONAL PROTECTIVE EQUIPMENT

11.1 EMPLOYEE RESPONSIBILITY

No single combination of PPE can protect field personnel from all hazards. The use of PPE can create significant worker hazards, such as heat stress, physical and psychological stress, and impaired vision, mobility, and communication. Nonetheless, field personnel must be prepared to upgrade their PPE if an unexpected hazardous situation is encountered. Careful pre-entry planning, anticipation of worst case conditions, and caution during field operations are imperative to an effective PPE program. The employee is responsible for wearing appropriate PPE in operations where there is exposure to hazardous conditions, or where need is indicated to reduce hazards.

Head Protection

- Hard hats in good condition are required to be worn during working hours. (with the bills worn forward)
- Hard hats that have been altered by drilling or cutting the shell are not permitted to be worn.
- Metal hard hats are not permitted.

Eye Protection

- Safety glasses with hard side shields are required to be worn during work hours.
- Goggles are required when handling corrosives, sawing, grinding, and chipping with power tools.
- Burning goggles are required for all burning and gas welding operations. Lenses shall have a No. 3 density minimum.

Shoes

- Safety toe boots are required for use by all workers. All safety toe boots shall meet nationally recognized standards. Workers are encouraged to keep their boots in good repair. Boots with worn heels or thin and worn soles are encouraged to have them replaced. No sandals or tennis shoes are permitted.
- Foot protection (guards) will be worn when using tampers, jackhammers and similar equipment.

Hearing Protection

- Hearing protection will be worn in areas that exceed 85 decibels.

Respiratory Protection

Respiratory protection requirements are described in detail in the Burns & McDonnell Respiratory Program as found in the Burns & McDonnell *Corporate Health & Safety Policy and Procedure Manual*, Chapter 8. Basic rules of respiratory usage are listed below:

- Facial hair that interferes with a satisfactory fit of the mask-to-face seal is not allowed on personnel required to wear respirators.
- The proper type of respirator will be worn when working near hazardous or toxic conditions. Dust masks may be considered in dusty conditions.
- Respirator cartridges should be replaced after approximately 8-hours of continuous or intermittent usage, unless otherwise noted. Cartridges used for benzene must be replaced at the start of each shift. Cartridges should also be replaced if they become damaged, after the expiration date is exceeded, if vapor smell breakthrough occurs, or if filters become clogged causing resistance to breathing.
- Contact lenses may be worn when respiratory protection is required, in conjunction with additional eye protection to protect against particles or splashes, provided there is no interference with the respirator seal.
- Respirators shall be cleaned and disinfected after each day's use or more often, if necessary.
- The appropriate organic vapor cartridge will be used for protection against benzene and naphthalene vapors.
- A 3M-P100 particulate filter will be used to protect against polycyclic aromatic hydrocarbon (oil-based) particulate contaminants and asbestos fibers.
- Prior to donning, respirators will be inspected for worn or deteriorated parts. Emergency respirators or self-contained devices will be inspected at least once a month and after each use.
- After donning, personnel should perform daily positive and negative pressure fit-checks to determine if a good seal has been achieved.
- The employees will be familiar with all sections of the established Respiratory Program found in the Burns & McDonnell Corporate Health & Safety Policy and Procedure Manual, Chapter 8.

Other

- Full face shields are required when handling molten materials, i.e. lead, tar, etc. or acids.
- Gloves should be worn when handling equipment and materials. When handling chemicals, solvents, acids, etc. the proper type of rubber or plastic coated gloves should be used.
- Full-Body Safety harnesses shall be worn and secured when working on suspended scaffolds, flat roofs without guardrails within six (6) feet of the edge or roof opening, and at elevated work locations where guardrails or other motion stopping systems are not provided.
- Any employee exposed to vehicular traffic must wear warning vests of high visibility material.

11.2 MONITORING AND INSPECTIONS

Photoionization detector (PID), combustible gas indicator (CGI), direct-reading instruments, and detector -tube readings measured in the employee's breathing zone will be used to determine if a change in the level of protection is required.

Upgrading to higher levels of protection will require additional personal sampling using standard methods established by the National Institute for Occupational Safety and Health (NIOSH) or OSHA for the collection and analysis of airborne contaminants.

If readings exceed the range for the level of protection indicated, personnel should withdraw and not return until an appropriate level of protection has been achieved. Upgrading protection shall be communicated to the PM, who will convey this information to the project SHM.

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12.0 REQUIRED PLANS

12.1 LAYOUT PLANS

Not applicable.

12.2 EMERGENCY RESPONSE PLANS

Emergency procedures, a map and directions to the hospital, along with emergency phone numbers are included in the SSHP Appendix of this APP. Copies of those emergency procedures will be kept in all BMcD site vehicles and provided to personnel in charge at the site. Emergency information will also be included in any site-specific addenda.

The SSHS or the FSM shall immediately notify the BMcD project manger and the USACE project manager of any accident/incident.

Rescue and medical duty responsibilities are to be determined only by trained and competent personnel. If the extent of injuries can be treated by first aid medical attention, then a first aid certified person would administer medical help. In the event of rescue, immediate notification of the SSHS, FSM, and the Project Manager will be initiated. The competent person will evaluate the circumstances and appropriate rescue action will take place if action can be accomplished without endangering employees. If rescue can be conducted safely by trained competent person or person's onsite, then such action will take place. If rescue is determined to require additional assistance, then emergency medical service or Fire Department rescue personnel will be notified and dispatched to the jobsite.

Employees have been trained to immediately contact or notify their immediate supervisor and/or foremen. Supervisors/foremen have been trained as the "competent person" to react to an emergency situation. The SSHS must be notified of the situation as soon as possible to help lead appropriate immediate action.

12.2.1 Spill Plan

If hazardous or unknown potentially hazardous materials are unexpectedly discovered during project work activities, workers will evacuate and secure the area (to keep out unsuspecting personnel), and call for assistance being careful not to get exposed to the material. The SSHS and, depending on the size of the spill, the Project Manager shall be contacted. For large spills of hazardous materials, a Hazardous Materials Response team may need to be contacted to limit exposures to site personnel and/or the community.

12.2.2 Hazardous Materials

Hazardous materials (even as small as one ounce) must not be commercially shipped or transported without being properly packaged, labeled, marked, placarded, and accompanied by appropriate shipping papers. Personnel who engage in packaging, labeling, marking, placarding, or transporting hazardous materials must be trained and aware of the Department of Transportation (DOT) requirements for hazardous material transportation. Hazardous materials include those materials, substances, and wastes listed in the Code of Federal Regulations Title 49.

12.3 HAZARD COMMUNICATION PROGRAM

12.3.1 General Information

In compliance with the OSHA Hazard Communication standard, the following written Construction Hazard Communication Program has been established for BMcD and this project. Any questions regarding this program, or help needed in implementing this program, should be directed to the BMcD SHM. The written program will be available in on-site for review by any interested employee.

12.3.2 Container Labeling

The BMcD SSHS will verify that all containers received for use will:

- Be clearly labeled as to the contents,
- Have the appropriate hazard warning written on the label,
- List the name and address of the manufacturer on the label.

12.3.3 Material Safety Data Sheets (MSDS)

All subcontractors are responsible for notifying the SSHS as to the hazardous chemicals (as defined by OSHA in 1910.1000) they are bringing on-site by using Form 5 “Hazardous Material Control Report”. Furthermore, contractors are responsible for providing copies of the MSDS to the SSHS for every chemical brought on site.

The SSHS will be responsible for receiving and maintaining the data sheets applicable to each construction project.

Copies of MSDS's for all hazardous chemicals to which employees of this remediation project may be exposed will be kept on-site.

MSDS’s will be available to all employees for review during each work shift by asking the SSHS.

If MSDS's are not available or new chemicals do not have MSDS's in the file, immediately contact the SSHS.

12.3.4 Employee Training On Hazard Communication

Each employee, who may be potentially exposed to hazardous substances during the course of their work, is provided with hazard communication training by means of a brief overview during the New Employee Indoctrination. A course outline and records of BMcD employee training for hazard communication are maintained in the Safety and Health Department.

The Project Manager is responsible for ensuring that BMcD project employees coming on the site have been trained in hazard communication.

The SSHS is responsible for ensuring that subcontractor employees coming on the site have been trained in hazard communication. For further information on training, see Chapter 6 in this plan titled "Training".

12.3.5 Hazardous Non-Routine Tasks

Prior to performing non-routine tasks, such as a confined space entry, the SSHS must be informed of the planned activity and an AHA completed.

Upon being informed that a non-routine task will take place, the SSHS will inform the affected employees of hazardous chemicals to which they may be exposed as well as protective measures that may be taken to reduce chance of exposure (i.e. PPE, air testing, ventilation, respirators, etc.).

12.3.6 Informing Contractors Of Hazardous Chemicals On-Site

All subcontractors who bring employees and/or contractors on-site are responsible for and required by the work contract to train their employees and subcontract employees in safe chemical handling and to submit copies of the MSDS to the SSHS.

It is the responsibility of the SSHS to make the following information available to contractors such as by arranging an on-site training/orientation meeting:

- Location of MSDS,
- MSDS availability for employees' review,
- Precautions the employees may take to lessen the possibility of exposure by usage of appropriate protective measures,

- Requirements for container labeling.

12.3.7 List of Hazardous Chemicals

The names of chemicals used on this project are located with the MSDS on-site and can be reviewed or copied by obtaining copies of the "Hazardous Material Control Report" (Form 5).

12.4 RESPIRATORY PROTECTION PLAN

The Respiratory Protection procedures are discussed under Chapter 11, Personal Protective Equipment.

12.5 HEALTH HAZARD CONTROL PROGRAM

Possible health hazards at this work site will be more thoroughly defined through review of completed AHA forms. In general, some primary health and safety concerns during field activities are physical contact with contaminated soil, water, and inhalation of vapors. Volatile organic compounds (VOCs) venting from boreholes during drilling and SVE may present an additional concern for explosive atmospheres. Climatic conditions can also present a health hazard to site personnel, especially when wearing PPE.

In order to prevent exposure to hazardous conditions, monitoring for the presence of volatile vapors and explosive atmospheres (percent lower explosive limit (LEL) will be conducted when knowledge of the site indicates their potential presence. Personnel will also be monitored for heat and cold stress when atmospheric conditions warrant.

Selection and use of hearing protective devices including earplugs and ear muffs will be made based on the measured noise levels in the work zones and will take into account the fit and comfort of the hearing protection devices. Hearing protectors have a Noise Reduction Rating (NRR) as assigned during laboratory testing conditions. The hearing protective devices used on site will have a minimum NRR of 28 or greater (as marked on the hearing protection package). However, this NRR does not take into account the susceptibility of the human ear to hearing loss as reflected by the A-weighted decibel scale, neither does it account for "real-world" conditions that reduce the effectiveness of the devices. The American National Standards Institute (ANSI) 12.6 – 1997 standard describes obtaining this "real world" data on the effectiveness of hearing protectors by using personnel and conditions that simulate field conditions. This data, sometimes called Method B data, is currently available from a limited number of hearing protection suppliers upon contacting the manufacturer. This data will give more information on the actual decibel reduction of the hearing protectors.

Therefore, the selection of the hearing protective devices will be made using either field attenuation data (Method B data) for the protectors, such as that supplied by E-A-R Company, or if the field attenuation data is not available, the NRR will be adjusted by a calculation. The calculation involves adjusting the NRR for the A-weighted scale then adjusting with a 50% derating according to the OSHA Technical Manual (http://www.osha.gov). This calculation will be made for the hearing protective devices to determine a more realistic decibel reduction while in use if Method B data is not available. The following formula will be used to adjust the NRR to arrive at a more accurate estimate of decibel reduction:

(NRR-7) divided by 2 = actual noise reduction in decibels (dB)

Assuming a hearing protective device has an NRR of 28, the above formula would estimate the actual noise reduction of the device to be 10.5 dB. This reduction of 10.5 dB should then be subtracted from the measured noise levels to estimate noise levels impacting the ear. If levels equal or exceed 85 dBA for 30 days or more per year, irrespective of hearing protection, then the employee must be enrolled in the employer's hearing conservation program. The same applies if a dosimeter equals or exceeds a 50% dose of the American Conference of Government Industrial Hygienists level, equivalent to 82 dBA.

12.6 LEAD ABATEMENT PLAN

Not applicable.

12.7 ASBESTOS ABATEMENT PLAN

Not applicable.

12.8 ABRASIVE BLASTING PLAN

Not applicable.

12.9 CONFINED SPACE PROGRAM

Not applicable.

12.10 HAZARDOUS ENERGY CONTROL PLAN (LOCKOUT/TAGOUT)

Not applicable.

12.11 CRITICAL LIFT PLAN

Not applicable. However, the "Crane Operations Report" (Form 7) must be completed prior to bring any crane on the site.

12.12 CONTINGENCY PLAN FOR SEVERE WEATHER

In the event of severe weather procedures in the SHSP will be followed.

In the event that severe weather approaches, all personnel shall shut down field operations and take shelter. All facility personnel must understand the Emergency Response and General Evacuation Procedures for their location. This information will be provided during the New Employee Indoctrination. Employees must also know the correct exits to use for all areas they enter and the assembly point locations.

Note that not all emergencies are the same. In some cases, employees will have to follow a procedure that is different from the facility evacuation plan. Be certain to train and drill employees in this need to exercise common sense above all in emergency situations.

12.13 ACCESS AND HAUL ROAD PLAN

Prior to the construction of any access or haul roads, the subcontractor must complete the "Access and Haul Road Plan" (Form 6). This must be submitted to the Burns & McDonnell Field Site Manager who will submit to the USACE for approval prior to roadway construction.

12.14 DEMOLITION PLAN

Not applicable

12.15 EMERGENCY RESCUE – TUNNELING

Not applicable.

12.16 UNDERGROUND CONSTRUCTION FIRE PREVENTION AND PROTECTION PLAN

Not applicable.

12.17 COMPRESSED AIR PLAN

Not applicable.

12.18 FORMWORK AND SHORING ERECTION AND REMOVAL PLANS

Not applicable.

12.19 JACKING PLAN LIFT SLAB PLANS

Not applicable.

12.20 SITE SAFETY AND HEALTH PLAN FOR HAZARDOUS, TOXIC, OR RADIOACTIVE WASTE

The Site Safety and Health Plan (SSHP) for Hazardous, Toxic, or Radioactive Waste (HTRW) is attached to this APP as Appendix A.

12.21 BLASTING PLAN

Not applicable.

12.22 DIVING PLAN

Not applicable.

12.23 PLAN FOR PREVENTION OF ALCOHOL AND DRUG ABUSE

BMcD prohibits the use, possession or distribution on the project site of any of the following by BMcD employees and by subcontractor employees: alcoholic beverages, intoxicants, narcotics, illegal or unauthorized drugs (including marijuana), simulated drugs and related drug paraphernalia.

Employees must not report for duty under the influence of any drug/alcohol that may in any way adversely affect their working ability, alertness, coordination, response or adversely affect the safety of others on the job.

For purposes of this program, influence shall be presumed for any individual whose drug or alcohol level exceeds applicable testing levels.

All employees who work on the project will provide evidence of a negative drug/alcohol screen no later than the time of safety orientation prior to commencing work and will be required to submit to a post injury drug test. Such test will be administrated at the time of when the injured worker receives medical treatment.

BMcD will not perform random drug testing however, lower-tier subcontractors to BMcD may utilize a random testing program.

BMcD and its subcontractors shall not allow employees who are found to be using alcohol or drugs illegally to remain on the project. BMcD and its subcontractors will determine when the employee in violation can return to the project or be permanently removed.

Subcontractors must submit their drug and alcohol programs to BMcD for evaluation or they will be required to adopt the drug and alcohol program of BMcD. If a subcontractor chooses to adopt the BMcD

program, a notice must be made in writing to BMcD. BMcD will periodically check with subcontractors to evaluate the compliance of the submitted drug and alcohol program.

Legally prescribed drugs may be permitted on premises or work locations, provided the drugs are contained in the original prescription container and are prescribed by an authorized medical practitioner for the current use of the person in possession. Legally prescribed drugs must not affect working ability, alertness, coordination or response of the person taking the medication.

12.24 FALL PROTECTION AND PREVENTION PLAN

All subcontractors are required to complete and submit to the BMcD FSM the "Fall Protection Report" (Form 10). This form will identify all subcontractors who may be expected to work at heights above 6 feet that are unprotected from falls (including tree work) and will therefore need to implement a Fall Protection Plan that must be submitted to the SSHS prior to working at heights. Furthermore, the AHA shall state if fall hazards are expected and the method of fall protection to be used. The Fall Protection Plan will be prepared by a qualified subcontractor employee and may be unique for each subcontractor due to the tasks and situations they may be performing. The plan shall include fall protection and prevention systems, equipment and methods employed, responsibilities, rescue and escape equipment and operations, training requirements, and monitoring methods. The plan may need to be revised depending on site conditions and the length of the project.

Provide standard guardrails and toeboards at all work platforms above six (6) feet from lower levels or ground level.

12.25 STEEL ERECTION PLAN

Not applicable.

12.26 NIGHT OPERATIONS LIGHTING PLAN

Not applicable.

12.27 SITE SANITATION PLAN

Clean drinking water, a sanitary container for the paper cups and waste receptacle for the used cups shall be provided. If workers choose, they may bring their own personal water jugs/thermos. Personnel will use local toilets in site buildings. A portable hand wash facility or other suitable hand washing facilities will be made available to workers on site, as necessary.

12.27.1 Controls and Disposal of Solid Waste

Solid waste will be picked up and placed in containers as generated. All waste containers shall be emptied by the contractor on a regular basis, as to prevent over-flowing conditions. All handling and disposal will be conducted in such a fashion as to minimize secondary contamination by overflow or spillage during waste transfer.

HAZARDOUS WASTE MANAGEMENT

Disposal of investigation-derived waste (IDW) shall occur according to the site work plan and in accordance with Federal, State, and Local regulations.

HAZARDOUS WASTE MANIFESTS

Hazardous waste manifests will be generated for the drummed waste if required by regulation.

SEWAGE

All sewage will be disposed of through connections to established sanitary systems. Where such systems are not available, chemical toilets or comparable effective units will be used with collected wastes periodically emptied by means of a sanitary pumping service. No conditions shall be allowed to exist where noticeable odors are present.

DUST CONTROL

BMcD shall assure that positive dust control is exercised during this project. Dust generation shall be minimized by use of a constant water stream wetting the concrete during any saw-cutting activities. All efforts to minimize dust generation with water spray shall be expended.

CHEMICALS AND CHEMICAL WASTE

Chemicals are not anticipated as a part of this project or its supporting activities. However, in the event that a chemical is put into use in some form (after submittals and approvals from project manager are obtained), the following procedures shall be followed:

- All chemicals shall be dispensed ensuring no spillage to the ground or water. Periodic inspections of dispensing areas to identify leakage and initiate corrective action.
- All activities and inspection shall be documented.
- Chemical waste shall be collected in corrosive resistant containers.
- All chemical containers shall be investigated to assure chemical compatibility with the medium to be collected.

- Collection drums shall be monitored and removed to a storage or staging area when contents are within 6-inches of the top.
- Wastes shall be classified, managed, stored and disposed of in accordance with Federal, State, and local laws and regulations.

FUELS AND LUBRICATION

BMcD and its subcontractors shall refuel vehicles or equipment in designated areas only. Any fuels brought on-site by the contractor shall be in approved, self-closing, leak-proof, steel containers. These containers (if any) shall not be stored on-site overnight and shall be removed at the end of each workday. During the workday, any fuel containers brought on-site shall be restricted to the Contractor's storage container located in the designated staging area (if applicable).

No lubricant exchange or transfer operations shall be conducted on-site by BMcD personnel or its subcontractors.

WASTEWATER DISPOSAL

Wastewater generated during the course of field activities, such as development and purging water, and decontamination water shall not be allowed to enter any waterways or to enter any storm drain system. Any generated wastewater shall be treated to remove any contaminants prior to discharge, or shall be captured, stored and removed from the facility as potentially contaminated wastewater.

No wastewater shall be disposed of without compliance with all Federal, State, or local laws and regulations.

GARBAGE DISPOSAL

The contractor will place all generated garbage in an appropriate container and arrange for disposal by means of contracted vendor or, the garbage will be disposed of by BMcD field personnel at a designated trash receptacle. Garbage is considered solid investigative derived waste and will include gloves, paper towels, and plastics. Soil and groundwater is not to be included under this category.

12.28 FIRE PREVENTION PLAN

Procedures will be followed to prevent unplanned burning of dry grass, residual vegetation, and structures on the site. Vehicles driving over dry, tall grass/weeds will be limited. Smoking will only be allowed in designated smoking areas.

Sealing off an area and blocking entrance/exit openings conflict with OSHA, National Fire Prevention Association (NFPA), and local fire code requirements.

Perform a pre-work survey to determine potential fire hazards, sources of ignition, hot spots, and location of exits. Coordinate this with the number of workers to be in the area, the square footage, and the types and amount of combustible/flammable materials that will remain on-site.

Some protective clothing will burn and melt quickly. It can shrink, adhere to skin and drip as it burns. Heavy black smoke is a combustion by-product.

Polyethylene (which is combustible) will start to burn slowly and pick up speed as more heat is generated. It gives off heavy black smoke as the fire progresses. Flame spread is slow and steady. Sheeting should be kept away from heat sources as transformers. (Polyethylene should not be allowed to contact surfaces of about 1,500 Fahrenheit.)

To avoid fire problems in contracted work areas, the following should be enforced (if applicable):

- Ensure that all sources of ignition are removed. Be sure that gas and other fuel sources are cut off and pilot lights in boilers, heaters, hot water tanks, compressors, etc. are extinguished.
- Strictly enforce no smoking, eating or drinking, inside the work area.
- When using an oxygen/acetylene torch to cut pipe, etc., post a fire watch with an appropriate fire extinguisher, such as pressurized water. Do not use CO_2, extinguishers in confined or enclosed spaces. Dry chemical extinguishers are effective, but the powder is a respiratory irritant.
- When using a cutting torch, know what is on the other side of the wall and below the floor. Use sheet metal or a treated tarp to catch sparks.
- Reduce to a minimum the amount of flammable/combustible materials inside a space prior to hanging plastic. This includes removal of any chemicals, flammable liquids, heat-sensitive materials, etc.
- Mark exits from work area and post directional arrows when exits are not visible from remote work areas. This can easily be done using duct tape on the polyethylene walls and barriers.
- Keep trash and debris to a minimum (i.e., tape, poly bags, lumber, etc.).
- A daily inspection should be conducted, to insure secondary exits are not blocked.
- Lighting of exits and exit routes should be provided.

