Final
SITE SAFETY AND HEALTH PLAN
Evaluation, Identification, and Management of Solid Waste Disposal Sites

Former Ravenna Army Ammunition Plant/ Camp Ravenna Joint Military Training Center Portage and Trumbull Counties, Ohio

August 17, 2016

Contract No. W9133L-14-D-0001

Delivery Order No. 0004

Prepared for:

Army National Guard
NGB-ZC-AQ-W9133L
111 South George Mason Drive
Building 2, 4th Floor
Arlington, VA 22204-1373

Prepared by:

AECOM Technical Services, Inc.
12420 Milestone Center Drive, Suite 150
Germantown, MD 20876

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Salvatore, Amibeth

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AECOM Technical Services Inc.
12420 Milestone Center Drive, Suite 150
Germantown, MD 20876

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Army National Guard
NGB-ZC-AQ-W9133L
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14. ABSTRACT

This Site Health and Safety Plan presents safety and healthy guidance for activities to be completed under Contract W9133L-14-D-0001, Deliver Order 0004.

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CONTRACTOR STATEMENT OF INDEPENDENT TECHNICAL REVIEW

AECOM has completed the Final Site Safety and Health Plan for the Evaluation, Identification, and Management of Potential Solid Waste Disposal Sites at the Former Ravenna Army Ammunition Plant/ Camp Ravenna Joint Military Training Center, Portage and Trumbull Counties, Ohio. Notice is hereby given that an independent technical review has been conducted that is appropriate to the level of risk and complexity inherent in the project. During the independent technical review, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of technical assumptions; methods, procedures, and materials to be used; and whether the product meets the customer's needs consistent with law and existing National Guard Bureau policy.

Reviewed/Approved by:  10 May 2016

Sarah Gettier — Date
Project Manager

Reviewed/Approved by:  10 May 2016

Amibeth Salvatore — Date
Project Environmental Scientist

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AR = Administrative Record
ARNG = Army National Guard
ARNG-ILE-CR = Army National Guard – Installations Logistics Environmental – Cleanup Restoration
OHARNG = Ohio Army National Guard
Ohio EPA – CO = Ohio Environmental Protection Agency-Central Office
Ohio EPA – NEDO = Ohio Environmental Protection Agency-Northeast District Office

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AECOM	AECOM Technical Services, Inc.
AHA	Activity Hazard Analysis
ARNG	Army National Guard
bpm	beats per minute
CIH	Certified Industrial Hygienist
CNS	central nervous system
CPR	Cardiopulmonary Resuscitation
CRJMTC	Camp Ravenna Joint Military Training Center
CVS	cardiovascular system
DDESB	Department of Defense Explosives Safety Board
DEET	diethyl-m-toluamide
DoD	Department of Defense
ECP	exposure control plan
EM	Engineer Manual
ESS	Explosives Safety Submission
FWSHP	Facility-Wide Safety and Health Plan
GDA	Government Designated Authority
GI	gastrointestinal
GPS	Global Positioning System
HazCom	Hazard Communication
IDW	Investigation-Derived Waste
MCD	mobile communication device
mg/m3	milligrams per cubic meter
MSE	Medical Surveillance Evaluation
MSP	Medical Service Provider
NIOSH	National Institute for Occupational Safety and Health
OHARNG	Ohio Army National Guard
OSHA	Occupational Safety and Health Administration
PAH	polycyclic aromatic hydrocarbons
PCB	polychlorinated biphenyls
PEL	Permissible Exposure Limit
PPE	personal protective equipment
POW	Powassan virus
PVC	polyvinyl chloride
RAC	Risk Assessment Code
REL	Recommended Exposure Limit
RMSF	Rocky Mountain Spotted Fever
SDS	Safety Data Sheet
SH&E	Safety, Health & Environment
SHM	Safety and Health Manager
SSHO	Site Safety and Health Officer
SSHP	Site Safety and Health Plan
STARI	Southern tick- Associated Rash Illness
TLV	Threshold Limit Value
TP	Technical Paper
UXO	unexploded ordnance
WBGT	Wet Bulb Globe Thermometer

1. SIGNATURE SHEET

Site Safety and Health Plan
Evaluation, Identification, and Management of Solid Waste Disposal Sites
Former Ravenna Joint Military Training Center Portage and Trumbull Counties, Ohio

Plan Preparer:

Patsy W. Glinsmann, CIH
Project Safety and Health Manager
(301) 820-3462

5/12/16
Date

Plan Approver:

Scott McClelland
URS Vice President
(301) 820-3453

5/10/16
Date

Plan Concurrence:

Robert Miller, CIH
Area Safety, Health and Environment Manager
(540) 431-7908

5/11/16
Date

Sarah M. Gettier
Sarah Gettier
Project Manager
(301) 820-3265

5/9/16
Date

2. INTRODUCTION

This Site Safety and Health Plan (SSHP) presents health and safety requirements and guidelines for field activities to be performed for the evaluation, identification, and management of potential solid waste disposal sites at Camp Ravenna Joint Military Training Center (CRJMTC). This SSHP is designed to meet all applicable guidelines outlined in the CRJMTC Facility-Wide Safety and Health Plan (FWSHP) for Environmental Investigations (USACE, 2011). This SSHP applies only to AECOM employees and subcontractors conducting work as described herein. The SSHP is not valid unless signed by the AECOM Area Safety, Health, and Environment (SH&E) Manager. If site conditions or tasks change, an addendum will be prepared and submitted for approval by the AECOM Area SH&E Manager and the CRJMTC.

The specific purpose of the field activities is to identify and characterize potential solid waste disposal sites prior to developing a management plan for each site. The scope of work for this characterization calls for visual surveys, geophysical surveys, and potential intrusive investigations. Based on these findings, each potential solid waste disposal site will be classified according to the following categories outlined in the Ohio Administrative Code: hazardous waste (OAC 3745-52-11), solid waste (OAC 3745-27-01), industrial solid waste (OAC 3745-29-01), construction and demolition debris (OAC 3745-400-01(F)), and clean hard fill (OAC 3745-400-01(E)). Following waste classification, a waste management plan will be selected and implemented in accordance with local, state, and federal regulations.

Based on a review of historic solid waste site documentation, it is not expected that chemical inhalation hazards above established worker exposure limits will be present at the investigation sites. Any potential contact, absorption, and ingestion hazards will be minimized by the use of personal protective equipment (PPE), engineering controls, and good work/hygiene practices.

Work activities to be conducted at the site include:

Visual Surveys

- A visual survey of each potential solid waste disposal site, including photographic documentation and collection of Global Positioning System (GPS) points of notable features.

Geophysical Surveys

- A geophysical survey of potential solid waste disposal site, as necessary to delineate the sites. This will be performed using a portable Geonics EM-31 Ground Conductivity Meter and a G-858G Magnetic gradiometer. Minimal brush clearing may be required, using clippers, and conducted in accordance with the vegetation removal requirements outlined in Section 6.3.1 of the Work Plan.

Intrusive Investigations

- Conduct a subsurface utility clearance survey of all proposed excavation areas.
- Excavate test pits up to four feet deep where subsurface anomalies are found or additional waste characterization data is required. Document the nature of observed solid waste, if any.
- Containerize and dispose of all Investigation-Derived Waste (IDW) in accordance with Camp Ravenna Waste Management Guidelines.

MEC Avoidance

- A technician will be part of all field activities to provide both MEC-avoidance support and assistance with visual surveys, geophysical surveys, and intrusive investigations.

2.1 HEALTH HAZARD CONTROL PROGRAM

An objective of this SSHP is to ensure that all operations, materials, and equipment will be evaluated to determine the presence of hazardous environments or if hazardous or toxic agents could be released into the work environment.

The Activity Hazard Analysis (AHA) tables for the project work are introduced in Section 3 (and the AHAs are presented in Sections 3.1-3.5). The AHAs identify all substances, agents, and environments that present a hazard and recommend hazard control measures.

Key elements of the AHAs that are required for a Health Hazard Control Program are:

- The written procedures and AHAs are included in this SSHP as certification of the hazard/risk assessment process
- Each AHA identifies the workplace and activity evaluated
- The AHA identifies the name of the person who prepared the AHA and certifies that the evaluation has been performed
- The analysis identifies the date of the evaluation

AECOM Technical Services, Inc. (AECOM) requires hazard identification, risk evaluation, control measures, and written procedures to manage health, safety, and environment risks on the job. Hazard and risk assessments were conducted by the Project Safety and Health Manager (SHM), Patsy Glinsmann, Certified Industrial Hygienist (CIH), and reviewed by the Area SH&E Manager , Bob Miller, CIH CSP, to ensure that all operations, materials, and equipment were evaluated and that the hazards and risks associated with the work will be communicated to personnel. The potential hazards associated with work on the site include physical and biological hazards. Based on the review of historical solid waste disposal sites at CRJMTC and the type of field activities being conducted, chemical exposures (inhalation and contact exposure) above established worker exposure limits are not anticipated. Any possible contact, absorption, and ingestion will be minimized by the use of PPE, engineering controls, and good work/hygiene practices (see Section 2.4 of this SSHP).

The Site Safety and Health Officer (SSHO) will manage the AHAs on site, and with the help of the crew, improve upon or add to existing analyses as new potential hazards are noticed. The AHAs will be reviewed daily to confirm the tasks covered; however, each time a new phase is begun, the corresponding analyses will be read to review the potential safety concerns with each team member prior to each phase of work. The SSHO will conduct the required safety and health inspections.

2.2 HAZARD COMMUNICATION PROGRAM

Elements of the AECOM written Hazard Communication (HazCom) Program are presented below as responses to the requirements of Engineer Manual (EM) 385-1-1 06.B.01.

Materials expected to be brought onsite include:

- Non-phosphate detergent (e.g., Liquinox) for decontamination of equipment

- Fuels and fluids for vehicles and excavating equipment
- Fire extinguishers for vehicles and excavating equipment

Only the volumes required for daily use will be present on site. As part of the SSHO daily activities, an inventory of hazardous materials will be prepared with the quantities expected to be on site.

Materials will be brought to the site on a daily basis; hazardous substances will not be stored on site.

The inventory will be updated if any additional materials are brought on site, and as frequently as necessary to reflect accurate quantities.

Unless each container has appropriate labeling, all chemical containers will be labeled with the following information:

1. Product name and identity of the hazardous chemical(s)
2. Appropriate hazard warnings
3. Name and address of the chemical manufacturer, importer, or other responsible party

Labels on incoming containers of hazardous materials will not be removed or defaced. Labels are also required when a hazardous substance is transferred from a primary container to a secondary container. Labels on secondary containers must indicate the product name or the names of the hazardous substances contained therein, as well as related physical and health hazards and their associated target organs. Labels may incorporate words, pictures, symbols, or combinations thereof to ensure the appropriate information is provided to the end user.

Examples of acceptable labeling systems include the National Fire Protection Association Diamond, the Hazardous Materials Identification System, the Chemical Hazard Identification and Training system, or similar.

Safety Data Sheets (SDSs) for materials to be brought on site for each day's use are included in Attachment C; the SSHO will obtain copies of SDS for any additional chemicals brought on site and maintain these in an accessible location. An electronic database is an acceptable method of maintaining the SDSs. The SSHO will replace SDSs when updated sheets are received and will communicate any significant changes to those who work with the chemical.

SDS will be reviewed with employees to identify specific safety and health procedures that should be implemented. SDS will be available for use with AHAs for activities in which hazardous materials will be used. Applicable information will be followed for the proper use and disposal of the materials; and for the selection of hazard control and emergency response measures.

SDSs will generally be received by the person ordering the product. SDSs for products frequently used should be kept on file because additional copies may not be included in repeat shipments. The SSHO will review each SDS when it is received to evaluate whether the information is complete and to determine whether existing protective measures are adequate.

General household products to be used for their specific purpose, as well as food, drugs, and cosmetics brought into the workplace for employee consumption, are exempt, as are supplies in the first-aid kit, such as isopropyl alcohol and antibacterial wipes.

Employees bringing hazardous materials on to a site or project must submit SDSs to the SSHO. The SSHO may restrict the use of certain hazardous materials on a site or project due to occupational health risk,

hazardous physical properties of the material, or potential employee sensitivity to odor or irritating properties of the material.

Other personnel working in the same area shall be provided with the following information on chemicals used by or provided to AECOM personnel:

1. Names of hazardous chemicals to which they may be exposed while on the jobsite.
2. Precautions the employees may take to lessen the possibility of exposure by usage of appropriate protective measures, such as ventilation or isolation of the work. In some cases, as an administrative control measure, a task may be delayed to a time when a minimal number of employees are present in the area.
3. Location of SDSs.

Section 7 of this SSHP provides a discussion of procedures to ensure employees are trained initially and periodically when use of hazardous or toxic agents is altered or modified to accommodate changing on-site work procedures.

Training shall cover the following topics:

1. Requirements and use of the hazard communications program on the project
2. The location of all hazardous or toxic agents at the project site
3. Identification and recognition of hazardous or toxic agents on the project
4. Physical and health hazards of the hazardous or toxic agents pertinent to project activities
5. Protective measures employees can implement when working with project-specific hazardous or toxic agents

Periodically, employees are required to perform hazardous non-routine tasks. Prior to starting work on such projects, each employee must be provided with information about hazards to which they may be exposed, as follows:

1. Specific chemical hazards
2. Protective/safety measures that must be taken
3. Measures that have been taken to lessen the hazards, including ventilation, respirators, presence of another employee, and emergency procedures

Provide training to all employees who have the potential to be exposed to hazardous materials: a) at the time of the initial task assignment; b) whenever new chemicals are introduced into the workplace, and c) more frequently where required by site-specific conditions or client-specific requirements.

This training will include the following:

1. Applicable regulatory requirements
2. Location of the program, inventory, and SDS
3. Site-specific chemicals used and their hazards (chemical, physical, and health), including:
    a. General characteristics of chemicals
    b. Signs and symptoms of exposure

4. How to detect the presence or release of chemicals including the location, types, and usage of any portable and fixed monitoring or detection equipment and their associated alarms, where applicable
5. Safe work practices and methods employees can take to protect themselves from chemical hazards, including the use of respiratory protection
6. How to read an SDS
7. Site- or project-specific information on hazard warnings and labels in use at the location, if applicable
8. Site-specific evacuation and rescue procedures in the event of chemical release, including the location of staging areas and personnel accounting procedures

The following documentation will be maintained in the project file:

1. Chemical Inventory
2. SDSs
3. Training records

2.3 HAZARD ASSESSMENT

The potential hazards associated with work on the site include physical and biological hazards; chemical contaminants are not expected at concentrations of concern. AECOM policies require hazard identification, risk evaluation, control measures, and written procedures to manage health, safety, and environment risks on the job. Hazard and risk assessments were conducted by the SHM Patsy Glinsmann, CIH, and reviewed by the Area SH&E Manager, Bob Miller, CIH CSP, to ensure that all operations, materials, and equipment were evaluated and that the hazards and risks associated with the work will be communicated to personnel.

Written procedures addressing each identified hazard and AHAs for each critical task were prepared. These procedures and AHAs are included as certification of the hazard/risk assessment process.

Risk Assessment Codes (RACs) were assigned using Department of the Army methods, taking into account the mitigation of risk by instituting the controls and procedures described herein. Using this method, the majority of the site hazards were associated with a low risk (RAC 4 or 5), with the exception of the potential for encountering MEC (moderate risk; RAC 3). The SSHO will manage the AHAs on site, and with the help of the crew, improve upon or add to existing analyses as new potential hazards are noticed. The AHAs will be reviewed daily to confirm the tasks covered; however, each time a new phase is begun, the corresponding analyses will be read to review the potential safety concerns with each team member prior to each phase of work. The SSHO will conduct the required safety and health inspections.

2.4 CHEMICAL HAZARDS

Based on the FWSHP, potential contaminants of concern across the CRJMTC include metals (i.e., arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver, and zinc), explosives (i.e., TNT, and smokeless powder), propellants, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs).

Based on concentrations detected during previous investigations inhalation hazards to site workers above published exposure limits are not anticipated. Dust will be controlled using wet methods; contact, absorption, and ingestion will be minimized with the use of PPE and good work/hygiene practices. However, a summary of exposure limits available for metals and selected explosives is presented below for employee information and awareness.

Antimony– Occupational Safety and Health Administration (OSHA) Action Permissible Exposure Limit (PEL) 0.50 mg/m^3; Symptoms: irritated eyes, skin, nose, throat, mouth; cough; dizziness; headache; nausea, vomiting; Target organs: eyes, skin, respiratory system, cardiovascular system (CVS)

Arsenic- OSHA Action Level- 0.005 milligrams per cubic meter (mg/m^3) and PEL 0.010 mg/m^3 per eight hour period for inorganic arsenic. Symptoms: nausea, central nervous system disorders, skin lesions. Target Organs: gastrointestinal (GI) tract, central nervous system (CNS), liver, and kidney.

Barium- OSHA PEL- 0.010 mg/m^3 per eight hour period for all soluble barium compounds (as Ba). Symptoms: Irritation to eyes, skin, muscle spasms, slow pulse, extrasystoles, hypokalemia. Target Organs: Eyes, skin, respiratory system, heart, and CNS.

Cadmium- OSHA PEL- 0.005 mg/m^3 per eight hour period for all Cadmium compounds (as Cd). Symptoms: lung oedema, fume fever, kidney impairment. Target Organs: kidney.

Chromium- OSHA PEL- 1 mg/m^3 per eight hour period for all Chromium metals and insoluble chromium salts. Symptoms: irritation to eyes, skin, and lung fibrosis. Target Organs: eyes, skin, and respiratory system.

Copper – OSHA PEL 1.0 mg/m^3; Symptoms: irritated eyes, nose, pharynx; metallic taste; dermatitis; Target organs: eyes, skin, respiratory system, liver, kidneys

Lead – OSHA Action Level 0.030 mg/m^3 and PEL 0.050 mg/m^3. Symptoms: Fatigue, insomnia, anorexia, abdominal pain, anemia, gingival lead line, tremor, irritation of eyes. Target Organs: eyes, GI tract, CNS, blood, gingival tissue.

Mercury- OSHA PEL- 0.1 mg/m^3 per eight hour period for all inorganic Hg compounds. Symptoms: irritation to eyes, skin, chest pain, dyspnea, bronchitis, pneumonitis, tremor, insomnia, indecision, headache, weakness, gastrointestinal disturbance, weight loss. Target Organs: eyes, skin, respiratory system, central nervous system, kidneys.

Selenium- OSHA PEL- 0.2 mg/m^3 per eight hour period for all selenium compounds as Se except selenium hexaflouride. Symptoms: irritation to eyes nose and throat, chills, breathing difficulty. Target Organs: eyes, skin, and respiratory system.

Silver- OSHA PE- 0.01 mg/m^3 per eight hour period for silver metal dust and soluble compounds, as Ag. Symptoms: eyes, nose, throat, and skin irritation, skin ulceration, and gastrointestinal disturbance. Target Organs: nasal septum, skin, and eyes.

Zinc- OSHA PEL- 5 mg/m^3 per eight hour period for zinc oxide fumes or dust. Symptoms: metal fume fever: muscle ache, fever, dry throat, chills, weakness, metallic taste, blurred vision. Target Organs: respiratory system.

Cyclonite- OSHA PEL- does not exist. National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL) Symptoms: eye and skin irritation, irritability, weakness, tremor, nausea, dizziness, vomiting, convulsions. Target Organs: eyes, skin, and CNS.

NG – OSHA PEL- 2.0 mg/m^3 (skin); Symptoms: headache, dizziness, nausea, vomiting, skin irritation; Target Organs: CVS, blood, skin, CNS.

TNT – OSHA PEL 1.5 mg/m^3 (skin); Symptoms: irritated skin, mucous membranes; jaundice, cyanosis; cough, sore throat; dermatitis; Target organs: eyes, skin, respiratory system, blood, liver, CVS, CNS, kidneys.

DNT – OSHA PEL 1.5 mg/m^3 (skin); Symptoms: Anoxia/cyanosis (caused by low blood oxygen), anemia, jaundice; Target organs: blood, liver, CVS, reproductive system.

RDX – OSHA – no PEL; NIOSH REL 1.5 mg/m^3 (skin); Symptoms: irritation of eyes, skin; headache, irritability, nausea, dizziness, vomiting; Target organs: eyes, skin, CNS.

PCBs- OSHA PEL 0.5 mg/m^3 (skin) for chlorodiphenyl (54% chlorine); Symptoms: irritation to eyes, choracne, liver damage, reproductive effects; Target organs: skin, eyes, liver, reproductive system, potential carcinogen

PAHs- OSHA PEL 0.2 mg/m^3 for benzene-soluble coal tar pitch fraction; Symptoms: bronchitis, skin irritability, eye irritation; Target organs: lungs, gastro intestinal system, renal and dematologic systems, potential carcinogen.

Personnel will be expected to follow good work practices, as follows:

1. Properly use specified PPE – safety glasses and nitrile gloves
2. Practice contamination avoidance
3. Follow proper decontamination procedures (disposal of gloves, wash glasses or other items, as needed)
4. Observe good personal hygiene practices (wash hands after removing gloves; wash hands and face prior to eating, drinking, or smoking)

All hazardous chemicals brought on site by AECOM personnel or subcontractors will be managed in accordance with Section 2.2 of this SSHP.

2.5 PHYSICAL HAZARDS

A variety of physical hazards may be present, but these hazards are similar to those associated with any field project. While they are generally familiar to most field personnel, the following sections provide reminders for safer behavior on site.

2.5.1 Slip/Trip/Fall Hazards

As with any field project, uneven work surfaces and other slipping or tripping hazards may be present. The terrain at CRJMTC is relatively flat, however solid waste site survey locations may be heavily vegetated or may have hidden solid waste protrusions. Therefore tripping is the most likely physical hazard that will be encountered. Personnel must use caution when walking on unstable or uneven terrain, particularly when intrusive activities are underway.

Proper site housekeeping, removal of trash, and orderly stacking and removal of materials will reduce slipping and tripping hazards. Proper site housekeeping will be the responsibility of all site personnel. The SSHO will make regular entries into a logbook at the end of each shift indicating whether the work area is adequately clean. Housekeeping inspections will be documented using AECOM SH&E SOP 307 (attachment A).

2.5.2 Hand Tools

Hand tools that may be used include hand augers and brush clearing tools, such as clippers. All hand tools will be maintained in a safe condition and in good repair in accordance with AECOM SH&E SOP 305. AECOM will not issue or use unsafe tools. Tools will be used for their intended use only.

Do not use excessive force on a tool; this indicates that the wrong tool is being used. Keep all tools clean and properly stored when not in use. Fixed open blade knives are prohibited from use on AECOM job sites; safer alternative tools must be used.

2.5.3 Manual Lifting

Back injuries are among the leading occupational injuries reported by industrial workers. Back injuries such as pulls and disc impairments can be reduced by using proper manual lifting techniques in accordance with AECOM SH&E SOP 308 (attachment A). Leg muscles are stronger than back muscles, so workers should lift with their legs and not with their backs. If the load is too heavy, workers should not attempt to lift it alone. Lifting is always easier when performed with another person, and manual or mechanical assistance should always be used when it is available.

The following guidelines will be followed whenever lifting equipment or any object that weighs over 50 pounds or has an odd size or shape:

1. Get help when lifting heavy loads. Heavy loads will only be lifted using a two-person lift.
2. When moving heavy objects such as containers, use a dolly or other means of assistance.
3. Plan the lift. If lifting a heavy object, plan the route and where to place the object. In addition, plan communication signals to be used (i.e., “1, 2, 3, lift,” etc.).
4. Wear sturdy shoes that are in good condition and supply traction when performing lifts.
5. Keep your back straight and head aligned during the lift and use your legs to lift the load; do not twist or bend from the waist. Keep the load in front of you; do not lift or carry objects from the side. Keeping the heavy part of the load close to your body will help maintain your balance.