- In case of fire, the fire hazard becomes more immediate than the environmental hazards and workers may need to violate the routine protective barriers. This should be covered with workers in the emergency action plan for the job site.
- Be alert for flammable vapors in industrial areas (solvents such as naphtha, toluene, xylem, etc.).
- A telephone should be available at all times for notification of authorities in an emergency.
- Post local fire department and rescue squad phone numbers. Advise them of operations in progress.
- Ensure that you have a monitor outside at all times trained in emergency procedures. Someone should be trained in first aid, and in the treatment of heat stress.

12.29 SILICA EXPOSURE REDUCTION PLAN

All subcontractors are required to complete and submit to the site FSM Form 11, "Silica Exposure Reduction Report". This report will identify possible operations in which subcontractors may encounter silica. If such potential exposure situations are identified on the form, then the subcontractor must detail the methods and procedures they will use to prevent silica overexposures.

Crystalline (free) silica may cause silicosis and lung fibrosis. The primary route of exposure to silica is by breathing airborne dusts. The Threshold Limit Value (TLV) for silica is 0.05 milligrams per cubic meter of air (mg/M3). This limit is based on an 8-hour, time-weighted average exposure. Subcontractor must take measures to ensure that they produce no silica dusts that approach the TLV, unless the work area is isolated and all exposed personnel are wearing personal protective equipment, including appropriate respiratory protection. Personnel working around silica dusts should have periodic medical examinations, including a chest x-ray and be medically cleared to wear a respirator. If respirators are used, subcontractor must submit a respiratory protection plan.

Saw-cutting of concrete requires wet methods or some type of dust collection system with an in-line HEPA (High Efficiency Particulate Air) filter to collect the dusts. Breaking of concrete must be controlled to prevent dusts. Visible dusts from a concrete cutting/breaking activity are not acceptable and must be stopped immediately until dust control measures can be implemented. Sandblasting or other activities should not use crystalline silica sand.

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13.0 CONTRACTOR INFORMATION

13.1 EXCAVATIONS

Before excavation work begins, a "Trench and Excavation Report" (Form 9), shall be completed by the subcontractor and may be required to be submitted or audited to/by Burns & McDonnell. For trenches and excavations over twenty (20) feet in depth, the subcontractor shall have a Professional Engineer, who is registered in the state of the project, design the sloping, shoring or shielding method used.

Soil shall be treated as Class C with regards to the dimensions for sloping, shoring and benching unless the procedures outlined in 29 CFR 1926 Subpart P(c) are explicitly used to determine the classification of the soil.

A competent person shall conduct daily inspections of excavations deeper than 5 feet in depth if persons are expected to enter or if water has accumulated or other hazard creating event has occurred. Excavations 5 feet or deeper, or less in unstable soil, shall be sloped, shored, or shielded to prevent cave-ins.

Prior to any excavation, trench work or drilling operations, all underground utilities shall be located and marked. If underground lines can not be located, proper precautions shall be taken to protect employees while physically locating them.

All excavations deeper than 4 feet deep and containing a potential for a hazardous atmosphere or oxygen deficiency (less than 19.5% oxygen) must be tested to ensure safe working conditions. Testing shall be done before employees enter the excavation. In addition, all excavations 4 feet or deeper shall have a ladder for access into excavation with no more than 25 feet of travel in any direction.

No person(s) shall perform any work in a trench or excavation that contains accumulated water.

Walkways or bridges with standard guardrails shall be provided where employees or equipment are required to cross over excavations.

All excavated and available material shall be retained two (2) feet or more from the edge of the excavation.

All excavations shall be barricaded with the appropriate barrier tape and other protective devices as required.

When entering an excavation that may be considered a hazardous environment by site safety representatives, proper personal protective equipment must be worn.

13.2 SCAFFOLDING

Scaffolding is not expected on this project. Scaffolds must be erected under the direction of a competent scaffold person. All scaffolding may be required to be tagged by the subcontractor's designated competent person for scaffolds indicating its suitability for use. Burns & McDonnell shall be notified each time a scaffold is tagged prior to employee use. Tags shall be affixed to the scaffold so they are easily noticeable at each access point. The color coding is as follows:

Scaffold Color	Project Definition
• Red	Unsafe - Do Not Use
• Yellow	Warning Hazard Exists
• Green	Ready to Use

The scaffold erector's competent person(s) shall make daily inspections of the scaffolding prior to its use. All findings shall be documented by the subcontractor.

Only the erector of the scaffold shall make modifications to the structure. Access ladders are required. Climbing up the side of scaffolding is not permitted unless the scaffold is designed for such use.

Subcontractors are responsible for obtaining all permits, licenses and having a registered engineer approve the scaffold when applicable.

13.3 MEDICAL AND FIRST-AID

At least two persons on the site will be trained in first aid and adult CPR. Major subcontractors are required to provide first-aid and CPR trained personnel according to their crew size. Emergency phone numbers shall be posted near all job-site phones, and the location of nearest treatment facility shall be discussed at safety meetings regularly. First-aid kits shall be provided and replenished on a regular basis by the company or job-site safety officer.

13.4 PHYSICAL QUALIFICATIONS OF EMPLOYEES

All employees are to be in good physical condition when reporting to the job-site. Physical examinations may be required for operators of heavy equipment and cranes.

13.5 PERSONAL PROTECTIVE EQUIPMENT

PPE training is described in Chapter 11 of the APP.

13.6 SANITATION

The site sanitation plan is described in Chapter 12.27.

13.7 HARMFUL OR POISONOUS CHEMICAL, BIOLOGICAL, AND PHYSICAL AGENTS

Handling of poisons or harmful substances shall be conducted or supervised by qualified personnel. Highly toxic substances shall be used in well-ventilated areas only. MSDS shall be kept on file on the job-site for all hazardous material. Training regarding use of these substances shall be conducted prior to any operations requiring contact with such substances.

Suspicion of contaminated or hazardous products encountered on the job-site shall be reported to the foreman or safety officer as soon as possible, who will in turn notify the proper contract authorities.

13.8 LADDERS

General safety precautions for ladder use follow:

- Inspect ladders before each use.
- Ladders are not to be painted except for periodic inspection color coding, numbering or identification purposed.
- Ladders are not to be used to support scaffold boards, as workbenches or for any use other than their intended purpose.
- Only one person shall be on a ladder at any time.
- Metal ladders must not be used in electric welding operations or near electrical services or lines.
- Do not carry tools while ascending or descending ladder. Use a hand line.
- Always face a ladder when working from it.
- Ladders with broken or missing rungs, split side rails or other defects shall not be used.
- Ladders shall be placed on a substantial base, and the area around the top and bottom of the ladder shall be kept clear.
- Straight ladders must be secured at all times while in service.
- Ladder usage above six feet is not authorized unless positive fall protection or other suitable work platforms are provided.

When using extension and straight ladders, the following additional guidance applies:

- The foot of the ladders should be placed approximately ¼ of its length away from the vertical plane of its top support.
- Ladders shall be secured against displacement.
- The top of the ladder must extend at least three (3) feet above its supporting point when used for access to an elevated area.
- A length of at least three (3) rungs must overlap extension ladders.

When using stepladders, the following rules apply:

- Do not stand on top of a stepladder.
- Stepladders must be opened completely with all four (4) feet resting on a sound level footing.
- Two stepladders must not be used at supports for scaffold boards.
- Only one employee at a time will be permitted to work on a stepladder.

13.9 FALL PROTECTION

The fall protection plan is described in Chapter 12.24.

13.10 POWER OPERATED HAND TOOLS

The following guidance will apply when using either electric power operated or hand tools:

- Electric power operated tools shall either be of the approved double insulated type or grounded.
- Electric cords shall not be used for hoisting or lowering tools.
- Tools or extension cords with ground pins missing from plugs shall not be used.
- Proper guards and shields must be installed on all power tools prior to use.
- Impact tools, such as chisels and drift pins shall be kept free of mushroomed heads.
- The wooden handles of tools shall be kept free of splinters or cracks and shall be kept tight in the tools.
- "Cheaters" shall not be used to increase the tools capacity.
- Wrenches shall not be used when the jaws are sprung to the point that slippage occurs.

13.11 PROTECTION OF THE PUBLIC

Barricades, fencing, warning lights and/or signs shall be used to protect the public from hazards, which may occur during demolition/construction activities. Protection shall be required whenever public safety may be in question, and ranging in type according to severity of danger.

All visitors shall be required to wear a hard hat and safety glasses with hard side shields or goggles worn over regular glasses whenever entering the job site. A limited amount of hard hats shall be available in the job office to accommodate visitors.

13.12 FIRE PREVENTION/PROTECTION

Contractor's Fire Prevention procedures will be covered in weekly safety meetings at the job-site on a regular basis covering material pertinent to operations being conducted.

13.13 WELDING AND BURNING

The following guidance will apply during welding and burning operations (if applicable):

- Hot Work Permits shall be obtained from the SSHS prior to the start of work each Monday morning.
- Fire Watch duties to include that fire watch personnel are training and required to stay "on watch" for a minimum of 30 minutes immediately after "hot work" activities have ceased, at any time, including a lunch break and at the end of a work shift. Provisions will be made if fire watch duties extend into lunch breaks or end of work shifts.
- Welding leads and burning hosed must be kept clear of aisles and passageways.
- Gauges, hoses, leads, ground, clamps, welding machines, torches and cylinders must be inspected each day prior to use.
- Connections, couplings, and fittings must be secure.
- Sparks and slag created by welding or burning operations must be contained or combustible materials must be removed.
- Welding leads and burning hoses should not be run through doorways.
- Welding leads and burning hoses must be protected from damage by suspending or covering.
- An adequate fire extinguisher must be near all welding, burning, and open flame operations.
- All work must be adequately grounded. The ground lead must be pulled from the welding machine to the work location.
- Welding rods must not be left in electrode holders (Stingers).
- Welding operations must be enclosed to prevent arc flash burns to others.

- Welders must wear hard hats that will accommodate welding shields.
- Welding machines must be turned off at the end of each shift.
- Arc welding operations shall not be performed from metal ladders.
- No less than number nine (9)-filer lenses shall be used.
- All welding and cutting operations carried out in confined spaces must be adequately ventilated.

The following guidance will apply when using compressed gas for welding and burning (if applicable):

- When compressed gas cylinders are not in use, gauges shall be removed and valve protection capes shall be securely in place.
- When cylinders are hoisted, they shall be secured on a cradle, sling board, pallet, etc. They shall not be hoisted by means of magnets or chokers.
- Cylinders are to be moved by tilting and rolling them on their bottom edges one at a time.
- Cylinders shall be transported in an upright position only.
- Valve protection caps shall not be used for lifting cylinders.
- Except while being transported, compressed gas cylinders shall be secured in an upright position.
- Flash back arrestors shall be installed on both oxygen and acetylene cylinders at the gauges.
- Compressed gas cylinders must never be stored in gang boxes.
- Compressed air used for cleaning work area, machinery, etc., must be less than (30) thirty pounds per square inch.

13.14 ELECTRICAL WIRING AND APPARATUS

The following guidance applies to all electrical wiring and apparatus:

- All temporary wiring, lighting, etc. to be placed by qualified personnel in accordance with all codes and standards, and protected by a ground fault circuit interrupt device.
- Temporary systems shall be monitored and logged regularly and necessary repairs made immediately upon discovery. All lines to be repaired shall be de-energized.
- Extension cords shall be UL approved and rated for construction use, and shall be inspected for damage on a regular basis.

13.15 MOTOR VEHICLES

The following guidance applies when operating motor vehicles or equipment:

- The driver is responsible for the safety of passengers and cargo stability.
- Seat belts will be worn at all times.
- Obey all speed limit and other traffic signs.
- Motor must be shut off during refueling.
- Personnel must be properly seated in vehicles before moving.
- A flagman should direct the backing of a vehicle in congested areas.
- Only licensed drivers will be allowed to operate company vehicles.
- All machinery and equipment shall be operated by qualified personnel and authorized personnel.
- Inspections shall be conducted regularly and certified to be in safe operating condition.

13.16 TRAFFIC REGULATIONS

All local traffic laws or regulations of the installation must be obeyed at all times both on and off the job site when operating company or personnel vehicles.

13.17 HOUSEKEEPING

General contractor and all subcontractors shall be responsible for daily clean up and disposal of all construction and personal debris generated on the project. Inspections shall be done regularly and proper actions taken to insure that a clean and safe job site is maintained.

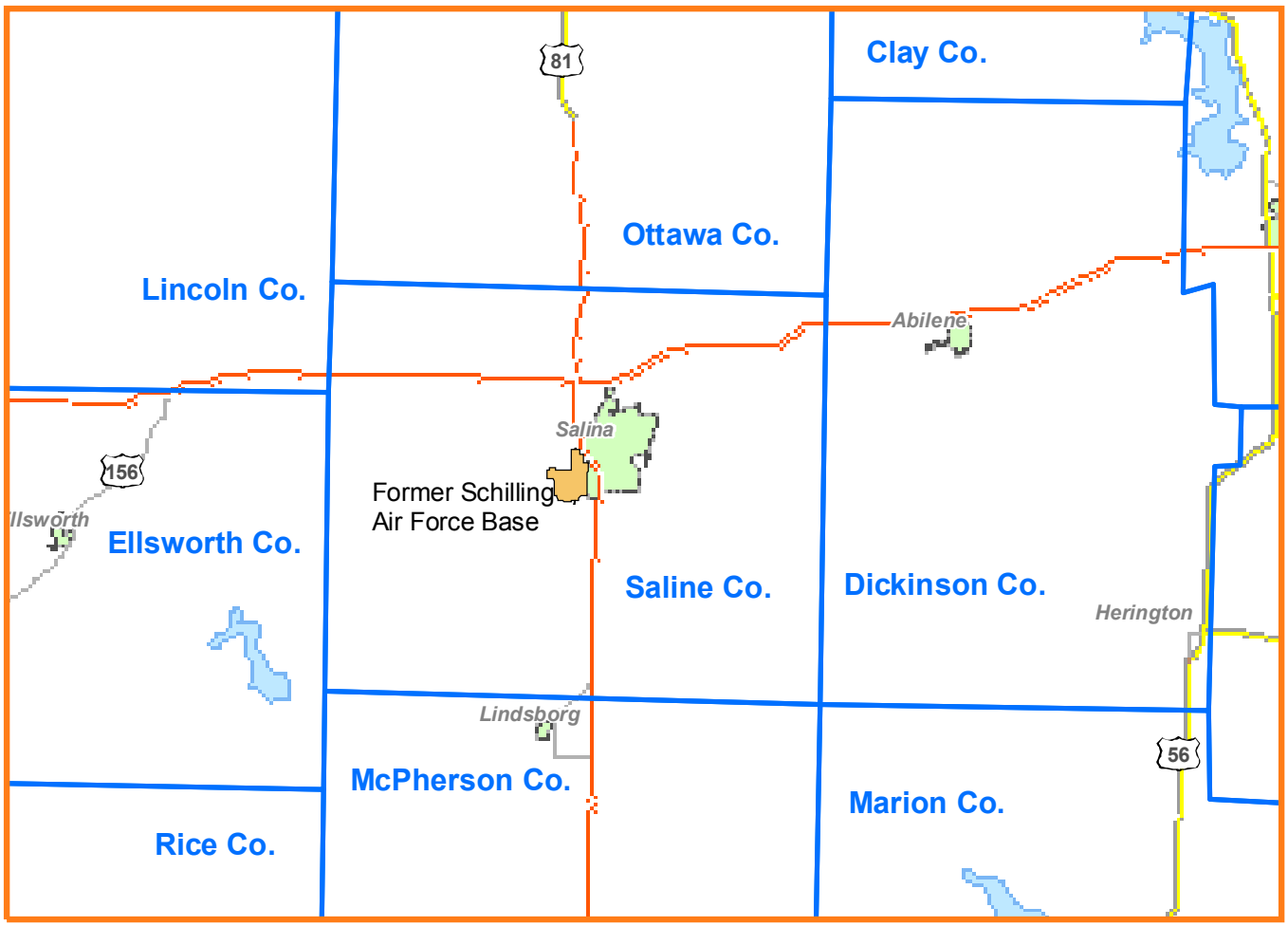
* * * * * *

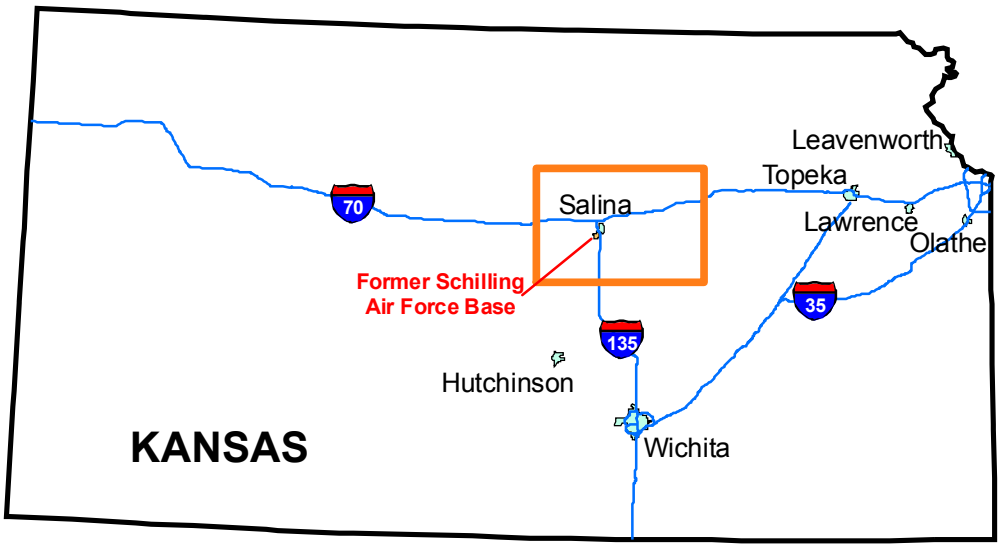
14.0 SITE-SPECIFIC HAZARDS AND CONTROL

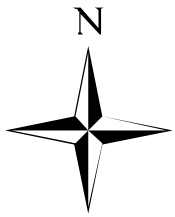
Detailed site specific AHAs will be provided in the format specified in Form 1 by the subcontractor for each phase of work. These AHAs should be reviewed by site personnel and available on site.

* * * * * *

Figures







Burns & McDonnell
SINCE 1898

Figure 1-1

SITE LOCATION MAP

FORMER SCHILLING AIR FORCE BASE
SALINA, KANSAS

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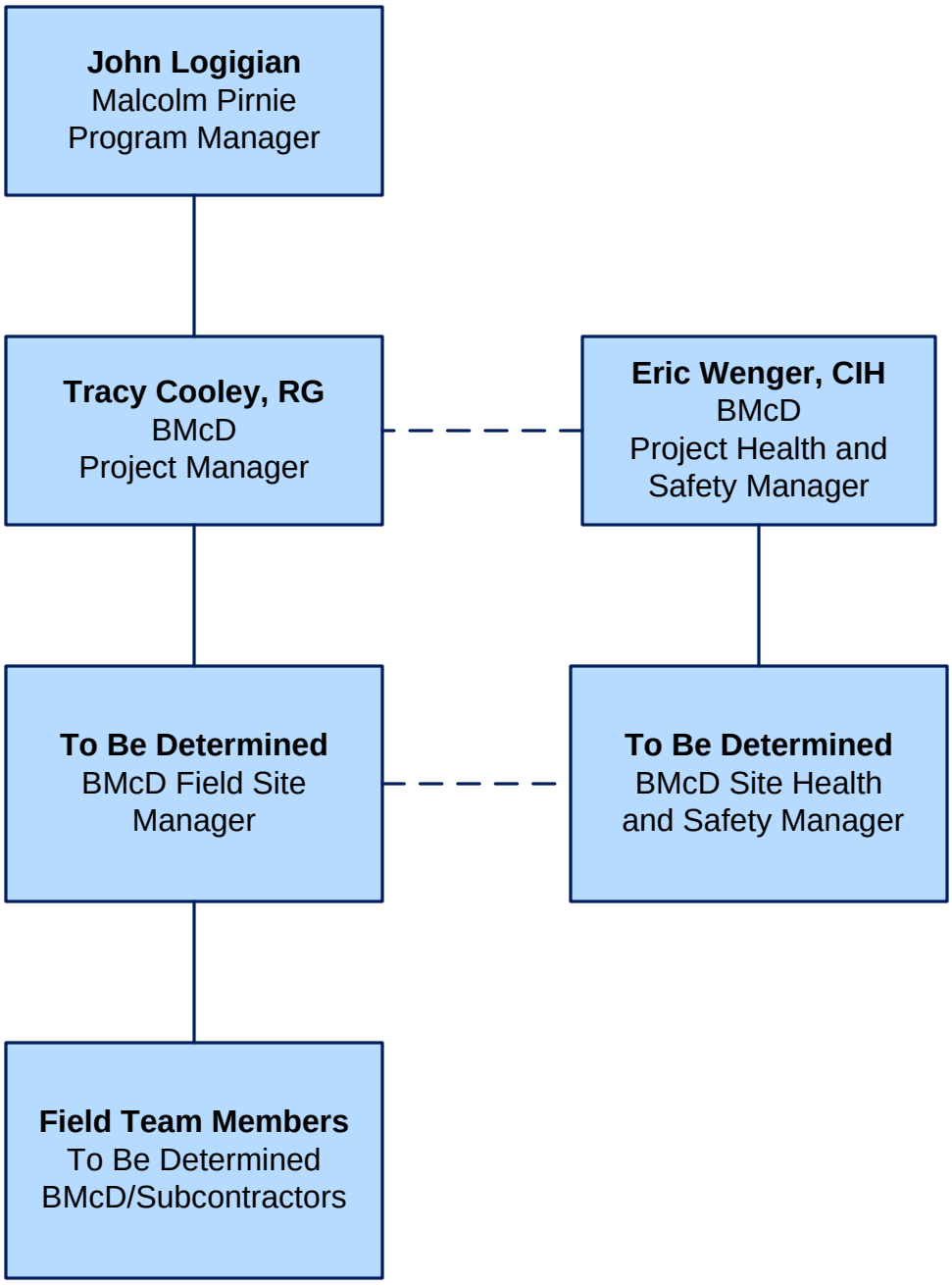

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Figure 4-1
LINES OF AUTHORITY FOR PROJECT SAFETY
FORMER SCHILLING AIR FORCE BASE
SALINA, KANSAS

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Appendix A
Site Safety and Health Plan
For Hazardous Waste Operations

APPENDIX A
SITE SAFETY AND HEALTH PLAN (SSHP)
FOR HAZARDOUS WASTE OPERATIONS

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1.0 INTRODUCTION

The health and safety protocol established in this plan is based on Burns & McDonnell Engineering Company's (BMcD) *Health and Safety Policies and Procedures for Hazardous Waste Operations*, specific site conditions, and chemical hazards known or anticipated to be present from available site data. The following Site Safety and Health Plan (SSHP) is intended solely for use during the proposed activities at the Former Schilling Air Force Base (Site) in Salina, Kansas to satisfy objectives described in the project documents and Work Plan. This SSHP is an appendix to the APP.