2.5.4 Temperature Extremes

Local weather conditions and the required use of PPE may produce an environment that requires restricted work schedules to protect employees from heat or cold stress. The SSHO will observe workers for any potential symptoms. Please see Section 6.2 for more information on heat and cold stress.

2.5.5 Other Weather-Related Hazards

Other weather-related hazards include heavy rains, damaging winds, thunderstorms, tornados, hurricanes, floods, wildfires, and lightning, etc. These hazards correlate with the season in which site activities occur. Weather forecasts will be checked prior to site work each day on the National Oceanic and Atmospheric Administration website and will be monitored throughout the day by cell phone. If threatening weather conditions are predicted, the SSHO will determine if work can continue without endangering the health and safety of site personnel by using the following guidelines:

1. Potential for lightning strikes
2. Potential for heat or cold stress
3. Limited visibility

4. Inclement weather-related working conditions
5. Range roads becoming impassable

Outside work will be suspended during severe weather, including electrical storms. In the event of a lightning strike, 30 minutes must pass from the last observed strike before site personnel can be allowed out of vehicles to go back to work. Personnel will seek shelter in the vehicles or a nearby building, as designated during the morning safety briefing.

2.5.6 Flammable and Combustible Materials

All work areas shall be kept free of unnecessary debris. No flammable and combustible liquids will be brought on site other than the gasoline or diesel fuel in the field vehicles. No electrical equipment, or any equipment that may create sparks, will be used. During all on-site activities, the following practices will be used for fire prevention and protection:

- Smoking on site is prohibited in designated work areas, contamination reduction zones, and other areas where smoking may create a fire hazard (e.g., dry vegetation)
- A designated smoking area will be established when operations on site begin
- Fire extinguishers will be available at all work and support areas
- A fire extinguisher will be available in all project vehicles (10-B:C)
- Fire extinguishers will be inspected monthly
- Defective firefighting equipment will be replaced immediately
- Fires or open flame devices are prohibited on site
- All employees will be trained in the use of fire extinguishers and the hazards involved in incipient stage firefighting before being allowed to work on the project site as per 29 Code of Federal Regulations (CFR) 1910.157(g)(1)
- Only fires in the incipient stage will be addressed using portable fire extinguishers. Regardless of the size and nature of the fire, and the Team's ability to respond, all fires will be reported to Range Control immediately, they will in turn call the local fire department

For this project, fire extinguishers will be placed in each motor vehicle (10B:C) and one ABC rated extinguisher will be available (2A:20B:C) Only UL-listed extinguishers will be used.

The potential for fire will be low; if a fire should occur, it would be expected to fall into Class A, B, or C. These classifications are defined as follows:

Class A – Fires in ordinary combustible materials such as wood, cloth, paper, trash, rubber, and plastic.

Class B – Fires in flammable liquid, oil, grease, tar, oil-based paint, lacquer, and flammable gas.

Class C – Fires involving energized electrical equipment or systems, resulting in the extinguishing media conducting electricity. When electrical equipment or systems are de-energized, extinguishers for Class A or B fires can be used safely.

Extinguishers are rated according to the classification and size of the fires against which they are effective. Extinguisher ratings are found on the extinguisher label. A rating consists of a letter indicating the classification of fire on which the extinguisher is effective and a rating number indicating the relative extinguishing effectiveness. The significance of the rating number varies with the classification of fire for which the extinguisher is rated. The following rating criteria are used:

For extinguishers rated for Class A fires, the rating number indicates relative effectiveness, the higher the number, the more effective the extinguisher. The minimum recommended rating for extinguishers rated for Class A fires is 2A.

For extinguishers rated for Class B fires, the rating number represents the average size (in square feet) of the fire the extinguisher could put out.

No number is used for extinguishers rated for Class C fires, because Class C fires are essentially either Class A or B fires involving energized electrical wiring and equipment.

2.5.7 Illumination

It is expected that site activities will be conducted only during daylight hours (no earlier than 15 minutes after sunrise and no later than 15 minutes before sunset.

2.5.8 Vehicle Safety

Personnel must use caution when traveling to and from the site in personal or company vehicles. The following field/site vehicle safety items should be followed:

1. All staff members operating a motor vehicle must possess a current, valid driver's license. AECOM authorized drivers have completed the AECOM vehicle safety training and National Safety Council defensive driving courses.
2. All local and facility speed limits and traffic regulations will be followed. Headlights will be used from sunset to sunrise, during fog, or other unfavorable conditions. All uncontrolled intersections (no traffic lights or traffic signs) will be treated as a four-way stop. The driver will exercise extreme caution at uncontrolled intersections.
3. The use of all mobile communication devices (MCDs) while driving is strictly prohibited. MCDs include all hand-held or hands-free devices, including all mobile phones and other portable electronic devices that cause driver distraction, such as tablets, pagers, iPods, MP3s, GPS, DVD players, laptops, etc. Operators will maintain proper control of the vehicle at all times and will avoid all distractions (eating, drinking, or smoking; engaging in intense conversations; or adjusting vehicle controls) while driving. Driving includes the time spent in traffic or while stopped at red lights or stop signs.
4. GPS units and GPS units on smart phones may only be used if factory installed or secured to the vehicle with a bracket that allows the driver to view the image without having to take their eyes off the road. The GPS will not be programmed while driving.
5. Rental vehicles are maintained by the rental company and inspected prior to release. Employees will physically inspect vehicles and test the safety systems (lights, flashers, wipers, etc.) prior to each use, but not more often than daily. AECOM SH&E Form S3NA-005-FM2 (Attachment A) will be used for this purpose.
6. Specific vehicle travel routes and parking areas will be identified at field sites. Traffic cones, or other markings, will be used as needed, to define roads and parking. If parking on the shoulder of an active road, employees will park as far off the road as possible. If work is required alongside an active road, park the vehicle behind the area of work to provide a barrier against out of-control vehicles.

7. The operator and all passengers shall use seat belts at all times when a motor vehicle is in motion. No employee may ride in the bed of a pickup truck unless seating and restraints are provided for this specific use. Articles, tools, equipment, etc. placed in vehicles will be stored so as not to interfere with vision or the proper operation of the vehicle in any way. All items in the vehicle must be secured to prevent them from flying about or out of the vehicle during sudden stops, turning, etc.
8. Trucks or vehicles with obstructed rearview mirrors must observe the following procedures when backing up: Position an employee to act as a spotter at the rear of the vehicles, in the driver's line of sight, to ensure that the area behind the truck is clear. If no other employee is present, then the driver must step out of the vehicle and check the area behind the vehicle before backing up. As an added precaution, avoid backing up whenever possible

2.5.9 Excavation and Trench Safety

Trench excavation poses the following hazards: contact with buried utilities, trench cave-in and engulfment, confined space hazards such as such as hazardous airborne concentrations of toxic chemicals, flammable concentrations of vapors or gasses, and oxygen deficiency. All test pits excavated during the intrusive investigation phase of work will adhere to the AECOM SH&E SOP 303 (Attachment A) and the following:

1. Prior to intrusive activities, the site will be verified free of underground utilities by coordinating clearance with the CRJMTC Department of Public Works office, which can be coordinated through the CRJMTC Environmental Office. Notification will include submitting maps with planned excavation locations clearly marked and provided to Army National Guard/Ohio Army National Guard (ARNG/OHARNG). If underground utilities are present, they will be located and protected from damage or movement. Any overhead utilities will be identified and de-energized or protected as appropriate.
2. A backhoe will be used to delineate boundaries and identify buried waste. Prior to excavation, the backhoe will be inspected for equipment integrity, including hydraulic lines, back up alarm, oil levels, and safety controls. Inspections will be documented.
3. Test pits excavated during this work will be limited to less than 4 feet in depth. Due to the nature of the work being performed, no entry of excavations or pits will be permitted, eliminating cave-in hazards, confined space hazards, and hazards of oxygen deficiency. Field staff will remain outside of 3 feet from the excavation edge. Test pits will be back filled, so no access control will be necessary.
4. All field personnel will wear Level D PPE including a hardhat, and high visibility clothing, and hearing protection if within 7.6 m (25ft) of backhoe unless equipment-specific monitoring indicates exposures less than 85 dB. The controlled work zone will be clearly delineated by barricades or flagging and posted signs as deemed necessary by the SSHO.
5. All equipment will be operated with all guards provided by the manufacturer and in compliance with 29 CFR 1910, Subpart O and Section 16.A.11 of the USACE Safety and Health Requirement Manual. If any guarding must be removed for servicing, the equipment will be disabled to preclude movement or release of energy.

2.5.10 Munitions and Explosives of Concern and Anomaly Avoidance

MEC and anomaly avoidance procedures contained in the following sections were developed in accordance with EM 385-1-97 (USACE, 2013) and Department of Defense (DoD) 6055.09-M "Ammunition and Explosives Safety Standards" (DoD, 2010). These procedures will be performed and adhered to by all AECOM and subcontractor personnel during field activities.

2.5.10.1 MEC Awareness Training

Prior to implementing any field activities, the senior Unexploded Ordnance (UXO) escort will conduct project-specific training for all on-site personnel assigned to projects where MEC and anomaly avoidance procedures will be implemented. The senior UXO escort will also provide any MEC-specific health and safety forms needed.

The training will instruct personnel on the operational procedures and methods to be used, including individual duties and responsibilities and all safety and environmental concerns during field activities requiring MEC and anomaly avoidance. Any personnel arriving at the site after this initial training session will have to complete the training before starting work. The senior UXO escort, SSHO, and/or applicable project personnel will conduct the training as appropriate. At a minimum, site specific training will include the following topics:

- Field equipment operation, including safety precautions and safety equipment, field inspection of equipment, and maintenance procedures that will be used
- Procedures, guidelines, and requirements in relevant sections of the SSHP as they relate to the task being performed
- Site- and task-specific hazards, including physical, biological, and chemical hazards
- Potential site-specific MEC
- Environmental concerns and sensitivities, including endangered/threatened species and historic, archaeological, and cultural resources on site

2.5.10.2 Site Access Surveys

In areas with potential MEC, the UXO escort will conduct an access survey in accordance with applicable sections of EM 385-1-97 (USACE, 2013).

The UXO escort will conduct an access survey of the footpath and/or vehicular lanes approaching and leaving areas with known or suspected MEC. The access route shall be at least twice as wide as the widest vehicle that will use the route. The route shall be clearly marked with flagging or stakes for future entry. Old growth vegetation (e.g., large trees) will not be removed or cut; instead, the path will wind around the obstacle, which may temporarily restrict the width of the path. The route shall be marked with flagging or stakes for future entry.

Non-UXO-qualified personnel must be escorted by UXO qualified personnel at all times in areas where there is a potential to encounter MEC. Non-UXO-qualified site personnel will follow behind the UXO escort unless directed otherwise by the UXO escort based on site specific conditions. If MEC is detected, the UXO escort will halt escorted personnel in place, select a course around the item, and instruct escorted personnel to follow.

The UXO escort must complete an access survey of an area around the proposed investigation site that is large enough to support all planned operations. The size of the surveyed area will be project-specific and will take into account, for example, maneuverability of required equipment, parking of support vehicles, and establishment of decontamination stations. At a minimum, the surveyed area should have a dimension in all directions equal to twice the length of the longest vehicle or piece of equipment to be brought on-site and clearly delineated with flagging or stakes.

In the event that anomalies or surface MEC are encountered in the investigation area, the investigation area will be relocated to avoid contact. The UXO team will clearly mark the boundaries of the surveyed area using survey flagging and non-metallic pin flags. The team will establish a system of flagging colors that will distinguish anomalies, surface MEC, and route boundaries from each other as well as from any utility markings used at the site.

2.5.10.3 Encountering MEC

If MEC is encountered during any phase of work, the following reporting procedures will be followed. First, work will be stopped and the area evacuated and cordoned off. Second, Range Control (614)336-6041 and the CRJMTC Environmental Office (614-336-6000) should be contacted immediately following cordoning off the area. Range Control will implement their plan and call the necessary contacts.

In accordance with the Facility-Wide Safety and Health Plan for Environmental Investigations (USACE, 2011), the following MEC safety protocols will be followed:

1. If environmental work is conducted in association with an activity requiring an Explosives Safety Submission (ESS), all environmental work will meet ESS requirements.
2. AECOM will not handle, move, or otherwise disturb MEC or any items that cannot be identified as non-MEC without specific authorization from the Army.

In accordance with Engineer Manual (EM) 385-1-1 “Safety and Health Requirements” (USACE, 2014) and EM 385-1-97 “Explosives Safety and Health Requirements Manual” (USACE, 2013), the following MEC safety protocols will be followed:

1. The cardinal principle to be observed involving ordnance, explosives, ammunition, severe fire hazards, or toxic materials is to limit the exposure to a minimum number of personnel, for the minimum amount of time, to a minimum amount of hazardous material consistent with a safe and efficient operation.
2. The age or condition of a MEC item does not decrease the effectiveness. MEC that has been exposed to the elements for an extended period of time may become more sensitive.
3. Consider MEC that has been exposed to fire as extremely hazardous.
4. DO NOT touch or move any MEC items regardless of the markings or apparent condition.
5. DO NOT use radio or cellular phones within 50 feet of known MEC items.
6. DO NOT drive vehicles into a suspected MEC area; use clearly marked lanes.
7. Always assume MEC items contain a live charge until determined otherwise.
8. DO NOT be misled by markings on the MEC item stating “practice bomb,” “dummy,” or “inert.” Even practice bombs have explosive charges that are used to mark and/or spot the point of impact; or the item could be marked incorrectly.

2.6 BIOLOGICAL HAZARDS

Biological agents that may cause health hazards are diverse; consequently, their health effects are also diverse. Biological hazards include bloodborne pathogens, microorganisms, insect-borne illnesses, and poisonous plants, insects, spiders, and other wildlife. The effects range from mild skin irritation to debilitating or life-threatening illness. Unfortunately, many biological agents are too small to be observed or arise from seemingly harmless sources.

2.6.1 Biting/Stinging Insects and Spiders

Personnel may also encounter a number of biting or stinging insects or spiders during site activities. The SSHO will inform personnel about the potential hazards and preventive measures. To protect against bites and stings, wear long sleeves and long pants, with pant legs tucked into or taped around socks. Spray clothing and exposed skin with a repellant containing diethyl-m-toluamide (DEET).

If an insect bite or sting occurs, personnel with current certification in first-aid procedures will administer first aid. A manual of current practice will be included in the First-Aid Kit for reference.

Site workers who have a history of allergic reactions to bee stings should inform the SSHO by completing the medical information section included with the Compliance Agreement during the initial site-specific safety training and will personally carry an Epi-Pen. If there is an insect bite or sting emergency, or an Epi-Pen is used, the victim will be transported to the hospital for treatment.

Insects that may be present on site include fire ants, stinging caterpillars, mosquitoes, ticks, bees, wasps, hornets, chiggers, black flies, horse flies, deer flies, stable flies, and midges. Additional information on mosquito and tick bite hazards is presented in Section 2.6.3.

The brown recluse is a shy, retiring spider that does not attack people and usually only bites in response to being injured. Most reported bites occur when putting on clothing in which the spider is hiding or rolling on a spider in bed. The brown recluse is a medium-sized spider. The legs span an area roughly the size of a quarter to a half dollar, and most are light to medium brown. The most distinguishing characteristic is the violin shaped marking on the top of the body directly above the legs and a semicircular arrangement of the three pairs of eyes. Brown recluse spiders prefer sheltered areas with low moisture levels. Since most brown recluse spiders hibernate in the winter (except for those that live indoors), most bites occur between March and October when humans accidentally disturb their habitat: closets, out-buildings or woodpiles.

Black widow spiders are very numerous in nearly all parts of the U.S., but cases of reported bites are not common. For the most part, black widows live peacefully in close proximity to humans with little contact. Both the northern and southern black widows are found in Ohio, with the southern species being the most common. The black widow appears shiny and hairless to the naked eye. The body ranges from a deep glossy black to an occasional dark brown to a reddish brown. The underside of the abdomen has a distinct red or orange hourglass shape. In immature spiders, the color can vary and the hourglass may be white or missing. The black widow bite is sharp and painful, and victims should seek immediate medical attention. The first sign of a bite is acute pain at the site of the bite, with more symptoms following 20 minutes to one hour later. Brown widow spiders are brown with black accent markings with an orange-tinged hourglass on the abdomen in both males and females. Brown widow bites will have similar symptoms to a black widow bite, but will usually be less severe. Common places where spiders may be found include behind and under debris.

If bitten by a spider, particularly a black widow:

Cleanse the wound. Use soap and water to clean the wound and skin around the spider bite.

Slow the venom's spread. If the spider bite is on an arm or a leg, tie a snug bandage above the bite and elevate the limb to help slow or halt the venom's spread. Ensure that the bandage is not so tight that it cuts off circulation in your arm or leg.

Use a cold cloth at the spider bite location. Apply a cloth dampened with cold water or filled with ice.

Seek immediate medical attention. Treatment for the bite of a black widow may require an anti-venom medication. A brown recluse spider bite may be treated with various medications, as determined by a physician.

2.6.2 Bloodborne Pathogens

During site activities, workers can potentially be exposed to bloodborne pathogens when rendering first aid or Cardiopulmonary Resuscitation (CPR). Avoiding contact with biological agents is the best way to prevent adverse health effects caused by them. Recognition of potential hazards is essential. As a general rule, employees will not come into contact with any item that may appear to result from medical waste disposal. When avoidance is impractical or impossible, such as when administering first aid, PPE and personal hygiene will be used to prevent adverse effects. Employees designated to perform tasks involving occupational exposure including designated first-aid providers, shall receive bloodborne pathogens training at the time of initial assignment to the job.

Employees are at risk of contracting infectious diseases each time they are exposed to bloodborne pathogens. Any exposure incident may result in infection and subsequent illness. Since it is possible to become infected from a single exposure incident, it is the practice of AECP< to prevent exposure incidents whenever possible.

To ensure employees are effectively informed concerning potential workplace health hazards, and in accordance with the requirements set forth in 29 CFR 1910.1030 and EM 385-1-1 Section 3, AECOM has established an exposure control plan (ECP) for bloodborne pathogens. The purpose of this plan is to identify those tasks and procedures for which occupational exposure to bloodborne pathogens may occur, to identify the positions whose duties include those tasks, and to implement controls that will significantly reduce the risk of infection by bloodborne pathogens. The plan also includes provisions for affected employees to receive Hepatitis B vaccinations, training, and, if necessary, confidential medical evaluations and follow up.

The site-specific ECP includes:

- **Work practice controls**: Provide adequate supplies for providing first aid and CPR, and treat all contact with human blood and bodily fluids as potentially infectious. Hand washing facilities/supplies shall be readily accessible for all employees.

- **PPE**: Provide PPE at no cost to the employee. Typical equipment includes, but is not limited to, gloves, face masks, eye protection, and CPR shield. PPE will be considered appropriate if it does not permit blood or other potentially infectious materials to reach or pass through clothes, skin, or mucous membranes of the eyes or mouth under normal conditions of use and for the duration of time the equipment will be used. PPE must be readily accessible and will be removed prior to leaving the work area.

- **Housekeeping**: Use universal precautions when cleaning or decontaminating any surface or equipment that may be contaminated. Appropriate PPE will be used for protection during decontamination.

- **Post-Exposure Activities**:
    - Report all occupational bloodborne pathogen exposures to the PM, Area SH&E Manager and the Incident Reporting Line immediately after initial decontamination and first aid is accomplished. Following the report of an exposure incident, a confidential medical evaluation with an occupational physician will be arranged as soon as possible, ideally no later than 1-2 hours after the incident has occurred.
    - Complete an Incident Report as soon as possible. The Area SH&E Manager will review the circumstances of each exposure incident to determine if the appropriate work procedures were being followed at the time of the incident, and to assess and implement any necessary corrective actions, including changes required in the ECP.
    - The Hepatitis B Vaccination series will be made immediately available to employees who have had an occupational bloodborne exposure incident, whether as a result of their assigned tasks, or occurring as a result of incidental contact. An employee who declines the vaccination must sign a waiver form.

2.6.3 Diseases Originating from Ticks and Mosquitos

Mosquito and tick bites may result in the transmission of disease. Such vector-borne diseases transmitted in Ohio include Anaplasmosis, Babesiosis, Ehlichiosis, Southern tick- Associated Rash Illness (STARI), Powassan virus (POW), Tularemia, Lyme Disease, La Crosse virus, St. Louis encephalitis virus, West Nile virus, Dengue Fever, Rocky Mountain Spotted Fever (RMSF), Chikungunya virus, Dengue fever, Japanese encephalitis, Malaria, and Yellow fever. West Nile virus and Encephalitis are transmitted by infected mosquitoes.[1,2]

Lyme disease, transmitted by deer ticks, will generally cause characteristic rash may develop a few days to a few weeks after the bite of an infected tick. The rash generally looks like an expanding red ring with a clear center, but it can vary from a blotchy appearance to red throughout the rash; however, it is important to note that some victims never exhibit a rash. Lyme disease symptoms include flu-like symptoms such as headache, stiff neck, fever, muscle aches, and/or general malaise. If Lyme disease is not treated early with antibiotics, the early symptoms may disappear, but more serious problems may follow. Long-term effects of Lyme disease may include arthritis of the large joints, meningitis, neurological complications (numbness, tingling in extremities, loss of concentration and memory retention, Bell's palsy), withdrawal, lethargy, or cardiac symptoms. Most cases of Lyme disease can be treated successfully with a few weeks of antibiotics. The vaccine for Lyme disease is no longer available. It was discontinued by the manufacturer in 2002, citing low demand. Symptoms of STARI, transmitted by Lone Star tick, are similar to Lyme.

[1] Ohio Department of Health:

http://www.odh.ohio.gov/mosquitoes, Accessed 15 Dec 2015

[2] Ohio Department of Health:

http://www.odh.ohio.gov/odhprograms/bid/zdp/animals/ticks.aspx, Accessed 15 Dec 2015

RMSF is transmitted in Ohio by dog ticks and Lone Star ticks. The symptoms will usually develop about two days to two weeks after the tick bite. These symptoms include chills, confusion, fever, headache, muscle pain, and a rash. This rash first appears on the wrists and ankles with spots about 1-5 mm in diameter. However, one-third of those infected do not get a rash. Treatment with antibiotics usually cures the infection, but complications, though rare, can include paralysis, hearing loss, and nerve damage. No vaccine is available to protect humans against RMSF.

The symptoms of Ehrlichiosis include fever, headache, chills, muscle pain, confusion and a rash (though does not appear in all who are infected). While there is no vaccine, Ehrlichiosis is rarely fatal and is treated with antibiotics; recovery can take up to three weeks.

Personnel should use the following prevention tactics when working outside:

1. Dress in light-colored clothing to make adhering ticks more visible. Wear long-sleeved shirts and tuck pants into or tape around socks.
2. Use a tick repellant containing DEET. Spray repellant containing 100% DEET onto clothing and head covering; and repellant containing 30% DEET onto exposed skin. (Clothing may also be pre-treated with permethrin)
3. Perform self-searches routinely when in the field to check for ticks.
4. Check body areas where ticks are commonly found: behind the knees, between the fingers and toes, under the arms, in and behind the ears, and on the neck, hairline, and top of the head. Check places where clothing presses on skin.
5. After work, place clothing in hot dryer to kill any loose ticks.
6. Shower and perform a careful whole body search for ticks.
7. If any ticks are found attached, remove using fine tweezers or a “tick tool”.
8. Report tick bites and attached ticks to the occupational health nurse (WorkCare) for follow-up.

2.6.4 Poisonous Snakes

Although many snakes are found in Ohio, only three are venomous and a danger to humans. These include: the Eastern timber rattlesnake, northern copperhead, and Massasauga rattlesnake. Generally these snakes are inoffensive and not aggressive unless disturbed.