Specifications herein are subject to review and revision based on actual conditions encountered in the field during site characterization and remediation activities. This SSHP will be updated as new tasks are added. Revisions may be instituted by using the Health and Safety Plan Field Amendment Form (Form 23).

Although all field activities associated with these tasks are not currently known, this SSHP will provide the basis for all field work to be performed by Burns & McDonnell, Inc. (BMcD) and their subcontractors. The flexibility of this SSHP allows unanticipated site-specific problems to be addressed while assuring adequate and suitable worker protection.

Before site operations begin, all employees who will be involved, including subcontractors for BMcD covered by this plan, will have read and understood this SSHP and all revisions. Before work begins, all affected environmental workers will sign the Agreement and Acknowledgment form (Form 24).

All personnel must comply with established safety procedures as discussed in this SSHP. Any staff member who does not comply with this established safety policy may be dismissed from the site.

1.1 SITE DESCRIPTION AND HISTORY

The Former Schilling Air Force Base consists of 3000 acres located in central Kansas, Saline County, just southwest of the city of Salina (see Figure 1-1 in the APP). The city of Salina acquired the property in 1966, and subsequently incorporated it into its legal boundary. OU1 is the northwest portion of the former SAFB. It includes the area from north of General Jim Road to an east/ west line in alignment with Taxiway A(1) and Cloud Street and Taxiway A(2) eastward. OU1 encompasses approximately 600 acres.

The closure of SAFB was announced in 1964 and in 1966 the property was transferred to the Salina Airport Authority (SAA). SAA has since used much of the property in operating the airfield, renamed the Salina Municipal Airport. The remainder of the former SAFB is currently used for light-to-heavy industrial, aviation, and educational purposes. Many of these entities either lease property from SAA or have purchased their properties outright. Major landowners at the SAFB include the Kansas Board of Regents, the Salina Area Vocational Technical School, Kansas National Guard, and the Occupational Center of Central Kansas. Local industries include Tony's Pizza, Schwan's Sales Enterprises, Raytheon (Beechcraft), Flower Aviation, and Moore's Midway Aviation.

1.2 SITE SPECIFIC HAZARDS AND CONTROLS

Site specific hazards and their controls for the SAFB are identified as follows:

- Low risk of exposure to chlorinated solvents
- Heavy Equipment Operations (Drilling and Direct-Push)
- Extreme Weather During Field Work
- Noise during Drilling and Direct-push

At present, potential contaminants that may be encountered include the chlorinated solvents trichloroethylene (TCE) and its degradation products cis-1,2-dichloroethylene (cis-1,2-DCE), and vinyl chloride (VC). Because previous investigative work has been performed at this site, data will be reviewed prior to engaging in any new work to ascertain the potential chemical and other possible hazards expected at the Site. In general, field team members working at the Site will be potentially exposed to contaminants via contact with air, soil, and water during direct-push, drilling, injection, and groundwater sampling activities. Some common contaminants may be easily volatilized and could expose field personnel via inhalation. These and other sources of possible hazards to personnel performing work in the field were considered in the design of the SSHP.

1.3 SCOPE OF WORK

Field activities to be conducted at the Site include but are not limited to; subsurface soil sampling utilizing direct-push methods; drilling and installation of monitoring wells; and groundwater sampling.

It will be necessary to give advance notice to the USACE Project Manager and the land owner of planned field activities. All field work will be coordinated with the USACE Project Manager to minimize interference with normal site activities.

1.4 POSTINGS

All federally required notices shall be posted upon arrival of subcontractors on site. Required notices include but are not limited to the following: Employee Polygraph Protection Act, Equal Employment Opportunity, Family and Medical Leave Act of 1993, Federal Minimum Wage, and OSHA – Job Safety and Health.

* * * * *

2.0 HEALTH RISK ANALYSIS

2.1 ACTIVITY HAZARD ANALYSIS

An Activity Hazard Analysis (AHA) will be completed prior to starting work, as described in the APP, Section 2.6. See Tables 2-1a, 2-1b, and 2-1c for completed AHAs.

2.2 HEALTH HAZARD AND CHEMICAL RISK ANALYSIS

Appendix A of this SSHP is the chemical hazard summary of the various analytes that may be encountered and their associated health risks. These include TCE, cis-1,2-DCE, and VC. Many of the analytes listed in the tables are not anticipated to be present in sufficient quantities or concentrations in soil and groundwater to present a hazard to personnel. Based on information from previous site investigations, the principal contaminants expected to be encountered during the investigation are chlorinated solvents. Exposures to personnel above the threshold limit value (TLV) or permissible exposure limit (PEL) for these constituents is not anticipated.

2.3 NOISE HAZARDS AND CONTROL

Noise hazards and control are described in Section 12.5 of the APP. Hearing protective devices will be worn anytime the SSHS believes a potential noise hazard exists.

2.4 BIOLOGICAL HAZARDS

Personnel will be aware that site activities will disturb the local wildlife. Therefore, there is potential for field personnel to be bitten by snakes, animals, and insects. All field team members will be properly briefed regarding the potential for encountering these hazards as well as prompt first aid procedures in the event of a snake, insect, or animal bite. Hantavirus may possibly be encountered when rodent nests are disturbed. West Nile virus will be a potential hazard in areas with large populations of mosquitoes. Plants, such as poison ivy, also are a hazard. Locally common biological hazards will be included in the tailgate safety meetings.

Ticks and chiggers are a persistent problem during the warm seasons in tall grassy and wooded locations. Use of insect repellant may be useful. Long pants tucked inside and taped to boots may also help limit ticks and chigger bites. When in areas suspected to have ticks and chiggers, it is recommended to wear light-colored clothing and inspect regularly for ticks.

The best method to mitigate biological hazards is to practice personal awareness. Personnel will be instructed to use the following precautions:

- Apply an insect repellent containing DEET every few hours when in insect (tick)-and spider-infested areas. Use a solid repellant to minimize potential contamination of field samples;
- Periodic self-examination for the presence of ticks, especially on the scalp;
- Use gloved hands or utensils to remove questionable vegetation;
- Personnel will be aware of their work area;
- Personnel will continually observe conditions where they are working; and
- Personnel will not place their hands and feet in areas that cannot be observed or inspected.

2.5 PHYSICAL HAZARDS

The following subsections identify potential physical hazards that may be found at the Site. Safety guidelines specific to the area for contractors will be followed, including all local traffic laws.

2.5.1 Equipment Operations

Physical hazards can arise from various site activities, including mobilization and demobilization of heavy equipment (i.e. direct-push, drill rig) to designated areas. Hazards will be mitigated by using caution around moving equipment and by avoiding close proximity to moving equipment whenever possible. Field personnel may be exposed to a variety of physical injury hazards associated with equipment operations, include noise, struck-by injuries, eye hazards, and hand and foot injuries. Contractors will operate all heavy equipment operations in accordance with 29 Code of Federal Regulations (CFR) 1926 and Engineers Manual (EM) 385-1-1. The primary equipment to be operated during this project includes direct-push rigs, sonic drilling rigs, light trucks, cars, and support trailers. The following measures will be implemented for equipment operations to mitigate these hazards:

- The required work uniform for all field personnel (i.e., Level D protection) will be general work clothes, steel-toed construction boots [American National Standard Institute (ANSI) approved], safety goggles or glasses, work gloves, high visibility vests, and a hard hat (ANSI approved);
- Good housekeeping and adequate work space will be established before operation of any equipment, and will be maintained for the duration of the operation;
- Equipment will be inspected daily for condition and operation prior to use; and

- Field personnel will only approach operating equipment after making eye contact with the equipment operator and staying within sight of the operator;
- Only trained, qualified persons will be assigned to operate individual equipment; and
- Proper lockout procedures will be employed during heavy equipment maintenance activities.

2.5.2 Vehicle Traffic

Employees will be exposed to vehicle accident hazards during the project. To control these hazards, the following safety requirements will be strictly enforced.

- Seat belts will be worn while on roadways. Seat belt requirements also apply to the operation of construction equipment; and
- Local traffic laws will be followed at all times. Vehicles will not be operated at speeds unsafe for the conditions (i.e., road surface, traffic, visibility, weather, etc).

2.5.3 Electric Hazards

All electrical work, usage, installation, and wire capacities will be in accordance with the provisions of the National Electrical Code (National Fire Protection Program Association). Power cords will be UL-listed heavy duty and will include a ground prong. All power cords and receptacles will be inspected before use to ensure that casings are not cracked, grounding prongs are attached, and that there are no visible defects. If a defect is found, the cord, receptacle, or equipment will be tagged and placed out of use until it is fixed or disposed of.

2.5.4 Fire and Explosion Hazards

The risk of fire or explosion may exist during field activities. No smoking signs will be posted and enforced, where applicable. In addition, grounding and bonding wires will be utilized when transferring flammable liquids to prevent sparks. Flammable liquids or materials will not be stored on site. Good house keeping practices will be employed to reduce the likelihood of fire and/or explosion. Fire extinguishers will be stored in BMcD vehicles located onsite, when applicable, and available to all site personnel. Personnel will be trained in the proper use of fire extinguishers, techniques for smothering fires, and emergency evacuation procedures.

* * * * *

3.0 STAFF ORGANIZATION

BMcD is the contractor responsible for conducting work, directing subcontractors, and implementing the SSHP. BMcD will conduct safety briefings for all personnel prior to working or entering the site.

The duties of the following project staff were addressed in Section 4.0 of the APP:

- Project Safety and Health Manager
- Site Safety and Health Supervisor
- Field Site Manager
- Program Manager
- Project Manager
- Field Team Members

3.1 SUBCONTRACTOR COMPETENT PERSON

Occupational Safety and Health Administration (OSHA) requires a competent person be designated for particular construction activities who can recognize hazards or potential hazards and who has the authority to correct or abate the hazard. For this reason, the competent person should be identified on the Activity Hazard Analysis when applicable to the activity. OSHA defines a competent person as follows:

- Competent person - one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous or dangerous to employees and who has authorization to take prompt corrective measures to eliminate them.

3.2 SUBCONTRACTOR DESIGNATED SAFETY REPRESENTATIVE

Subcontractors shall designate a qualified safety representative to be responsible for the administration of the subcontractor's safety programs, the Safety and Health Programs and all client requirements and policies. This person shall be qualified to identify hazards and have the authority to correct them, coordinate safe work efforts and submit all required documentation to BMcD. Subcontractors shall inform BMcD in writing who will be designated to fulfill these obligations.

* * * * *

4.0 TRAINING

4.1 STANDARD TRAINING

All BMcD personnel will participate in routine health and safety education and training programs. These programs are designed to provide personnel with a thorough knowledge of hazardous materials, health and safety hazard potentials, and federal OSHA regulations contained in Title 29 of the CFR 1910.120(e). The training includes the 40-hour HAZWOPER initial instruction and the 8-hour annual HAZWOPER refresher training. Site supervisors receive additional 8-hour specialized hazardous material training. As a minimum, this training will include the following topics:

- General Safety Rules
- Basics of Chemistry
- Basics of Toxicology/Physiology
- Hazardous Materials (types/characteristics)
- Hazard Communication Information
- Respiratory Protection
- Respirator Training
- Chemical Protective Clothing
- Decontamination Procedures/Personal Hygiene
- Fire Prevention/Protection
- Confined Space Work/Safety
- Atmospheric Testing/Sampling Procedures
- Emergency Response Procedures
- Federal and State Regulations

Site-specific training for field personnel will be conducted by the SSHS prior to performing field activities. The SSHS will be responsible for providing workers and visitors site- and activity-specific training during the course of a project. All personnel, whether worker or visitor, will be required to read the SSHP and sign an acknowledgement form that they have understood the document.

The contents of the site-specific training include the following:

- Site safety and health rules to perform their work with minimal risk to health and safety

- Risks or hazards associated with drilling and direct-push boring operations (if applicable)
- Risks or hazards associated with groundwater purging and sampling
- Potential health effects associated with various chemicals suspected to be present on the site
- Purpose and limitations of safety equipment
- Emergency response actions pertaining to operations on the site

Workers who may be exposed to special hazards during field operations will receive additional training.

Daily safety meetings shall be conducted to review past activities, plan ahead for new or changed operations, review pertinent aspects of appropriate activity hazard analysis, establish safe working procedures for anticipated hazards, and provide necessary safety and health training. A summary of the daily safety meetings will be documented in the field logbook.

4.2 PRE-INVESTIGATION SAFETY AND HEALTH BRIEFING

A meeting shall be scheduled prior to the start of all field work and will include the FSM, PHSM, and the SSHS. Emergency services represented at this meeting should include fire, ambulance/emergency room, and others as appropriate. Health and safety issues and coordination of emergency procedures will be discussed during this meeting. Prior to the start of field activities, the FSM and the SSHS will meet with all field workers (including subcontractors if applicable). The purpose of this meeting is to discuss the hazards specific to the site, the tasks to be performed, and to specify the proper level of protection for each work activity. A Safety Orientation Form will be completed during this briefing and will be signed by all personnel in attendance. A copy of the Safety Meeting Form will be provided to the SSHS for inclusion in the project file.

* * * * *

5.0 PERSONAL PROTECTIVE EQUIPMENT

Basic respiratory program requirements are described in Chapter 11 of the APP. PPE will be stored in its original container from the manufacturer to prevent damage or possible contamination.

Field personnel, in conjunction with the FSM and SHSS, may choose to withdraw and allow ventilation of vapors before resuming work (rather than using higher levels of PPE). If ventilation is conducted, additional air monitoring will be performed prior to the resumption of work to determine the level of PPE required.

5.1 REQUIREMENTS FOR FORMER SHILLING AFB

Based on results of the preliminary evaluation, BMcD anticipates that Level D PPE will be appropriate for site activities. The level of PPE will be determined using a Photoionization Detector (PID), Combustible Gas Indicator (CGI), or other instruments as described the Exposure Monitoring Chapter (7) of this SSHP. If air monitoring in the breathing zone exceeds the levels listed in Chapter 7, then PPE will be upgraded.

5.2 LEVELS OF PROTECTION

LEVEL D

- Work uniform
- Work gloves or disposable, inner nitrile gloves
- Chemical-resistant boots with steel toe
- Safety glasses
- Hard hat*
- Disposable, chemical-resistant outer boot covers*
- Hearing protection*

(* Optional Equipment)

The following levels of personal protective equipment (PPE) may also be necessary in the event that criteria for Level D protection are exceeded.

MODIFIED LEVEL D

- Same as Level D including disposable, chemical-resistant clothing (Tyvek)

LEVEL C

- Half-face or Full-face, air purifying respirator [National Institute for Occupational Safety and Health (NIOSH) approved]
- Disposable, hooded, chemical-resistant clothing
- Disposable, chemical-resistant outer gloves
- Disposable, inner nitrile gloves
- Chemical-resistant boots with steel toe
- Disposable boot covers
- Hard hat*
- Coveralls*
- Escape mask*
- Two-way radios*
- Face shield*
- Hearing protection*
- (* Optional Equipment)

LEVEL B

- Full-faced supplied airline or positive pressure self contained breathing apparatus (SCBA) that is NIOSH approved
- Hooded, chemical-resistant suit, outer
- Disposable, protective suit, inner
- Chemical-resistant gloves, outer
- Tight-fitting, chemical-resistant gloves, inner
- Escape mask respirator
- Disposable boot covers, outer
- Chemical-resistant boots with steel toe
- Hard Hat*
- Face Shield*
- Hearing Protection*

* * * * *

6.0 MEDICAL SURVEILLANCE

6.1 EMPLOYEE MEDICAL EXAMINATIONS

All BMcD employees and their subcontractors involved in work at the Site will participate in a medical surveillance program administered under the direction of an occupational physician. The physical examinations shall meet the minimum requirements established by OSHA under the HAZWOPER standard 29 CFR 1910.120(f) and 29 CFR 1026.65(f). This program will include a medical evaluation on a frequency determined by the physician.

Additionally, when respirators are required (as determined by the SHSS and SHM), each employee will be evaluated to determine physical ability to perform work while using respiratory protective equipment in compliance with 29 CFR 1910.134.

A post-project, follow-up exam may be required if an exposure above the PEL is noted or an employee shows specific symptoms associated with the known or suspected hazardous chemicals exposure. The necessity of the exam will be determined by the SSHS and the SHM based upon information supplied by the program manager/ FSM. All medical records will be maintained according to 29 CFR 1910.1020.

6.2 MEDICAL EXAM CERTIFICATION

The following personnel, who may be visiting and working at the Former Air Force Base Site have received medical clearance for duty according to the above mentioned criteria. More names can be added to this listing once it becomes known who will be working on site.

Employee Name	Date of Last Examination	Name of Examining Physician
Eric Wenger	10/7/2005	Concentra Medical

* * * * *

7.0 EXPOSURE MONITORING/AIR SAMPLING

7.1 AIR MONITORING INSTRUMENTS

Air monitoring for the site will be accomplished with the following equipment:

Type of Instrument	Frequency	Caution
PID	When drilling/boring equipment trips out of the hole; During excavation and disturbing soil; monitor workers breathing zone during sample collection	Communicate with subcontractor before monitoring hole
CGI	Continuously at point of drilling, or when drilling/boring equipment trips out of hole and during excavation	Drilling/boring equipment should be positioned across the wind
Sound Level Meter	Use near operation of heavy equipment and other noisy operations	Follow allowable exposure times as stated below
Detector tubes	As indicated in Section 7.3. PID readings sustained for at least 2 minutes in the personnel breathing zones will result in use of detector tubes	Strong solvent odors may require further testing. Common solvents may be present at areas of influence.
Dosi-Tubes	As indicated in Section 7.3. Tube measurements are to be recorded every two hours	Dosi-Tubes should be checked frequently to assess short term exposures

Caution is in order when using a CGI in atmospheres containing organic lead. Continuous and repeated use of a CGI in this type of atmosphere can result in the development of a coating on the detector. This coating causes a loss of sensitivity, resulting in apparently low meter readings. Frequent calibration checks must be performed in these atmospheres to ensure the accuracy of CGI readings. In addition, the CGI has limited sensitivity for methane if the meter is calibrated using pentane. Therefore, if drilling/excavating in areas suspected to have methane (such as landfills) calibration with methane is appropriate.

Air monitoring equipment used on the site should be calibrated in accordance with the following protocol:

Calibration/Response Check		
Instrument	**Calibration Frequency**	**Gas Standard**
PID	Twice Daily	100 ppm** isobutylene in air
CGI	Twice Daily*	Pentane or methane

* The potential presence of organic lead compounds will require calibration four times daily.
** Parts per million

7.2 BREATHING ZONE MONITORING PROTOCOL

PID readings refer to readings above background, which are sustained for at least 2 minutes in the breathing zone and are measured during the performance of field tasks.

The following monitoring protocols are specific to each area of field activity. PID readings are used for general screening. Levels of protection are specified for ranges of measurements. Detector tubes to be collected are indicated for given ranges of PID readings. For areas where the presence of TCE are expected to be present, passive GASTEC Dosi-Tubes® (or their equivalent) will be utilized. PID lamp selection is based on the ionization potential of the site contaminants of concern. PID readings, in conjunction with detector tubes, will be utilized at field sites during tasks anticipated to have the highest level of contamination. If these measurements indicate exposure levels appropriate for Level D work at the field site, the use of detector tubes would be limited to situations where field conditions have changed. Detector tubes will be available for use at the discretion of the FSM and SSHS.

The following procedure will be used for breathing zone monitoring:

- The FSM will select the first task for monitoring at the site. This location will be chosen based on the anticipation for the borehole to have the highest level of contamination.

- If PID readings are less than 10 parts per million (ppm), the detector tubes listed under Level D protocol will be collected. If PID readings greater than 10 ppm are sustained for 2 minutes, all work will be performed in Level C, at a minimum, and the designated tubes will be collected.

- If air-monitoring results from the first task indicate Level D is appropriate, no additional tubes will be collected at the same field site, unless PID readings are greater than 10 ppm.

- Upon review of PID, detector tube, and Dosi-Tube measurements, the SHM may adjust the PPE requirements. If elevated PID and tube measurements are encountered, field personnel, in conjunction with the FSM and SSHS, may choose to allow ventilation of vapors before resuming work (rather than utilizing higher levels of PPE). If ventilation is allowed, detector tubes will be collected prior to the resumption of work to determine the level of PPE required.

- If the PID readings indicate a detector tube is to be collected, the tube will be collected during periods of exposure for the activity involved. Note that one tube may be used during more than one soil sample collection activity at the same location. This will permit a more accurate measurement of personal exposure.

- Dosi-Tubes are to be worn by the person who is expected to have the highest potential for exposure. Measurements on the dosimeter tubes will be observed during the field activities and recorded approximately every two hours in the field logbook.

The most stringent level of protection as indicated by the PID and detector tube readings is to be implemented.

All air monitoring results will be recorded, such as in the field logbook. Levels of PPE worn will also be recorded.

7.3 AIR EXPOSURE LIMITS

Air monitoring will occur during the following activities, if they occur on site:

- Investigative Program
- Site reconnaissance
- Groundwater sampling
- Monitoring well installation

CGI	Area	Action
≥ 10 percent LEL < 19.5 percent or > 23.5 percent Oxygen concentration	Open Area or Confined Space	Withdraw, allow vapors to dissipate around work location; use blower if vapors will not dissipate

The following information identifies individual areas and general monitoring protocols to be followed during investigations and work within these areas. The monitoring protocols establish the necessary personal protective equipment to be worn and the respiratory protection necessary to protect personnel. All monitoring is to be conducted in the worker's breathing zone. The most restrictive Level of Protection dictated by the monitoring protocol is to be utilized.

Chemicals of Interest at the SAFB Site: 1,2-DCE, PCE, TCE, Vinyl Chloride. Additional information may be added as the information becomes available.

PID Reading Above Background in Parts per Million (ppm)	Level of Protection	Detector Tubes
< 10	Level D	Vinyl Chloride Tubes Collected
10 - 50	Level C	TCE Dosi-Tube and Vinyl Chloride Tube Collected
> 50	Immediate Withdrawal	Not applicable

*PID using 11.8 electron Volt (eV) lamp.

Detector Tube	Detector Tube Results (ppm)	Level of Protection
TCE Dosi-Tube	< 50	Level D
	50 - 200	Level C
	> 200	Immediate Withdrawal
PCE	< 25	Level D
	25 - 200	Level C
	> 200	Immediate Withdrawal
VC	< 1	Level D
	1 - 5	Level C, if exposure > 30 minutes, Level B
	> 5	Immediate Withdrawal

7.4 NOISE EXPOSURE LIMITS

A sound level meter (at least Type 2) or noise dosimeter will be utilized to measure sound levels near heavy equipment and during drilling and sampling, direct-push, and other operations when the SHSS determines that the equipment may be noisy. If prior noise monitoring for each activity has already been conducted and the data is available, subsequent noise exposure monitoring for those activities is not required. Noise levels will be measured with the instrument's microphone placed within the monitored employee's hearing zone (a sphere with a two-foot diameter surrounding the head). The instrument will be set to the A-weighted scale and on slow response. When using the dosimeter, it will be set at a 3 dB exchange rate with the threshold level set at 80 dB. The criterion level (allowable dose) will be set at 85 dB. The permitted exposure time will be according to the TLV as established by the American Conference of Governmental Industrial Hygienists (ACGIH) as noted below.

Noise exposure levels should not exceed the duration shown below. For practical situations on this project, when field personnel are working in active traffic areas, when using equipment capable of high noise generation, and when the sound level reading for the operation exceeds 85 dBA (steady for at least

3 seconds) then hearing protective devices will be required. If levels equal or exceed those listed below (or if a dosimeter equals or exceeds a 50% dose of the ACGIH level, equivalent to 82 dBA) for 30 days or more per year, irrespective of hearing protection, then the employee must be enrolled in the employer's Hearing Conservation Program.

When a worker's time-weighted noise exposure exceeds 100 dBA, both earplugs and earmuffs should be worn. The National Institute for Occupational Safety and Health cautions that even double protection is inadequate when the time-weighted average exposures exceed 105 dBA.

Dosimetry and sound level surveys (which can be completed with a dosimeter) will be performed by the contractor or subcontractor onsite, and documented at start-up and whenever site equipment or other conditions affecting noise levels change.

In addition, hearing protective devices will be worn anytime the Safety Officer believes a potential noise hazard exists.

Allowable Noise Exposure Times:

Measured Sound Levels (dBA) in Worker's Hearing Zone	**Allowable exposure time (hours) without hearing protection**	**Allowable exposure time (hours) with ear plugs (NRR of 28)***	**Allowable exposure time (hours) with ear plugs and muffs (NRR of 28 for one)****
80	16	16	16
82	16	16	16
85	8	16	16
88	4	16	16
91	2	16	16
94	1	8	16
97	1/2	4	16
100	1/4	2	8
103	1/8	1	4

NRR – Noise Reduction Rating

*Number computed by subtracting 7 from an NRR of 28, then dividing by 2, according to the OSHA Technical Manual.

**Number computed by subtracting 7 from an NRR of 28, then dividing by 2, then adding 5 dB for muff protection to the result.

Notes:

Assume 16 hours as the maximum allowable work time per day.
No noise exposure in excess of a peak C-Weighted sound level of 140 dB is permitted.

* * * * *

8.0 HEAT AND COLD STRESS

8.1 HEAT STRESS PROGRAM

8.1.1 Training

The SHSS will have received training developed by the American Red Cross in first aid and cardiopulmonary resuscitation (CPR), including training in heat-related illnesses.

Workers should be capable of recognizing and treating the signs and symptoms of heat stress conditions. During potential heat stress conditions, ice should be readily available to rapidly cool victims.

8.1.2 Body Fluid Replacement

Water will be made available at the Site for employee fluid replacement. When heat stress is determined to be a problem by the SHSS, employees will be provided with balanced, electrolyte solutions to replace fluid and electrolyte loss. Employees will be provided with replacement fluids at a minimum rate of 8 ounces each half hour per person.

8.1.3 Environmental Monitoring

Heat Stress and heat strain are conditions resulting from environmental factors including temperature, relative humidity, radiant heat transfer, and air movement, as they are affected by clothing. The primary objective of the heat stress management program is to prevent heat stroke which is life threatening and the most serious of the heat-induced disabilities.

8.1.4 Rest Breaks

When heat stress conditions are applicable, all rest breaks should be taken out of the zone of exclusion into a cooler, shaded, rest area. If these conditions are not available, more frequent rest breaks will be taken.

8.1.5 Medical Monitoring

Always monitor sign and symptoms of heat-stressed workers. When water vapor impermeable clothing is worn, exposure to environmentally induced or activity induced heat stress will be discontinued for a person when:

- Sustained heart rate is greater than 160 beats per minute for those under 35 years of age; and 140 for 35 years or older.

- Deep body temperature is greater than 38 degrees centigrade (°C) or 100 degrees Fahrenheit (°F), or
- There are complaints of sudden and severe fatigue, nausea, dizziness, lightheadedness, or fainting, or
- There are periods of inexplicable irritability, malaise, or flu-like symptoms, or
- Sweating stops and the skin becomes hot and dry.

Procedure

The employee's pulse rate will be used to monitor their individual response to environmental and internal heat load. To measure the heart rate (pulse), have the individual employee monitor their radial pulse by counting the number of pulse beats in a 10-second time span, multiplying the number of pulse beats counted by six to calculate the pulse rate in beats per minute, and comparing the results with the chart below. This monitoring program will become effective when the ambient work area temperature exceeds 77°F. The pulse rate will be monitored at the beginning and end of each shift and during each rest break.

Heart Rate	90-100	100-110	110-120	120-130	130-140	140-150	Above 150-180
Work Time (continuum)	>8 hr	8 hr	2 hr	1 hr	30 min	15 min	4-6 min

hr - Hour

Pulse Rates between 60 to 90 beats per minute are considered normal and regularly scheduled work hours are recommended.

For unacclimatized workers, the lower pulse rate from each range should be used for the first 2 weeks.

8.2 COLD STRESS MONITORING

This procedure applies to all employees who perform fieldwork in cold environments at risk of cold stress injury.

8.2.1 Environmental Monitoring

Frostbite and hypothermia are two types of cold injury that personnel must be protected against during the performance of field duties. Two factors influence the development of a cold injury:

- Ambient temperature
- Wind velocity

The SHSS will monitor environmental conditions by recording ambient temperature and estimated wind-speed. Information contained in Tables 8-1 and 8-2 will be used to evaluate the possibility of hypothermia among workers on-Site.

8.2.2 Protective Clothing and Rest Breaks

Using appropriate cold weather protective clothing when temperatures are at or below 40°F exposed skin surfaces must be protected. These protective items can include facemask, hand wear, and foot wear. Workers handling evaporative solvents during cold stress conditions will take special precautions to avoid soaking gloves and clothing because of the added danger of prolonged skin contact and evaporative cooling. Personnel will wear protective clothing appropriate for the level of cold and planned physical activity. The objective is to protect all parts of the body, with emphasis on the hands and feet. Eye protection against a glare and ultraviolet light will be worn in snowy and icy conditions.

The work rate should not be so great as to cause heavy sweating that could result in wet clothing. If heavy work must be done, opportunities for rest breaks will be provided where workers have the opportunity to change into dry clothing. Conversely, plan work activities to minimize time spent sitting or standing still. Rest breaks should be taken in a warm, dry area. Windbreaks can shield the work area from the cooling effects of wind.

8.2.3 Identification and Treatment of Cold Stress

When frostbite, hypothermia, or other cold stress symptoms are suspected, treat the patient to relieve symptoms or transport them to the medical facility.

8.2.4 Training

Burns & McDonnell workers have been trained in cold stress as part of their HAZWOPER 40-hour initial training. Site workers will receive refresher training by the SHSS in cold stress safety and health procedures. The training program will include, as a minimum, instruction in the following areas:

- Proper first aid treatment
- Proper clothing practices
- Proper eating and drinking habits
- Recognition of impending frostbite

- Recognition of the signs and symptoms of impending hypothermia or excessive cooling of the body when shivering does not occur
- Safe working practices

The SHSS will be trained by the American Red Cross in first aid, CPR, and cold stress conditions.

* * * * *

9.0 STANDARD OPERATING PROCEDURES

The following SOPs will be applied to each location and activity where work is performed on the Site. As hazards increase or decrease on the Site, the applicability of each SOP must be determined by the SSHS with the approval of any changes by the program manager and the HSM.

The SSHS will make Material Safety Data Sheets (MSDSs) available for chemicals brought on site by BMcD personnel or the subcontractors. Prior to repair work on machines, the operator will institute lockout/tagout (LOTO) procedures to prevent accidental starting of machinery. LOTO procedures are also required during work around electrical systems (e.g., sampling oil from a transformer).

9.1 PERSONNEL PRECAUTIONS

1. Eating, drinking, chewing gum or tobacco, smoking, and any practice that increases the probability of hand-to-mouth transfer and ingestion of material is prohibited in the exclusion and contamination reduction zone and in any other area known to be contaminated.

2. The hands and face of each employee must be thoroughly washed upon leaving the work area.

3. When decontamination procedures for outer garments are in effect, the entire body should be thoroughly washed as soon as possible after the protective garment is removed.

4. Contact with contaminated or suspected contaminated surfaces should be avoided. When possible, do not walk through puddles, leachate, or discolored surfaces; kneel on the ground; or lean, sit, or place equipment on drums, containers, or the ground.

5. Medicine and alcoholic beverages can potentiate the effects from exposure to toxic chemicals. Prescribed drugs should not be taken by personnel at hazardous waste operations where the potential for absorption, inhalation, or ingestion of toxic substances exists unless specifically approved by a qualified physician. Alcoholic beverage consumption will not be allowed during working hours. Illegal drug intake will not be allowed. Personnel under the influence of alcoholic beverages, illegal drugs, or drugs that impair field skills will be removed from the site.

6. All personnel must be familiar with standard operating safety procedures and any additional instructions and information contained in this SSHP. All visitors and subcontractors shall read this SSHP prior to entering the site.

7. Personnel will be familiar with the chemicals used on site and the associated hazards as described in each respective MSDS. The MSDSs for appropriate chemicals used by personnel on site will be available and located in the company vehicle. Personnel on site will be familiar with the hazard communication program prior to performing any activity on site.

9.2 OPERATIONS

1. All personnel going to the site must be adequately trained and thoroughly briefed on anticipated hazards, equipment, safety practices, emergency procedures, and communications.

2. Any required respiratory protective devices and clothing must be worn by all personnel going into areas designated for wearing protective equipment.

3. Personnel on site must use the buddy system as specified in OSHA 29 CFR 1910.120. The purpose of the buddy system is to provide rapid assistance to employees in the event of an emergency.

4. During continuous operations, on-site workers act as safety backup to each other; off-site personnel provide emergency assistance.

5. Personnel should practice unfamiliar operations prior to the actual procedure. This practice will occur in an area outside of the zone of exclusion.

6. Personnel and equipment in the contaminated area should be minimized, consistent with effective site operations.
7. Work areas for various operational activities must be established.

8. Procedures for leaving a contaminated area must be planned and implemented prior to going to the site. Work areas and decontamination procedures must be established based on expected site conditions.

9. Frequent and regular inspections of site operations will be conducted to verify compliance with this SSHP. If changes in operations occur, the SSHP must be modified to reflect these changes.

10. All electrical equipment (power tools, extension cords, instruments, radios, etc.) shall conform to OSHA 29 CFR 1926.400, Subpart K.

11. Fire prevention and protection (appropriate signs for flammable liquids, smoking areas, storage areas of combustible or flammable materials, etc.) shall be in accordance with OSHA 29 CFR 1926.150, Subpart F.

12. Site safety meetings will be held daily to discuss anticipated site conditions and daily activities. This meeting will be summarized in the field logbook.

9.3 DRILL RIG SAFETY

The following topics are the principal items that specifically address drilling rig safety procedures as part of the site health and safety guidelines. Each topic is explained in detail on the following pages.

- Overhead obstructions
- Underground utilities
- Turning or rotating machinery
- Vehicle issues
- Lightning and weather hazards
- Terrain and site characteristics issues
- Rig kill switch
- Use of tools

9.3.1 Overhead Obstructions

1. Borings should not be drilled in locations that will place either the drill rig derrick, the drilling rods, or any part of the rig within 30 feet (ft) of overhead power lines when the derrick is in an upright position or is being raised or lowered.

2. Both the person planning the locations of boreholes and the field personnel on the site during the investigation should check for the presence of overhead lines and other obstructions.

3. The driller should not move the rig with the derrick raised.

4. If borings must be drilled closer than 30 ft to an overhead line, prior arrangements must be made to take the line out of service or have it booted (blanketed, insulated) by the electric utility.

5. Each time the drill rig derrick or drilling rods are raised or lowered, field personnel should check that overhead obstructions are not present. In addition, the BMcD field personnel should make sure they are not touching the rig while the derrick is being raised or lowered.

6. Whenever the drilling rig and associated vehicles are driving in areas of low overhead clearance, including inside buildings, field personnel should check that adequate overhead clearance exists beneath doors, piping, or any other structures. The driller should not move the rig until this has been checked.

9.3.2 Underground Utilities

Several principles should be followed when investigation areas have underground utilities and tanks. The first principle is to minimize the amount of drilling in the immediate vicinity of known or suspected underground utilities. This may conflict with the intent of a project; for example, to drill as near as possible to underground tanks or pipeline bedding material, to investigate subsurface contamination, or to drill into pipeline bedding material. The overriding factor in planning a subsurface investigation should be to minimize the risk of damage to subsurface utilities and tanks because such damage may have consequences affecting safety and contamination.

The second principle is that areas proposed for drilling or excavation should be checked with regard to the utilities by the site owner and, where applicable, any public utilities that may have underground lines or

tanks. It is illegal in Kansas to perform any subsurface excavation without calling the utilities clearance service for the state (e.g., Kansas One Call). Utility clearance, including the ticket number, utilities notified, and the names of all persons granting utility clearance will be recorded on the Field Safety Checklist, Intrusive Activities. The Field Safety Checklist, Intrusive Activities, provided in the SSHP, will be completed for each area.

The use of a metal finder or some other type of utility-finding remote sensor may be used for underground utility location. This equipment should be used whether or not the local utilities or owner have acknowledged that the drilling location is clear of utilities. If uncertainty is present as to the location or existence of underground utilities or tanks, using a backhoe to carefully excavate down to common utility depths is warranted.

If a significant increase in resistance to drilling or digging occurs in an area where bedrock is not expected, stop work immediately, reassess the situation, reevaluate the data on the locations of underground utilities, and do not proceed until safety has been verified. Call the project manager if any uncertainty exists as to the clearance of utilities.

In the event that underground utilities are encountered, the following steps should be taken:

1. Cease drilling or digging immediately.

2. Notify the field site manager as soon as possible.

3. Notify the project manager as soon as possible.

4. Write a brief memorandum summarizing the event and transmit it as soon as possible to the project manager.

The risks of encountering underground utilities include the safety of field workers, the financial risks of replacement and repair, and the environmental risks of fuel leaks or other environmental problems caused by damaging utilities.

9.3.3 Turning or Rotating Machinery

The principal hazard of turning or rotating machinery is the danger of snagging clothing or body parts. Therefore, the following guidelines should be observed:

- Whenever possible, stay at least two feet from turning or rotating machinery. This includes augers, cathead, engine power takeoff, and drill rods
- If machinery must be approached closer than two feet, minimize the amount of time in close proximity to the machinery and use caution
- Near turning or rotating machinery, be aware of where other workers are standing and moving so that no one is jostled into the machinery
- Use particular caution when wearing baggy clothing, particularly Saranex or coveralls

There is a related issue that requires caution: keep clear of the cathead rope at all times as it may break while in use. It is often coiled on the ground; personnel should avoid stepping on it at all times

9.3.4 Rig Kill Switch

Learn where the rig kill switch is to shut the rig off in case of an emergency. A discussion should be held with the driller on each drill rig at the startup of the field work to discuss the location and use of the kill switch.

9.4 LIGHTNING AND WEATHER HAZARDS

Caution is necessary in the field with regard to the hazards of lightning. The drilling rig derrick may be particularly susceptible. The following precautions should be taken.

- Be aware of the weather to foresee and watch for the buildup of possible thunderstorms
- Be prepared to demobilize and take cover before thunderstorms are too close
- Cease operations when threatening conditions exist

Use extra care when working outside in inclement weather. Poor footing and difficulties in driving vehicles can result from wet or icy surfaces.

9.5 TERRAIN AND SITE CHARACTERISTICS ISSUES

Working around excavations and backhoe test pits necessitates the following precautions:

- Avoid the edge of the excavation.
- Watch for cracks forming in the ground near the edge of the excavation, a block of earth may be about to fall into the excavation.
- Never enter backhoe test pits. Work in excavations must be in accordance with OSHA regulations.
- Watch the equipment operator so you are aware of the position of equipment at all times. When equipment or the excavation must be approached, signal for the operator to stop work.
- Keep away from the soil stockpile as it may be unstable, or you may place yourself in the way of moving machinery.
- Stay visible to the operator.
- Make clear signals to the operator.
- Barricade the excavation, if necessary.

Working around drill rigs requires the following precautions:

- Watch the driller's operations to know where all machinery and equipment is located around the work site.
- Keep out of, or move cautiously, in areas where work is in progress, including the hoist and derrick, sample-driving equipment, auger and drill rod storage and hoisting areas, water pump or compressor, and rig exhaust.
- Stay visible to the driller as much as possible.

Several things to watch for are:

- Stability of the rig:
    - Sliding of the rig in muddy conditions
    - Tipping or rolling of the rig on sloping or muddy ground
    - Tipping of the rig while the hydraulic-leveling jacks are being raised or lowered
    - Tipping of the rig because of poor support structures or timbering under the hydraulic-leveling jacks
- Possible collapse of the rig derrick
- Possible falling or flying rig and derrick parts
- Possible breakage of the Standard Penetration Test hammer

- Possible bending or breaking of drilling rods if the driller is inappropriately stacking the drill rods above the top of the derrick while pulling rods

9.6 USE OF TOOLS

BMcD personnel should not handle any of the contractor's drilling or construction tools, equipment, supplies, or machinery. This includes the following items:

- Drill rig controls
- Vehicles, including rigs, trucks, bobcats, dozers, and backhoes
- Hand tools, such as shovels, wrenches, hammers, and tremie pipes
- Well construction materials, such as polyvinyl chloride (PVC) pipe and cement for the monitoring well pad

BMcD personnel may handle sampling devices, such as:

- Split-spoon samplers
- Shelby tubes
- Split-barrel samplers
- Core-barrel inner sleeves
- Sample sleeves

9.7 NOISE HAZARDS AND CONTROL

If noise exposure levels exceed 85 dBA (steady for at least 3 seconds) then hearing protective devices will be required. When a worker's time-weighted noise exposure exceeds 100 dBA, both earplugs and earmuffs should be worn. The NIOSH cautions that even double protection is inadequate when the time-weighted average exposures exceed 105 dBA. Dosimetry and sound level surveys (which can be completed with a dosimeter) will be performed by the contractor or subcontractor onsite, and documented at start-up and whenever site equipment or other conditions affecting noise levels change. In addition, hearing protective devices will be worn anytime the SSHS believes a potential noise hazard exists.

9.8 BIOLOGICAL HAZARDS

Personnel will be aware that site activities will disturb the local wildlife. Therefore, there is potential for field personnel to be bitten by snakes, animals, and insects. All field team members will be properly

briefed regarding the potential for encountering these hazards as well as prompt first aid procedures in the event of a snake, insect, or animal bite. Hantavirus may possibly be encountered when rodent nests are disturbed. West Nile virus could be a possible hazard in areas with large numbers of mosquitoes. Plants, such as poison ivy, also are a hazard. Locally common biological hazards will be included in the tailgate safety meetings.

Ticks and chiggers are a persistent problem during the warm seasons in tall grassy and wooded locations. Use of insect repellant may be useful. Long pants tucked inside and taped to boots may also help limit ticks and chigger bites. When in areas suspected to have ticks and chiggers, it is recommended to wear light-colored clothing and inspect regularly for ticks.

The best method to mitigate biological hazards is to practice personal awareness.
Personnel will be instructed to use the following precautions:

- Apply an insect repellent containing DEET every few hours when in insect (tick)-and spider-infested areas. Use a solid repellant to minimize potential contamination of field samples
- Periodic self-examination for the presence of ticks, especially on the scalp
- Use gloved hands or utensils to remove questionable vegetation
- Personnel will be aware of their work area
- Personnel will continually observe conditions where they are working
- Personnel will not place their hands and feet in areas that cannot be observed or inspected.