In Ohio, the following guidelines help to identify which snakes are venomous[3]:

1. There are heat sensitive pits located on the head between the nostrils and eyes (nonvenomous - have nostrils only)
2. The pupils are oval (nonvenomous - round)
3. The head is triangular (nonvenomous snakes have a usually oval head)
4. From the vent (rectum) to the end of the tail, on the underside of the snake, the scales are not divided (nonvenomous - the scales in the same area are divided)
5. Except for the copperhead, there is a rattle at the end of the tail. (Nonvenomous snakes may vibrate their tail when threatened, but do not have a rattle).

[3] Ohio History Central:

http://www.ohiohistorycentral.org/w/Venomous_Snakes Accessed 15 Dec 2015

Eastern timber rattlesnakes have a broad, flat, triangular-shaped head and a yellow, tan, brown, or grey body[4]. They can range from 36 to 60 inches in length. Dark markings along the body are more rounded towards the head and become v-shaped towards the tail, which has a prominent rattle. The Eastern timber rattlesnake habitat is within leaf litter or under rocks and logs within wooded areas.

An adult Northern Copperhead is typically 30 inches in length, with reddish-brown, coppery bodies with brown bands[5]. They are often thick-bodied and have keeled scales. Copperheads are social snakes that are often found in large numbers hibernating in dens or sunning themselves. Most copperhead bites occur when people accidentally touch or step on this well-camouflaged snake, which tends to remain silent before striking.

The Massasauga Rattlesnake is normally about 20 to 30 inches long, and is characterized by grey to brownish grey coloring with a row of dark brown blotches along the spine[6]. This rattlesnake has a triangular head. Unlike many species of snake, Massasaugas snakes often migrate from dry upland areas in the spring aand summer to wetter habitats in the winter. The habitat for this species is therefore fairly varied, with prairies, meadows, marshes, swamps, floodplain forests, woodlands, and grasslands as potential habitat.

The possibility of poisonous snakes will be communicated to site personnel during the initial site-specific safety training. Site personnel will be warned to avoid snakes and their preferred habitats, particularly rocks, timber piles, and animal burrows. Site personnel will be required to wear sturdy steel-toe/steel-shank work boots. If there is a snake bite, call Range Control who will notify appropriate authorities. First aid will be administered while awaiting transport of the victim to the hospital for emergency treatment.

First aid for snake bites:

1. Immobilize the bitten arm or leg and have the victim stay as quiet as possible to keep the poison from spreading through the body
2. Seek immediate medical attention at the nearest hospital or medical facility. The only acceptable treatment for a venomous snakebite involves the use of antivenin.
3. Remove jewelry before swelling starts
4. Position the person so that the bite is at or below the level of the heart
5. Cleanse the wound and cover with a clean, dry dressing
6. Apply a splint to reduce movement of the affected area, but do not restrict blood flow
7. Do not use a tourniquet or apply ice

[4]Saint Louis Zoo

http://www.stlzoo.org/animals/abouttheanimals/reptiles/snakes/timberrattlesnake/ Accessed 15 Dec 2015

[5] National Zoo

http://nationalzoo.si.edu/Animals/ReptilesAmphibians/Facts/FactSheets/Northerncopperhead.cfm Accessed 15 Dec 2015

[6] Saint Louis Zoo

http://www.stlzoo.org/animals/abouttheanimals/reptiles/snakes/massasaugarattlesnake/ Accessed 15 Dec 2015

8. Do not cut the wound or attempt to remove the venom
9. Do not let the victim drink caffeine or alcohol
10. Do not try to capture the snake, but try to remember its color and shape

2.6.5 Poisonous Plants

Poison ivy (*Toxicodendron radicans*) is the most common and well-known irritating plant in the vicinity of CRJMTC. It can grow as a groundcover or as a "hairy" vine climbing up the bark of trees. Skin contact with the any part of the plant can result in an allergic response that causes itching red spots and blistering. The three, toothed leaflets that alternate on the stem are indicative of poison ivy. Contact with poison ivy leads to exposure to urushiol resin, from oleoresin found in the sap, that causes contact dermatitis in humans. Urushiol is found in all parts of the plant but the hairs, wood cells, anthers and pollen and may produce a skin rash, characterized by reddened, itchy, blistering skin that needs first-aid treatment. Urushiols can bind with the skin within 10 minutes. Poison Sumac is also present in this range. It is a swamp-loving tree with 5 to 13 smooth leaflets per stalk. It is a skin irritant that also uses urushiol resin.

Nettles (woodnettle *Laportea canadensis*, and stinging nettle *Urtica chamaedryoides*) have stinging hairs on their stems and leaves which can produce a short-lived stinging or burning sensation when brushed against.

If worker contact with one of these plants occurs, follow procedures below.

First aid/response to poison plant exposure:

Call or radio Range Control at (614) 336-6041 or if the person has trouble swallowing or breathing; or swelling, especially near the eyes or on the face

1. Immediately wash skin thoroughly with soap and water or a product such as Technu, taking care not to touch the face or other parts of the body prior to washing
2. Wash tools and contaminated clothing in strong soap and water because the plant oils can remain active for months
3. Apply cool compresses for 15 to 30 minutes at a time
4. Oatmeal baths or the application of calamine lotion will ease itching discomfort
5. Oral antihistamine may also help, but avoid topical antihistamines, which may make skin more sensitive
6. Seek medical attention for severe cases, if the rash covers a large part of the body, or if the person has blisters or can’t sleep. Steroids may be prescribed by a physician to help stop the spread of the rash in severe cases

2.6.6 Histoplasmosis[7]

Histoplasmosis is an infection disease caused by inhaling the spores of the fungus called *Histoplasma capsulatum*. The fungus typically lives in soil with high nitrogen content, particularly bird and bat droppings, and is most common in the valleys of the Ohio, Mississippi, St. Lawrence, and Rio Grande rivers. Disturbance of soil causes *H. capsulatum* spores to become airborne and inhaled, leading to inhalations. While often asymptomatic or mild, Histoplasmosis can appear as a mild, flu-like respiratory illness including fever, chest pain, dry cough, headache, shortness of breath, and muscle pains. There are possible chronic effects resembling tuberculosis that requires special antifungal medication. To limit the possible exposure to Histoplasmosis, the following steps will be taken:

1. Stop work and take additional corrective actions if airborne dust is observed
2. Avoid contact with or disturbance of bird or bat droppings
3. Use air purifying respirators equipped with P100 filters and disposable coveralls for work that may involve potentially significant or uncontrolled exposure to collections of droppings.

[7]Center for Disease Control and Prevention

http://www.cdc.gov/fungal/diseases/histoplasmosis/ Accessed 15 Dec 2015

3. ACTIVITY HAZARD ANALYSIS

3.1 MOBILIZATION AND DEMOBILIZATION

Date Prepared: 12-18-15
Prepared by: Patsy Glinsmann, SHM
Reviewed by: Bob Miller, Area SH&E Manager
Location: Camp Ravenna, Ohio
Activity: Mobilization and Demobilization

Standardized Army Risk Matrix					
	Probability				
Severity	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E (1)	E (1)	H (2)	H (2)	M (3)
Critical	E (1)	H (2)	H (2)	M (3)	L (4)
Marginal	H (2)	M(3)	M (3)	L (4)	L (5)
Negligible	M(3)	L (4)	L (4)	L (5)	L (5)

N

Numbers in parenthesis are resulting Risk Assessment Codes (RACs):
1 = extremely high; 2 = high; 3 = moderate; 4 = low; 5 = low
RACs were assigned after implementation of controls to indicate residual risk.

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS	RAC
1. General	1. Biological Hazards (mosquitos, bees, ticks, poisonous plants, snakes, histoplasmosis, etc)	• Level D PPE • Insect Repellant, pant legs tucked in and long sleeves worn • Avoidance of bird or bat droppings • Field staff with known anaphylactic reactions to stinging insects will carry an Epinephrine auto-injector and inform field team/SSHO of their condition.	3
	2. Temperature Extremes and Extreme Weather	• Maintain work/rest cycles appropriate to the task and temperature as outlined in Section 6.2 • Wear weather-appropriate clothing, discuss weather forecast and monitor weather throughout the day • Locate nearest shelter prior to work. Suspend work if severe weather is approaching or lightning is within 10 miles. • Drink plenty of fluids	3

	3. Exposure to Chemicals	• Wear required PPE (Level D, including nitrile gloves); add protective coveralls if contact with contaminated soil/liquid is anticipated. • Wash face and hands and other exposed areas prior to taking anything by mouth. • Maintain current HAZWOPER training and medical clearance for all staff • Doff disposable PPE properly	5
2.Vehicle Operation	1. Vehicle accidents, struck by incidents	• Obey all traffic laws (seat belt use, obey posted speed limits, no handheld cell phone use, valid driver's license, etc.) • Use headlights before sunrise and after sunset, or in heavy fog • Complete thorough vehicle inspection prior to use • Conduct vehicle backing with the use of a spotter • Take necessary precautions to avoid hitting deer	3
3.Moving Equipment	1. Musculoskeletal injuries	• Safety-toe boots are required at all times • Team lift or mechanical assistance for loads >50 lbs • Plan work to avoid pinch points, weight strain, and awkward positioning	5
	2. Slips, Trips and Falls	• Keep work areas clean and clear of tripping hazards. • Plan work to avoid snow, ice, mud, and standing water. • Use mechanical means to transport equipment long distances	4
EQUIPMENT TO BE USED	**TRAINING REQUIREMENTS**	**INSPECTION REQUIREMENTS**	
1. Vehicles	HAZWOPER 40-hr training and current refresher training Medical Clearance	• Daily inspections of vehicles • Continual worksite inspection and evaluation. • Daily safety briefing, weather reporting	

	Valid driver's license CPR/ First aid training	

3.2 MEC AND ANOMALY AVOIDANCE

Date Prepared: 12-18-15
Prepared by: Patsy Glinsmann, SHM
Reviewed by: Bob Miller, Area SH&E Manager
Location: Camp Ravenna, Ohio
Activity: MEC and Anomaly Avoidance
Report MEC discoveries as directed in Section 2.5.9.4 to AECOM, CRJMTC Range Control and CRJMTC Environmental Office

Standardized Army Risk Matrix					
	Probability				
Severity	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E (1)	E (1)	H (2)	H (2)	M (3)
Critical	E (1)	H (2)	H (2)	M (3)	L (4)
Marginal	H (2)	M(3)	M (3)	L (4)	L (5)
Negligible	M(3)	L (4)	L (4)	L (5)	L (5)

Numbers in parenthesis are resulting Risk Assessment Codes (RACs):
1 = extremely high; 2 = high; 3 = moderate; 4 = low; 5 = low
RACs were assigned after implementation of controls to indicate residual risk.

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS	RAC
1. Instrument-aided Visual Inspection	1. Direct contact with MEC (detonation, heat, fragmentation, and overpressure)	• Identify areas known or suspected of containing MEC • UXO-qualified personnel will escort non-UXO qualified staff • Non-UXO qualified staff will receive site-specific UXO awareness training • Report all potential MEC to UXO-qualified staff • Do not use cell phones or radio within 50 feet of potential MEC • Do not disturb the ground in potential MEC areas without consulting UXO-qualified staff • Do not touch or move MEC; evacuate area and notify UXO Safety Program Manager	3
EQUIPMENT TO BE USED	**TRAINING REQUIREMENTS**	**INSPECTION REQUIREMENTS**	

1. For instrument-aided visual inspection - Schonstedt GA-52Cx or the GA-72Cd	UXO Techs: Qualifications and training per Department of Defense Explosives Safety Board (DDESB) Technical Paper (TP)-18 Non-UXO qualified personnel: HAZWOPER and project-specific training conducted by UXO Tech to ensure that all on-site personnel fully understand the potential munitions on-site and MEC and anomaly avoidance procedures.	• Inspect tools/equipment/PPE for function of safety features and general assembly • Calibrate instruments according to manufacturer's instructions

3.3 VISUAL AND GEOPHYSICAL SURVEYING

Date Prepared: 12-18-15
Prepared by: Patsy Glinsmann, SHM
Reviewed by: Bob Miller, Area SH&E Manager
Location: Camp Ravenna, Ohio
Activity: Visual and Geophysical Surveying

Standardized Army Risk Matrix					
	Probability				
Severity	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E (1)	E (1)	H (2)	H (2)	M (3)
Critical	E (1)	H (2)	H (2)	M (3)	L (4)
Marginal	H (2)	M(3)	M (3)	L (4)	L (5)
Negligible	M(3)	L (4)	L (4)	L (5)	L (5)

Numbers in parenthesis are resulting Risk Assessment Codes (RACs):
1 = extremely high; 2 = high; 3 = moderate; 4 = low; 5 = low
RACs were assigned after implementation of controls to indicate residual risk.

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS	RAC
1. Complete a UXO avoidance survey (see Table 3-2 for detail) 2. Visual survey, including photographic documentation, GPS data collection, and brush clearing as needed 3. Geophysical survey using a ground conductivity meter and magnetic gradiometer. 4. Decontaminate hand auger using low-phosphorous	1. Uneven terrain, slippery conditions, obstructions on walking surface	• Monitor work for good housekeeping practices • Keep walking surfaces free from tripping and slipping hazards • Be alert to weather conditions • Wear non-skid, safety-toe and shank boots/shoes	5
	2. Muscle strain from improper lifting techniques of geophysical equipment	• Follow proper lifting techniques • One person will not lift more than 50 pounds • Get assistance or use mechanical aids	4
	3. Hand injury	• Wear leather gloves during brush clearance, while using hand tools	5
	4. MEC (See table 3-2)	• Follow MEC avoidance procedures • Do not touch any suspicious items that are observed • Contact UXO escort, who will alert base personnel to the location of the item	3

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS	RAC
detergent and water.	5. Foot injuries from dropped or buried objects or site debris	• Be aware of site conditions • Wear safety toe/shank boots/shoes	5
	6. Inclement weather	• Check reports on the NOAA website prior to work each day • Monitor conditions during the day • Discontinue operations during high winds, heavy rain, thunderstorms/lightning • Identify areas of shelter prior to work and be prepared to seek shelter when directed by base personnel or as indicated by observed conditions	4
	7. Heat Stress	• Have adequate water and electrolyte drinks available • Designate shaded break areas • Allow workers time to acclimatize • If heat stress conditions are anticipated, measure parameters using a WBGT to establish work-rest schedules • Conduct physiological monitoring as needed to further define individual work-rest schedules • Be aware of symptoms of heat-related illness	4
	8. Cold Stress	• Wear at least three layers of clothing and have a change of dry clothing available • Have adequate warm liquids for drinking • Designate a warm rest area • Be aware of cold stress symptoms • Monitor weather conditions	5

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS	RAC
	9. Biological hazards – ticks, mosquitoes, flies	• Wear long sleeves and long pants • Tuck pant legs into socks and tape around • Spray 100% DEET around ankles, wrists, and on a head covering • Spray 30% DEET on exposed skin • Check for ticks during field activities; shower and conduct a complete body check after work • Place clothing in hot dryer to kill loose ticks • Remove attached ticks using fine tweezers or a "tick tool" • Report attached ticks as an incident for follow-up • Be aware of symptoms of mosquito and tick-borne illness	4
	10. Biological hazards – poisonous plants	• Be able to identify poisonous plants and avoid contact • Wash exposed skin and tools with soap and water or a product such as Technu • Wash clothing in soap and hot water to remove oils; do not reuse clothing	5
	11. Biological hazards – spiders, snakes, other wildlife	• Be able to identify poisonous species • Be aware of spider, snake habitats • Do not place hands or feet into areas that cannot be seen • Maintain vigilance for potential wildlife hazards • Make noise to alert wildlife to your presence • No feeding wildlife or bringing food/eating in wildlife habitat • If wildlife hazards are encountered, maintain safe distance of at least 60 feet	4
	12. Biological hazards - microorganisms	• Wear nitrile gloves and safety glasses • Avoid areas of avian droppings • Wash PPE after use • Wash hands and face prior to eating, drinking, or smoking	5

EQUIPMENT TO BE USED	TRAINING REQUIREMENTS	INSPECTION REQUIREMENTS
1. For instrument-aided visual inspection - Schonstedt GA-52Cx or the GA-72Cd 2. Handheld GPS Unit 3. Geonics EM-31 Ground Conductivity Meter 4. a Geometrics G-858G magnetic gradiometer 5. Brush clearing hand tools (clippers, rakes, etc.) 6. A hand auger 7. Brushes used in decontamination	1. UXO Techs: Qualifications and training per Department of Defense Explosives Safety Board (DDESB) Technical Paper (TP)-18 2. Current HAZWOPER training, CPR, and first aid 3. Awareness of symptoms of heat related illness; mosquito and tick-borne illness 4. Familiarity with safe handling of Geophysical equipment. 5. Knowledge of safe use practices for brush clearing tools and hand augers.	• Inspect tools/equipment/PPE for function of safety features and general assembly Inspect electrical equipment for approved use in a wet environment.

3.4 INTRUSIVE INVESTIGATION

Date Prepared: 12-18-15
Prepared by: Patsy Glinsmann, SHM
Reviewed by: Bob Miller, Area SH&E Manager
Location: Camp Ravenna, Ohio
Activity: Intrusive Investigation; Test Pit Excavations

Standardized Army Risk Matrix					
	Probability				
Severity	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E (1)	E (1)	H (2)	H (2)	M (3)
Critical	E (1)	H (2)	H (2)	M (3)	L (4)
Marginal	H (2)	M(3)	M (3)	L (4)	L (5)
Negligible	M(3)	L (4)	L (4)	L (5)	L (5)

Numbers in parenthesis are resulting Risk Assessment Codes (RACs):
1 = extremely high; 2 = high; 3 = moderate; 4 = low; 5 = low
RACs were assigned after implementation of controls to indicate residual risk.

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS	RAC
1. Conduct MEC and subsurface utility clearance in test areas 2. Establish Controlled Work area	1. Exposure to chemicals	• Wear Level D plus nitrile gloves if contacting soils • Wash face and hands prior to taking anything by the mouth. • Stay upwind of any dust-generating activities • Use wet methods to control dust	5
3. Excavate shallow test pit up to 4 feet in depth using a backhoe or excavator 4. Decontaminate backhoe using a low-phosphorous detergent and water 5. Containerize rinsate in 55-gallon drums	2. Safety hazards associated with backhoe use, including “Struck by” incidents	• Level D PPE including a hardhat and Class 2 retro-reflective vest – upgrade to Class 3 during periods of limited visibility. Unnecessary personnel will stay well clear of operating equipment • Daily inspections of equipment by a qualified person (include inspections of hydraulic lines, back up alarm, oil levels, and safety controls) • Establish a secure Controlled Work zone by the use of barricades or ropes and posted signs • Limit operation of equipment to an OSHA-defined qualified person with HAZWOPER training.	3

	3. Noise	• Hearing protection within 7.6 m (25ft) of backhoe unless equipment-specific monitoring indicates exposures less than 90 dB. • Monitoring during daily safety inspections	3
	4. Contact with buried or overhead electrical or other utilities	• Clearance of subsurface utilities prior to work by a competent person • Communication with CRJMTC on known utilities prior to beginning work • Visual monitoring of all work areas.	4
	5. Fire	• Fuels must be stored in safety containers labeled/listed by a nationally recognized testing laboratory • Bonding and grounding during fuel transfers • Fuel containers marked with “No Smoking” or “Open Flame” signs • No ignition sources within 50 ft of fuel storage areas • Fire Extinguishers kept within each vehicle and within 50 ft of storage areas, inspected monthly • Monitoring- daily safety inspection	4
	6. Potential excavation cave-ins	• No entry of excavation cavities • Test pits limited to less than 4 feet in depth • Continual monitoring of excavation edges for signs of spilling or collapse. • Soil temporarily removed from the trench will be kept near the excavation site but about 3 feet away to minimize spilling or collapse. • Remain a distance of greater than 3 feet from any open excavation • Back filled, no access control necessary	4

	7. Exposure to chemicals while decontaminating backhoe bucket using low-phosphorous detergent and water	• Wear Level D PPE plus nitrile or PVC gloves • Drum bucket rinsate in 55-gallon drums labeled by a nationally recognized system. • Minimize contact and splash while washing; wear protective coverall if needed. • Conduct decontamination within the Controlled Work Zone • Wash face and hands before taking anything by mouth	5
EQUIPMENT TO BE USED	**TRAINING REQUIREMENTS**	**INSPECTION REQUIREMENTS**	
1. For instrument-aided visual inspection - Schonstedt GA-52Cx or the GA-72Cd 2. Barricades or flagging 3. Backhoe or excavator 4. Non-phosphate soap and water 5. Brushes used for decontamination 6. 55-gallon drum for rinsate containerization.	1 UXO Techs: Qualifications and training per Department of Defense Explosives Safety Board (DDESB) Technical Paper (TP)-18 2. Current HAZWOPER training, CPR, and first aid 3. Awareness of symptoms of heat related illness; mosquito and tick-borne illness 4. Qualifications to operate backhoe or operator. 5. Knowledge of excavation safe practices	1. Daily inspection of heavy equipment and fuel storage areas. 2. Continual monitoring of excavation edges for spalling or signs of collapse.	

3.5 IDW HANDLING

Date Prepared: 12-18-15
Prepared by: Patsy Glinsmann, SH&E Manager
Reviewed by: Bob Miller, Area SH&E Manager
Location: Camp Ravenna, Ohio
Activity: Investigation-Derived Waste Handling (decontamination rinsate only)

Standardized Army Risk Matrix					
	Probability				
Severity	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E (1)	E (1)	H (2)	H (2)	M (3)
Critical	E (1)	H (2)	H (2)	M (3)	L (4)
Marginal	H (2)	M(3)	M (3)	L (4)	L (5)
Negligible	M(3)	L (4)	L (4)	L (5)	L (5)

Numbers in parenthesis are resulting Risk Assessment Codes (RACs):
1 = extremely high; 2 = high; 3 = moderate; 4 = low; 5 = low
RACs were assigned after implementation of controls to indicate residual risk.