9.9 PHYSICAL HAZARDS

The following subsections identify potential physical hazards that may be found at the Site. Safety guidelines specific to the area for contractors will be followed, including all local traffic laws.

Equipment Operations

Physical hazards can arise from various site activities, including remediation, mobilization and demobilization of heavy equipment (i.e. direct-push, drill rig) to designated areas. Hazards will be mitigated by using caution around moving equipment and by avoiding close proximity to moving equipment whenever possible. Field personnel may be exposed to a variety of physical injury hazards associated with equipment operations, include noise, struck-by injuries, eye hazards, and hand and foot injuries. Contractors will operate all heavy equipment operations in accordance with 29 CFR 1926 and EM 385-1-1. The primary equipment to be operated during this project includes direct-push rigs, sonic

drilling rigs, light trucks, cars, and support trailers. The following measures will be implemented for equipment operations to mitigate these hazards:

- The required work uniform for all field personnel (i.e., Level D protection) will be general work clothes, steel-toed construction boots (ANSI approved), safety goggles or glasses, work gloves, high visibility vests, and a hard hat (ANSI approved)
- Good housekeeping and adequate work space will be established before operation of any equipment, and will be maintained for the duration of the operation
- Equipment will be inspected daily for condition and operation prior to use
- Field personnel will only approach operating equipment after making eye contact with the equipment operator and staying within sight of the operator
- Only trained, qualified persons will be assigned to operate individual equipment
- Proper lockout procedures will be employed during heavy equipment maintenance activities.

9.10 VEHICLE TRAFFIC

Employees will be exposed to vehicle accident hazards during the project. To control these hazards, the following safety requirements will be strictly enforced.

- Seat belts will be worn while on roadways. Seat belt requirements also apply to the operation of construction equipment
- Local traffic laws will be followed at all times. Vehicles will not be operated at speeds unsafe for the conditions (i.e., road surface, traffic, visibility, weather, etc).

In heavy traffic areas, use extra caution in moving around the site. Observe contractor personnel on the site to ensure their safety as well. Precautions that can be taken include traffic barricades, cones, signs, a flag person who keeps a constant watch on traffic, and blocking the work area with vehicles. The following traffic areas may be present at the investigation area and need to be considered:

- Highway and road shoulders
- City streets
- Parking lots
- Construction sites
- Quarry sites

- Industrial sites, including refineries, landfills, airports, and factories

9.11 FIRE AND EXPLOSION HAZARDS

The risk of fire or explosion may exist during field activities. No smoking signs will be posted and enforced, where applicable. In addition, grounding and bonding wires will be utilized when transferring flammable liquids to prevent sparks. Flammable liquids or materials will not be stored on site. Good house keeping practices will be employed to reduce the likelihood of fire and/or explosion. Fire extinguishers will be stored in BMcD vehicles located onsite, when applicable, and available to all site personnel. Personnel will be trained in the proper use of fire extinguishers, techniques for smothering fires, and emergency evacuation procedures.

* * * * *

10.0 SITE CONTROL MEASURES

10.1 GENERAL SITE SECURITY

General site security is provided by BMcD personnel during field activities. All activities at the Site will be in compliance with USACE requirements. No one will be allowed to enter the zone of exclusion (as discussed below) without permission from BMcD and with the appropriate level of training. All persons entering the zone of exclusion must adhere to the guidelines set forth in this SSHP.

10.2 SITE WORK ZONES

Work location restrictions shall include, but not necessarily be limited to, the following zones:

- Zone of exclusion
- Contamination reduction zone
- Support zone

The zone of exclusion and contamination reduction zone will be within a 20-ft radius of the borehole location. The exclusion and contamination reduction zone will be subject to change based on the extent of contamination levels. Air monitoring will be conducted to determine contamination levels. The SSHS will restrict access to this area to site investigation personnel. The personnel decontamination station will be located at the entrance to this area.

The support zone includes the areas surrounding the zone of exclusion and contamination reduction zone. The support zone can be any area located outside of the contamination reduction zone where activity support may occur. A Site Operations Center may be established if required.

* * * * *

11.0 PERSONAL HYGIENE AND DECONTAMINATION

The decontamination of personnel and equipment will be performed within the contamination reduction zone. The contamination reduction zone will be established to act as a transition zone for any necessary equipment or personnel decontamination, and for inspection activities. The decontamination reduction zone will be required for projects where site conditions change and personnel are required to wear Level C, Level B, or Modified Level D. The following procedures should be used when decontaminating personnel or equipment:

LEVEL D

- Establish a segregated equipment drop
- Remove disposable, outer boot covers
- Remove chemical-resistant, outer gloves
- Remove hard hat, and goggles, safety glasses, or face shield
- Remove disposable, inner gloves

LEVEL C, LEVEL B, (and Modified Level D)

- Establish a segregated equipment drop
- Remove disposable, outer boot cover
- Remove chemical-resistant, outer gloves
- Remove chemical-resistant suit
- Remove respirator, hard hat, or face shield
- Remove disposable gloves

At a minimum, the hands and face of each employee must be thoroughly washed upon leaving the work area. All reusable PPE (boots, hard hats, and possibly outer gloves) will be decontaminated in a designated area within the contamination reduction zone. The SSHS will visually inspect all reusable PPE and other equipment once decontamination procedures are completed. All decontamination activity will be monitored to ensure compliance with procedures described in this SSHP.

All disposable clothing that may have been contaminated will be collected and properly discarded.

* * * * *

12.0 EQUIPMENT DECONTAMINATION

Equipment will be decontaminated in the contamination reduction zone after exiting the exclusion zone. All drilling and sampling equipment will be decontaminated by the subcontractor and visually inspected by the SSHS prior to drilling operations and between borings. All augers, drill rods, and sampling equipment will be cleaned using a high-pressure, water sprayer. All exposed exterior and interior surfaces of the augers, drill rods, and sampling equipment will be cleaned until all visible soil is removed.

All split-barrel soil samplers, brass liners, and sample knives and trowels will be decontaminated after collecting each sample.

To decontaminate hand tools and small pieces of equipment, a galvanized wash tub or clean, 5-gallon, plastic container will be partially filled with potable water. A non-phosphate detergent solution will be mixed in the container. The sampling equipment will be scrubbed visually clean using the detergent solution and a stiff, long-bristled brush. After the solution scrub, the device will be rinsed with distilled water and allowed to dry.

* * * * *

13.0 EMERGENCY EQUIPMENT AND FIRST AID

A 16-unit emergency first aid kit that meets ANSI Standard Z308.1-1978 will be readily available on site, and designated personnel will have first aid training.

A personal eyewash kit that meets ANSI 2Z358.1-1990 will be available in each BMcD field vehicle at the site. The main purpose of the eyewash unit is to provide immediate flushing. With this accomplished, the individual may then be transported to the hospital for professional care.

Fire extinguishers will be available in all vehicles present at the work site.

FIRST AID MEASURES

In the event that personnel exposure symptoms occur, the following procedures will be used:

Petroleum Hydrocarbons and Chlorinated Hydrocarbons

Eye Contact: Flush eye immediately with copious amount of water; repeat until irritation is eliminated. If irritation occurs for more than 15 minutes, seek medical attention.

Skin Contact: Thoroughly wash exposed area with soap and water. If dermatitis or severe reddening occurs, seek medical attention.

Inhalation: Remove person into fresh air. If symptoms occur for more than 15 minutes, seek medical attention.

Ingestion: Do not induce vomiting; seek immediate medical attention.

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14.0 EMERGENCY RESPONSE AND CONTINGENCY PLAN

14.1 EMERGENCY ACTIONS/STANDARD OPERATING PROCEDURES

1. The name and telephone number of the nearest medical treatment facility is found below. Figure 12-1 provides an overall view of the route to the hospital located in Salina, Kansas and Figure 12-2 provides a map showing the location of hospital within the city proper.

   Salina Regional Health Center
   400 S. Santa Fe Ave.
   Salina, Kansas
   Telephone: (785) 452-7000

   Directions to Nearest Hospital

   Prior to initiating field work, field personnel will attend a site briefing in which the route to and from the hospital will be driven to familiarize employees with the hospital location. A map is also provided in the site-specific SSHP, which outlines the routes to each hospital. From the site, travel east to Centennial Road. On Centennial road, travel north 0.3 miles to Magnolia Road. Turn east on Magnolia Road and travel 1.1 miles to 9th street. Turn north on Nineth Street and travel 1.1 miles to Claflin Avenue. Turn right on Claflin Ave and travel 2 blocks to Santa Fe Avenue. Turn left on Santa Fe Avenue and travel 1.3 miles, the hospital is on the right side of the road. Address of hospital is 400 S. Santa Fe Avenue.

2. Telephone numbers and procedures for obtaining emergency services are as follows:

   - Ambulance 911
   - Fire Department 911
   - Police (911) or 785-826-7210

3. Sufficient water and/or dry chemical fire extinguishers (A, B, C fire extinguishers) and neutralizing agents will be maintained on site to cope with any situation until emergency services arrive.

14.2 MEDICAL EMERGENCIES

1. Any person who becomes ill or injured in the exclusion zone must be decontaminated as much as possible, with consideration as to which risk will be greater, the spread of contamination or the health of the individual. If the injury or illness is minor, full decontamination (remove contaminated clothing and wash hands and face with soap and water, see Section 9.1) should be completed and first aid administered prior to transport. If the individual's condition is more serious, at least partial decontamination should be attempted (e.g., complete disrobing of the victim and redressing in clean coveralls or wrapping in a blanket before transportation to the hospital). First aid should be administered while awaiting an ambulance or paramedics. The sampling team is trained and certified in First Aid and CPR.

2. If an injured victim is unconscious, notify emergency medical service (EMS). Inform the EMS dispatcher of the nature of the emergency. Do not move the victim unless it is absolutely necessary. Remain with the victim and wait for orders from the EMS dispatcher. The EMS dispatcher should determine what help is needed. Anyone transported to a clinic or hospital for treatment should be accompanied by information on the chemicals to which they may have been exposed.

3. Any vehicle used to transport contaminated personnel will be cleaned and tested to verify that it is clean before further use.

4. Provisions must be made to identify the substance to which the worker may have been exposed. This information must be given to medical personnel.

In the event that a major accident or injury occurs emergency first aid will be performed on injured persons by CPR and First Aid trained persons until emergency medical personnel arrive. Injured personnel will not be moved from the site by non-emergency medical personnel, unless there is a high risk that severe injury or loss of life will occur if the injured person(s) is not immediately moved. Non-injured personnel at the site will be checked for symptoms of shock following a major accident or injury. Work will not resume at the site until the SHM, FSM, and appropriate personnel approve.

14.3 FLAMMABLE CONDITIONS

Dry grass/weeds can be flammable. Limit driving over tall, dry vegetation and restrict smoking to designated areas.

In the event that combustible vapors exceed 10 percent of the lower explosion limit (LEL) or strong odors are detected in or around the borehole or in confined spaces to be entered, the following actions should be taken:

- Eliminate all ignition sources and electric cutoff switches. Do not turn electric switches on or off if strong odors are present unless the switch is intrinsically safe. Do not allow vehicles to operate
- Move personnel away from the borehole
- Allow vapors to dissipate
- If conditions warrant, call in the listed sequence:

    - Ambulance 911
    - SHM
    - BMcD Project Manager
    - USACE Project Manager

- Provide answering personnel with the call back numbers, locations, directions, and situation assessment

14.4 CHEMICAL EMERGENCIES

The following conditions will necessitate the cessation of field work in the area of concern and revisions to this SSHP:

- CGI readings above 10 percent LEL
- CGI readings at or below 19.5 percent oxygen (O_2) or above 23.5 percent O_2
- PID readings over 50 ppm above background for more than 15 seconds in the breathing zone
- Detector-tube measurements exceeding the specifications in Chapter 7

14.5 NATURAL HAZARDS

The following precautions will be observed during severe weather (e.g., tornadoes, high winds, thunderstorms, and hail):

Upon notification that an evacuation is in progress, all company personnel and visitors will immediately use the nearest available exit and/or s and proceed to their designated assembly location. If lighting is occurring, stop outdoor work and move indoors, or stay inside a moving vehicle (do not continue to linger outdoors). Shut down and move away from heavy equipment.

- The SSHS will take a head count.
- Any visitors should remain with the group, if feasible.
- All personnel will stay assembled until further instructions are received. However, it is important to note that in some emergencies, employees must deviate from these instructions. Use common sense. For example, if smoke is present, employees need to begin evacuating even if the alarm has not been sounded. If smoke is present, stay below smoke while evacuating.

Tornadoes

- Check the weather forecast before arriving at the site [phone number for the National Weather Service (NWS) at Topeka, Kansas (785) 234-2592, 828-271-4800, or on the Internet at www.ncdc.noaa.gov.
- The daily safety tailgate meeting will include specific directions about procedures to be taken in the event of hazardous weather conditions.
- If work is allowed during a tornado watch, the SSHS will periodically check the NWS updated weather forecast and notify site personnel as to any changes in weather conditions.
- If a tornado warning is issued by the NWS, or a funnel cloud is seen by site personnel, the SSHS will be notified and all work will be stopped. All personnel will then evacuate the site.
- If no warning is received and a funnel cloud is fast approaching, the SSHS will notify all site personnel to seek shelter at the nearest building available. If an adequate shelter is not found, remain away from the windows and possibly under a table until the tornado has passed. If it is not possible to safely find shelter, employees should seek safety under a heavy piece of equipment that offers protection from falling debris.

Severe Weather

- Check weather forecast before arriving at the site.
- Shut-down operations in the event of lightening.
- The daily safety tailgate meeting will include specific directions about procedures to be taken in the event of hazardous weather conditions.

* * * * *

15.0 REFERENCES

ACGIH, 2003, American Conference Governmental Industrial Hygienist. *Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices.*

BMcD, 2003, Burns & McDonnell. *Burns & McDonnell Health and Safety Manual.* Intranet.

BMcD, 2003, Burns & McDonnell. *Respirator Selection Guide.* St. Paul, MN.

Forsberg & Mansdorf, 1993. *Quick Selection Guide to Chemical Protective Clothing.*

NIOSH, 2005, National Institute for Occupational Safety and Health. *Pocket Guide to Chemical Hazards.* June.

USACE, 2003, U.S. Army Corps of Engineers. *Safety and Health Requirements Manual.* EM 385-1-1, November.

* * * * *

Tables

Table 2-1a
Activity Hazard Analysis

SECTION 1

Location:	Contract Number:	Project Title:
Salina, Kansas	W912DQ-06-D-0006	OU 1 RI Addendum / FS, Former SAFB
Activity:	**Prime Contractor:**	**Subcontractor(s):**
Soil Borings / Drilling	Burns & McDonnell	Environmental Priority Service / Geocore

General description of scope of work for this activity:
Intrusive activities including direct-push soil and groundwater sampling, drilling, and monitoring well installation. Includes decontamination of sampling equipment, as well as decontamination of boring and drilling equipment.

Date of Preparatory Inspection:

Principal Steps	Potential Safety/Health Hazards	Recommended Controls
A) Utility Clearance B) Locating drill site C) Set up direct-push / drilling equipment D) Conduct direct-push / drilling	A) Slip/fall due to hazard or unstable terrain B) Personnel struck by direct-push equipment C) Exposure to contaminants D) Excessive noise due to machinery E) Heat/cold stress F) Injury due to contact with underground or overhead utilities G) Severe weather, including lightning and tornados H) Sunburn	A) Walk cautiously around site, avoiding obvious trip hazards, slippery surfaces, or walking through water. B) Avoid machinery, stay at least 1 foot away from equipment and keep loose clothing, gloves clear of equipment. C) Use PID to screen work area. Stop work and upgrade PPE if concentrations warrant a potential hazard according to the SSHP. D) Wear hearing protection if noise levels exceed 85dB. E) Follow heat/cold stress recommendations given in the SSHP. F) Locate all underground and overhead utilities and document. G) Shut down field operations if lightning occurs or stormy weather approaches. H) Wear sunscreen and protect skin from sun.

Table 2-1a (continued)
Activity Hazard Analysis

SECTION 2

ACTIVITY: Soil Borings / Drilling		
Equipment To Be Used	Inspection Requirements	Training Requirements
A) Level D - Work uniform, safety glasses, steel-toe boots, and as needed the following: hearing protection, nitrile gloves. B) PID - Photoionization detector with a 11.7 eV lamp. C) LEL/O2 meter.	A) Utility Clearance. B) Locate rig kill switch. C) Rig Inspection D) PPE Inspection.	A) HAZWOPER 40-hour initial training with 3 day supervised field training. B) HAZWOPER 8-hour refresher training within the past year (unless 40-hour was taken in the past year). C) First Aid/CPR/Bloodborne Pathogens training for two persons on site. D) Field Site Manager and Site Safety and Health Supervisor must have HAZWOPER 8-hour Supervisor Training as well as training on Heat/Cold stress.

REVIEWED BY:	APPROVED BY:
Safety Officer (signature)	
Subcontractor (signature)	Disclaimer: This AHA was prepared by the prime contractor. It will be reviewed, edited, and approved by the subcontractor prior to mobilizing to the field.

Table 2-1b
Activity Hazard Analysis

SECTION 1

Location:	Contract Number:	Project Title:
Salina, Kansas	W912DQ-06-D-0006	OU 1 RI Addendum / FS, Former SAFB
Activity:	**Prime Contractor:**	**Subcontractor(s):**
Groundwater Sampling	Burns & McDonnell	N/A

General description of scope of work for this activity:
Groundwater sampling from existing monitoring wells.

Date of Preparatory Inspection:

Principal Steps	Potential Safety/Health Hazards	Recommended Controls
A) Water Level Measurements B) Groundwater Sampling C) IDW Disposal	A) Slip/fall due to hazard or unstable terrain B) Exposure to contaminants C) Heat/cold stress D) Severe weather, including lightning and tornados E) Sunburn	A) Walk cautiously around site, avoiding obvious trip hazards, slippery surfaces, or walking through water. B) Use PID to screen work area. Stop work and upgrade PPE if concentrations warrant a potential hazard according to the SSHP. C) Follow heat/cold stress recommendations given in the SSHP. D) Shut down field operations if lightning occurs or stormy weather approaches. E) Wear sunscreen and protect skin from sun.

Table 2-1b (continued)
Activity Hazard Analysis

SECTION 2

ACTIVITY: Groundwater Sampling		
Equipment To Be Used	Inspection Requirements	Training Requirements
A) Level D - Work uniform, safety glasses, steel-toe boots, and as needed the following: hearing protection, nitrile gloves. B) PID - Photoionization detector with a 11.7 eV lamp. C) LEL/O2 meter.	A) PPE Inspection.	A) HAZWOPER 40-hour initial training with 3 day supervised field training. B) HAZWOPER 8-hour refresher training within the past year (unless 40-hour was taken in the past year). C) First Aid/CPR/Bloodborne Pathogens training for two persons on site. D) Field Site Manager and Site Safety and Health Supervisor must have HAZWOPER 8-hour Supervisor Training as well as training on Heat/Cold stress.

REVIEWED BY:	APPROVED BY:
Safety Officer (signature)	
Subcontractor (signature)	

Table 2-1c
Activity Hazard Analysis

SECTION 1

Location:	Contract Number:	Project Title:
Salina, Kansas	W912DQ-06-D-0006	OU 1 RI Addendum / FS, Former SAFB
Activity:	**Prime Contractor:**	**Subcontractor(s):**
Debris Removal	Burns & McDonnell	TBD

General description of scope of work for this activity:
Removal and disposal of steel drums and other debris (non-hazardous).

Date of Preparatory Inspection:

Principal Steps	Potential Safety/Health Hazards	Recommended Controls
A) Remove drums and other debris from soil. B) Load debris into truck. C) Disposal of debris.	A) Slip/fall due to hazard or unstable terrain B) Personnel struck by equipment C) Excessive noise due to machinery D) Heat/cold stress E) Injury due to contact with overhead utilities F) Severe weather, including lightning and tornados G) Sunburn H) Lifting hazard / back injury	A) Walk cautiously around site, avoiding obvious trip hazards, slippery surfaces, or walking through water. B) Avoid machinery, stay at least 1 foot away from equipment and keep loose clothing, gloves clear of equipment. C) Wear hearing protection if noise levels exceed 85dB. D) Follow heat/cold stress recommendations given in the SSHP. E) Locate all overhead utilities and document. F) Shut down field operations if lightning occurs or stormy weather approaches. G) Wear sunscreen and protect skin from sun. H) Get help / use safe lifting techniques

Table 2-1c (continued)
Activity Hazard Analysis

SECTION 2

ACTIVITY: Debris Removal		
Equipment To Be Used	Inspection Requirements	Training Requirements
A) Level D - Work uniform, hard hat, safety glasses, steel-toe boots, reflective safety vest, and as needed the following: hearing protection, nitrile gloves. B) PID - Photoionization detector with a 11.7 eV lamp.	A) PPE Inspection.	A) HAZWOPER 40-hour initial training with 3 day supervised field training. B) HAZWOPER 8-hour refresher training within the past year (unless 40-hour was taken in the past year). C) First Aid/CPR/Bloodborne Pathogens training for two persons on site. D) Field Site Manager and Site Safety and Health Supervisor must have HAZWOPER 8-hour Supervisor Training as well as training on Heat/Cold stress.

REVIEWED BY:	APPROVED BY:
Safety Officer (signature)	
Subcontractor (signature)	Disclaimer: This AHA was prepared by the prime contractor. It will be reviewed, edited, and approved by the subcontractor prior to mobilizing to the field.

TABLE 8-1
Threshold Limit Values Work/Warm-up Schedule for Four-Hour Shift*

Air-Temperature--Sunny Sky		No Noticeable Wind		5 mph Wind		10 mph Wind		15 mph Wind		20 mph Wind	
°C (approx.)	°F (approx.)	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks
-26° to -28°	-15° to -19°	(Norm. Breaks) 1		(Norm. Breaks) 1		75 min	2	55 min	3	40 min	4
-29° to -31°	-20° to -24°	(Norm. Breaks) 1		75 min	2	55 min	3	40 min	4	30 min	5
-32° to -34°	-25° to -29°	75 min	2	55 min	3	40 min	4	30 min	5	Non-emergency work should cease	
-35° to -37°	-30° to -34°	55 min	3	40 min	4	30 min	5	Non-emergency work should cease		Non-emergency work should cease	
-38° to -39°	-35° to -39°	40 min	4	30 min	5	Non-emergency work should cease		Non-emergency work should cease		Non-emergency work should cease	
-40° to -42°	-40° to -44°	30 min	5	Non-emergency work should cease		Non-emergency work should cease		Non-emergency work should cease		Non-emergency work should cease	
-43° & below	-45° & below	Non-emergency work should cease		Non-emergency work should cease		Non-emergency work should cease		Non-emergency work should cease		Non-emergency work should cease	

*1. Schedule applies to any 4-hour work period with moderate to heavy work activity, with warm-up periods of ten. (10) Minutes in a warm location and with an extended break (e.g., lunch) at the end of the 4-hour work period in a warm location. For Light-to-Moderate Work (limited physical movement): apply the schedule on step lower. For example, at -35°C (-30°F) with no noticeable wind (Step 4), a worker at a job with little physical movement should have a maximum work period of 40 minutes with 4 breaks in a 4-hour period (Step 5).

2. The following is suggested as a guide for estimating wind velocity if accurate information is not available: 5 mph: light flag moves; 10 mph: light flag fully extended: 15 mph: raises a newspaper sheet: 20 mph: blowing and drifting snow.

3. If only the wind chill cooling rate is available, a rough rule of thumb for applying it rather than the temperature and wind velocity factors given above would be 1) special warm-up breaks should be initiated at a wind chill cooling rate of about 1750 watts per square meter (W/m^2); 2) all non-emergency work should have ceased at or before a wind chill of 2250 W/m^2. In general, the warm-up schedule provided above slightly under-compensates for the wind at the warmer temperatures, assuming acclimatization and clothing appropriate for winter work. On the other hand, the chart slightly overcompensates for the actual temperatures in the cooler ranges because windy conditions rarely prevail at extremely low temperatures.

4. TLVs apply only for workers in dry clothing.

* Adapted from Occupational Health & Safety Division, Saskatchewan Department of Labor.

TABLE 8-2
Cooling Power of Wind on Exposed Flesh Expressed as Equivalent Temperature (under calm conditions)*

Estimated Wind Speed (mph)	Actual Temperature Reading (degrees F)											
	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
	Equivalent chill Temperature (degrees F)											
calm	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-24	-33	-46	-58	-70	-83	-95
15	36	22	9	-5	-18	-32	-45	-58	-72	-85	-99	-112
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110	-121
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-20	-35	-51	-67	-82	-98	-113	-129	-145
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-148
(Wind speeds > 40 mph have little additional effect)	LITTLE DANGER If < hr with dry skin. Maximum danger of false sense of security				INCREASING DANGER Danger from freezing of exposed flesh within one minute.			GREAT DANGER Flesh may freeze within 30 seconds.				
	Trench foot and immersion foot may occur at any point on this chart.											

* Developed by U.S. Army Research Institute of Environmental Medicine, Natick, MA

* * * * *

Figures

★ **Salina Regional Health Center**
400 S Santa Fe Ave
Salina, KS 67401, US
785-452-7000

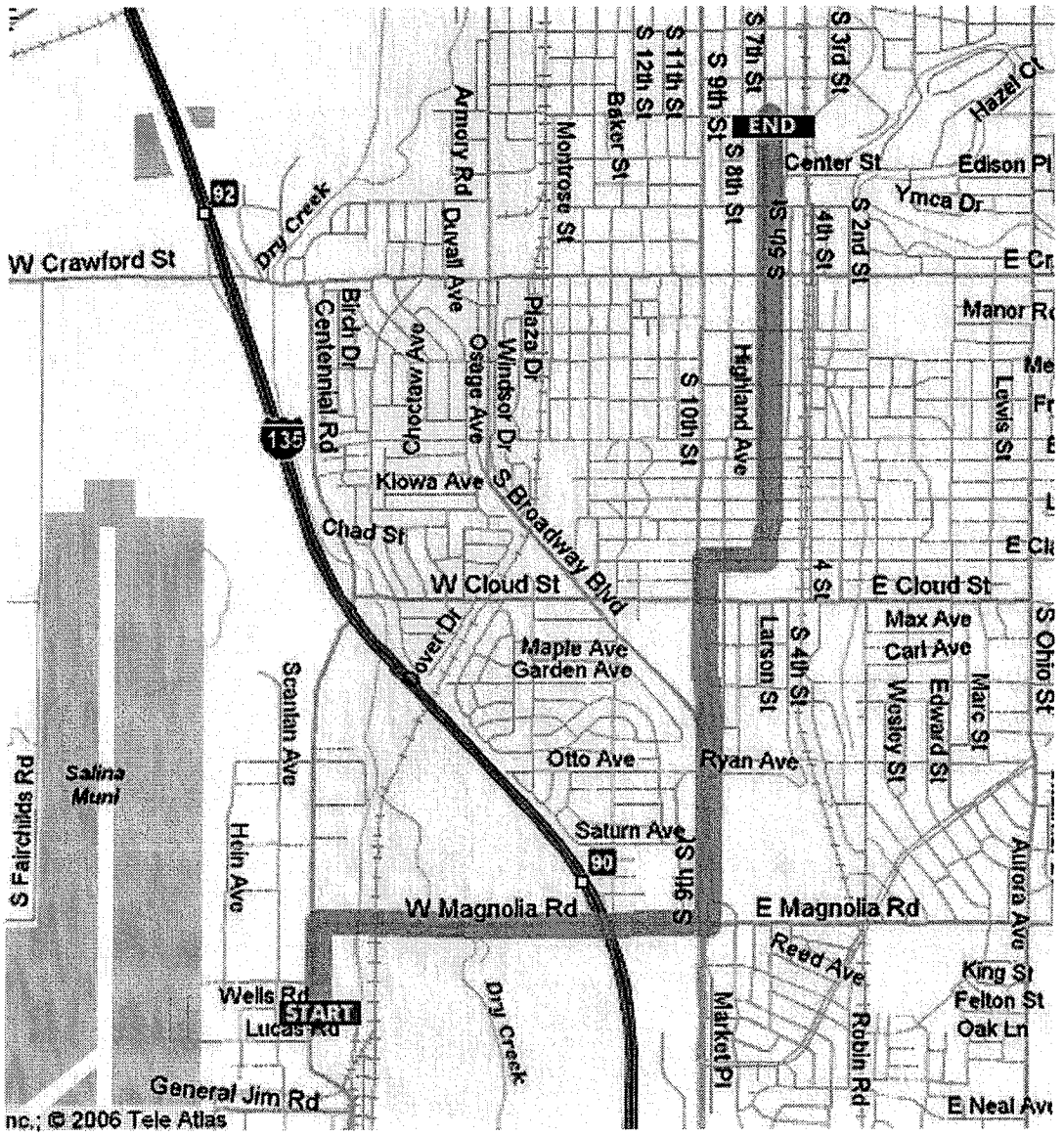

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Figure 12-1
ROUTE TO HOSPITAL
Former Schilling AFB Site
Salina, KS

★ **Salina Regional Health Center**
400 S Santa Fe Ave
Salina, KS 67401, US
785-452-7000

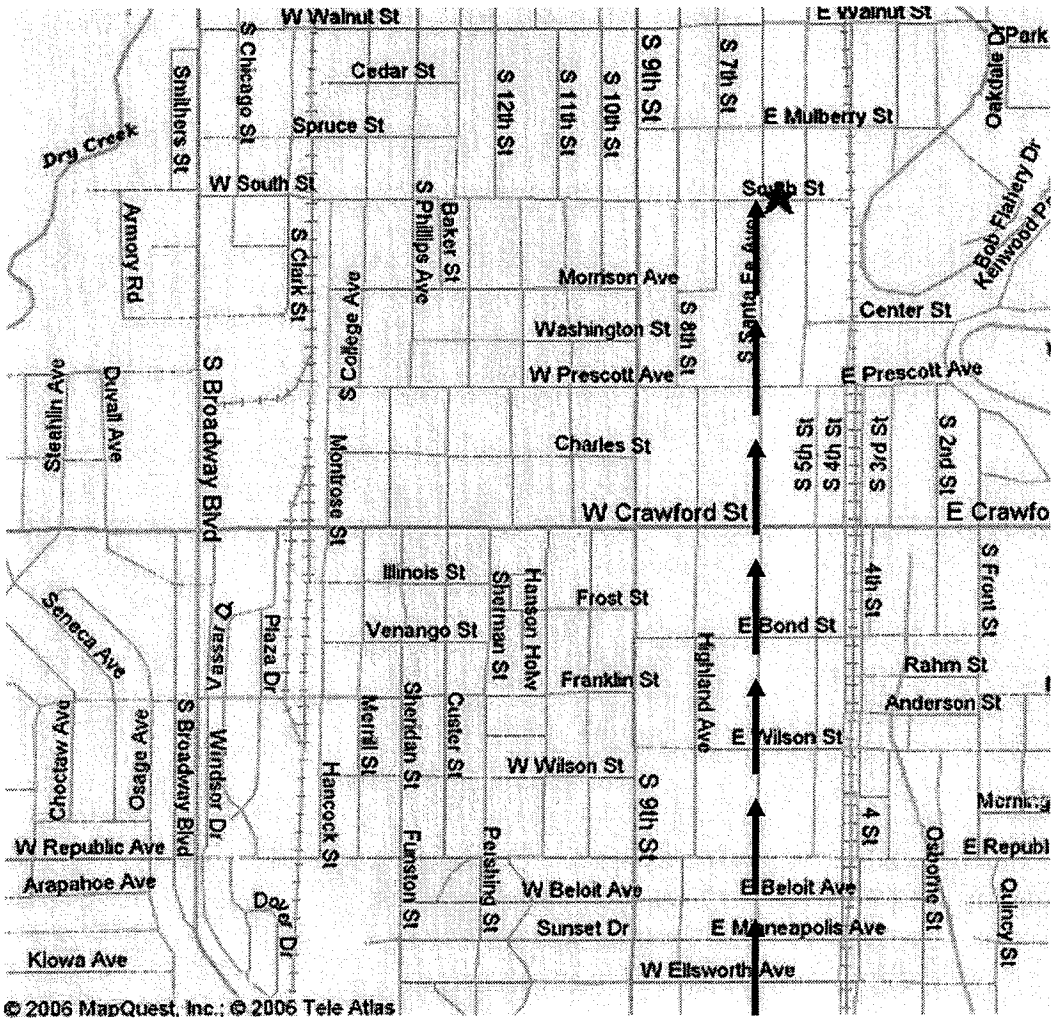

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Figure 12-2
ROUTE TO HOSPITAL
Former Schilling AFB Site
Salina, KS

Site Safety and Health Plan
For Hazardous Waste Operations -
Appendix A
Chemical Hazard Summary

Appendix A
Chemical Hazard Summary

Compound	TLV	PEL	IP	Symptoms	Maximum Detections
Vinylidene Chloride (1,1-DCE)	5 ppm	none	10.00 eV	Irritation eyes, throat, dizziness, headache, nausea, breathing difficulty; liver and kidney disturbance; pneumonitis.	Groundwater: 300 ug/L Soil: 0.030 mg/kg
1,2-Dichloroethylene (1,2-DCE)	200 ppm	TWA 200 ppm	9.65 eV	Irritation eyes, respiratory system; central nervous system depression.	Groundwater: 13,000 ug/L Soil: 150 mg/kg
Tetrachloroethylene (PCE)	25 ppm	TWA 100ppm C 200 ppm 300 ppm (5-minute maximum peak in any 3-hours)	9.32 eV	Irritation eyes, skin, nose, throat, respiratory system; nausea; flush face, neck; dizziness, incoordination; headache, drowsiness; skin redness; liver damage.	Groundwater: 70 ug/L Soil: 0.020 mg/kg
Trichloroethylene (TCE)	50 ppm	TWA 100ppm C 200 ppm 300 ppm (5-minute maximum peak in any 2-hours)	9.45 eV	Irritation eyes, skin; headache, visual disturbance, weakness, exhaustion, dizziness, tremor, drowsiness, nausea, vomiting, dermatitis; cardiac arrhythmias, paresthesia; liver damage.	Groundwater: 79,000 ug/L Soil: 0.020 mg/kg
Vinyl Choride	1 ppm	TWA 1 ppm C 5 ppm (15 minute)	9.99 eV	Weakness, exhaustion; abdominal pain, gastrointestinal bleeding; enlarged liver; pallor or cyanosis of extremities; liquid: frostbite.	Groundwater: 1,300 ug/L Soil: 0.20 mg/kg
Carbon Tetrachloride	5 ppm	TWA 10 ppm C 25 ppm 200 ppm (5 minute maximum peak in any 4 hours)	11.47 eV	Irritation eyes, skin; central nervous system depression; nausea, vomiting; liver, kidney injury; drowsiness, dizziness, incoordination.	Groundwater: 900 ug/L Soil: 0.10 mg/kg

Notes:

1. Information abstracted from NIOSH Pocket Guide.
2. Information on maximum detections taken from the Schilling data base. Approximate value provided.

C - ceiling

eV - electron volts

Appendix A
Chemical Hazard Summary

IP - ionization potential
PEL - permissible exposure limit
mg/kg - milligrams per kilogram
ppm - parts per million
TLV - threshold limit value
TWA - time weighted average
ug/L - microgram per liter

Site Safety and Health Plan
For Hazardous Waste Operations -
Appendix B
Safety and Health Forms

Form 1
Activity Hazard Analysis

SECTION 1

Location:	Contract Number:	Project Title:
Salina, Kansas	W912DQ-06-D-0006	OU 1 RI Addendum / FS, Former SAFB
Activity:	Prime Contractor:	Subcontractor(s):
	Burns & McDonnell	
General description of scope of work for this activity:		
Date of Preparatory Inspection:		

Principal Steps	Potential Safety/Health Hazards	Recommended Controls

Form 1 (continued)
Activity Hazard Analysis

SECTION 2

ACTIVITY:		
Equipment To Be Used	Inspection Requirements	Training Requirements

REVIEWED BY:	APPROVED BY:
Safety Officer (signature)	
Subcontractor (signature)	

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FORM 2
PROJECT ORIENTATION TRAINING

Project:		Sub Contractor:			
Location:		Submitted By:		Date:	
Employee Trained		**Employee #**			

Instructions: Please check the box in front of each topic as the topic is covered by the trainer.

☐ ~ Yes	☐ ~ No	Burns & McDonnell Safety Commitment					
☐ ~ Yes	☐ ~ No	Hazardous Conditions and Work Practices:					
☐ ~ Yes	☐ ~ No	Reporting and Correcting of Hazardous Conditions and Acts Procedures					
☐ ~ Yes	☐ ~ No	Violation Notification Policy					
☐ ~ Yes	☐ ~ No	Emergency Response Procedures					
☐ ~ Yes	☐ ~ No	Reporting of All Injuries/Incidents/Accidents, Including First Aid					
☐ ~ Yes	☐ ~ No	Discussion of Emergency Action/Evacuation Plans					
☐ ~ Yes	☐ ~ No	Project Disciplinary Procedures and Consequences for Unsafe Acts or Creations of Unsafe Conditions					
☐ ~ Yes	☐ ~ No	**Project Safety and Health Rules:**					
☐ ~ Yes	☐ ~ No	☐ ~ N/A	Compressed Gases	☐ ~ Yes	☐ ~ No	☐ ~ N/A	Housekeeping
☐ ~ Yes	☐ ~ No	☐ ~ N/A	Concrete/Masonry	☐ ~ Yes	☐ ~ No	☐ ~ N/A	Ladders
☐ ~ Yes	☐ ~ No	☐ ~ N/A	Confined Spaces	☐ ~ Yes	☐ ~ No	☐ ~ N/A	Material Handling
☐ ~ Yes	☐ ~ No	☐ ~ N/A	Cranes, Derricks & Hoists	☐ ~ Yes	☐ ~ No	☐ ~ N/A	Noise Exposure
☐ ~ Yes	☐ ~ No	☐ ~ N/A	Electrical Safety	☐ ~ Yes	☐ ~ No	☐ ~ N/A	Personal Protective Equipment
☐ ~ Yes	☐ ~ No	☐ ~ N/A	Excavations	☐ ~ Yes	☐ ~ No	☐ ~ N/A	Radiation (Non- and Ionizing)
☐ ~ Yes	☐ ~ No	☐ ~ N/A	Fall Protection	☐ ~ Yes	☐ ~ No	☐ ~ N/A	Rigging
☐ ~ Yes	☐ ~ No	☐ ~ N/A	Flammable & Combustible Liquids	☐ ~ Yes	☐ ~ No	☐ ~ N/A	Scaffolds & Safe Supports
☐ ~ Yes	☐ ~ No	☐ ~ N/A	Hazardous Materials	☐ ~ Yes	☐ ~ No	☐ ~ N/A	Tools
☐ ~ Yes	☐ ~ No	☐ ~ N/A	Heaters	☐ ~ Yes	☐ ~ No	☐ ~ N/A	Welding & Cutting
☐ ~ Yes	☐ ~ No	☐ ~ N/A	Other ~	☐ ~ Yes	☐ ~ No	☐ ~ N/A	Other ~
☐ ~ Yes	☐ ~ No	**Competent Person Requirements & Designation Policies**					
☐ ~ Yes	☐ ~ No	Hazard Communication Program					
☐ ~ Yes	☐ ~ No	Right-To-Know Explanation & Question Forum					
☐ ~ Yes	☐ ~ No	MSDS Location					
☐ ~ Yes	☐ ~ No	Location and Storage of Products & Hazardous Materials					
☐ ~ Yes	☐ ~ No	**Lock-Out/Tag-Out**					
☐ ~ Yes	☐ ~ No	Tagging Authority for Placing/Removing					
☐ ~ Yes	☐ ~ No	Permitting System					
☐ ~ Yes	☐ ~ No	Necessary to Have Continued Training Prior to Using Program					
☐ ~ Yes	☐ ~ No	Weekly Toolbox Meetings					
☐ ~ Yes	☐ ~ No	Viewed Posting of Employee Benefits, Emergency Numbers and Emergency Action Plan					

I understand that compliance to all project safety policies is mandatory and conditional to employment on this project. I understand that if I am in violation of any safety and health policies disciplinary action, including termination may result.

Employee's Signature	Instructor's Signature

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FORM 3
CERTIFICATION OF TRAINING

Project:		Sub Contractor:			
Location:		Submitted By:		Date:	

Check the type of training that was given and corresponding standard:		
Confined Space	☐	OSHA Confined Space Entry Standard 29 CFR 1910.146
Fall Protection	☐	OSHA Fall Protection Standard 29 CFR 1926 Subpart M or 29 CFR 1920
Forklift	☐	OSHA Standard 29 CFR 1910.178
High Voltage	☐	OSHA Electrical Power Generation, Transmission and Distribution Standard 29 CFR 1910.269
Lockout/Tagout	☐	OSHA Lockout/Tagout Standard 29 CFR 1910.147 or 29 CFR 1926.417
Respirator	☐	OSHA Respiratory Protection Standard 29 CFR 1910.134
Scaffolds	☐	OSHA Scaffold Standard 29 CFR 1926.454 and 29 CFR 1926 Subpart L
Other:	☐	

Employee Name:	Employee Name:

I certify that the signed employees either engaged in, supervising or serving as stand-bys for the noted operation have received contractor provided training in accordance with the appropriate standard.

Instructor's Signature		
	Signature	Date

_____ Date _____

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FORM 4
COMPETENT PERSON DESIGNATION

Project:		Contractor:			
Location		Submitted By:		Date:	
Designated Safety Representative:					

OSHA Standard Requirement	Applicable to Contractor		Designated Competent Person
Subpart C – General Provisions			
1926.20 General Safety	☐ ~ Yes	☐ ~ No	
Subpart D – Health and Environmental Controls			
1926.53 Ionizing Radiation	☐ ~ Yes	☐ ~ No	
1926.54 Non-ionizing Radiation	☐ ~ Yes	☐ ~ No	
1926.55 Gases, Vapors, Fumes, Dusts, Mists	☐ ~ Yes	☐ ~ No	
1926.57 Ventilation	☐ ~ Yes	☐ ~ No	
1926.59 Hazard Communication	☐ ~ Yes	☐ ~ No	
1926.62 Lead	☐ ~ Yes	☐ ~ No	
Subpart E – Personal Protective Equipment			
1926.101 Hearing	☐ ~ Yes	☐ ~ No	
1926.103 Respirator Protection	☐ ~ Yes	☐ ~ No	
Subpart H – Materials Handling, Storage			
1926.251 Rigging Equipment for Material Handling	☐ ~ Yes	☐ ~ No	
Subpart J – Welding and Cutting			
1926.354 Welding, Cutting and Heating	☐ ~ Yes	☐ ~ No	
Subpart K – Electrical			
1926.404 Wiring Design and Protection	☐ ~ Yes	☐ ~ No	
Subpart L – Scaffolding			
1926.451 Scaffolding	☐ ~ Yes	☐ ~ No	
Subpart M – Fall Protection			
1926.502 Fall Protection Criteria and Practices	☐ ~ Yes	☐ ~ No	
1926.503 Training	☐ ~ Yes	☐ ~ No	
Subpart N – Cranes, Derricks			
1926.550 Cranes and Derricks	☐ ~ Yes	☐ ~ No	
1926.552 Hoists and Elevators	☐ ~ Yes	☐ ~ No	
Subpart O – Motor Vehicles and Equipment			
1926.601 Motor Vehicles	☐ ~ Yes	☐ ~ No	
Subpart P – Excavations			
1926.651 Specific Excavation Requirements	☐ ~ Yes	☐ ~ No	
1926.652 Requirements for Protective Systems	☐ ~ Yes	☐ ~ No	

FORM 5
HAZARDOUS MATERIAL CONTROL REPORT

Contract No.		**Project Title:**	
Subcontractor Name:		**Prime Contractor:** Burns & McDonnell	
Name of Hazardous Material:			
CAS #	**Hazard Rating** (circle) (4= Most Hazardous)	**Health** 0 1 2 3 4 **Fire** 0 1 2 3 4	
Manufacturer of Material:			
Estimated Quantity to be on Site:			
MSDS Submitted for this Material?		_____Yes	_____No (Explain)
Name of Person Completing this Report: _____ Date: _____			

Project Close Out Reporting

This lower portion is to be completed at conclusion of Subcontractor Activities on the Project.