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS	RAC
1. Containerizing IDW 2. Moving containerized IDW, (55-gallon drums) 3. Storage and transport of drums	1. Exposure to decontamination chemicals and soil or debris	• Wear Level D PPE plus nitrile gloves and safety glasses; add protective coverall if contact or splash anticipated. • Site workers designated to handle IDW will minimize contact with it • Wear heavy leather gloves if handling metal or sharp debris • Wash face and hands prior to taking anything by mouth	5
	2. General Hazards (manual lifting and slips)	• Monitor work area for good housekeeping practices • As much as possible, keep decontamination work area free of slipping hazards such as excess water and mud • Lifts of over 50 lbs will be made by 2 or more personnel or with lifting equipment • Wear heavy leather gloves for materials handling	4

	3. Musculoskeletal injuries (lifting, opening, and closing drums)	• Follow proper lifting techniques • One person will not lift more than 50 pounds • Get assistance or use mechanical aids • Use heavy gloves during opening or closing drums	3
	4. Unstable Loads	• Secure all drum loads using a locking strap or equivalent. • Do not overload truck with IDW; make several trips if necessary.	3
EQUIPMENT TO BE USED	**TRAINING REQUIREMENTS**	**INSPECTION REQUIREMENTS**	
8. Vehicle sufficient to transport 55-gallon drums 9. Hand Tools	1. Current HAZWOPER training, CPR, and first aid 2. Medical clearance 3. CPR and first aid training 4. Site –specific IDW training	1. Inspect tools/equipment/PPE for function of safety features and general assembly	

4. SITE CONTROL MEASURES

4.1 STAFF ORGANIZATION, QUALIFICATIONS, AND RESPONSIBILITIES

SHM: Patsy Glinsmann, CIH

Ms. Glinsmann is a CIH with more than 25 years of industrial hygiene experience, including 18 years managing safety and occupational health at hazardous waste site cleanup operations. The SHM is responsible for:

1. Developing, maintaining, and overseeing implementation of the SSHP
2. Visiting the project site, as needed, to audit the effectiveness of the SSHP
3. Remaining available for project emergencies
4. Developing modifications to the SSHP, as needed
5. Evaluating occupational exposure monitoring/air sampling data and adjusting SSHP requirements, as necessary
6. Serving as a QC staff member
7. Submitting the SSHP to the Area SH&E Manager for review and approval signature

SSHO: Amibeth Salvatore

The SSHO has extensive experience implementing safety and occupational health procedures at similar sites and has the training and experience to conduct exposure monitoring/air sampling, select/adjust protective equipment use, and monitor construction activity. The SSHO has completed the 40-hour HAZWOPER training, 8-hour annual HAZWOPER refreshers, 8-hour HAZWOPER Site Supervisor training, and is currently certified in First Aid and CPR. The SSHO has the authority and is responsible for:

1. Being present during operations to implement the SSHP
2. Inspecting site activities to identify safety and occupational health deficiencies and correcting them
3. Coordinating changes/modifications to the SSHP with the SHM, PM, and contracting officer
4. Conducting project-specific training

Senior Geophysicist: Gregory Abrams

The Senior Geophysicist with specialization in MMRP geophysical investigations and has extensive experience in various geophysical investigations and methods. These methods include, but are not limited to advanced UXO classification (MetalMapper and TEMTADS), electromagnetics, magnetics, electrical resistivity, seismic refraction, GPR, hydrographic surveys, and construction inspection. He is a licensed Professional Geologist in the state of Louisiana. The Senior Geophysicist has also completed 40-hour HAZWOPER training, 8-hour annual HAZWOPER refreshers, and is currently certified in First Aid and CPR. The Senior Geophysicist has the authority and is responsible for:

1. Coordinating field survey team activities
2. Directing the delineation of potential solid waste zones using geophysical methods
3. Assisting the SSHO in stopping, amending, or curtailing work for health and safety or operational deficiencies.

UXO Escort: Mike Shoop

The UXO Escort will meet the requirements stated in Department of Defense Explosives Safety Board (DDESB) TP-18 and EM 385-1-97. As the UXO Escort has completed 40-hour HAZWOPER training, 8-hour annual HAZWOPER refreshers, and is currently certified in First Aid and CPR. The UXO Escort will provide escort and MEC/anomaly avoidance during field activities. He will also conduct MEC awareness training and give daily tailgate briefings on potential MEC hazards associated with site work. These tailgate briefings will include communication checks and protocols, rally points, medical evacuations and verification of first responder phone numbers.

Staff qualifications are presented in Attachment B.

4.2 TRAINING AND MEDICAL SURVEILLANCE

All personnel must comply with the medical surveillance requirements required by OSHA (29 CFR 1910.120). The AECOM medical surveillance program meets all OSHA and ARNG criteria for hazardous waste investigations. Personnel must have passed the AECOM medical surveillance examination (or equivalent) within the time frame established (annual or biennial schedule). The PM will verify that all AECOM personnel meet applicable OSHA medical surveillance requirements prior to the start of site work. Documentation regarding medical surveillance clearance will be maintained by the SSHO.

The requirements of the medical surveillance program include:

- Selection of program participants
    - The Medical Surveillance Evaluation (MSE) form provides the primary guidance for determining whether medical screening is required for an employee and the frequency of periodic exams. The MSE is to be completed by the employee and his or her supervisor at the time of hire for any employee who may work outside an office environment. At each annual performance review, the MSE is to be reviewed for accuracy. Other reviews are required whenever there is a change in job tasks.
    - Additional site- or project-specific biological monitoring or toxicological screening may be required in addition to this program's scheduled core exams. These medical tests will be specified by the project-specific SSHO and will be authorized by the Medical Service Provider (MSP) on the exam appointment protocol. No additional medical tests are necessary for work at this project site.
- Types of medical screening and surveillance exams
    - A baseline or pre-assignment baseline exam will be conducted prior to the start of work assignments requiring medical surveillance.
    - Periodic exam schedules are established by the MSP using the following criteria:
        - Employees performing field work activities at HAZWOPER sites less than 30 days per year receive an exam on a biennial schedule.
        - Employees performing field work activities at HAZWOPER sites more than 30 days per year receive an exam on an annual schedule.
    - Employees currently participating in an examination program will receive exit exams when they leave their work assignment as identified in the Exit Exam Determination. In the event an employee declines the exit exam, the employee will be requested to sign a Waiver of Exit Medical Surveillance Exam.

All accidents and potential exposures must be reported immediately to the SSHO, who will coordinate with safety staff and occupational health nurse to arrange for medical exams or tests that may be indicated as part of the AECOM medical surveillance program. Depending on the type of incident, it may be critical to perform tests within 24 to 48 hours. The AECOM Medical Consultant, will advise the occupational health nurse on the types of tests required to accurately assess the injury. Refer to Section 9 of the this document for incident reporting guidelines. Failure to report an injury or incident immediately will result in disciplinary action.

4.3 PREVENTION OF ALCOHOL AND DRUG ABUSE

Employees who use drugs or alcohol in an improper or illegal manner increase the risk of injury to themselves and fellow employees as well as to property. For this reason, AECOM regards any misuse of drugs or alcohol by employees to be an unacceptable practice. AECOM has an established substance abuse program, HR Policy and Procedure 034.030, meeting the requirements of the Drug Free Workplace Act of 1988. This policy defines the procedures necessary to create and ensure a drug- and alcohol-free workplace, inform and educate employees of those procedures, and comply with Federal and State law and client requirements related to the documentation and dissemination of those procedures. Employees must comply with the requirements contained in this Policy and Procedure as a condition of employment. Failure to comply with these requirements will be grounds for disciplinary action, including termination of employment

AECOM maintains an Employee Assistance Program that provides initial behavioral health services and guidance for obtaining longer-term treatment. In conjunction with the Employee Assistance Program, the Company promotes a drug-free awareness program to inform employees about:

- The dangers of substance abuse in the workplace;
- Available counseling, rehabilitation, and employee assistance programs (both for self-referral and supervisory referral);
- The penalties that may be imposed for substance abuse violations; and
- The Company's commitment to maintaining a drug-free workplace.

All employees are expected to report to work fit for duty and free from the effects of illegal drugs and other controlled substances. Employees must disclose any relevant work duty restrictions to their supervisor, and if taking a prescribed medication, must carry it in the original packaging labeled by a licensed pharmacist. Employees shall not be under the influence of, consume, possess, sell, or distribute alcoholic beverages on any customer- or AECOM-controlled property. This specifically applies when an employee is on duty and when meals and break periods are taken during on-duty periods. All employees must sign a Substance Abuse Policy and Procedure Acknowledgement. Compliance with the Policy and Procedure is a condition of initial and continued employment.

Drug and Alcohol testing is required:

- Pre-employment
- Reasonable Suspicion (observation of apparent drug or alcohol use)
- Post-Accident (probable cause)

HR and Safety administers this Substance Abuse Policy and Procedure. Managers and supervisors are to observe and document employee behavior which appears to violate this Policy and Procedure, and are responsible for referring employees for drug/alcohol testing as required. All employees must commit to

a safe and drug-free workplace by complying with this Policy and Procedure and understanding their responsibilities.

5. PERSONAL PROTECTIVE EQUIPMENT

5.1 GENERAL

Based on the hazard assessment, Level D PPE was determined as the initial level of protection required, as defined in Section 5.2. The decision to require the use of optional items (hearing protection, hard hats, and reflective vests) will be made by the SSHO, based on the hazard and risk analysis in the field. The SSHO may also make the decision to upgrade to Modified Level D, as defined in Section 5.2, if site conditions warrant. The level of protection worn by site personnel will be enforced by the SSHO.

Any recommended changes in the level of protection that involve the use of protective equipment not covered under this SSHP (e.g., respirators) will be documented, and a revised hazard assessment will be prepared by the SHM and submitted to ARNG for review prior to use in the field.

Due to the levels of contaminants expected, the nature of the media to be inspected, and the use of PPE and engineering controls, volatile compounds and dusty conditions are not anticipated to be encountered during site activities; therefore, PPE upgrades to include the use of respiratory protection are not expected.

All site workers will have current HAZWOPER training; refresher classes address the use of PPE. Training includes the identification of PPE necessary for various tasks; how to don, doff, adjust, and wear PPE; limitations of PPE; and proper care, inspection, testing, maintenance, useful life, storage, and disposal of the PPE. PPE will be inspected on a regular basis in accordance with AECOM SH&E SOP 208 (Attachment A).

If there is reason to believe that any affected employee who has been trained does not have the understanding and skill required to use the assigned PPE, that employee will be removed from the job site until additional training can be completed. AECOM uses a combination of classroom instruction, on-line modules, and hands-on experience for PPE training.

A summary of worker certifications is included in Section 4.1 of this document.

5.2 LEVEL D PROTECTION

Level D PPE provides minimal protection against chemical hazards and should not be worn in any area with respiratory or skin hazards. Level D PPE for this field effort includes:

1. Cotton coveralls or long pants and a shirt with sleeves
2. Safety glasses
3. Safety-toe/shank work boots
4. Work gloves for materials handling; latex/nitrile gloves for soil handling
5. Hearing protection (as required)
6. ANSI Class 2 retro-reflective vests; Class 3 during periods of low visibility (as required)
7. Hard hat (as required)

Level D PPE will be adequate for the majority of tasks conducted during this project, due to the type of activities planned and the minimal contact expected when performing field activities.

5.3 MODIFIED LEVEL D PROTECTION

Modified Level D PPE includes the items listed in Section 5.2 above, *and one or more* of the following items:

1. Regular (white) or poly-coated Tyvek (yellow) or polyvinyl chloride (PVC) rain suit
2. Safety goggles/face shield
3. Chemical-resistant over-boots or chemical-resistant steel-toe/steel-shank boots
4. Inner latex (i.e., surgical) gloves
5. Chemical-resistant outer gloves (type: nitrile rubber)
6. Tape for sealing arm, leg, and zipper joints

Modified Level D PPE will be donned for tasks whenever skin (other than hands) or clothing contact with potentially contaminated soil or liquid is expected.

If the SSHO encounters unexpected conditions requiring the use of higher levels of PPE, then work will cease until an AHA is completed, modified PPE requirements are assessed, and the SSHP is amended and reviewed by the ARNG.

5.4 LEVEL A, B AND C PROTECTION

The tasks scheduled for this project should not require the use of Level A, B, or C PPE, and their use is not covered by this SSHP.

6. EXPOSURE MONITORING

6.1 CHEMICAL EXPOSURE MONITORING

Based on chemical hazards summarized in Section 2.4, knowledge of site conditions, and type of work to be performed, no monitoring program is needed for volatile compounds or dust in the breathing zone.

Work will be stopped if any unusual conditions are encountered (odors, suspect liquids) or if personnel experience any symptoms associated with site conditions or activities. Site conditions and the need for additional PPE or site controls will be re-evaluated prior to resuming work.

If changes are needed, an addendum to this SSHP will be prepared and submitted to ARNG for review.

6.2 HEAT/COLD STRESS MONITORING

Heat Stress

Based on the schedule for the field mobilizations (March 2016 to December 2016) covered by this SSHP, heat stress may be experienced on site; the predicted weather conditions will be assessed before departure for the site. The nature of this work is such that employees work for a short time to conduct field investigations at a location, demobilize and move to another location by vehicle. Thus, work rest schedules are already somewhat incorporated into the work day.

If temperatures are expected to exceed heat stress conditions, a Wet Bulb Globe Thermometer (WBGT) will be taken on site and used to measure heat stress parameters. Work-rest schedules will be established by the SSHO based on the screening criteria for Threshold Limit Value (TLV) and Action Limit for Heat Stress Exposure established by the American Conference of Governmental Industrial Hygienists, (2014), shown below. Values on table are WBGT readings in ^{o}F.

Table 1: Screening Criteria and Action Limit for Heat Stress Exposure

Work Cycle (per hour)	TLV (^{o}F)			Action Limit (^{o}F)		
	Light	Moderate	Heavy	Light	Moderate	Heavy
75 to 100% Work	87.8	82.4	NR	82.4	77.0	NR
50 to 75% Work	87.8	84.2	81.5	83.3	78.8	75.2
25 to 50% Work	89.6	86.0	84.2	85.1	80.6	77.9
0 to 25% Work	90.5	88.7	86.9	86.0	84.2	82.4

NR = Not recommended

It is expected that workloads will fall into the moderate category (walking about with moderate lifting or pushing, or carrying 10 pounds or less). If the WBGT reading exceeds 77.0 ^{o}F for personnel wearing standard work clothing, a work-rest cycle will be established, and physiological monitoring will be conducted to assess the effectiveness of the heat stress controls.

Heat Stress Controls

The best approach to avoiding heat-related illness is through preventive heat stress management. Measures to be implemented for this project will include:

Rest Areas – A relatively cool, shaded area will be provided for breaks when ambient temperatures exceed 80^{o}F and workers are wearing regular work clothes. If shade is not available, a canopy will be

constructed, or workers will have access to air-conditioned buildings or vehicles. Employees will have access to these rest areas at break times and at any other time a recovery period is needed.

Liquids – Water and electrolyte replacement drinks will be made available. Employees will have access to potable drinking water equivalent to one quart of water per employee per hour during the work shift. Workers should drink 16 ounces before starting work in the morning and after lunch, and 8 to 16 ounces at each break. Employees will be encouraged to avoid alcohol during non-work hours and caffeine during work hours when heat stress conditions are anticipated.

Acclimatization – When working in a heat stress environment, employees will need to adapt to the hot conditions. Workloads should start at 50% capacity and increase 10 % each day to achieve 100% capacity. Acclimatization will start to decrease after 3-4 days, and will be gone after one week of not working in a hot environment.

Heat stress controls to be implemented include:

- Allow workers to become acclimatized to the heat (3 to 6 days);
- Provide shaded or air-conditioned break areas;
- Provide sun screen to prevent sun burn; and
- Provide drinking water and electrolyte-replenishing fluids.

Whenever the WBGT reading exceeds the values on the table above for the identified work-rest regime, the SSHO will monitor workers for heat stress by measuring temperature and pulse. The SSHO will further adjust individual work/rest schedules based on results of physiological monitoring.

- Heart Rate – Heart rate should be measured by the radial pulse as early as possible in the initial rest period (P1) and after two minutes (P2). If P1 is greater than or equal to 110 beats per minute (bpm) and P1-P2 is less than or equal to 10 bpm, shorten the next work cycle by 1/3 without changing the rest period. If the same condition exists at the end of the next work period, that individual should not return to work until repeated measurements are in the acceptable range and they are fully recovered.
- Body Temperature – The body temperature may be measured using a clinical oral thermometer or a clinical ear thermometer. If the body temperature exceeds 99.6 ° F, shorten the following work period by 1/3 without changing the rest period. If at the next rest period, the temperature still exceeds 99.6 ^{o}F, that individual should not return to work until their body temperature drops below 99.6 ^{o}F and they are fully recovered.

The SSHO will assess conditions that may cause heat stress in site workers. All site workers will be familiar with the symptoms of heat stress illness described below and will report any symptoms to the SSHO immediately. Personnel should monitor themselves and each other for the development of symptoms such as sudden fatigue, nausea, dizziness, irritability, malaise, flu-like symptoms, and lightheadedness.

Conditions related to heat stress:

Heat Rash may result from continuous exposure to heat or humid air. It appears as red papules, usually in areas where the clothing is restrictive, and gives rise to a prickly sensation, particularly as sweating increases.

To prevent heat rash, shower after work, dry off thoroughly, and put on clean, dry clothes. Try to stay in a cool place after work. See a physician if the rash continues to develop.

Heat Cramps are caused by heavy sweating with inadequate electrolyte replacement. Symptoms include muscle spasms and pain in the hands, feet and abdomen.

First aid for heat cramps: Leave the work area, and rest in a cool, shaded place. Drink beverages that contain salt or eat salty food. Taking adequate breaks and drinking electrolyte replacement drinks should prevent cramps from returning.

Heat Exhaustion occurs from increased stress on various body organs including inadequate blood circulation due to cardiovascular insufficiency or dehydration. Signs and symptoms include:

- Pale, cool, moist skin
- Heavy sweating
- Dizziness
- Nausea
- Fainting
- Headache
- Blurred vision
- Vomiting

The key here is that the victim is still sweating, so the cooling system is still working; it's just under severe stress. The body core temperature may be elevated, but not higher than 104ºF. It is important to recognize and treat these symptoms as soon as possible, as the transition from heat exhaustion to the very hazardous heat stroke can be quite rapid.

First Aid for Heat Exhaustion: Treatment involves replacing fluids (rehydration) and salts and removing the person from the hot environment. If symptoms are mild, sipping cool, slightly salty beverages every few minutes may be all that is needed. Removing or loosening clothing and applying a wet cloth or ice packs to the skin also aid cooling.

Heat Stroke is the most serious form of heat stress. Temperature regulation fails and the body temperature rises to critical levels, typically at or above 104ºF. Immediate action must be taken to cool the body before serious injury and death occurs. Competent medical help must be obtained. Signs and symptoms are:

- Red, hot, usually dry skin
- Lack of or reduced perspiration (lack of perspiration may be masked for those wearing chemical protective clothing since perspiration from earlier in the day will be present)
- Nausea
- Vomiting
- Dizziness and confusion
- Strong, rapid pulse
- Coma

First Aid for Heat Stroke - THIS IS A MEDICAL EMERGENCY! CALL RANGE CONTROL FOR MEDICAL ASSISTANCE IMMEDIATELY!

While awaiting transportation to the hospital, a person should be wrapped in cold, wet bedding or clothing; immersed in a lake, stream, or cool bathtub; or cooled with ice. At the hospital, body cooling is usually accomplished by removing the clothes and covering the exposed skin with water or ice. To speed evaporation and body cooling, a fan may be used to blow air on the body. Body

temperature is measured frequently, often constantly. To avoid overcooling, cooling is stopped when the body temperature is reduced to about 102 °F.

Cold Stress

Cold stress is a concern when field crews are working outdoors in damp and cool (below 50°F) conditions or anytime temperatures are below 32°F. Personnel should monitor weather forecasts each day and schedule work for the warmer part of the day. While working, ambient temperature, wind speed, and precipitation should be monitored, and a warming regimen should be implemented to allow workers breaks from the cold. Shelter to escape cold, wind, and precipitation, and a source of heat (such as warm packs or portable heaters) should be provided at the worksite. Other cold stress prevention controls include:

1. Changing clothes when work clothes become wet with sweat
2. Avoiding caffeine (which has diuretic and circulatory effects)
3. Ensuring workers drink warm, sweet drinks or soups to increase their caloric intake and reduce the possibility of cold weather dehydration

When site conditions are as described above, workers should wear at least three layers of clothing, with an inner layer of cotton or synthetic material, a middle layer of down, wool, or similar material to provide insulation, and an outer layer to break the wind and allow some ventilation (e.g., Gortex® or nylon). A hat or hardhat liner will help maintain body heat, and insulated boots and gloves will reduce the chance of frostbite. Workers should keep a change of dry clothing available in case work clothes become wet; drink plenty of warm liquids, avoiding caffeine and alcohol; eat high-calorie snacks to help maintain body metabolism; and work in pairs and watch for signs of cold stress.

Signs of and Treatment for Cold Stress Related Illness

Hypothermia: Hypothermia results when the body loses heat faster than it can be produced. When this situation first occurs, blood vessels in the skin constrict in an attempt to conserve vital internal heat. Hands and feet are first affected. If the body continues to lose heat, involuntary shivers begin. This is the body's way of attempting to produce more heat, and it is usually the first real warning sign of hypothermia. Further heat loss produces speech difficulty, confusion, loss of manual dexterity, collapse, and finally death. Wet clothes or immersion in cold water greatly increases the hypothermia risk. The progressive clinical presentation of hypothermia is described in the table below.

Frostbite: Local injury resulting from cold is included in the generic term frostbite. There are several degrees of damage. Frostbite can be categorized into:

Frost Nip or Initial Frostbite: (1st degree frostbite) Characterized by blanching or whitening of skin.

Superficial Frostbite: (2nd degree frostbite) Skin has a waxy or white appearance and is firm to the touch, but tissue beneath is resilient. Blistering and peeling of the frozen skin will follow exposure.

Deep Frostbite: (3rd degree frostbite) Tissues are cold, pale, and solid; extremely serious injury with possible amputation of affected area.

Frostbite can occur without hypothermia when the extremities do not receive sufficient heat. The toes, fingers, cheeks, and ears are the most commonly affected. Frostbite occurs when there is freezing of the fluids around the cells of the affected tissues. The first symptom of frostbite is an uncomfortable sensation of coldness, followed by numbness. There may be tingling, stinging, or cramping. Contact by the skin with tools or other metal objects below 20°F (-7°C) may result in contact frostbite.

Condition	Signs/Symptoms	Treatment
Hypothermia **Mild** Body temperature (98° - 90° F)	Shivering Lack of coordination Stumbling, fumbling hands Slurred speech Memory loss Pale, cold skin	Move to warm area Stay active Remove wet clothes and replace with dry clothes or blankets Cover the head Drink warm (not hot) sugary drink
Hypothermia **Moderate** Body temperature (90° - 86° F)	Shivering stops Unable to walk or stand Confused and irrational	All of the above, plus • Call for an ambulance • Cover all extremities completely • Place very warm objects, such as hot packs or water bottles on the victim's head, neck, chest and groin
Hypothermia **Severe** Body temperature (86° - 78° F)	Severe muscle stiffness Very sleepy or unconscious Ice cold skin death	Call for an ambulance Treat the victim very gently Do not attempt to re-warm -- the victim should receive treatment in a hospital
Frostbite	Cold, tingling, stinging or aching feeling in frostbitten area; numbness Skin color turns red, then purple, then white or very pale skin, cold to the touch Blisters in severe cases	Seek medical attention Do not rub the area Wrap in soft cloth If help is delayed, immerse in warm, not hot, water
Trench Foot	Tingling, itching or burning sensation Blisters	Soak feet in warm water, then wrap with dry cloth bandages Drink a warm, sugary drink

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7. SITE CONTROL

7.1 COMMUNICATIONS

A cellular phone will be available on site for emergency use. While on site, if cell phone reception is problematic and one is available, AECOM personnel will be issued a 2-way radio and instructed on its use by Range Control. Range Control's phone number (614)336-6041will be provided to project personnel and will be available at all times to workers on site in case of an emergency. Work will not be conducted on site if there is not access to a telephone, and site personnel will be informed of the nearest available telephone.

7.2 GENERAL SITE RULES

1. If requested, personnel must maintain contact with Range Control and Onsite Restoration Program POCs at all times through two-way radios or phones.
2. All work will be conducted in compliance with the *USACE Safety and Health Requirements Manual* (USACE, 2014).
3. Daily safety briefings will be held during field activities to inform personnel of new hazards or procedures.
4. All site personnel will wear PPE as required by the task.
5. The buddy system will be observed at all times, which will include maintaining verbal or visual contact with a partner.
6. All site personnel who wear corrective lenses will provide their own prescription safety glasses.
7. Horseplay will not be tolerated.
8. Personnel will notify the SSHO of any medical conditions (e.g. allergic to bee stings, diabetes, pregnancy) that will require special consideration.
9. Proper site housekeeping (including removal of trash and orderly stacking and removal of materials to reduce slipping, tripping, and fire hazards) will be the responsibility of all site personnel on a daily basis.
10. Contact with potentially contaminated substances will be avoided by seeking alternatives to walking through puddles, pools, and mud; kneeling on the ground; and placing equipment on the ground.
11. If any unusual site conditions are noted (odors, presence of unknown liquids, suspect biohazards) or any symptoms are experienced, work will be stopped until site hazards can be evaluated.