Maximum Quantity of this Material that was on Site:		
Dates Material was on Site:		
Amount Used during Project:		
Describe how Material was Used:		
Any Accidental Spills of this Material?	_____No	_____Yes (Explain)
Name of Person Completing this Close Out Reporting: _____		Date: _____

For each Hazardous Material brought on site, Subcontractor will complete this Report and Submit to Burns & McDonnell Superintendent according to Accident Prevention Plan Chapter 5.0, "Subcontractors and Suppliers".

FORM 6
ACCESS AND HAUL ROADS PLAN

Required if Subcontractor must construct any access or haul roads for the project. Submit plan to Burns & McDonnell for CO approval prior to construction of roadways.

Contract No.	**Project Title:**
Subcontractor Name:	**Prime Contractor:** Burns & McDonnell
Purpose and Location of Proposed Access/Haul Road to be Constructed:	
Describe: Planned equipment usage Traffic density Hours of Operation	
Detail road layout and widths, horizontal and vertical curve data, and sight distances.	
Describe planned sign and signal-person responsibilities, road markings, and traffic control devices:	
Describe drainage controls:	
Describe points of contact between vehicles and the public, and safety controls at these points of contact:	
Describe maintenance procedures, including roadway hardness and smoothness and dust control:	
Attach documentation as necessary to describe plan:	
Name of person completing this Report:_____ Date:_____	
Received by Burns & McDonnell on _____ by _____	
CO Approval granted by _____Date:_____	

FORM 7
CRANE OPERATIONS REPORT

Required Prior to Bringing any Crane on Site.

Subcontractor:	**Project:**
Contract No.	**Prime Contractor: Burns & McDonnell**
1. Notification Notification given to Burns & McDonnell Superintendent and to CO Contracting Officer given at least 15 days prior to bringing a crane on the site.	Notice Given? ____YES ____NO
2. Certificate of Compliance Subcontractor shall provide a Certificate of Compliance for each crane entering Base	Certificate Posted on Crane? ____YES ____NO
3. Crane Inspection Report Submit crane inspection report with daily inspection reports. (Follow EMR 385-1-1, Appendix H).	Inspection Report Complete? ____YES ____NO
4. Crane Critical Lift Plan Submit to Burns & McDonnell Superintendent for CO approval of a critical lift plan prior to lifts when crane loads meet or exceed 75 percent of the crane load capacity in any configuration.	Critical Lift Plan Necessary? ____YES ____NO Critical Lift Plan Submitted? ____YES ____NO
5. Crane Operator Training Submit to Burns & McDonnell documentation showing that crane operator has successfully completed oral, written, and performance testing and has been approved by a physician to operate a crane (see EMR 385-1-1, Appendix G)	Crane Operator Training on File? ____YES ____NO
Description of Crane:	
Crane Operator's Name	
Form Completed by:_____ Date:_____	

FORM 8
CONFINED SPACE REPORT

Submit to Burns & McDonnell prior to any confined space entry (includes entry into excavations deeper than 4 feet).

Subcontractor:	**Project:**
Contract No.	**Prime Contractor: Burns & McDonnell**
1. Location/description of confined space to be entered.	
2. Confined Space Entry Plan submitted according to Specification 01525 "Safety Requirements".	
3. Confined Space Plan approved by CO?	
3. Date and time of expected entry.	
4. Name of Subcontractor's Confined Space Competent/Qualified Person.	
5. Entry permit will be posted at the following spot during entry.	
Name of Person Completing this Notice _____ Date _____	
Burns & McDonnell Signature _____ Date _____	

FORM 9
TRENCH AND EXCAVATION REPORT

Subcontractor:	**Project:**
Contract No.	**Prime Contractor: Burns & McDonnell**

Name of Competent Excavation Person: _____

Subcontractor Excavation Plan attached to this notice? YES____NO____

Planned Start Date of Excavation _____ **Finish by**_____

Specific Location:
Sketch of Location Attached? Yes_____No_____

Trench Dimensions: Length (ft.) _____ Width (ft.) _____ Depth (ft.)

Utility Locator Service called? Yes _____No_____ Locate Number_____

When? _____Who?_____

If no, why?

Other Known Obstructions:
- a. Footings _____ c. Concrete Encasements _____
- b. Pilings _____ d. Other (Specify) _____

Precautions to be Taken:
- a. De-energize Lines _____ d. Hand Excavate_____
- b. Ground Tools _____ e. Other_____
- c. Insulate Operator _____

Soil Classification:
- a. Type A _____ c. Type C _____
- b. Type B _____ d. Solid Rock _____

Responsible party for classifying soi_____

Tests used to determine class_____

Protective System:
- a. Sloping _____ Vertical (ft.) _____ Horizontal (ft.) _____
- b. Benching _____ Vertical Cut (ft.) _____ Horizontal Cut (ft.) _____
- a. Shoring, Type:_____

Shielding, Type: _____

The above data has been checked with blueprints on file. When close clearances are indicated, hand excavation must be used to determine the exact location. Existing lines and interferences in the vicinity of work must be marked by stakes indicating location and depth prior to excavation.

Subcontractor Signature:_____ **Date:**_____

Received by Burns & McDonnell:_____ **Date:**_____

FORM 10
FALL PROTECTION REPORT

Required from each Subcontractor to be given to Burns & McDonnell Superintendent.

Subcontractor:	**Project:**
Contract No.	**Prime Contractor: Burns & McDonnell**
Does Subcontractor expect any employees to work at unprotected heights 6 feet or higher? _____Yes _____No (If no, stop here, unless conditions change)	
Name of Competent Fall Protection Person:_____	
Has Subcontractor Submitted to Burns & McDonnell Superintendent a "Fall Protection and Prevention" (FP&P) Plan? _____YES _____No Location of Plan:	
Subcontractor Completing this Report: _____ Date:_____	
Burns & McDonnell Representative: _____ Date:_____	

FORM 11
SILICA EXPOSURE REDUCTION

All Subcontractors are required to complete and submit this report to the Burns & McDonnell Superintendent.

Subcontractor:	**Project:**
Contract No.	**Prime Contractor: Burns & McDonnell**

Are any of Subcontractor's planned activities likely to encounter or release silica dust (including but not limited to saw-cutting concrete, demolition of concrete, mixing insulation/concrete materials containing free silica, sandblasting with silica sand, etc?

_____No _____Yes (Explain)

If yes, a Silica Exposure Reduction Plan must be completed by Subcontractor according to Specification Section 01525 "Safety Requirements listed in 1.5.1 (k). Exposure to free silica is known to cause silicosis of the lungs, a disabling disease.

Name of person completing this report _____ Date_____

Signature of Burns & McDonnell representative: _____ Date:_____

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FORM 12
WEEKLY TOOLBOX SAFETY TRAINING

Project:		Sub Contractor:			
Location:		Submitted By:		Date:	

Topics Covered:	

Employee Name:	Employee Name:

Instructor's Signature		
	Signature	Date

FORM 13
INCIDENT REPORT

Project: _____ Contractor: _____ Date _____

Location: _____ Submitted By: _____

Date/Time of Occurrence _____ Date/Time Reported to Contractor

Date/Time Accident Report Received: _____

Type of Incident: ☐ *Near Miss* ☐ *First Aid* ☐ *Non-Recordable Injury* ☐ *Recordable Injury*

☐ *DART* ☐ *Property Damage* ☐ *Other (Specify)*

Involved Personnel Information: Name of Employee Involved: _____

Employer: _____ Project I.D. # _____

Witness Information: Name: _____ Phone # _____

Employer: _____ Project I.D. # _____

Narrative Report: (Attach statements, photographs, report forms, etc.)

_____

_____

_____

Corrective Action: See definitions

Hazard:

Event:

Act and/or Condition:

Causes/Reasons "Why":

Steps taken:

_____

_____

_____

Designated Responsibility for Corrective Action: _____

Date/Time Corrective Action to be Completed: _____

Attachments (pgs) Signed _____ Date/Time: _____

For Burns & McDonnell Use Only.

Project Manager Signature: _____ Date/Time _____

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FORM 13
INCIDENT REPORT

Corrective Actions should encompass the following basic definitions. If you use these definitions and ask yourself **"WHY"** you will find the root cause of the incident.
Hazard: A source of danger (i.e. live electrical wiring, unguarded equipment, etc.), can consist of more than one source.
Event: Something that happens; A noteworthy Happening (i.e. slip, fall, etc.) causing an injury, or a potential injury, to an employee.
Act and/or Condition: Act: The doing of something voluntarily (i.e. walking, operating a forklift etc.) Condition: A state usually defective (i.e. equipment, facility, etc.) that should not exist.
Causes / Reasons "Why": A reason for an act or condition (i.e. no training, no inspection, etc.). A statement offered in explanation for an act or condition.

FORM 13
INCIDENT REPORT

Project Name:	**Project Number:**
Date of Incident:	**Time of Incident:**

Photo No.	
Photo Date:	
Time of Day:	
Location:	
Brief Description (Provide direction of photo)	
Photographer:	
Name:	

Photo No.	
Photo Date:	
Time of Day:	
Location:	
Brief Description (Provide direction of photo)	
Photographer:	

Name:	**Signature:**	**Date:**

FORM 14
VIOLATION NOTICE

Project:		Location			
TO:	Contractor in Violation	Date:		Time:	
Vehicle Type:		License No.:		State:	
Has Access to Site Been Denied?	☐ ~ Yes	Reason:			
	☐ ~ No	Reason:			
Violation Number:		Type of Violation:	☐ ~ Non-serious:	☐ ~ Stop Work – Imminent Danger	
			☐ ~ Serious:	☐ ~ Repeat Violation	
Location of Violation:					
Supervisor Responsible:					
Violation Description:					
atement Period:	**Date:**		**Time:**	a.m./p.m.	
Issued By:					
Standard Source	☐ ~ OSHA	☐ ~ NIOSH	☐ ~ NFPA	☐ ~ Site Safety and Health Plan	
	☐ ~ NEC	☐ ~ ANSI	☐ ~ EPA	☐ ~ Other	
Violation Notice Submitted:					
	Date	**Designated Safety and Health Representative Signature**			
	Date	**Burns & McDonnell Superintendent Signature**			
Action Performed to Abate Violation:					
Violation Corrected:	**Date:**		**Time:**	a.m./p.m.	
	Signature		Contractor		

FORM 15
WORK AREA
INSPECTION CHECKLIST

Project Name:

Project Name: _____ _____ _____

Project No. **Date** **Contractor**

_____ _____

Project Name **Inspection Conducted By**

***C** = Compliant **NC** = Non-Compliant **N/A** = Non-Applicable

Housekeeping and Sanitation	**C**	**NC**	**N/A**	**Location/Remarks**
1. General neatness of work areas	☐	☐	☐	
2. Passageways and walkways clear	☐	☐	☐	
3. Adequate lighting	☐	☐	☐	
4. Adequate water provided	☐	☐	☐	
5. Sanitary facilities furnished/maintained	☐	☐	☐	
Fall Protection	**C**	**NC**	**N/A**	**Location/Remarks**
1. General trades - 6 foot fall rule applies	☐	☐	☐	
2. Employees tied to adequate anchorage points	☐	☐	☐	
3. Harness/lanyards in good condition	☐	☐	☐	
4. Standard guardrails in compliance	☐	☐	☐	
5. Openings to lower level properly guarded	☐	☐	☐	
6. Floor opening covered, secured and marked	☐	☐	☐	
Electrical Installations	**C**	**NC**	**N/A**	**Location/Remarks**
1. Temporary wiring systems installed/protected	☐	☐	☐	
2. Covers installed on "hot" panels	☐	☐	☐	
3. Electrical danger signs posted	☐	☐	☐	
4. Proper lockout/tagout procedures used	☐	☐	☐	
5. GFCI protection used	☐	☐	☐	
6. Extension cords in good condition	☐	☐	☐	
7. Extension cords routed to eliminate trip hazards	☐	☐	☐	
8. Temporary lighting bulbs protected	☐	☐	☐	
9. Temporary outlets not overloaded	☐	☐	☐	
Trenching and Excavation	**C**	**NC**	**N/A**	**Location/Remarks**
1. One call made for location of existing utilities	☐	☐	☐	
2. Utilities have been identified	☐	☐	☐	
3. Competent person performs daily inspections	☐	☐	☐	
4. Proper slope/bench/shoring if 5 feet or deeper	☐	☐	☐	
5. Proper access/egress provided if 4 feet or deeper	☐	☐	☐	
6. Access/egress points within 25 feet of employees	☐	☐	☐	
7. Adequate barricades in place	☐	☐	☐	
8. Stop logs/warning system in place for vehicles	☐	☐	☐	
9. Spoil pile back at least 2 feet from excavation edge	☐	☐	☐	
Scaffolding	**C**	**NC**	**N/A**	**Location/Remarks**
1. Competent person onsite	☐	☐	☐	
2. Scaffold tagged/inspected by competent person	☐	☐	☐	
3. Guardrails/toe boards on scaffold over 10 feet	☐	☐	☐	
4. Ladder provided for access to scaffold platform	☐	☐	☐	
5. Platform is fully decked and is of scaffold grade	☐	☐	☐	
6. Scaffold free of visible damage	☐	☐	☐	
7. All pins/braces in place and locked	☐	☐	☐	
8. Wheels locked on rolling scaffolds when in use	☐	☐	☐	
9. Scaffold erected on firm and substantial surface	☐	☐	☐	
Motor Vehicles/Earth Moving Equipment	**C**	**NC**	**N/A**	**Location/Remarks**
1. Alarm/spotter if obstructed view to the rear	☐	☐	☐	
2. Seatbelts being worn	☐	☐	☐	
3. Bi-directional machines have operative horn	☐	☐	☐	
Crane and Rigging Safety	**C**	**NC**	**N/A**	**Location/Remarks**

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FORM 15
WORK AREA
INSPECTION CHECKLIST

1. At least 10 foot clearance (electric lines 50 kV or less)	☐	☐	☐	
2. Outriggers properly placed and used for all lifts	☐	☐	☐	
3. Matting placed under each outrigger float	☐	☐	☐	
4. Documented inspections (annual/monthly/daily)	☐	☐	☐	
5. Load capacity chart posted in cab of crane	☐	☐	☐	
6. Proper barricade around swing radius of crane	☐	☐	☐	
7. Slings, hooks, and chokers are in good condition	☐	☐	☐	
8. Signal person used when crane is moved	☐	☐	☐	
9. Employees not under suspended loads	☐	☐	☐	
Aerial Lifts	**C**	**NC**	**N/A**	**Location/Remarks**
1. Employees standing firmly on platform floor	☐	☐	☐	
2. Harnesses/lanyard worn in articulating lifts	☐	☐	☐	
3. Lanyard attached to anchorage point inside lift	☐	☐	☐	
4. At least 10 foot clearance (electric lines 50 kV or less)	☐	☐	☐	
Personal Protective Equipment	**C**	**NC**	**N/A**	**Location/Remarks**
1. Eye protection worn at all times (100%)	☐	☐	☐	
2. Head protection worn at all times (100%)	☐	☐	☐	
3. Hearing protection worn in designated areas	☐	☐	☐	
4. Face shield and safety glasses worn when grinding	☐	☐	☐	
5. Respirators worn only with Safety Dept. approval	☐	☐	☐	
6. Suitable filter lenses worn when welding/cutting	☐	☐	☐	
7. Eye protection worn under welding hood	☐	☐	☐	
Hand and Power Tools	**C**	**NC**	**N/A**	**Location/Remarks**
1. Proper use of tool	☐	☐	☐	
2. No visible physical damage to the tool	☐	☐	☐	
3. Cord not damaged and ground pin in place	☐	☐	☐	
4. GFCI protection used	☐	☐	☐	
5. Proper shields and guards in place	☐	☐	☐	
6. Certification for power actuated tool operation	☐	☐	☐	
7. Safety clips/pins in place on air hose connections	☐	☐	☐	
8. Proper PPE is being used	☐	☐	☐	
Manual Material Handling	**C**	**NC**	**N/A**	**Location/Remarks**
1. Mechanical lifts used when practical	☐	☐	☐	
2. Material stage to minimize lifting and carrying	☐	☐	☐	
3. Rigging equipment in good condition	☐	☐	☐	
Fire Prevention and Protection	**C**	**NC**	**N/A**	**Location/Remarks**
1. Work location within (100 feet) of fire extinguisher	☐	☐	☐	
2. Access to fire extinguisher is not blocked	☐	☐	☐	
3. Fire extinguishers fully charged and inspected	☐	☐	☐	
4. Heaters are a safe distance from combustibles	☐	☐	☐	
5. Employees observing "NO SMOKING" signs	☐	☐	☐	
6. Company hot work permit issued when required	☐	☐	☐	
Flammable Gas and Liquid	**C**	**NC**	**N/A**	**Location/Remarks**
1. All containers clearly identified	☐	☐	☐	
2. Flammable liquids stored in approved containers	☐	☐	☐	
3. Proper storage practices for flammables observed	☐	☐	☐	
4. Oxygen cylinders 20 feet from fuel gas cylinders	☐	☐	☐	
5. Petroleum products 20 feet from compressed gases	☐	☐	☐	
6. Cylinders secured upright/capped when not in use	☐	☐	☐	
7. Cylinders are labeled as either "empty" or "full"	☐	☐	☐	
8. LP cylinders are not stored in buildings	☐	☐	☐	
Welding and Burning Operations	**C**	**NC**	**N/A**	**Location/Remarks**
1. Hot work permit completed if required	☐	☐	☐	
2. Combustibles removed/covered by fire blankets	☐	☐	☐	
3. Fire watch present with extinguisher when required	☐	☐	☐	
4. Welding screen used when required	☐	☐	☐	

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FORM 15
WORK AREA
INSPECTION CHECKLIST

5. Welding goggles, gloves, and clothing being worn	☐	☐	☐	
6. Areas inspected for fire hazards after welding stops	☐	☐	☐	
7. Welding machines are grounded with GFCIs	☐	☐	☐	
Ladders	**C**	**NC**	**N/A**	**Location/Remarks**
1. Ladders are in good condition	☐	☐	☐	
2. Safety shoes/cleats on bottom of ladders	☐	☐	☐	
3. Non-conductive ladders available around live wires	☐	☐	☐	
4. Ladders tied off at the top or otherwise secured	☐	☐	☐	
5. Side rails extend 36 inches above top landing	☐	☐	☐	
6. Step ladders are used in the fully open position	☐	☐	☐	
Work Zone	**C**	**NC**	**N/A**	**Location/Remarks**
1. Signs in good condition/non-conflicting/clear view/proper position	☐	☐	☐	
2. Message sign - appropriate message/proper position	☐	☐	☐	
3. Arrow panel - auto dim/bulbs out/proper placement	☐	☐	☐	
4. TCDs in good condition/proper number and spacing/proper taper length	☐	☐	☐	
5. Flaggers certified/visible/properly positioned/ flagging correctly/advanced warning signs	☐	☐	☐	
6. Impact attenuator properly positioned/maintained	☐	☐	☐	
7. Pavement markings - remove/repair/need additional	☐	☐	☐	
8. Misc. - adequate buffer/material and equipment properly stored/work area protected/evidence of accidents	☐	☐	☐	
Environmental	**C**	**NC**	**N/A**	**Location/Remarks**
Secondary containment systems				
1. Capable of containing 110 percent of volume of tank	☐	☐	☐	
2. Storm water properly disposed	☐	☐	☐	
Aboveground storage tanks				
1. Spill kit available	☐	☐	☐	
2. Fire extinguisher	☐	☐	☐	
3. More than 20 feet from buildings	☐	☐	☐	
Truck-mounted auxiliary tanks				
1. Spill-kit/extinguisher located on truck	☐	☐	☐	
Concrete and Masonry	**C**	**NC**	**N/A**	**Location/Remarks**
1. Protruding rebar guarded or protected	☐	☐	☐	
2. PPE provided for employees	☐	☐	☐	
3. Powered/rotating trowels equipped with dead man switch	☐	☐	☐	
4. Compressed air concrete pumping hoses equipped with joint connectors	☐	☐	☐	
5. Non-conductive bull float handles used where electrical exposure might occur	☐	☐	☐	
6. Shoring erected per drawings and inspected before/during/after concrete placement	☐	☐	☐	
7. Formwork not removed until concrete has gained sufficient strength	☐	☐	☐	
8. Precast concrete sections adequately supported until permanent connections are made	☐	☐	☐	
9. Embedded lifting inserts capable of supporting 2 times maximum load	☐	☐	☐	
10. Lifting hardware capable of supporting 5 times maximum intended load	☐	☐	☐	
11. Restricted employee access under precast concrete members	☐	☐	☐	
12. Limited access zone established for masonry wall construction	☐	☐	☐	
13. Masonry walls over 8 foot adequately braced	☐	☐	☐	

FORM 16
MONTHLY EXPOSURE REPORT

Project Name:
Contract No.
Prime Contractor: **Burns & McDonnell**
Month: _____
Submitted by: _____

Manhours Reported: _____

Manhours to Date: _____

Loss Time Accidents: _____

Death/Serious Injuries: _____

Recordable Injuries: _____

Non-Recordable Injuries: _____

Equipment Involved Incidents:_____

First Aid Cases: _____

Signature: _____ Date: _____

FORM 17
SAFETY PERFORMANCE REPORT

Construction Group
Date: _____

To:_____ _____ _____ _____
Operations Manager Division Department Section

From:_____
Safety Manager

Re: Performance of _____ on _____
Employee Project

Describe employee's responsibility or discipline:

Rate employee's performance on project:

Key: 5 = Outstanding 4 = Commendable 3 = Acceptable 2 = Needs Improvement 1 = Unsatisfactory

5 4 3 2 1

Assures Subcontractor has initiated proactive safety measures

Understanding of BMcD, client and federal safety requirements

Leads by example by following site safety requirements

Exercises duty of care when safety issues are found with Subcontractor

Regularly emphasizes safety with staff and Subcontractors (i.e. at weekly coordination meetings)

Addresses necessary documentation of Subcontractor safety activities

Obtained the required safety training in due time frame (i.e. orientation, 10-hour)

Overall Performance

Future Assignments:

I would specifically request that I be assigned to projects with this employee.

I would be pleased if I was assigned to a project with this employee.

I would specifically request that I not be assigned to projects with this employee.

Additional Comments:

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FORM 18
PROJECT SAFETY & HEALTH ASSESSMENT

Project: Project No.: Date:

ITEM	YES	NO	N / A	COMMENTS	Abatement Date	Date of Correction	Initial
Incident / Accident Prevention Program							
1. Site Safety & Health Plan electronically	☐	☐	☐				
2. Hard copies of BMcD S&H Manuals and others as needed	☐	☐	☐				
3. Contract Language for BMcD and Subcontractors	☐	☐	☐				
4. Disciplinary Action Program active	☐	☐	☐				
5. Off the Job Injury Program active	☐	☐	☐				
6. Safety Recognition Program	☐	☐	☐				
Self-Assessment Program							
1. Written Plan / Procedure Active	☐	☐	☐				
2. Documentation of Assessments	☐	☐	☐				
3. Documentation of Corrections	☐	☐	☐				
4. Assessment findings communicated with BMcD personnel and all subcontractors	☐	☐	☐				
Process Safety Management							
1. Procedure to Control Access to Process Areas	☐	☐	☐				
2. Client Emergency Plan reviewed	☐	☐	☐				
3. Documented safe work practices training	☐	☐	☐				
4. Verification of understanding	☐	☐	☐				
5. Review with Client of hazards created by construction activities	☐	☐	☐				
Confined Space Procedure							

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FORM 18
PROJECT SAFETY & HEALTH ASSESSMENT

Project: Project No.: Date:

ITEM	YES	NO	N / A	COMMENTS	Abatement Date	Date of Correction	Initial
1. Written program	☐	☐	☐				
2. Confined Space Awareness Training	☐	☐	☐				
3. Entrant, Attendant & Entry Supv. Training	☐	☐	☐				
4. Training verification method	☐	☐	☐				
5. Rescuer training / annual drill	☐	☐	☐				
6. Rescuer medical qualifications	☐	☐	☐				
7. Retrieval systems available	☐	☐	☐				
8. Atmospheric monitoring equipment bump tests and documented	☐	☐	☐				
9. Atmospheric monitoring	☐	☐	☐				
10. Ventilation adequate and verified	☐	☐	☐				
11. Lighting / Electrical (GFCI / Low Voltage)	☐	☐	☐				
12. Permits adequate (Posted / Filed)	☐	☐	☐				
Safety Training / Education							
1. Site Specific Safety & Health Orientation	☐	☐	☐				
2. Orientation for Visitors / Vendors	☐	☐	☐				
3. Safety meetings for BMcD / Subcontractors	☐	☐	☐				
4. Preparation of safety meeting agendas	☐	☐	☐				
5. Job Hazard Analysis (JHA)	☐	☐	☐				
6. Pre-Task Analysis (PTA)	☐	☐	☐				
7. Basic Electrical Safety	☐	☐	☐				
8. Energy Isolation (LO/TO)	☐	☐	☐				

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FORM 18
PROJECT SAFETY & HEALTH ASSESSMENT

Project: Project No.: Date:

ITEM	YES	NO	N / A	COMMENTS	Abatement Date	Date of Correction	Initial
9. Fall protection	☐	☐	☐				
10. Fire extinguisher	☐	☐	☐				
11. Drinking water container cleaning procedure	☐	☐	☐				
12. Hazard Communication (Right to Know)	☐	☐	☐				
13. Hazard Recognition (Supv.)	☐	☐	☐				
14. Client / Govt. Regulations (Supv.)	☐	☐	☐				
15. Incident / Accident Investigation (Supv.)	☐	☐	☐				
16. Regularly scheduled supervisor's training	☐	☐	☐				
17. OSHA 10 hour training for supervisors	☐	☐	☐				
18. Media Information Policies (Supv.)	☐	☐	☐				
Medical Facilities							
1. First aid kits / supplies / disposal as required	☐	☐	☐				
2. Qualified first aid attendant identified	☐	☐	☐				
3. Injury Management set-up (Project Physician)	☐	☐	☐				
4. Blood borne pathogens training	☐	☐	☐				
Incident / Accident Investigations							
1. Near-miss investigations conducted	☐	☐	☐				
2. First aid investigation conducted	☐	☐	☐				
3. DART investigation procedures	☐	☐	☐				
4. Fatality / Catastrophe procedures	☐	☐	☐				
5. All investigations reviewed with Site Management (BMcD / Subcontractors)	☐	☐	☐				

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FORM 18
PROJECT SAFETY & HEALTH ASSESSMENT

Project: Project No.: Date:

ITEM	YES	NO	N / A	COMMENTS	Abatement Date	Date of Correction	Initial
Recordkeeping / Documented Daily / Monthly / Annual Inspections							
1. First Aid Log	☐	☐	☐				
2. OSHA 300 / 300 A / 301 Log	☐	☐	☐				
3. Company / Client / Govt. Reports	☐	☐	☐				
4. Loss Management Monthly Summary (LMMS)	☐	☐	☐				
5. Company / Federal / State Posting adequate	☐	☐	☐				
6. Attendance rosters for safety meetings	☐	☐	☐				
7. Competent Person Log (BMcD / Subcontractors)	☐	☐	☐				
8. Daily excavation inspection	☐	☐	☐				
9. Portable electrical tools	☐	☐	☐				
10. Steel Erection Requirements	☐	☐	☐				
11. Rigging: Come-alongs / chain-falls / chokers / slings / wire ropes	☐	☐	☐				
12. Portable welding machines	☐	☐	☐				
13. Heavy Equipment Inspections	☐	☐	☐				
14. Crawler cranes (3rd party annual inspection)	☐	☐	☐				
15. Mobile cranes (3rd party annual inspection)	☐	☐	☐				
16. Critical lift plans (20 tons / two crane pick / lifts over operating systems)	☐	☐	☐				
17. Monthly Crane Inspections	☐	☐	☐				
18. Overhead hoists	☐	☐	☐				

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PROJECT SAFETY & HEALTH ASSESSMENT

Project: Project No.: Date:

ITEM	YES	NO	N / A	COMMENTS	Abatement Date	Date of Correction	Initial
19. Drum hoists	☐	☐	☐				
20. Fall protection equipment	☐	☐	☐				
21. Suspension scaffolds	☐	☐	☐				
22. Ladders / scaffolds	☐	☐	☐				
23. Torch sets	☐	☐	☐				
24. Powered industrial trucks (fork lifts)	☐	☐	☐				
25. Aerial lifts	☐	☐	☐				
26. Emergency respiratory equipment	☐	☐	☐				
27. Fire extinguishers (Monthly / Annual)	☐	☐	☐				
28. Daily Work Area Checklist with corrective actions documented	☐	☐	☐				
Work Permits / Procedures							
1. Safe Work / System Entry	☐	☐	☐				
2. Cold Work / Hot Work Permits	☐	☐	☐				
3. Confined Space Entry	☐	☐	☐				
4. Energy isolation (LO/TO)	☐	☐	☐				
5. Excavation	☐	☐	☐				
Emergency Evacuation and Response							
1. Written plan identifying all elements	☐	☐	☐				
2. Alarms / Signals posted	☐	☐	☐				
3. Employee training documented	☐	☐	☐				
Respiratory Protection Program							

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FORM 18
PROJECT SAFETY & HEALTH ASSESSMENT

Project: Project No.: Date:

ITEM	YES	NO	N / A	COMMENTS	Abatement Date	Date of Correction	Initial
1. Written site specific program	☐	☐	☐				
2. Annual training	☐	☐	☐				
3. Fit testing	☐	☐	☐				
4. Maintenance / storage records	☐	☐	☐				
5. Filter cartridge identification method	☐	☐	☐				
6. Pulmonary function tests / emp. Notification	☐	☐	☐				
Hearing Conservation Program							
1. Noise survey of areas / operations	☐	☐	☐				
2. Annual training	☐	☐	☐				
3. Audiometric test / employee notification	☐	☐	☐				
4. Warning signs / method	☐	☐	☐				
Fire Protection and Prevention							
1. Written program	☐	☐	☐				
2. Fire extinguishers adequate	☐	☐	☐				
3. Warning signs adequate	☐	☐	☐				
4. Emergency communication system	☐	☐	☐				
5. "Exit" and "Not an Exit" signs posted	☐	☐	☐				
Electrical Safety							
1. Written Energy Isolation (LO/TO) program	☐	☐	☐				
2. Annual Energy Isolation (LO/TO) evaluation	☐	☐	☐				
3. Written Assured Grounding Program	☐	☐	☐				
4. Adequate access to electrical panels	☐	☐	☐				

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FORM 18
PROJECT SAFETY & HEALTH ASSESSMENT

Project: Project No.: Date:

ITEM	YES	NO	N / A	COMMENTS	Abatement Date	Date of Correction	Initial
5. Electrical panels properly labeled	☐	☐	☐				
6. Construction power properly grounded	☐	☐	☐				
Hazard Communication Program							
1. Written program	☐	☐	☐				
2. MSDS's and Chemical Inventory for all hazardous materials by Subcontractor	☐	☐	☐				
3. Chemical specific training	☐	☐	☐				
4. Container / secondary container labeling	☐	☐	☐				
Asbestos Program							
1. Written program / procedures	☐	☐	☐				
2. Annual awareness training	☐	☐	☐				
3. Competent person	☐	☐	☐				
4. Protective equipment	☐	☐	☐				
5. Personal / area monitoring	☐	☐	☐				
6. Medical surveillance records	☐	☐	☐				
7. Signs / labels	☐	☐	☐				
8. Disposal responsibility / procedures	☐	☐	☐				
9. Government notification	☐	☐	☐				
10. Decontamination facility	☐	☐	☐				
11. Recordkeeping	☐	☐	☐				
Powered Industrial Trucks							
1. Operator training / authorization (certifications required)	☐	☐	☐				

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FORM 18
PROJECT SAFETY & HEALTH ASSESSMENT

Project: Project No.: Date:

ITEM	YES	NO	N / A	COMMENTS	Abatement Date	Date of Correction	Initial
2. Seat belts present and working	☐	☐	☐				
3. Controls clearly marked	☐	☐	☐				
4. Back-up / motion alarms in place and can be heard	☐	☐	☐				
Aerial Lifts							
1. Operator training / authorization (certifications required	☐	☐	☐				
2. Controls clearly marked	☐	☐	☐				
3. Back-up / motion alarms in place and can be heard	☐	☐	☐				
Mobile / Crawler Cranes							
1. Qualified operators / competent persons	☐	☐	☐				
2. Back-up / motion alarms in place and can be heard	☐	☐	☐				
3. Posted hand signals	☐	☐	☐				
4. Load charts in crane	☐	☐	☐				
5. Positive anti-two block device(s) in place and working	☐	☐	☐				
6. Outrigger pads proper size for crane capacity	☐	☐	☐				
7. Swing radius barricading system	☐	☐	☐				
8. Fire extinguisher	☐	☐	☐				
Powder Actuated Tools							
1. Operation training / authorization	☐	☐	☐				
2. Proper storage	☐	☐	☐				

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PROJECT SAFETY & HEALTH ASSESSMENT

Project: Project No.: Date:

ITEM	YES	NO	N / A	COMMENTS	Abatement Date	Date of Correction	Initial
3. Documentation of usage	☐	☐	☐				
Excavation / Trenching							
1. Proper slopping / benching / shoring	☐	☐	☐				
2. Proper access and egress	☐	☐	☐				
3. Competent person inspections posted	☐	☐	☐				
4. Trenches 4' and deeper classified as C/S	☐	☐	☐				
5. Engineered / PE stamped specifications where required (20' and greater)	☐	☐	☐				
Ladders							
1. Properly stored when not in use	☐	☐	☐				
2. Proper angles and secured when in use	☐	☐	☐				
3. Proper feet on all ladders	☐	☐	☐				
Scaffolds							
1. Proper access and egress	☐	☐	☐				
2. Scaffold grade material used for all scaffolds	☐	☐	☐				
3. Tagging system for all scaffolds	☐	☐	☐				
4. Competent persons (Supv.) inspections	☐	☐	☐				
5. Qualified erection personnel	☐	☐	☐				
Personnel Basket (Crane Basket)							
1. Written procedure	☐	☐	☐				
2. Anti-two block system	☐	☐	☐				
3. Training / pre-lift meeting documented	☐	☐	☐				

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FORM 18
PROJECT SAFETY & HEALTH ASSESSMENT

Project: Project No.: Date:

ITEM	YES	NO	N / A	COMMENTS	Abatement Date	Date of Correction	Initial
4. Documented load test / dry run	☐	☐	☐				
5. Basket weight and capacity posted	☐	☐	☐				
6. Engineer's design and stamp	☐	☐	☐				
Chemical Specific Training Program							
1. Benzene	☐	☐	☐				
2. Vinyl chloride	☐	☐	☐				
3. Lead	☐	☐	☐				
4. Ethylene oxide	☐	☐	☐				
5. Hazardous waste	☐	☐	☐				
6. Other	☐	☐	☐				
7. Written program(s)	☐	☐	☐				
8. Personal monitoring / notification	☐	☐	☐				
9. Medical surveillance / notification	☐	☐	☐				
Safety & Health Committee							
1. Written charter / procedure	☐	☐	☐				
2. Responsibilities identified	☐	☐	☐				
3. Documented committee inspections	☐	☐	☐				
4. Documented corrective actions	☐	☐	☐				
5. Documented communication process	☐	☐	☐				
Housekeeping / Sanitation							
1. Project housekeeping measures in place	☐	☐	☐				

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FORM 18
PROJECT SAFETY & HEALTH ASSESSMENT

Project: Project No.: Date:

ITEM	YES	NO	N / A	COMMENTS	Abatement Date	Date of Correction	Initial
and active (daily basis)							
2. Dumpsters / trash receptacles available on site	☐	☐	☐				
3. Written procedure / potable water cans	☐	☐	☐				
4. Drinking water container cleaning station and supplies maintained	☐	☐	☐				
5. Non-potable water stations clearly marked	☐	☐	☐				
6. Toilet facilities / hand washing stations adequate for project population	☐	☐	☐				
7. Toilet facilities cleaned on a regular basis and service documented	☐	☐	☐				
8. Insect and vermin control maintained	☐	☐	☐				
9. Eating facilities sanitary and cleaned on a daily basis	☐	☐	☐				
Transportation (on site / off site)							
1. Annual vehicle inspection reports / decals	☐	☐	☐				
2. Systematic vehicle inspection	☐	☐	☐				
3. Only licensed personnel operating (trucks / cars)	☐	☐	☐				

FORM 19
WEEKLY SUBCONTRACTOR SAFETY REPORT

Activities for Week of _____
(Submit Weekly to Burns & McDonnell Superintendent)

Project Name:	**Subcontractor:**		
Contract No.	**Prime Contractor: Burns & McDonnell**		
Form Number and Title	**Applicable: Yes/No & Date:**	**Date plan submitted to Burns & McDonnell**	**Changes needed to original Submital?**
1. Contractor's Activity Hazard Analysis Submitted/approved			
2. New Employee Indoctrination for all employees			
3. Certification of Training for all employees			
4. Competent Person Designation Form			
5. Hazardous Material Control Report			
6. Access and Haul Roads Plan			
7. Crane Operations Report			
8. Confined Space Report			
9. Fall Protection Plan			
10.Trench and Excavation Report			
11.Fall Protection Report			
12.Silica Exposure Report			
13.Hazardous Energy Control Plan			
14.Weekly Safety Training Report			
15.Incident Report			
16.Safety/health Violation Report			

Subcontractor's Signature Completing Form _____ Date:_____
Burns & McDonnell Safety Officer Signature _____ Date:_____

Amended by _____ Date:_____

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FORM 20
AHA LOG

Section	Definable Feature of Work	Subcontractor(s) Responsible for AHA	Anticipated Date to Start Work	AHA Submittal Date	CO Approved Date

FORM 21
SUBCONTRACTOR
VERIFICATION FORM

This Project Safety and Health Program has been prepared for the exclusive use of the_____ project while under control of Burns & McDonnell.

Project Name:	
Project Location:	
Project Number:	

Subcontractor Executive Management Designate:	
Subcontractor President:	
Subcontractor Designated Safety Representative:	

Subcontractor Verification:

I have reviewed the Burns & McDonnell Project Safety and Health Program and I hereby understand all terms and requirements set forth in the Project Safety and Health Manual. Furthermore, the work practices and requirements outlined in the Project Safety and Health Manual will be the minimum requirements implemented and utilized during all construction activities.

Company	Project Manager	Date

Subcontractor Safety & Health Program Statement

	company is adopting the Burns & McDonnell Project Safety & Health Rules

(Section 6.0 of Project Safety and Health Program) as own for the _____ Project.

By signing this agreement, I acknowledge the understanding of all requirements and obligations stated in the Burns & McDonnell Project Safety & Health Program and the | company has the resources necessary to carry out such functions for the _____ Project.

Project Manager and/or President	Date

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FOR 22

PRE-TASK ANALYSIS (PTA)

The PTA shall be completed daily by the front line supervisor for each major work task. Each employee involved in the task shall sign the PTA. At the end of the task, turn this form in to your company's on-site safety representative or the Burns & McDonnell safety department. If deviation from known safe work practice/procedure occurs, work must be stopped immediately.

Supervisor: _____

Company Name: _____

Project Name:

Job# _____ Date: _____

Job Location: _____

Task Description: _____

JHA # _____ Wind Direction: _____

Primary DAP: _____ Secondary DAP: _____

Safety Shower / Eye Wash Location: _____

Does task require special training? Yes ☐ No ☐

If yes, what type? _____

Personal Protective Equipment Required

	Yes	No	Type
Fall Protection	☐	☐	_____
Body Harness, lifelines, barricades, other (specify)			
Eye/Face	☐	☐	_____
Mono goggles, face shield, hood, other (specify)			
Respirator	☐	☐	
SCBA, Supplied Air, HEPA, Dust, other (specify)			
Foot Protection	☐	☐	_____
Safety shoes, rubber boots, other (specify)			
Hand Protection	☐	☐	
Leather, chemical, gauntlets, other (specify)			
Clothing	☐	☐	
Coveralls, welding shield, sleeves, rain suit, FRC, disposable reflective vest, other (specify)			

Procedures/Programs Required	Yes	No
Hot Work	☐	☐
LOTO	☐	☐
Trenching/Excavation	☐	☐
Signs/Barricades	☐	☐
Confined Space	☐	☐
Cranes/Critical Lifts	☐	☐
Line Breaking	☐	☐
Hot Tapping	☐	☐
Scaffolds	☐	☐
System Testing	☐	☐
Other (Specify)		

_____

Employee Certification Required	Yes	No
Crane Operator	☐	☐
Forklift Operator	☐	☐
Mobile Equipment Operator	☐	☐
Power Actuated Tool User	☐	☐
Competent Person (Lead, Asbestos, Excavations, Confined Space, Hazardous Materials Scaffolds)	☐	☐
Other (Specify) _____		

General Information

	Yes	N/A
Was the Safety Department involved in the planning of this job?	☐	☐
Have the weather conditions been considered for the task?	☐	☐

	Yes	N/A
Scaffolds are inspected and tagged?	☐	☐
Have employees been trained on the Activity/Job Hazard Analysis?	☐	☐
Is a fire watch or confined space attendant required for operation?	☐	☐
Are flammable/ combustible materials stored, separated, inspected, and secured per procedure?	☐	☐
Communication plans in place	☐	☐
Have areas been identified that require fall protection systems? (i.e., barricades, static lines, hole covers, etc.)	☐	☐
Are fall protection systems installed?	☐	☐
Are housekeeping practices in place?	☐	☐

CONTRACTOR SAFETY PROGRAM

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FOR 22
PRE-TASK ANALYSIS (PTA)

List all hazards associated with this task!

What will be done to eliminate/control above hazards?

Front Line Supervisor's Signature Date

Superintendent Signature Date

Involved Crew Members

Name	Badge #

RETURN TO SAFETY DEPARTMENT

POST SAFETY TASK ASSIGNMENT

1. Was anyone injured or did an unplanned incident occur today?
If yes, explain.

YES ☐ NO ☐

2. Was the injury or incident reported to the safety department?

YES ☐ NO ☐ N/A ☐

3. What problems did you have with today's work assignment?

4. What can we do tomorrow to improve performance?

FORM 23
AMENDEMENT FORM

Project Name: _____ Amendment Number:

Project Number: _____ Amendment Effective Date:

Location:

Changes in field activities or hazards:

Proposed Amendment:

Proposed By: _____ Date:
Site Safety and Health Supervisor

Approved By: _____ Date:
Project Manager

_____ Date:
Project Safety and Health Manager

Declined By: _____ Date:

FORM 24
AGREEMENT AND ACKNOWLEDGMENT STATMENT

Site Safety and Health Plan (SSHP) Agreement

Burns & McDonnell's Project Manager, Field Site Manager, Site Safety and Health Supervisor, and Project Safety & Health Manager have the authority to stop any work performed by Burns & McDonnell subcontractors if it is not performed according to the requirements of this SSHP.

All Burns & McDonnell project personnel and subcontractor personnel are required to sign the following agreement before performing work at the site.

1. I have read and fully understand the SSHP and my individual responsibilities.
2. I agree to abide by the provisions of the SSHP.

Name	Signature
Company	Date
Name	Signature
Company	Date
Name	Signature
Company	Date
Name	Signature
Company	Date

FORM 24
AGREEMENT AND
ACKNOWLEDGMENT STATMENT

Name	Signature
Company	Date
Name	Signature
Company	Date
Name	Signature
Company	Date
Name	Signature
Company	Date
Name	Signature
Company	Date
Name	Signature
Company	Date