7.3 SANITATION

Employees will not be required to perform work under unsanitary conditions. Sanitation issues for this site will include the following:

1. Drinking/potable water (bottled water) will be kept in each vehicle during field activities. This will be replenished, as necessary, to provide adequate supplies of potable water. Soap and water will also be available at the jobsite for washing body parts.

2. Containers used for drinking water will be clearly marked ("Drinking Water") and not used for any other purpose.
3. Containers or dispensers of non-potable water will be clearly marked ("Caution- Water Unsafe for Drinking, Washing, or Cooking"
4. Cups must not be shared by employees.
5. Outlets for non-potable water (i.e., firefighting purposes) are not to be used by employees for drinking, washing, or cooking purposes.
6. Potable water and restrooms are available at the Environmental Office and at other buildings at CRJMTC.
7. Site activities are not anticipated to take place at a single location for an extended period, but not all buildings have potable water or restrooms. Therefore, a portable toilet will be placed in a central location for employee use, and drinking water will be provided during field work.

Newton Falls, Ohio is located approximately ½ mile southeast of the CRJMTC Environmental Office. Disposable PPE will eliminate the need for a Personnel Decontamination Station. All used, non-contaminated PPE and refuse generated during field activities will be collected in trash bags and disposed of at an installation-approved location.

7.4 CONTAMINATION PREVENTION

Chemical exposure is not expected during this project. Good work practices will be followed, despite the absence of hazardous chemicals. Personnel should also be alert to other potential contamination on site. Procedures to be followed include:

1. Do not walk through areas of suspected contamination.
2. Do not handle or touch materials suspected to be contaminated.
3. Make sure all PPE is free of cuts or tears prior to donning.
4. Particular care should be taken to protect any skin injuries. If open wounds exist on hands or forearms, handling of chemicals should be restricted or eliminated.
5. Do not carry cigarettes, gum, chewing tobacco, cosmetics, etc. into work areas .

7.5 SITE ZONES

In order to control the potential hazards associated with MEC and to prevent injury to AECOM field personnel, site zones will be classified according to two categories outlined below: a Support/Clean Zone and a Controlled Work (Exclusion) Zone. A formal Contamination Reduction (Buffer) Zone will not be established as PPE higher than Level D will not be used and significant surface contamination is not suspected, per FWSHP section 11.2. Primary functions of these locations are described below:

- Support/Clean Zone
    - Site access for personnel, materials, and equipment.
    - Site egress for decontaminated personnel, materials, and equipment.
    - Storage area for clean work equipment.

- An area for breaks, toilet facilities, consumption of food and beverages, and other related activities.
- Vantage point for site visitors.

- Controlled Work Zone
  - Access for only those UXO-qualified personnel or those escorted by UXO-qualified personnel.
  - Operation zone for heavy equipment including backhoes used in the intrusive investigation phase of field activities.
  - The periphery of the area will be identified by barricade tape or rope suspended above the ground, with a single, visually defined entry and exit checkpoint. At minimum the periphery will extend 25 feet from equipment operations.
  - Signs may state “Construction Area” or “High Noise Area” as deemed appropriate by the SSHO.

Jointly, the SSHO and the UXO technician on site will determine the specific location of work zone boundaries prior to field mobilization.

Work or work vehicles may occur adjacent to roads. Field personnel will park a placarded vehicle (truck or SUV) on the side of the road adjacent to the work area. Two reflective safety cones will be placed behind the vehicle to create a protected work zone. Prior to beginning work, the UXO technician will sweep the support/ clean zone and controlled work zone for magnetic anomalies and flag its corners. Only field personnel may enter this zone.

7.6 DECONTAMINATION

Site personnel will follow proper decontamination procedures, which include disposal of gloves and washing of glasses as needed. Good personal hygiene practices will be observed (wash hands after removing gloves; wash hands and face prior to eating, drinking, or smoking).

All re-usable equipment contacting the soil (i.e. hand augers and heavy equipment buckets) and tools will be cleaned prior to site entry to remove grease, oil, dirt, or any other off-site materials. The SSHO will inspect the equipment prior to approving the items for use on site. The SSHO will also be responsible for inspecting all items for adequacy of decontamination prior to removal off site. The inspection will be noted in the SSHO's logbook.

The steps in Table 5-1 will be taken when decontaminating re-usable equipment:

Step	Table 7-1: Re-Usable Equipment Decontamination Procedure
1	Position all equipment above a portable decontamination basin or 55-gallon drum
3	Wash all equipment with water spray, taking care to minimize splashing hazards. Containerize all liquids contacting equipment.
4	Scrub all equipment with soapy water using brushes and a phosphate-free soap.
5	Rinse all equipment with potable water. Containerize all liquids contacting equipment.
6	Place all equipment on clean plastic sheeting and allow it to dry.

7.7 INVESTIGATION-DERIVED WASTE HANDLING

Investigation-Derived Waste for the field tasks will consist of decontamination fluids, disposable personal protective equipment, and potentially soil or debris that are removed from the test pit. The majority of the native material is expected to be returned to the test pits. Based on field assessment of excavated soil, including visual inspection and photoionization detector readings, it will be determined if there is a reason to believe that soil should not be used as backfill but instead be containerized and disposed of in accordance with CRJMTC guidelines. If determined that soil can be used to backfill the test pit, it will be done in the reverse order of removal (i.e., last material out, first material in). If soil must be removed and properly disposed and backfill is required, clean soil from an approved source will be used as backfill.

Any drums used for the project will meet requirements of the FWSAP, and all waste generation and shipments will be coordinated with the OHARNG Restoration Program point of contact Katie Tait or the Environmental Supervisor. The primary steps in IDW handling are described below:

- Conduct equipment decontamination above 55-gallon drums safely secured using a locking strap in heavy truck suited to the transport of drums.
- Care will be taken to evenly distribute the IDW load and secure for transit.
- Lifts of greater than 50 lb will be made with two or more personnel or with lifting equipment in compliance with hazardous waste safety training Sections 14 and 16 of the *USACE Safety and Health Requirements Manual.*
- CRJMTC personnel have drum dollies available for moving items in the IDW staging area (Building 1036).
- Drums will be properly labeled with date, contractor, and waste type, which will be determined by process knowledge.
- Weekly inspection of the IDW will be documented and submitted to the OHARNG Restoration Program POC, or designee.
- Although its generation is not anticipated, any IDW characterized as hazardous waste will be properly transported and disposed of at a permitted off-site hazardous waste facility in less than 90 days of its generation.
- An IDW report will be prepared that will be approved by ARNG and OHARNG prior to shipment.

8. EMERGENCY ACTION PLAN

8.1 GENERAL

When an emergency occurs, decisive action is required. Decisions must often be made immediately, and personnel must be ready to respond immediately to an emergency. For this reason, pre-emergency planning is an essential part of each project's Emergency Response Plan. Pre-emergency planning for the site includes the following tasks:

1. Developing and approving this Emergency Action/Response Plan
2. Review of this Emergency Response Plan with AECOM personnel prior to starting work
3. Coordinating the Emergency Response Plan with installation range control and local health and emergency response agencies
4. Training site personnel in appropriate emergency procedures
5. Maintaining emergency response equipment on site, such as fire extinguishers, first-aid supplies, and spill response equipment
6. Conducting an emergency response practice drill during site mobilization and before site activities begin
7. Modifying the Emergency Response Plan, if necessary, as work progresses
8. Compliance with the current OHARNG Integrated Contingency Plan
9. Completion of First Responder Reporting Form as needed (included as Appendix F of Work Plan)

8.2 RESPONSE PRIORITIES

It is expected that AECOM personnel will provide only minimal or first-line response to all emergencies.

First Priority: Prevent further injury or illness by:

- Protecting response personnel
- Isolating the scene to authorized personnel only
- Notifying emergency response personnel through Range Control
- If possible, rescuing any injured parties

Second Priority: Provide first aid to persons with life-threatening injuries or illnesses

Third Priority: Alleviate the immediate hazards by:

- Extinguishing incipient-stage fire
- Reporting any spill

8.3 EVACUATION ROUTES AND PROCEDURES

In a severe emergency such as a large fire, explosion, or large chemical release, site evacuation may become necessary. The SSHO will be responsible for informing site personnel of the anticipated routes of evacuation during the morning safety briefings. The evacuation route and assembly area will correlate to the wind direction, topography, and the nature of the incident. Personnel will be advised to move to

an upwind location at least 100 yards from any fires and/or releases, and will be advised to continually monitor wind direction for changes.

If moving upwind is not possible without encountering the incident, personnel will be advised to move crosswind or downwind to a distance out of the path of vapor releases, smoke, odors, or spills. In the event that a site evacuation becomes necessary, procedures in Table 8-1 will be used.

Step	Table 8-1: Site Evacuation Procedures
1	Site personnel will be notified of an emergency evacuation via horn signal or verbal command. All site personnel will immediately stop work.
2	All site personnel will evacuate the work area as quickly as possible and assemble at a location at least 100 yards upwind of the incident, or as instructed during the morning safety briefing.
3	The SSHO will be responsible for roll call.
4	The SSHO will contact emergency response personnel as all site personnel are being accounted for during roll call.
5	The SSHO will ensure that emergency apparatus have adequate site access.
6	The SSHO will ensure that all combustion equipment has been shut down.
7	All site personnel assembled at the designated safe evacuation area will wait for further instructions from emergency response personnel.
8	All personnel will comply with any special instructions provided by installation range control.

8.4 INJURY/ILLNESS TREATMENT

In the event of any illness or injury, the following steps will be taken:

- Evaluate the extent of injuries or seriousness of illness.
- When employees require urgent medical attention, transport them to the hospital or call for emergency assistance. Initial first aid will be administered by on-site personnel trained and certified in CPR and first aid while awaiting an ambulance or paramedics. There will be at least two on-site personnel with up to date CPR and first aid training. All on-site emergency medical treatment, other than first aid, will be administered by the local paramedics dispatched through the Range Control who responds radio or at (614)336-6041).
- While on site, if cell phone reception is problematic, AECOM personnel will be issued a 2-way radio if available and instructed on its use to contact Range Control who will then contact emergency responders. Instructions for this will be covered by Range Control during the safety briefing that will be conducted before work begins. If an incident occurs off site, follow typical emergency procedures by calling Range Control who will notify appropriate authorities. Table 6-2 lists site emergency telephone numbers. In all cases, critical injuries must be immediately referred for professional medical attention.
- All vehicles used to transport injured persons to the off-site medical facility will be provided with directions and a map to the medical facility. Medical information (completed during the initial site-specific safety training) will be referenced in an emergency to assist with the treatment of the victim. The SSHO will accompany the victim to the hospital.
- For a non-critical injury/illness, provide first-aid treatment and evaluate the need for further treatment.

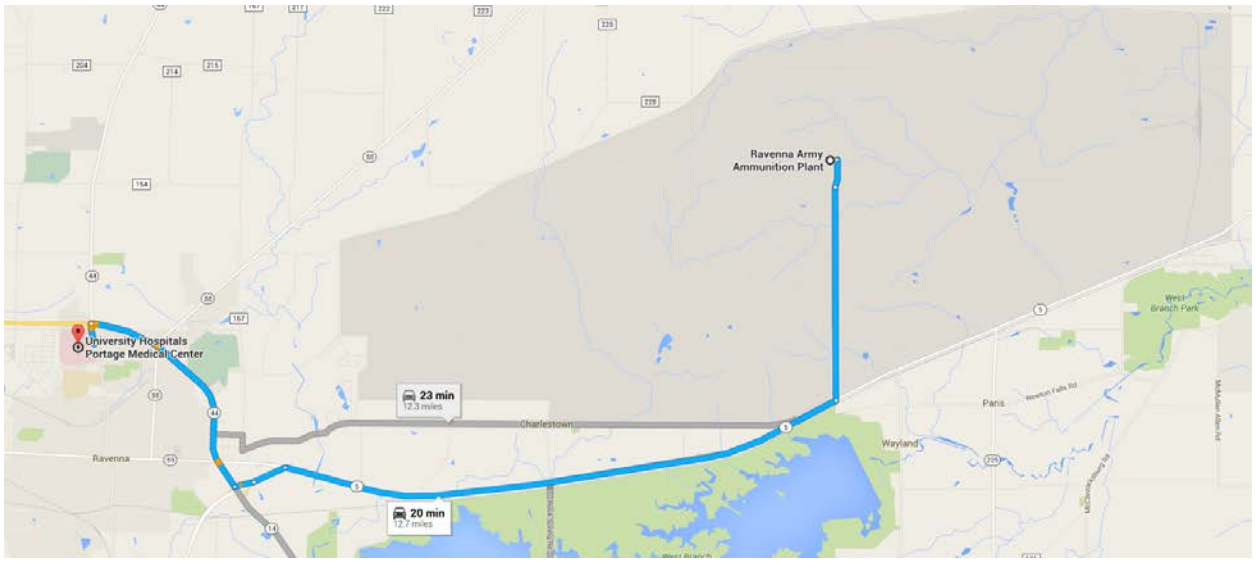
- AECOM personnel will utilize the services of the Incident Reporting Line and/or occupational health nurse (WorkCare) to make this evaluation and approve treatment.
- If further treatment is approved, the occupational health nurse (WorkCare) will provide the appropriate forms to the occupational medicine clinic.
- Subcontractor personnel will follow their company procedures for medical treatment and case management.
- The AECOM SSHO will also notify installation range control of any non-emergency injury or illness.

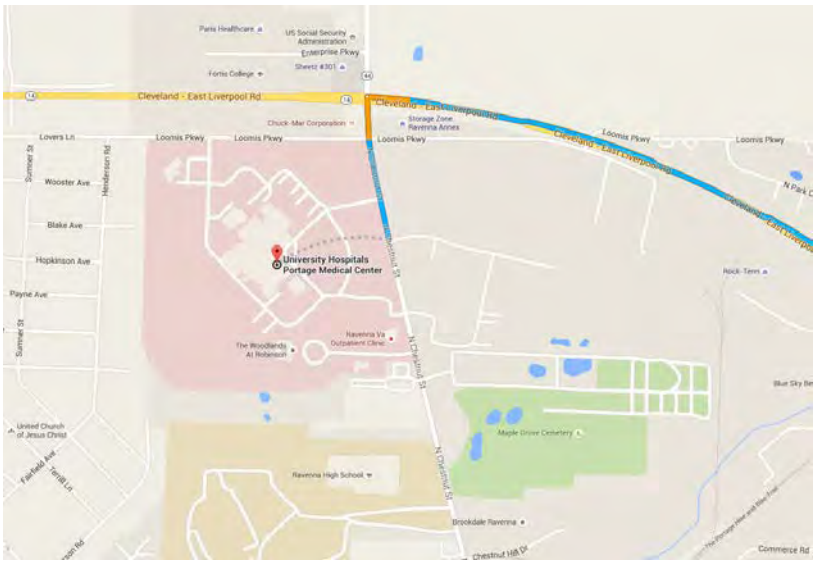
Table 8-2: Emergency Telephone Numbers	
CRJMTC Range Control (all on-installation emergencies)	(614) 336-6041
Hospital: Robinson Memorial Hospital/UH Portage Medical Center 6847 N. Chestnut Street, Ravenna Ohio	(330) 297-0811
Facility Contacts: Kevin Sedlak Katie Tait	614-336-6000 x 2053 614-336-6136
Poison Control Center	(800) 222-1222
WorkCare (AECOM Medical Consultant): Dr. Peter Greaney	(800) 455-6155
Federal OSHA Hot Line	(800) 321-6742
For AECOM personnel: AECOM Area SH&E Manager: Bob Miller, MEng, CIH, CSP AECOM Incident Reporting Line –WorkCare (for non-critical injury/illness)	 Cell: (540) 431-7908 800-348-5046 (877-878-9525
Project SHMr (AECOM): Patsy Glinsmann, CIH	Work: (301) 820-3462 Cell: (202) 210-5056
AECOM Project Manager: Sarah Gettier, PE	Work: (301) 820-3166 Cell: (443) 812-6929
AECOM SSHO: Amibeth Salvatore	Work: (301) 820-3628 Cell: (703) 307-0558
ARNG COR: Mark Leeper, P.G, MBA	Work: (703) 607-7955
AECOM Office: Germantown, MD	

8.5 ROUTE TO HOSPITAL

Provider: Robinson Memorial Hospital (urgent medical attention)
Address: 6847 N. Chestnut Street, Ravenna, OH
Specialty: Hospital
Phone: (330) 297-0811

Figure 8-1: Route to Hospital





ROUTE TO HOSPITAL FROM CENTER OF CRJMTC		
1	Head **south** on Wn St 3	0.3 mi.
2	**Continue** on Pa St 1	2.4 mi
3	Turn **right** on OH-5 W	6.4 mi
4	Slight **left** onto OH-5 W/ OH-5 Bypass	0.4 mi
5	Use the **right** lane to take the OH-14 ramp	0.2 mi
6	Turn **right** on OH-14W/ OH-44N/ Cleveland – East Liverpool Road	2.7 mi
7	Turn **left** onto N Chestnut St./ Ravenna Painesville Rd	0.2 mi
8	**Destination will be on the Right**	

Total travel estimate: 12.7 miles; about 20 minutes (from Center of Camp Ravenna)

8.6 CHEMICAL EXPOSURE

The following procedures will be followed in case of chemical exposure. Refer to Table 6-2 for emergency response personnel contact information.

Type of Over Exposure	First-Aid Guidelines
Skin Contact	Skin: Wash/rinse the affected area thoroughly with copious amounts of soap and water.
	Eyes: Eyes should be rinsed for at least 15 minutes following chemical contamination.
	Contact emergency response personnel if required, or transport victim to the hospital.
Ingestion	Contact Poison Control Center.
	Contact emergency response personnel, or transport victim to the hospital.

8.7 DECONTAMINATION DURING A MEDICAL EMERGENCY

As previously indicated, site operations are not anticipated to be involved with or trigger contamination of any type. For minor medical problems or injuries, regular decontamination procedures will be followed. If emergency, life-saving first aid, or medical treatment is required, additional decontamination procedures may be needed, as follows:

1. If the victim has been contaminated with chemicals or contaminated soil, immediately wash or rinse the victim with water to rinse off the material
2. Outer garments can be removed if it does not cause a delay, interfere with treatment, or aggravate the problem
3. PPE can be cut away
4. If contaminated clothing cannot be safely removed, then the victim should be wrapped in a blanket or plastic sheeting to prevent the contamination of the inside of the ambulance and emergency response personnel

The SSHO will advise the medical staff of the type of contamination.

8.8 EMERGENCY REPONSE PLANS (FIRES)

8.8.1 Small/Incipient Fire

A small fire is defined as a fire that can be extinguished with an available 20-pound ABC fire extinguisher. An incipient fire is a fire that is small because it has just started. In the event of a small or incipient fire, the following minimum actions will be taken:

1. Evacuate nearby personnel from the area to an upwind location if possible, or to an area not affected by smoke or hazardous decomposition products if an upwind location is not feasible
2. Attempt to extinguish the fire using a portable fire extinguisher or by smothering
3. Contact emergency response personnel via Range Control for any injuries or exposures to hazardous decomposition products
4. After the fire has been extinguished or Range Control have been contacted, notify the PM and installation team leader, SHM/PSM, and CRJMTC environmental personnel

8.8.2 Large Fire/Explosion

An explosion, large fire, or a small fire that cannot be extinguished is beyond the first line capabilities of AECOM personnel. Professional emergency response personnel would be needed to provide emergency assistance for these types of incidents. In the event of a large fire, explosion, or a small fire that cannot be extinguished, the following minimum actions will be taken:

1. Evacuate all personnel from the site to an upwind location if possible, or to an area not affected by smoke or hazardous decomposition products if an upwind location is not feasible
2. Take roll call to account for all site personnel
3. Contact Range Control
4. Contact emergency response personnel via Range Control for any injuries or exposures to hazardous decomposition products
5. After emergency response personnel have been contacted, notify the PM and installation team leader, SHM/PSM, and CRJMTC environmental personnel

8.9 EMERGENCY RESPONSE PLAN (SPILLS)

It is not expected that any spills of hazardous materials will occur from AECOM activities on site. In the event that a hazardous substance spill or release is observed, AECOM will report the spill to Range Control (614) 336-6041 and CRJMTC personnel and response will comply with the current OHARNG Integrated Contingency Plan. The points of contact name and phone numbers for CRJMTC are:

8.10 EMERGENCY EQUIPMENT AND FIRST-AID REQUIREMENTS

A supply of emergency PPE and equipment will be maintained in sufficient quantities to ensure an adequate supply for emergency response. All emergency equipment will be fully stocked and readily accessible. The following emergency supplies will be available:

Industrial first-aid kit (one 16-unit kit that complies with American National Standards Institute [ANSI] Z308A for every 25 persons or fewer) with the following supplies:

- Portable, plastic or metal, water-resistant first-aid kit, with handle
- Bloodborne pathogens personal protective equipment kit (minimum requirements are nitrile gloves [2 pairs] and CPR shield)
- First-aid manual
- Flashlight/batteries
- Bandage scissors
- Red bag for biohazard waste disposal
- Individually wrapped items

- Compress bandages - minimum of six in sizes ranging from 2" to 4"
- Assorted adhesive bandages (at least 16)
- Sterile gauze compress pads 4" x 4"
- Sterile nonstick gauze pads 3" x 3", minimum of 4 packages
- Paper tape (hypoallergenic), at least 5 yards of 3/8" wide
- Water-soluble burn dressing with gel pad (for minor burns, use after cold water soak), at least 6
- Antiseptic (alcohol prep pads, towelette, or swab), at least 10 individual-use packages (must meet Food and Drug Administration Code of Federal Regulations 333 requirements)
- Iodine prep pads (if not allergic to iodine, use after soap and water wash for bloodborne exposure)
- Ice pack or cold pack
- Gauze roller bandages: two 2" x 6 yards and one 4" x 6 yards
- Butterfly strips (wound closure)
- Tweezers (one use, disposable)
- Temperature strips
- Triangular bandage: 40" x 40" x 56"
- Sterile normal saline eye wash, 4-ounce bottle
- Eye covering, at least 2
- Antibiotic - individual use packages only, at least 6
- Insect sting relief wipes or spray
- Bloodborne pathogen precaution kit with CPR mouth shield
- Instant cold packs
- Fire extinguishers placed in the following locations:
  - In each motor vehicle (10B:C)
  - On site (2A:20B:C)
- Face shields
- PVC coveralls and/or poly-coated Tyvek
- Chemical-resistant boot covers (latex)
- Chemical-resistant outer gloves
- Spill control/absorption supplies
- Soap or waterless hand cleaner and towels
- Technu or alternative poison ivy wash or wipes
- American Red Cross First Aid and CPR Instruction Manuals

9. RECORDKEEPING

9.1 REQUIRED DOCUMENTATION

The following documentation must be kept on site or readily accessible:

- OSHA Form 300, Log and Summary of Occupational Injuries and Illnesses
- Current HAZWOPER training certificates (including 8-hour refresher and site supervisor training)
- SDSs for all hazardous chemicals brought on site by AECOM and its subcontractors
- OSHA-required medical surveillance examination clearance records
- Field logbook
- Copies of any Incident Reports
- Signed copies of the SSHP Compliance Agreement
- Site Safety Tailgate Meeting
- Site Safety Briefing Form
- Personal Protection Equipment Form
- Vehicle Inspection Form
- Housekeeping Form
- Completed Activity Hazard Analysis Forms
- Medical Data Sheets for all site personnel
- Camp Ravenna First Responder Form
- The Field First-Aid Kit Supply List (prior section)
- Any other permits, training records, or documentation required by the AECOM SH&E Program

9.2 TRAINING LOGS

Training logs will include initial site-specific safety training, daily safety briefings, weekly “toolbox” topic training, and visitor training. A record of the training will be documented on a training log, which will include the following information:

- The date
- Employee’s name and company name(attendance check)
- Time allocation in training session
- Training topic(s)
- Trainer’s signature

9.3 FIELD LOG BOOK

The SSHO will maintain a logbook on site in accordance with standard AECOM procedures. Complete and detailed documentation of site activities are very important. The following information will be recorded on a daily basis:

- Site conditions (e.g., weather)
- Activities being performed
- Personnel on site
- Site visitors
- Incidents, accidents, and near misses
- Violations of health and safety procedures
- Other significant events

9.4 INCIDENT REPORTS

Exposure data (labor-hours worked) and submittal

The SSHO will maintain a daily safety report on site. The report will include the following information:

- Date
- Areas in which work was performed
- Employees present in the work area
- Total number of hours worked by AECOM personnel
- PPE and equipment being used in the work area
- Special health and safety issues and notes
- Any incidents, near misses, safety observations, and health hazard assessment documentation
- Signature of preparer

The PM will be responsible for maintaining records of labor-hours and submitting the exposure data to Mark Leeper, Environmental Restoration Project Manager for this contract as part of our monthly status reports.

b. Accident investigations, reports, and logs

All incidents, no matter how small, will be reported immediately to the SSHO and the PM, who will report to the Incident Reporting Line, the SHM and Area SH&E Manager in accordance to AECOM SH&E SOP 004 (attachment A). A report will be entered into IndustrySafe within 4 hours.

For non-critical injury/illness involving AECOM personnel, the occupational health nurse (Workcare) will provide evaluation and guidance for treatment beyond first aid.

All recordable work-related injuries and illnesses will be recorded on OSHA Form 300 within 6 days. The AECOM Occupational Health Department is responsible for maintaining OSHA logs for all

AECOM projects/offices. Subcontractors must also meet the requirements of maintaining an OSHA Form 300.

Should an incident occur, AECOM will obtain medical and emergency assistance and will notify fire, law enforcement, and regulatory agencies, as necessary. Corrective actions will be implemented as soon as reasonably possible; however, except for rescue and emergency measures, the accident scene shall not be disturbed until it has been released by the investigating official.

Recordable incidents, as defined by 29 CFR 1904, or any incident listed in Section 8.c below, will be thoroughly investigated in accordance with AECOM and ARNG requirements, in full cooperation with the Government Designated Authority (GDA). Assistance will be provided by corporate safety staff, as necessary. The Area SH&E Manager or their designee will investigate the accident using ENG Form 3394 and will submit the form to the PM, who will forward the form to the GDA, Mark Leeper, ARNG Directorate Project Manager.

Per EM385 1-1, the PM will verbally notify the GDA of an incident as soon as reasonably possible, but not more than 24 hours after the incident. A written report of the accident investigation findings and corrective actions will be submitted as soon as possible but no later than five working days after the incident.

c. The following require immediate accident notification:

Accidents that appear to have any of the consequences listed below shall be immediately reported to the GDA and subsequently followed up with an official accident report:

- *A fatal injury/illness;*
- *A permanent totally disabling injury/illness;*
- *A permanent partial disabling injury/illness;*
- One (1) or more persons hospitalized as inpatients as a result of a single occurrence*;*
- *Accidental property damage of $500,000 or more;*
- *Three (3) or more individuals become ill or have a medical condition which is suspected to be related to a site condition, or a hazardous or toxic agent on the site;*

AECOM will also notify OSHA in accordance with 29 CFR 1904.39 within 8-hours when an AECOM employee(s) is fatally injured or one or more persons are hospitalized as inpatients because of a single occurrence.

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10. REFERENCES

Department of Defense (DoD), 2010. DoD Manual (DoDM) 6055.09-M, *Ammunition and Explosives Safety Standard*s. 4 August.

Department of Defense Explosives Safety Board (DDESB). 2004. Technical Paper 18. Minimum Qualifications for Unexploded Ordnance (UXO) Technicians and Personnel. 20 December.

U.S. Army Corps of Engineers (USACE), 2014. *Safety and Health Requirements Manua*l, EM 385-1-1. 30 November.

USACE, 2013. *Explosives Safety and Health Requirements Manual*, EM 385-1-97, (including Errata 1 through 6 dated June and July 2009, April 2010, and May 2013, and Change 1, dated June 2013).

USACE, 2011. *Facility-Wide Safety and Health Plan for Environmental Investigations*.

Attachment A

Attachment A

1. 024-9 NA: Field First Aid Kit Supply List
2. Camp Ravenna Waste Management Guidelines
3. Camp Ravenna First Responder Form
4. Compliance Agreement
5. ENG Form 3394C: Motor Vehicle Accident Form
6. 021-1 NA: Housekeeping Inspection Sheet
7. OSHA's Form 300: Log of Work-Related Injuries and Illnesses
8. 029-2 NAL: Personal Protective Equipment Inspection Sheet
9. S3NA-004-PR1: Incident Reporting
10. S3NA-004-WI1: Incident Reporting Flowchart
11. S3NA-004-WI2: Incident Response and Reporting Instructions
12. S3NA-004-FM1: SH&E Incident Report
13. S3NA-004-FM2: Near Miss Report
14. S3NA-005-PR1: Vehicle and Driver Safety Program
15. S3NA-005-WI1: Authorized Driver Safety Practices
16. S3NA-005-FM1: Driver Authorization
17. S3NA-005-FM2: Vehicle Inspection Checklist
18. S3NA-005-TP1: Journey Management Plan
19. S3NA-208-PR1: Personal Protective Equipment Program
20. S3NA-208-WI1: Lists of Potential Hazards
21. S3NA-208-WI2: Eye and Face Protection Fact Sheet
22. S3NA-208-WI4: Foot Protection Fact Sheet
23. S3NA-208-WI5: Hand Protection Fact Sheet
24. S3NA-208-WI6: Protective Clothing Fact Sheet
25. S3NA-208-FM1: PPE Hazard Analysis
26. S3NA-303-PR1: Excavation and Trenching
27. S3NA-303-WI1: Selection of Protective Systems
28. S3NA-303-WI2: Sloping Options
29. S3NA-303-WI3: Shoring or Shielding Options
30. S3NA-303-WI4: Factors Affecting Shoring Methods
31. S3NA-303-FM1: Daily Excavation Checklist
32. S3NA-307-PR: Housekeeping, Worksite
33. S3NA-308-PR: Manual Lifting, Field
34. Site Safety Briefing Form
35. Site Safety Tailgate Meeting
36. HSE Training Evaluation
37. Vehicle Inspection Checklist

- Portable, plastic or metal, water-resistant first aid kit, with handle
- Bloodborne pathogens personal protective equipment kit (minimum requirements are nitrile gloves [2 pairs] and CPR shield)
- First aid manual
- Flashlight/batteries
- Bandage scissors
- Red bag for biohazard waste disposal

Individually wrapped items

- Compress bandages: four 2" x 36", two 3" x 60", and one 4" x 72"
- Assorted adhesive bandages, (at least 16)
- Sterile gauze compress pads 4" x 4"
- Sterile nonstick gauze pads 3" x 3", minimum of 4 packages
- Paper tape (hypoallergenic), at least 5 yards of 3/8" wide
- Water-soluble burn dressing with gel pad (for minor burns, use after cold water soak), at least 6
- Antiseptic (alcohol prep pads, towelette, or swab), at least 10 individual-use packages (must meet Food and Drug Administration Code of Federal Regulations 333 requirements)
- Iodine prep pads (if not allergic to iodine, use after soap and water wash for bloodborne exposure)
- Ice pack or cold pack
- Gauze roller bandages: two 2" x 6 yards and one 4" x 6 yards
- Butterfly strips (wound closure)
- Tweezers (one use, disposable)
- Temperature strips
- Triangular bandage: 40" x 40" x 56"
- Sterile normal saline eye wash, 4-ounce bottle
- Eye covering, at least 2
- Antibiotic – individual use packages only, at least 6
- Insect sting relief wipes or spray, if required by health and safety plan

Other items may be added only with the approval of an authorized health care professional.

Automated external defibrillator (AED) units may be co-located with first aid kits with the approval of an authorized medical provider or occupational physician.

CAMP RAVENNA WASTE MANAGEMENT GUIDELINES

PURPOSE: Guidelines to be followed by contractors working at Camp Ravenna Joint Military Training Center who are generating/shipping Hazardous, Non-Hazardous, Special or Universal Waste.

POLICY: The policy at Camp Ravenna is to comply with all local, state, federal and installation requirements. Contractor is responsible for waste minimization and is required to recycle materials if possible.

Restoration Program POC: Katie Tait (614) 336-6136 Military & Non-Restoration POC: Brad Kline (614) 336-4918

Coordination:

- Coordinate all waste generation and shipments with the appropriate Camp Ravenna POC listed above or the Environmental Supervisor in their absence at (614) 336-6568.
- Notify Camp Ravenna POC prior to waste sampling for characterization. Details about sampling activities must be included (i.e., number of sample, analyticals, etc.).
- All Hazardous and Non-Hazardous waste management storage locations must be pre-approved prior to generation.
- Ensure all labels include: Date, Contractor, and Waste Type.
- When contractors have waste onsite, a weekly Inspection inventory must be completed and submitted to the appropriate POC in the Camp Ravenna environmental office.
- All wastes shall be tracked and logged throughout the duration of the project. Contractor will provide Camp Ravenna POC with a monthly rollup report of all waste and recycled streams generated by no later than the 10th day of the following month.

Hazardous Waste Treatment, Storage and Disposal Facilities and Waste Haulers: Contractors are required to utilize hazardous waste haulers and Treatment, Storage, and Disposal Facilities on the latest Defense Reutilization Marketing Office (DRMO) approved list. The current qualified waste hauler and Treatment, Storage and Disposal Facility (TSDF) list can be viewed by following the "Qualified Facilities" and "Qualified Transporters" links found on the Defense Logistics Agency (DLA) Hazardous Waste Disposal Homepage, http://www.dispositionservices.dla.mil/newproc/Pages/hazardous.aspx.

Hazardous or Non-Hazardous manifest form, the following must be included:

- Military and non-restoration operations waste Site Name = Camp Ravenna Joint Military Training Center. Mailing and Site address: Camp Ravenna ENV, 1438 State Route 534 SW, Newton Falls, Ohio 44444, (614) 336-4918. Ohio EPA ID # – OHD981192925.
- Restoration Program waste Site Name = Former Ravenna Army Ammunition Plant. Mailing address is same as address above. Site address: 8451 State Route 5, Ravenna, Ohio 44266, (614) 336-6136. Ohio EPA ID # – OH5210020736.
- Contractor's shipping Hazardous Waste must provide a Land Disposal Restriction (LDR) in accordance with 40 CFR Part 268.
- Profiling:
  - The required shipping documentation (i.e. waste profile and executive summary of lab reports (if available)) need to be submitted to appropriate Camp Ravenna POC or designee(s) for approval and signature prior to shipping.
  - Results of characterization must be submitted to appropriate Camp Ravenna POC within 30 days after collecting sample.
- Manifests - Hazardous and Non-Hazardous:
  - The waste carrier/transporter provides appropriate manifest to the contractor.
  - The contractor is required to:
    - Ensure that Camp Ravenna POC or designee(s) is available to sign the manifest on the scheduled day of shipment;
    - Verify that each manifest is properly completed and signed by Camp Ravenna POC or designee(s);
    - Provide the Generator copy of the manifest to Camp Ravenna POC or designee(s); and
    - Ensure that the original Generator copy of the manifest signed by the treatment storage disposal facility is returned to Camp Ravenna within 30 days of the shipping date for Hazardous and Non-Hazardous Waste.
    - The use of a Bill of Lading, in lieu of a waste manifest, must be approved by the Camp Ravenna environmental office.

All satellite accumulation storage sites and containers will comply with 40CFR 262.34(c)(1):

- Any material that is subject to Hazardous Waste Manifest Requirements of the US Environmental Protection Agency must comply with 40 CFR Part 262.
- From the time any waste is placed in a satellite storage container, proper labeling must be on the container (proper labeling includes date, contractors name and product type).
- Pending analysis label is to be used from the time the sample is taken until the results are received.
- In no case will waste labeled pending analysis exceed 45 days.

All Camp Ravenna Hazardous and Non-Hazardous records are maintained at the Camp Ravenna environmental office, point of contacts are Katie Tait at (614) 336-6136 and Brad Kline at (614) 336-4918.

CAMP RAVENNA WEEKLY NON-HAZARDOUS & HAZARDOUS WASTE INSPECTION/INVENTORY SHEET

Contractor: _____ Month: _____ Year: _____ Waste Description: _____

Container Nos. _____

	WEEK 1	WEEK 2	WEEK 3	WEEK 4
	Date: **Time:**	**Date:** **Time:**	**Date:** **Time:**	**Date:** **Time:**
Point of Contact (Name / Number)				
Project Name:				
Contracting Agency and POC:				
***Location on installation:**				
Date Generated:				
Projected date of disposal:				
Nonhaz, Satellite or 90 day storage area:				
Waste generation site:				
Number of Containers (size / type):				
Condition of Container:				
Containers closed, no loose lids, no loose bungs?	**yes / no**	**yes / no**	**yes / no**	**yes / no**
Waste labeled properly and visible (40 CFR 262.34 (c) (1):	**yes / no**	**yes / no**	**yes / no**	**yes / no**
Secondary containment	**yes / no**	**yes / no**	**yes / no**	**yes / no**
Incompatibles stored together?	**yes / no**	**yes / no**	**yes / no**	**yes / no**
Any spills?	**yes / no**	**yes / no**	**yes / no**	**yes / no**
Spill kit available?	**yes / no**	**yes / no**	**yes / no**	**yes / no**
Fire extinguisher present and charged?	**yes / no**	**yes / no**	**yes / no**	**yes / no**
Containers grounded if ignitables?	**yes / no**	**yes / no**	**yes / no**	**yes / no**
Emergency notification form/info present?	**yes / no**	**yes / no**	**yes / no**	**yes / no**
Container log binder present?	**yes / no**	**yes / no**	**yes / no**	**yes / no**
Signs posted if required?	**yes / no**	**yes / no**	**yes / no**	**yes / no**
Photo's submitted	**yes / no**	**yes / no**	**yes / no**	**yes / no**

Printed Name: _____

Signature: _____

This form is required for Non-Hazardous and Hazardous waste including PCB and special waste.

CONTRACTORS ARE REQUIRED TO SUBMIT THIS FORM WEEKLY TO THE CAMP RAVENNA ENV OFFFICE, AND THE COR, WHEN WASTE IS STORED ON SITE.

CONTRACTORS ARE ENCOURAGED TO INCLUDE PHOTOS WITH EACH WEEKLY INSPECTION SHEET WHEN WASTE IS STORED ON SITE.

* Draw detailed map showing location of waste within the site.

FIRST RESPONDER REPORTING FORM

(Print all information)

Collect as much of the information on the top half of this form as possible before making initial notification. Complete the top and bottom of the form before turning in to Camp Ravenna.

Name of individual reporting spill: _____

When did the spill occur (Date and Time)? _____

Spill Location (Building or area name / number, indoors or out; if vehicle involved, type and bumper number):
_____

What was spilled? _____ How much was spilled? _____

Rate at which material is currently spilling. _____

Extent of spill travel? _____

Did the spill reach water (ditch, creek, stream, pond, well head) _____

Number of injured personnel and type injuries, if applicable. _____

Do you need the Fire Department to respond to protect life, property, and environment? _____

Unit: _____ State: _____ Report Date & Time: _____

On Scene Coordinator Name and Grade: _____ Phone: _____

How did the spill occur (be specific). _____

_____

What remedial action was taken? _____

_____

Was soil and absorbent material generated? _____ How much? _____

What is the location of the soil and absorbents? _____

Was the Environmental Office contacted (yes or No, date and time)? _____

Who did you talk to in the Environmental Office? _____

Was the site cleared by the Env. Office (Yes or No, date and time)? _____

Who cleared the site (name and grade, date and time)? _____

Initial information is critical. Get as much information as you can, but don't hesitate to make the initial notification if a spill is moving or worsening rapidly!

This form must be completed for all releases and turned-in to Camp Ravenna Range Control within 24 hours.

FIRST RESPONDER SPILL/RELEASE RESPONSE ACTIONS

Units or contractors performing training or other operations at Camp Ravenna shall be responsible for adhering to the provisions identified in the Camp Ravenna Integrated Contingency Plans (ICP). A copy of the ICP may be obtained from the Camp Ravenna Environmental Supervisor. Following discovery of a spill (any size), the procedures outlined below shall be executed where applicable:

1. **If necessary, initiate evacuation of the immediate area.**

2. **Notify Camp Ravenna Range Control via two-way radio or by calling (614) 336-6041, and report information contained on the "First Responder Reporting Form" if it is known or can reasonably be determined. This form has been copied on the opposite side of this page. If Range Control cannot be reached, contact a Camp Ravenna OSC (listed below).**

3. **Stop spill flow when possible without undue risk of personal injury.**

4. **If trained, contain the spill using available spill response equipment or techniques.**

5. **Make spill scene OFF LIMITS to unauthorized personnel.**

6. **Restrict all sources of ignition when flammable substances are involved.**

7. **Report to the OSC upon his/her arrival to the scene.**

8. **Turn in a completed copy of the Camp Ravenna First Responder Form to Camp Ravenna Range Control for ALL releases, even ones cleaned up by the reporter.**

TELEPHONE NUMBER

When Camp Ravenna Range Control is not available, the Camp Ravenna OSC must to be contacted by the discoverer/first responder following a release if it is in water, at or above a reportable quantity (25 gallons or more of POL), a hazardous or extremely hazardous substance, a hazardous waste, or involves fire, explosion, or is otherwise a major incident.

NAME	JOB TITLE	OFFICE	24 HOUR
Camp Ravenna Range Control	Operations and Training	(614)336-6041	(614) 202-5783
Tim Morgan (Primary OSC)	Environmental Supervisor	(614)336-6568	(330)322-7098
Katie Tait	Environmental Specialist	(614)336-6136	Contact Alternate
CPT Mike Yates	Range Operations	(614)336-6193	(330) 819-5038
MAJ Richard Saphore	Logistics Officer	(614)336-6790	(614) 593-1654
LTC Ed Meade	Garrison Commander	(614)336-6560	(614)307-0493
Joint Forces Command (Alternate POC)	OHARNG Emergency Center	(888)637-9053	(888)637-9053

Off-site (from Camp Ravenna area code 614 phones)

Windham Fire Department ……..…9-1-330-326-2222
Portage County Sheriff ……..… 9-1-330-296-5100
Trumbull County Police, Fire Department and Hazmat…… 911

SEE REVERSE FOR FIRST RESPONDER REPORTING FORM

COMPLIANCE AGREEMENT

All project personnel, including visitors, must follow the requirements of this Accident Prevention Plan (APP). In order to document individual agreement with this requirement, all personnel must complete this "Site Safety and Health Plan Compliance Agreement." These agreements will be kept on site and will become part of the permanent project record upon completion of site activities.

I, _____ (print name), have read the APP for Former Ravenna Joint Military Training Center; or I have been verbally advised of its contents. I understand and I agree to comply with all of its provisions. I understand that I could be prohibited from working on the project, and I may be subject to disciplinary actions for violating any of the health and safety requirements specified in the APP.

_____ _____

Signature Date

_____

Company

Print Form | E-mail

(For safety staff only)	REPORT NO.	EROC CODE	**UNITED STATES ARMY CORPS OF ENGINEERS ACCIDENT INVESTIGATION REPORT** For use of this form, see Help Menu and USACE Supplement to AR 385-40 The proponent agency is CESO	REQUIREMENT CONTROL SYMBOL: CEEC-S-8 *(R2)*

1. ACCIDENT CLASSIFICATION

PERSONNEL CLASSIFICATION	INJURY/ILLNESS/FATAL	PROPERTY DAMAGE		MOTOR VEHICLE INVOLVED	DIVING
GOVERNMENT ☐ CIVILIAN ☐ MILITARY	☐	☐ FIRE INVOLVED	☐ OTHER	☐	☐
☐ CONTRACTOR	☐	☐ FIRE INVOLVED	☐ OTHER	☐	☐
☐ PUBLIC ☐ FATAL ☐ OTHER				☐	

2. PERSONAL DATA

a. NAME *(Last, First MI.)*	b. AGE	c. SEX ☐ MALE ☐ FEMALE	d. SOCIAL SECURITY NUMBER	e. GRADE

f. JOB SERIES/TITLE	g. DUTY STATUS AT TIME OF ACCIDENT	h. EMPLOYMENT STATUS AT TIME OF ACCIDENT
	☐ ON DUTY ☐ TDY ☐ OFF DUTY	☐ ARMY ACTIVE ☐ ARMY RESERVE ☐ VOLUNTEER ☐ PERMANENT ☐ FOREIGN NATIONAL ☐ SEASONAL ☐ TEMPORARY ☐ STUDENT ☐ OTHER *(Specify)*

3. GENERAL INFORMATION

a. DATE OF ACCIDENT *(YYYYMMDD)*	b. TIME OF ACCIDENT *(Military Time)* hrs.	c. EXACT LOCATION OF ACCIDENT	d. CONTRACTOR'S NAME (1) PRIME (2) SUBCONTRACTOR

e. CONTRACT NUMBER	f. TYPE OF CONTRACT	g. HAZARDOUS/TOXIC WASTE ACTIVITY
☐ CIVIL WORKS ☐ MILITARY ☐ OTHER *(Specify)*	☐ CONSTRUCTION ☐ SERVICE ☐ A/E ☐ DREDGE ☐ OTHER *(Specify)*	☐ SUPERFUND ☐ DERP ☐ IRP ☐ OTHER *(Specify)*

4. CONSTRUCTION ACTIVITIES ONLY *(Fill in line and corresponding code number in box from list - see help menu)*

a. CONSTRUCTION ACTIVITY (CODE) #	b. TYPE OF CONSTRUCTION EQUIPMENT (CODE) #

5. INJURY/ILLNESS INFORMATION *(Include name on line and corresponding code number in box for items e, f & g - see help menu)*

a. SEVERITY OF ILLNESS/INJURY (CODE) #	b. ESTIMATED DAYS LOST	c. ESTIMATED DAYS HOSPITALIZED	d. ESTIMATED DAYS RESTRICTED DUTY

e. BODY PART AFFECTED	g. TYPE AND SOURCE OF INJURY/ILLNESS
PRIMARY (CODE) #	TYPE (CODE) #
SECONDARY (CODE) #	SOURCE (CODE) #
f. NATURE OF ILLNESS / INJURY (CODE) #	

6. PUBLIC FATALITY *(Fill in line and correspondence code number in box - see help menu)*

a. ACTIVITY AT TIME OF ACCIDENT (CODE) #	b. PERSONAL FLOTATION DEVICE USED?
	☐ YES ☐ NO ☐ N/A

7. MOTOR VEHICLE ACCIDENT					
a. TYPE OF VEHICLE	b. TYPE OF COLLISION	c. SEAT BELTS	USED	NOT USED	NOT APPLICABLE
☐☐ PICKUP/VAN ☐☐ AUTOMOBILE ☐☐ TRUCK ☐☐ OTHER *(Specify)* _____	☐ SIDE SWIPE ☐ HEAD ON ☐ REAR END ☐ BROADSIDE ☐ ROLL OVER ☐ BACKING ☐ OTHER *(Specify)* _____	(1) FRONT SEAT	☐	☐	☐
		(2) REAR SEAT	☐	☐	☐

8. PROPERTY MATERIAL INVOLVED		
a. NAME OF ITEM	b. OWNERSHIP	c. AMOUNT OF DAMAGE
(1)		
(2)		
(3)		

9. VESSEL/FLOATING PLANT ACCIDENT *(Fill in line and correspondence code number in box from list - see help menu)*

a. ACTIVITY AT TIME OF ACCIDENT	(CODE)	a. ACTIVITY AT TIME OF ACCIDENT	(CODE)
_____	#	_____	#

10. ACCIDENT DESCRIPTION *(Use additional paper, if necessary, see attached page 4.)*

11. CAUSAL FACTOR*(s) (Read instructions before completing)*

a. *(Explain YES answers in item 13)*	YES	NO
DESIGN: Was design of facility, workplace or equipment a factor?	☐	☐
INSPECTION/MAINTENANCE: Were inspection & maintenance procedures a factor?	☐	☐
PERSON'S PHYSICAL CONDITION: In your opinion, was the physical condition of the person a factor?	☐	☐
OPERATING PROCEDURES: Were operating procedures a factor?	☐	☐
JOB PRACTICES: Were any job safety/health practices not followed when the accident occurred?	☐	☐
HUMAN FACTORS: Did any human factors such as, size or strength of person, etc., contribute to accident?	☐	☐
ENVIRONMENTAL FACTORS: Did heat, cold, dust, sun, glare, etc., contribute to the accident?	☐	☐
CHEMICAL AND PHYSICAL AGENT FACTORS: Did exposure to chemical agents, such as dust, fumes, mists, vapors or physical agents, such as, noise, radiation, etc., contribute to accident?	☐	☐
OFFICE FACTORS: Did office setting such as, lifting office furniture, carrying, stooping, etc., contribute to the accident?	☐	☐
SUPPORT FACTORS: Were inappropriate tools/resources provided to properly perform the activity/task?	☐	☐
PERSONAL PROTECTIVE EQUIPMENT: Did the improper selection, use or maintenance of personal protective equipment contribute to the accident?	☐	☐
DRUGS/ALCOHOL: In your opinion, was drugs or alcohol a factor to the accident?	☐	☐
b. WAS A WRITTEN JOB/ACTIVITY HAZARD ANALYSIS COMPLETED FOR TASK BEING PERFORMED AT TIME OF ACCIDENT? *(If yes, attach a copy.)*	☐	☐

12. TRAINING		
a. WAS PERSON TRAINED TO PERFORM ACTIVITY/TASK?	b. TYPE OF TRAINING	c. DATE OF MOST RECENT FORMAL TRAINING *(YYYYMMDD)*
☐ YES ☐ NO	☐ CLASSROOM ☐ ON JOB	

13. FULLY EXPLAIN WHAT ALLOWED OR CAUSED THE ACCIDENT; INCLUDE DIRECT AND INDIRECT CAUSES *(See instruction for definition of direct and indirect causes.) (Use additional paper, if necessary)*

a. DIRECT CAUSE*(s) (Attach additional sheets as needed, See page 4)*

b. INDIRECT CAUSE*(s) (Attach additional sheets as needed, See page 5)*

14. ACTION*(s)* TAKEN, ANTICIPATED OR RECOMMENDED TO ELIMINATE CAUSE*(s)*		
DESCRIBE FULLY *(Attach additional sheets as necessary, See page 5)*		
15. DATES FOR ACTIONS IDENTIFIED IN BLOCK 14.		
a. BEGINNING *(YYYYMMDD)*	b. ANTICIPATED COMPLETION *(YYYYMMDD)*	
c. DATE SIGNED *(YYYYMMDD)*	d. TITLE OF SUPERVISOR COMPLETING REPORT	e. CORPS SIGNATURE, SUPERVISOR COMPLETING REPORT
c. DATE SIGNED *(YYYYMMDD)*	d. TITLE OF SUPERVISOR COMPLETING REPORT	e. CONTRACTOR SIGNATURE, SUPERVISOR COMPLETING REPORT
f. ORGANIZATION IDENTIFIER *(Division, Branch, Section, etc.,)*		g. OFFICE SYMBOL
16. MANAGEMENT REVIEW *(1st)*		
a. ☐ CONCUR b. ☐ NONCONCUR c. COMMENTS		
DATE *(YYYYMMDD)*	TITLE	SIGNATURE
17. MANAGEMENT REVIEW *(2nd - Chief Operations, Construction, Engineering, etc.,)*		
a. ☐ CONCUR b. ☐ NONCONCUR c. COMMENTS		
DATE *(YYYYMMDD)*	TITLE	SIGNATURE
18. SAFETY AND OCCUPATIONAL HEALTH OFFICE REVIEW		
a. ☐ CONCUR b. ☐ NONCONCUR c. ADDITIONAL ACTIONS/COMMENTS		
DATE *(YYYYMMDD)*	TITLE	SIGNATURE
19. COMMAND APPROVAL		
COMMENTS		
DATE *(YYYYMMDD)*	COMMANDER SIGNATURE	

10. ACCIDENT DESCRIPTION *(Continuation)*

13a. DIRECT CAUSE*(s) (Continuation)*

13b. INDIRECT CAUSE*(s) (Continuation)*

14. ACTION*(s)* TAKEN, ANTICIPATED, OR RECOMMENDED TO ELIMINATE CAUSE*(s) (Continuation)*

GENERAL. Complete a separate report for each person who was injured, caused, or contributed to the accident *(excluding uninjured personnel and witnesses)*. Use of this form for reporting USACE employee first-aid type injuries not submitted to the Office of Workers' Compensation Programs *(OWCP)* shall be at the discretion of the FOA commander. Please type or print legibly. Appropriate items shall be marked with an "X" in box(es). If additional space is needed, provide the information on a separate sheet and attach to the completed form. Ensure that these instructions are forwarded with the completed report to the designated management reviewers indicated in sections 16 and 17.

INSTRUCTIONS FOR SECTION 1 - ACCIDENT CLASSIFICATION

(Mark All Boxes That Are Applicable)

a. GOVERNMENT. Mark "CIVILIAN" box if accident involved government civilian employee; mark "MILITARY" box if accident involved U.S. military personnel.

(1) INJURY/ILLNESS/FATALITY - Mark if accident resulted in any government civilian employee injury, illness, or fatality that requires the submission of OWCP Forms CA-1 *(injury)*, CA-2 *(illness)* or CA-6 *(fatality)* to OWCP; mark if accident resulted in military personnel lost-time or fatal injury or illness.

(2) PROPERTY DAMAGE - Mark the appropriate box if accident resulted in any damage of $1000 or more to government property *(including motor vehicles)*.

(3) VEHICLE INVOLVED - Mark if accident involved a motor vehicle, regardless of whether "INJURY/ILLNESS/FATALITY" or "PROPERTY DAMAGE" are marked.

(4) DIVING ACTIVITY - Mark if the accident involved an in-house USACE diving activity.

b. CONTRACTOR.

(1) INJURY/ILLNESS/FATALITY - Mark if accident resulted in any contractor lost-time injury/illness or fatality.

(2) PROPERTY DAMAGE - Mark the appropriate box if accident resulted in any damage of $1000 or more to contractor property *(including motor vehicles).*

(3) VEHICLE INVOLVED - Mark if accident involved a motor vehicle, regardless of whether "INJURY/ILLNESS/FATALITY" or "PROPERTY DAMAGE" are marked.

(4) DIVING ACTIVITY - Mark if the accident involved a USACE Contractor diving activity.

c. PUBLIC.

(1) INJURY/ILLNESS/FATALITY - Mark if accident resulted in public fatality or permanent total disability. *(The "OTHER" box will be marked when requested by the FOA to report an unusual non-fatal public accident that could result in claims against the government or as otherwise directed by the FOA Commander).*

(2) VOID SPACE - Make no entry.

(3) VEHICLE INVOLVED - Mark if accident resulted in a fatality to a member of the public and involved a motor vehicle, regardless of whether "INJURY/ILLNESS/FATALITY" is marked.

(4) VOID SPACE - Make no entry.

INSTRUCTIONS FOR SECTION 2 - PERSONAL DATA

a. NAME - *(MANDATORY FOR GOVERNMENT ACCIDENTS. OPTIONAL AT THE DISCRETION OF THE FOA COMMANDER FOR CONTRACTOR AND PUBLIC ACCIDENTS).* Enter last name, first name, middle initial of person involved.

b. AGE - Enter age.

c. SEX - Mark appropriate box.

d. SOCIAL SECURITY NUMBER - *(FOR GOVERNMENT PERSONNEL ONLY*) Enter the social security number *(or other personal identification number if no social security number issued).*

e. GRADE - *(FOR GOVERNMENT PERSONNEL ONLY)* Enter pay grade. Example: 0-6; E-7; WG-8; WS-12; GS-11; etc.

f. JOB SERIES/TITLE - For government civilian employees enter the pay plan, full series number, and job title, e.g., GS-O810/Civil Engineer. For military personnel enter the primary military occupational specialty *(PMOS)*, e.g., 15A30 or 11G50. For contractor employees enter the job title assigned to the injured person, e.g., carpenter, laborer, surveyor, etc.

g. DUTY STATUS - Mark the appropriate box.

(1) ON DUTY - Person was at duty station during duty hours or person was away from duty station during duty hours but on official business at time of the accident.

(2) TDY - Person was on official business, away from the duty station and with travel orders at time of accident. Line-of-duty investigation required.

(3) OFF DUTY - Person was not on official business at time of accident.

h. EMPLOYMENT STATUS - *(FOR GOVERNMENT PERSONNEL ONLY)* Mark the most appropriate box. If "OTHER" is marked, specify the employment status of the person.

INSTRUCTION FOR SECTION 3 - GENERAL INFORMATION

a. DATE OF ACCIDENT - Enter the month, day, and year of accident.

b. TIME OF ACCIDENT - Enter the local time of accident in military time. Example: 1430 hrs *(not 2:30 p.m.)*.

c. EXACT LOCATION OF ACCIDENT - Enter facts needed to locate the accident scene, *(installation/project name, building number, street, direction and distance from closest landmark, etc.).*

d. CONTRACTOR NAME

(1) PRIME - Enter the exact name *(title of firm)* of the prime contractor.

(2) SUBCONTRACTOR - Enter the name of any subcontractor involved in the accident.

e. CONTRACT NUMBER - Mark the appropriate box to identify if contract is civil works, military, or other: if "OTHER" is marked, specify contract appropriation on line provided. Enter complete contract number of prime contract, e.g., DACW 09-85-C-0100.

f. TYPE OF CONTRACT - Mark appropriate box. A/E means architect/engineer. If "OTHER" is marked, specify type of contract on line provided.

g. HAZARDOUS/TOXIC WASTE ACTIVITY *(HTW)* - Mark the box to identify the HTW activity being performed at the time of the accident. For Superfund, DERP, and Installation Restoration Program *(IRP)* HTW activities include accidents that occurred during inventory, predesign, design, and construction. For the purpose of accident reporting, DERP Formerly Used DoD Site *(FUDS)* activities and IRP activities will be treated separately. For Civil Works O&M HTW activities mark the "OTHER" box.

INSTRUCTIONS FOR SECTION 4 - CONSTRUCTION ACTIVITIES

a. CONSTRUCTION ACTIVITY - Select the most appropriate construction activity being performed at time of accident from the list below. Enter the activity name and place the corresponding code number identified in the box.

CONSTRUCTION ACTIVITY LIST

1. MOBILIZATION
2. SITE PREPARATION
3. EXCAVATION/TRENCHING
4. GRADING (EARTHWORK)
5. PIPING/UTILITIES
6. FOUNDATION
7. FORMING
8. CONCRETE PLACEMENT
9. STEEL ERECTION
10. ROOFING
11. FRAMING
12. MASONRY
13. CARPENTRY
14. ELECTRICAL
15. SCAFFOLDING/ACCESS
16. MECHANICAL
17. PAINTING
18. EOUIPMENT/MAINTENANCE
19. TUNNELING
20. WAREHOUSING/STORAGE
21. PAVING
22. FENCING
23. SIGNING
24. LANDSCAPING/IRRIGATION
25. INSULATION
26. DEMOLITION

b. TYPE OF CONSTRUCTION EQUIPMENT - Select the equipment involved in the accident from the list below. Enter the name and place the corresponding code number identified in the box. If equipment is not included below, use code 24, "OTHER", and write in specific type of equipment.

CONSTRUCTION EQUIPMENT

1. GRADER
2. DRAGLINE
3. CRANE *(ON VESSEL/BARGE)*
4. CRANE *(TRACKED)*
5. CRANE *(RUBBER TIRE)*
6. CRANE *(VEHICLE MOUNTED)*
7. CRANE *(TOWER)*
8. SHOVEL
9. SCRAPER
10. PUMP TRUCK *(CONCRETE)*
11. TRUCK *(CONCRETE/TRANSIT MIXER)*
12. DUMP TRUCK *(HIGHWAY)*
13. DUMP TRUCK *(OFF HIGHWAY)*
14. TRUCK *(OTHER)*
15. FORKLIFT
16. BACKHOE
17. FRONT-END LOADER
18. PILE DRIVER
19. TRACTOR *(UTILITY)*
20. MANLIFT
21. DOZER
22. DRILL RIG
23. COMPACTOR/VIBRATORY ROLLER
24. OTHER

INSTRUCTIONS FOR SECTION 5 - INJURY/ILLNESS INFORMATION

a. SEVERITY OF INJURY/ILLNESS - Reference paragraph 2-10 of USACE Supplement 1 to AR 385-40 and enter code and description from list below.

NOI	NO INJURY
FAT	FATALITY
PTL	PERMANENT TOTAL DISABILITY
PPR	PERMANENT PARTIAL DISABILITY
LWD	LOST WORKDAY CASE INVOLVING DAYS AWAY FROM WORK
NLW	RECORDABLE CASE WITHOUT LOST WORKDAYS
RFA	RECORDABLE FIRST AID CASE
NRI	NON-RECORDABLE INJURY

b. ESTIMATED DAYS LOST - Enter the estimated number of workdays the person will lose from work.

c. ESTIMATED DAYS HOSPITALIZED - Enter the estimated number of workdays the person will be hospitalized.

d. ESTIMATED DAYS RESTRICTED DUTY - Enter the estimated number of workdays the person, as a result of the accident, will not be able to perform all of their regular duties.

e. BODY PART AFFECTED - Select the most appropriate primary and when applicable, secondary body part affected from the list below. Enter body part name on line and place the corresponding code letters identifying that body part in the box.

GENERAL BODY AREA	CODE	BODY PART NAME
ARM/WRIST	AB	ARM AND WRIST
	AS	ARM OR WRIST
TRUNK, EXTERNAL MUSCULATURE	B1	SINGLE BREAST
	B2	BOTH BREASTS
	B3	SINGLE TESTICLE
	B4	BOTH TESTICLES
	BA	ABDOMEN
	BC	CHEST
	BL	LOWER BACK
	BP	PENIS
	BS	SIDE
	BU	UPPER BACK
	BW	WAIST
	BZ	TRUNK OTHER
HEAD, INTERNAL	C1	SINGLE EAR INTERNAL
	C2	BOTH EARS INTERNAL
	C3	SINGLE EYE INTERNAL
	C4	BOTH EYES INTERNAL
	CB	BRAIN
	CC	CRANIAL BONES
	CD	TEETH
	CJ	JAW
	CL	THROAT, LARYNX
	CM	MOUTH
	CN	NOSE
	CR	THROAT, OTHER
	CT	TONGUE
	CZ	HEAD OTHER INTERNAL
ELBOW	EB	BOTH ELBOWS
	ES	SINGLE ELBOW
FINGER	F1	FIRST FINGER
	F2	BOTH FIRST FINGERS
	F3	SECOND FINGER
	F4	BOTH SECOND FINGERS
	F5	THIRD FINGER
	F6	BOTH THIRD FINGERS
	F7	FOURTH FINGER
	F8	BOTH FOURTH FINGERS
TOE	G1	GREAT TOE
	G2	BOTH GREAT TOES
	G3	TOE OTHER
	G4	TOES OTHER
HEAD, EXTERNAL	H1	EYE EXTERNAL
	H2	BOTH EYES EXTERNAL
	H3	EAR EXTERNAL
	H4	BOTH EARS EXTERNAL
	HC	CHIN
	HF	FACE
	HK	NECK/THROAT
	HM	MOUTH/LIPS
	HN	NOSE
	HS	SCALP
KNEE	KB	BOTH KNEES
	KS	KNEE
LEG, HIP, ANKLE, BUTTOCKS	LB	BOTH LEGS/HIPS/ ANKLES/
BUTTOCK	LS	SINGLE LEG/HIP/ ANKLE/BUTTOCK
HAND	MB	BOTH HANDS
	MS	SINGLE HAND
FOOT	PB	BOTH FEET
	PS	SINGLE FOOT
TRUNK, BONES	R1	SINGLE COLLAR BONE
	R2	BOTH COLLAR BONES
	R3	SHOULDER BLADE
	R4	BOTH SHOULDER BLADES
	RB	RIB
	RS	STERNUM *(BREAST BONE)*
	RV	VERTEBRAE *(SPINE; DISC)*
	RZ	TRUNK BONES OTHER
SHOULDER	SB	BOTH SHOULDERS
	SS	SINGLE SHOULDER
THUMB	TB	BOTH THUMBS
	TS	SINGLE THUMB
TRUNK, INTERNAL ORGANS	V1	LUNG, SINGLE
	V2	LUNGS, BOTH
	V3	KIDNEY, SINGLE
	V4	KIDNEYS, BOTH
	VH	HEART
	VL	LIVER
	VR	REPRODUCTIVE ORGANS
	VS	STOMACH
	VV	INTESTINES
	VZ	TRUNK, INTERNAL; OTHER

f. NATURE OF INJURY/ILLNESS - Select the most appropriate nature of injury/illness from the list below. This nature of injury/illness shall correspond to the primary body part selected in 5e, above. Enter the nature of injury/illness name on the line and place the corresponding CODE letters in the box provided.
* The injury or condition selected below must be caused by a specific incident or event which occurred during a single work day or shift.

GENERAL NATURE CATEGORY	CODE	NATURE OF INJURY NAME
*TRAUMATIC INJURY OR DISABILITY	TA	AMPUTATION
	TB	BACK STRAIN
	TC	CONTUSION; BRUISE; ABRASION
	TD	DISLOCATION
	TF	FRACTURE
	TH	HERNIA
	TK	CONCUSSION
	TL	LACERATION, CUT
	TP	PUNCTURE
	TS	STRAIN, MULTIPLE
	TU	BURN, SCALD, SUNBURN
	TI	TRAUMATIC SKIN DISEASES/ CONDITIONS INCLUDING DERMATITIS
	TR	TRAUMATIC RESPIRATORY DISEASE
	TQ	TRAUMATIC FOOD POISONING
	TW	TRAUMATIC TUBERCULOSIS
	TX	TRAUMATIC VIROLOGICAL/INFECTIVE/ PARASITIC DISEASE
	T1	TRAUMATIC CEREBRAL VASCULAR CONDITION/STROKE
	T2	TRAUMATIC HEARING LOSS
	T3	TRAUMATIC HEART CONDITION
	T4	TRAUMATIC MENTAL DISORDER, STRESS; NERVOUS CONDITION
	T8	TRAUMATIC INJURY - OTHER *(EXCEPT DISEASE, ILLNESS)*

** A nontraumatic physiological harm or loss of capacity produced by systemic infection; continued or repeated stress or strain; exposure to toxins, poisons, fumes, etc.; or other continued and repeated exposures to conditions of the work environment over a long period of time. For practical purposes, an occupational illness/disease or disability is any reported condition which does not meet the definition of traumatic injury or disability as described above.

GENERAL NATURE CATEGORY	CODE	NATURE OF INJURY NAME			
**NON-TRAUMATIC ILLNESS/DISEASE OR DISABILITY					
RESPIRATORY DISEASE	RA	ASBESTOSIS		DD	ENDEMIC DISEASE *(OTHER THAN CODE TYPES R&S)*
	RB	BRONCHITIS			
	RE	EMPHYSEMA		DE	EFFECT OF ENVIRONMENTAL
	RP	PNEUMOCONIOSIS	CONDITION		
	RS	SILICOSIS		DH	HEARING LOSS
	R9	RESPIRATORY DISEASE, OTHER		DK	HEART CONDITION
VIROLOGICAL, INFECTIVE & PARASITIC DISEASES				DM	MENTAL DISORDER, EMOTIONAL STRESS, NERVOUS CONDITION
	VB	BRUCELLOSIS		DR	RADIATION
	VC	COCCIDIOMYCOSIS		DS	STRAIN, MULTIPLE
	VF	FOOD POISONING		DU	ULCER
	VH	HEPATITIS		DV	OTHER VASCULAR CONDITIONS
	VM	MALARIA		D9	DISABILITY, OTHER
	VS	STAPHYLOCOCCUS			
	VT	TUBERCULOSIS	SKIN DISEASE OR		
	V9	VIROLOGICAL/INFECTIVE/ PARASITIC - OTHER	CONDITION	SB	BIOLOGICAL
DISABILITY,	DA	ARTHRITIS, BURSITIS		SC	CHEMICAL
OCCUPATIONAL	DB	BACK STRAIN, BACK SPRAIN		S9	DERMATITIS, UNCLASSIFIED
	DC	CEREBRAL VASCULAR CONDITION; STROKE			

g. TYPE AND SOURCE OF INJURY/ILLNESS *(CAUSE)* - Type and Source Codes are used to describe what caused the incident. The Type Code stands for an ACTION and the Source Code for an OBJECT or SUBSTANCE. Together, they form a brief description of how the incident occurred. Where there are two different sources, code the initiating source of the incident *(see example 1, below)*. Examples:

(1) An employee tripped on carpet and struck his head on a desk. TYPE: 210 *(fell on same level)* SOURCE: 0110 *(walking/working surface*).

NOTE: This example would NOT be coded 120 *(struck against)* and 0140 *(furniture)*.

(2) A Park Ranger contracted dermatitis from contact with poison ivy/oak.

TYPE: 510 *(contact)* SOURCE: 0920 *(plant)*

(3) A lock and dam mechanic punctured his finger with a metal sliver while grinding a turbine blade.

TYPE: 410 *(punctured by)* SOURCE: 0830 *(metal)*

(4) An employee was driving a government vehicle when it was struck by another vehicle.

TYPE: 800 *(traveling in)* SOURCE: 0421 *(government-owned vehicle, as driver)*

NOTE: The Type Code 800, "Traveling In" is different from the other type codes in that its function is not to identify factors contributing to the injury or fatality, but rather to collect data on the type of vehicle the employee was operating or traveling in at the time of the incident.

Select the most appropriate TYPE and SOURCE identifier from the list below and enter the name on the line and the corresponding code in the appropriate box.

CODE	TYPE OF INJURY NAME		
			EXERTED
		0610	LIFTED, STRAINED BY *(SINGLE ACTION)*
	STRUCK	0620	STRESSED BY *(REPEATED ACTION)*
0110	STRUCK BY		EXPOSED
0111	STRUCK BY FALLING OBJECT	0710	INHALED
0120	STRUCK AGAINST	0720	INGESTED
	FELL, SLIPPED, TRIPPED	0730	ABSORBED
0210	FELL ON SAME LEVEL	0740	EXPOSED TO
0220	FELL ON DIFFERENT LEVEL	0800	TRAVELING IN
0230	SLIPPED, TRIPPED *(NO FALL)*		
	CAUGHT	**CODE**	**SOURCE OF INJURY NAME**
0310	CAUGHT ON		
0320	CAUGHT IN	0100	BUILDING OR WORKING AREA
0330	CAUGHT BETWEEN	0110	WALKING/WORKING SURFACE *(FLOOR, STREET, SIDEWALKS, ETC.)*
	PUNCTURED, LACERATED		
0410	PUNCTURED BY	0120	STAIRS, STEPS
0420	CUT BY	0130	LADDER
0430	STUNG BY	0140	FURNITURE, FURNISHINGS, OFFICE EQUIPMENT
0440	BITTEN BY	0150	BOILER, PRESSURE VESSEL
	CONTACTED	0160	EQUIPMENT LAYOUT *(ERGONOMIC)*
0510	CONTACTED WITH *(INJURED PERSON MOVING)*	0170	WINDOWS, DOORS
0520	CONTACTED BY *(OBJECT WAS MOVING)*	0180	ELECTRICITY

0200	ENVIRONMENTAL CONDITION	0631	CARBON MONOXIDE
0210	TEMPERATURE EXTREME *(INDOOR)*	0640	MIST, STEAM, VAPOR, FUME
0220	WEATHER *(ICE, RAIN, HEAT, ETC.)*	0641	WELDING FUMES
0230	FIRE, FLAME, SMOKE *(NOT TOBACCO)*	0650	PARTICLES *(UNIDENTIFIED)*
0240	NOISE	0700	CHEMICAL, PLASTIC, ETC.
0250	RADIATION	0711	DRY CHEMICAL - CORROSIVE
0260	LIGHT	0712	DRY CHEMICAL - TOXIC
0270	VENTILATION	0713	DRY CHEMICAL - EXPLOSIVE
0271	TOBACCO SMOKE	0714	DRY CHEMICAL FLAMMABLE
0280	STRESS *(EMOTIONAL)*	0721	LIQUID CHEMICAL - CORROSIVE
0290	CONFINED SPACE	0722	LIQUID CHEMICAL - TOXIC
0300	MACHINE OR TOOL	0723	LIQUID CHEMICAL - EXPLOSIVE
0310	HAND TOOL *(POWERED; SAW, GRINDER, ETC.)*	0724	LIQUID CHEMICAL - FLAMMABLE
0320	HAND TOOL *(NONPOWERED)*	0730	PLASTIC
0330	MECHANICAL POWER TRANSMISSION APPARATUS	0740	WATER
0340	GUARD, SHIELD *(FIXED, MOVEABLE, INTERLOCK)*	0750	MEDICINE
0350	VIDEO DISPLAY TERMINAL	0800	INAMINATE OBJECT
0360	PUMP, COMPRESSOR, AIR PRESSURE TOOL	0810	BOX, BARREL, ETC.
0370	HEATING EQUIPMENT	0820	PAPER
0380	WELDING EQUIPMENT	0830	METAL ITEM, MINERAL
0400	VEHICLE	0831	NEEDLE
0411	AS DRIVER OF PRIVATELY OWNED/RENTAL VEHICLE	0840	GLASS
0412	AS PASSENGER OF PRIVATELY OWNED/RENTAL VEHICLE	0850	SCRAP, TRASH
0421	DRIVER OF GOVERNMENT VEHICLE	0860	WOOD
0422	PASSENGER OF GOVERNMENT VEHICLE	0870	FOOD
0430	COMMON CARRIER *(AIRLINE, BUS, ETC.)*	0880	CLOTHING, APPAREL, SHOES
0440	AIRCRAFT *(NOT COMMERCIAL)*	0900	ANIMATE OBJECT
0450	BOAT, SHIP, BARGE	0911	DOG
0500	MATERIAL HANDLING EQUIPMENT	0912	OTHER ANIMAL
0510	EARTHMOVER *(TRACTOR, BACKHOE, ETC.)*	0920	PLANT
0520	CONVEYOR *(FOR MATERIAL AND EQUIPMENT)*	0930	INSECT
0530	ELEVATOR, ESCALATOR, PERSONNEL HOIST	0940	HUMAN *(VIOLENCE)*
0540	HOIST, SLING CHAIN, JACK	0950	HUMAN *(COMMUNICABLE DISEASE)*
0550	CRANE	0960	BACTERIA, VIRUS *(NOT HUMAN CONTACT)*
0551	FORKLIFT	1000	PERSONAL PROTECTIVE EQUIPMENT
0560	HANDTRUCK, DOLLY	1010	PROTECTIVE CLOTHING, SHOES, GLASSES, GOGGLES
0600	DUST, VAPOR, ETC.		
0610	DUST *(SILICA, COAL, ETC.)*	1020	RESPIRATOR, MASK
0620	FIBERS	1021	DIVING EQUIPMENT
0621	ASBESTOS	1030	SAFETY BELT, HARNESS
0630	GASES	1040	PARACHUTE

INSTRUCTIONS FOR SECTION 6 - PUBLIC FATALITY

a. ACTIVITY AT TIME OF ACCIDENT - Select the activity being performed at the time of the accident from the list below. Enter the activity name on the line and the corresponding number in the box. If the activity performed is not identified on the list, select from the most appropriate primary activity area *(water related, non-water related or other activity)*, the code number for "Other", and write in the activity being performed at the time of the accident.

WATER RELATED RECREATION

1. Sailing
2. Boating-powered
3. Boating-unpowered
4. Water skiing
5. Fishing from boat
6. Fishing from bank dock or pier
7. Fishing while wading
8. Swimming/supervised area
9. Swimming/designated area
10. Swimming/other area
11. Underwater activities *(skin diving, scuba, etc.)*
12. Wading
13. Attempted rescue
14. Hunting from boat
15. Other

NON-WATER RELATED RECREATION

16. Hiking and walking
17. Climbing *(general)*
18. Camping/picnicking authorized area
19. Camping/picnicking unauthorized area
20. Guided tours
21. Hunting
22. Playground equipment
23. Sports/summer *(baseball, football, etc.)*
24. Sports/winter *(skiing, sledding, snowmobiling etc.)*
25. Cycling *(bicycle, motorcycle, scooter)*
26. Gliding
27. Parachuting
28. Other non-water related

OTHER ACTIVITIES

29. Unlawful acts *(fights, riots, vandalism, etc.)*
30. Food preparation/serving
31. Food consumption
32. Housekeeping
33. Sleeping
34. Pedestrian struck by vehicle
35. Pedestrian other acts
36. Suicide
37. "Other" activities

b. PERSONAL FLOTATION DEVICE USED - If fatality was water-related was the victim wearing a person flotation device? Mark the appropriate box.

INSTRUCTIONS FOR SECTION 7 - MOTOR VEHICLE ACCIDENT

a. TYPE OF VEHICLE - Mark appropriate box for each vehicle involved. If more than one vehicle of the same type is involved, mark both halves of the appropriate box. USACE vehicle(s) involved shall be marked in left half of appropriate box.

b. TYPE OF COLLISION - Mark appropriate box.

c. SEAT BELT - Mark appropriate box.

INSTRUCTIONS FOR SECTION 8 - PROPERTY/MATERIAL INVOLVED

a. NAME OF ITEM - Describe all property involved in accident. Property/material involved means material which is damaged or whose use or misuse contributed to the accident. Include the name, type, model; also include the National Stock Number *(NSN)* whenever applicable.

b. OWNERSHIP - Enter ownership for each item listed. *(Enter one of the following: USACE; OTHER GOVERNMENT; CONTRACTOR; PRIVATE)*

c. $ AMOUNT OF DAMAGE - Enter the total estimated dollar amount of damage *(parts and labor)*, if any.

INSTRUCTIONS FOR SECTION 9 - VESSEL/FLOATING PLANT ACCIDENT

a. TYPE OF VESSEL/FLOATING PLANT - Select the most appropriate vessel/floating plant from list below. Enter name and place corresponding number in box. If item is not listed below, enter item number for "OTHER" and write in specific type of vessel floating plant.

VESSEL/FLOATING PLANTS

1. ROW BOAT
2. SAIL BOAT
3. MOTOR BOAT
4. BARGE
5. DREDGE/HOPPER
6. DREDGE/SIDE CASTING
7. DREDGE/DIPPER
8. DREDGE/CLAMSHELL, BUCKET
9. DREDGE/PIPE LINE
10. DREDGE/DUST PAN
11. TUG BOAT
12. OTHER

b. COLLISION/MISHAP - Select from the list below the object*(s)* that contributed to the accident or were damaged in the accident.

COLLISION/MISHAP

1. COLLISION W/OTHER VESSEL
2. UPPER GUIDE WALL
3. UPPER LOCK GATES
4. LOCK WALL
5. LOWER LOCK GATES
6. LOWER GUIDE WALL
7. HAULAGE UNIT
8. BREAKING TOW
9. TOW BREAKING UP
10. SWEPT DOWN 0N DAM
11. BUOY/DOLPHIN/CELL
12. WHARF OR DOCK
13. OTHER

INSTRUCTIONS FOR SECTION 10 - ACCIDENT DESCRIPTION

DESCRIBE ACCIDENT - Fully describe the accident. Give the sequence of events that describe what happened leading up to and including the accident. Fully identify personnel and equipment involved and their role*(s)* in the accident. Ensure that relationships between personnel and equipment are clearly specified. Continue on blank sheets if necessary and attach to this report.

INSTRUCTIONS FOR SECTION 11 - CAUSAL FACTORS

a. Review thoroughly. Answer each question by marking the appropriate block. If any answer is yes, explain in item 13 below. Consider, as a minimum, the following:

(1) DESIGN - Did inadequacies associated with the building or work site play a role? Would an improved design or layout of the equipment or facilities reduce the likelihood of similar accidents? Were the tools or other equipment designed and intended for the task at hand?

(2) INSPECTION/MAINTENANCE - Did inadequately or improperly maintained equipment, tools, workplace, etc. create or worsen any hazards that contributed to the accident? Would better equipment, facility, work site or work activity inspections have helped avoid the accident?

(3) PERSON'S PHYSICAL CONDITION - Do you feel that the accident would probably not have occurred if the employee was in "good" physical condition? If the person involved in the accident had been in better physical condition, would the accident have been less severe or avoided altogether? Was over exertion a factor?

(4) OPERATING PROCEDURES - Did a lack of or inadequacy within established operating procedures contribute to the accident? Did any aspect of the procedures introduce any hazard to, or increase the risk associated with the work process? Would establishment or improvement of operating procedures reduce the likelihood of similar accidents?

(5) JOB PRACTICES - Were any of the provisions of the Safety and Health Requirements Manual *(EM 385-1-1)* violated? Was the task being accomplished in a manner which was not in compliance with an established job hazard analysis or activity hazard analysis? Did any established job practice *(including EM 385-1-1)* fail to adequately address the task or work process? Would better job practices improve the safety of the task?

(6) HUMAN FACTORS - Was the person under undue stress *(either internal or external to the job)*? Did the task tend toward overloading the capabilities of the person; i.e., did the job require tracking and reacting to many external inputs such as displays, alarms, or signals? Did the arrangement of the workplace tend to interfere with efficient task performance? Did the task require reach, strength, endurance, agility, etc., at or beyond the capabilities of the employee? Was the work environment ill-adapted to the person? Did the person need more training, experience, or practice in doing the task? Was the person inadequately rested to perform safely?

(7) ENVIRONMENTAL FACTORS - Did any factors such as moisture, humidity, rain, snow, sleet, hail, ice, fog, cold, heat, sun, temperature changes, wind, tides, floods, currents, dust, mud, glare, pressure changes, lightning, etc., play a part in the accident?

(8) CHEMICAL AND PHYSICAL AGENT FACTORS - Did exposure to chemical agents *(either single shift exposure or long-term exposure)* such as dusts, fibers *(asbestos, etc.)*, silica, gases *(carbon monoxide, chlorine, etc.,)*, mists, steam, vapors, fumes, smoke, other particulates, liquid or dry chemicals that are corrosive, toxic, explosive or flammable, by products of combustion or physical agents such as noise, ionizing radiation, non-ionizing radiation *(UV radiation created during welding, etc.)* contribute to the accident/incident?

(9**)** OFFICE FACTORS **-** Did the fact that the accident occurred in an office setting or to an office worker have a bearing on its cause? For example, office workers tend to have less experience and training in performing tasks such as lifting office furniture. Did physical hazards within the office environment contribute to the hazard?

(10) SUPPORT FACTORS - Was the person using an improper tool for the job? Was inadequate time available or utilized to safely accomplish the task? Were less than adequate personnel resources *(in terms of employee skills, number of workers, and adequate supervision)* available to get the job done properly? Was funding available, utilized, and adequate to provide proper tools, equipment, personnel, site preparation, etc.?

(11) PERSONAL PROTECTIVE EQUIPMENT - Did the person fail to use appropriate personal protective equipment *(gloves, eye protection, hard-toed shoes, respirator, etc.)* for the task or environment? Did protective equipment provided or worn fail to provide adequate protection from the hazard*(s)*? Did lack of or inadequate maintenance of protective gear contribute to the accident?

(12) DRUGS/ALCOHOL - Is there any reason to believe the person's mental or physical capabilities, judgment, etc., were impaired or altered by the use of drugs or alcohol? Consider the effects of prescription medicine and over the counter medications as well as illicit drug use. Consider the effect of drug or alcohol induced "hangovers".

b. WRITTEN JOB/ACTIVITY HAZARD ANALYSIS - Was a written Job/Activity Hazard Analysis completed for the task being performed at the time of the accident? Mark the appropriate box. If one was performed, attach a copy of the analysis to the report.

INSTRUCTIONS FOR SECTION 12 - TRAINING

a. WAS PERSON TRAINED TO PERFORM ACTIVITY/TASK? - For the purpose of this section "trained" means the person has been provided the necessary information *(either formal and/or on-the-job (OJT) training)* to competently perform the activity/task in a safe and healthful manner.

b. TYPE OF TRAINING - Mark the appropriate box that best indicates the type of training; *(classroom or on-the-job)* that the injured person received, before the accident happened.

c. DATE OF MOST RECENT TRAINING - Enter YYYYMMDD of the last formal training completed that covered the activity task being performed at the time of the accident.

INSTRUCTIONS FOR SECTION 13 - CAUSES

a. DIRECT CAUSES - The direct cause is that single factor, which most directly lead to the accident. See examples below.

b. INDIRECT CAUSES - **I**ndirect causes are those factors which contributed to but did not directly initiate the occurrence of the accident.

Examples for section 13:

a. Employee was dismantling scaffold and fell 12 feet from unguarded opening.

Direct cause: failure to provide fall protection at elevation. Indirect causes: failure to enforce USACE safety requirements; improper training/motivation of employee *(possibility that employee was not knowledgeable of USACE fall protection requirements or was lax in his attitude towards safety)*; failure to ensure provision of positive fall protection whenever elevated; failure to address fall protection during scaffold dismantling in phase hazard analysis.

b. Private citizen had stopped his vehicle at intersection for red light when vehicle was struck in rear by USACE vehicle. *(Note: USACE vehicle was in proper/safe working condition).*

Direct cause: failure of USACE driver to maintain control of and stop USACE vehicle within safe distance.

Indirect cause: failure of employee to pay attention to driving *(defensive driving).*

INSTRUCTIONS FOR SECTION 14 - ACTION TO ELIMINATE CAUSE*(s)*

DESCRIPTION - Fully describe all the actions taken, anticipated, and recommended to eliminate the cause(s) and prevent reoccurrence of similar accidents/ illnesses. Continue on blank sheets of paper if necessary to fully explain and attach to the completed report form.

INSTRUCTIONS FOR SECTION 15 - DATES FOR ACTION

a. **BEGIN DATE** - Enter the date YYYYMMDD when the corrective action(s) identified in section 14 will begin.

b. **COMPLETE DATE** - Enter the date YYYYMMDD when the corrective action(s) identified in section 14 will be completed.

c. **DATE SIGNED** - Enter YYYYMMDD that the report was signed by the responsible supervisor.

d.e.. **TITLE AND SIGNATURE -** Enter the title and signature of supervisor completing the accident report. For a GOVERNMENT employee accident/illness the immediate supervisor will complete and sign the report. For PUBLIC accidents the USACE Project Manager/Area Engineer responsible for the USACE property where the accident happened shall complete and sign the report. For CONTRACTOR accidents the Contractor's project manager shall complete and sign the report and provide to the USACE supervisor responsible for oversight of that contractor activity. This USACE supervisor shall also sign the report. Upon entering the information required in 15c., 15d., 15e., 15f. and 15g. below, the responsible USACE supervisor shall forward the report for management review as indicated in section 16.

f. **ORGANIZATION NAME** - For GOVERNMENT employee accidents enter the USACE organization name *(Division, Branch, Section, etc.)* of the injured employee. For PUBLIC accidents enter the USACE organization name for the person identified in block 15d. For CONTRACTOR accidents enter the USACE organization name for the USACE office responsible for providing contract administration oversight.

g. **OFFICE SYMBOL** - Enter the latest complete USACE Office Symbol for the USACE organization identified in block 15f.

INSTRUCTIONS FOR SECTION 16 - MANAGEMENT REVIEW (1st)

1ST REVIEW - Each USACE FOA shall determine who will provide 1st management review. The responsible USACE supervisor in section 15d. shall forward the completed report to the USACE office designated as the 1st Reviewer by the FOA. Upon receipt, the Chief of the Office shall review the completed report, mark the appropriate box, provide substantive comments, sign, date, and forward to the FOA Staff Chief *(2nd review)* for review and comment.

INSTRUCTIONS FOR SECTION 17 - MANAGEMENT REVIEW (2nd)

2ND REVIEW - The FOA Staff Chief *(i .e., FOA Chief of Construction, Operations, Engineering, Planning, etc.)* shall mark the appropriate box, review the completed report, provide substantive comments, sign, date, and return to the FOA Safety and Occupational Health Office.

INSTRUCTIONS FOR SECTION 18 - SAFETY AND OCCUPATIONAL HEALTH REVIEW

3RD REVIEW - The FOA Safety and Occupational Health Office shall review the completed report, mark the appropriate box, ensure that any inadequacies, discrepancies, etc. are rectified by the responsible supervisor and management reviewers, provide substantive comments, sign, date and forward to the FOA Commander for review, comment, and signature.

INSTRUCTION FOR SECTION 19 - COMMAND APPROVAL

4TH REVIEW - The FOA Commander shall *(to include the person designated Acting Commander in his absence)* review the completed report, comment if required, sign, date, and forward the report to the FOA Safety and Occupational Health Office. Signature authority shall not be delegated.

URS	Health, Safety and Environment **HOUSEKEEPING INSPECTION SHEET**	Attachment 021-1 NA Issue Date: June 1999 Revision 4: February 2009

Building or Location: _____

Inspection Conducted by: _____ **Date:** _____

Check Yes, No, or NA for Not Applicable.

General Site Housekeeping

1.	Do not block exits or emergency equipment.	☐ Yes	☐ No	☐ NA
2.	Do not leave equipment or materials lying on the ground.	☐ Yes	☐ No	☐ NA
3.	Keep storage areas free from the accumulation of materials that constitute trip hazards.	☐ Yes	☐ No	☐ NA
4.	Remove scrap materials and other debris from work area.	☐ Yes	☐ No	☐ NA
5.	Remove combustible scrap and debris by safe means at regular intervals.	☐ Yes	☐ No	☐ NA
6.	Store oily rags in metal cans with tight fitting lids. Remove oily rags at the end of the day.	☐ Yes	☐ No	☐ NA

Visibility

7.	Ensure that halls, stairways and walkways are well lit.	☐ Yes	☐ No	☐ NA
8.	Ensure that well designed light switches are present in areas where walkways are not always lighted.	☐ Yes	☐ No	☐ NA
9.	Ensure that dust, smoke or steam does not create poor visibility.	☐ Yes	☐ No	☐ NA
10.	Ensure that glare from floodlights or windows does not create poor visibility in work areas.	☐ Yes	☐ No	☐ NA

Stairs

11.	Ensure that handrails are tight and at the proper level.	☐ Yes	☐ No	☐ NA
12.	Ensure that handrails extend past the top and bottom step.	☐ Yes	☐ No	☐ NA
13.	Ensure that white or yellow strips are painted on the first and last step for better visibility. (Not an OSHA requirement – recommendation only).	☐ Yes	☐ No	☐ NA
14.	Ensure that steps are not rough or defective.	☐ Yes	☐ No	☐ NA
15.	Ensure that stair treads are wide enough and risers consistently spaced.	☐ Yes	☐ No	☐ NA
16.	Ensure that stairs are free of obstructions.	☐ Yes	☐ No	☐ NA

Floor Conditions

17.	Ensure that floors of every workroom are clean, and so far as possible, in a dry condition.	☐ Yes	☐ No	☐ NA
18.	Ensure that floors are not oily, overly waxed, or polished.	☐ Yes	☐ No	☐ NA
19.	Where wet floors or processes are present, provide proper drainage and false floors, mats, or other dry standing places.	☐ Yes	☐ No	☐ NA
20.	Finish floor surfaces with non-slip coatings where spills are likely.	☐ Yes	☐ No	☐ NA
21.	Ensure that floors and passageways are free from protruding nails, splinters, holes, or loose boards.	☐ Yes	☐ No	☐ NA
22.	Ensure that floors are free of holes and depressions.	☐ Yes	☐ No	☐ NA
23.	Ensure that aisles or pathways are wide enough for easy passage and for carrying objects (48 inches is recommended).	☐ Yes	☐ No	☐ NA

24.	Ensure that ramps are covered with non-slip surfaces or matting.	☐ Yes	☐ No	☐ NA
25.	Keep carpets or rugs free from loose or frayed edges that may catch boots or shoes.	☐ Yes	☐ No	☐ NA
26.	Keep walkways free from extension cords, air hoses and cables.	☐ Yes	☐ No	☐ NA
27.	Keep pathways free from boxes, containers, machine parts, or other tripping hazards.	☐ Yes	☐ No	☐ NA

Ground Conditions

28.	Ensure that trip hazards are not present.	☐ Yes	☐ No	☐ NA
29.	Ensure that fall hazards are not present.	☐ Yes	☐ No	☐ NA
30.	Ensure that holes or changes in ground elevation are either filled or guarded.	☐ Yes	☐ No	☐ NA
31.	Ensure that muddy walkways are filled with gravel to reduce slipping.	☐ Yes	☐ No	☐ NA
32.	Ensure that all employees who work in wet or greasy conditions wear slip resistant footwear.	☐ Yes	☐ No	☐ NA

Equipment

33.	Ensure that vehicle steps are of adequate size, surface placement for safe dismounting.	☐ Yes	☐ No	☐ NA
34.	Ensure that hand grips or ladders are adequate for getting into and out of equipment.	☐ Yes	☐ No	☐ NA
35.	Ensure that ladders have been checked for damage and removed from service if found unsafe.	☐ Yes	☐ No	☐ NA

Identify areas that need attention and describe the corrective actions to be implemented:

_____

_____

_____

_____

_____

I certify that the above inspection was performed to the best of my knowledge and ability, based on the conditions present on: _____

_____

Signature

OSHA's Form 300 (Rev. 01/2004)

Log of Work-Related Injuries and Illnesses

Attention: This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.

Year 20__ __

U.S. Department of Labor

Occupational Safety and Health Administration

Form approved OMB no. 1218-0176

You must record information about every work-related death and about every work-related injury or illness that involves loss of consciousness, restricted work activity or job transfer, days away from work, or medical treatment beyond first aid. You must also record significant work-related injuries and illnesses that are diagnosed by a physician or licensed health care professional. You must also record work-related injuries and illnesses that meet any of the specific recording criteria listed in 29 CFR Part 1904.8 through 1904.12. Feel free to use two lines for a single case if you need to. You must complete an Injury and Illness Incident Report (OSHA Form 301) or equivalent form for each injury or illness recorded on this form. If you're not sure whether a case is recordable, call your local OSHA office for help.

Establishment name ______________________________

City ______________________ State ______________

Identify the person			Describe the case			Classify the case: CHECK ONLY ONE box for each case based on the most serious outcome for that case:				Enter the number of days the injured or ill worker was:		Check the "Injury" column or choose one type of illness: (M)					
								Remained at Work									
(A) Case no.	(B) Employee's name	(C) Job title (*e.g., Welder*)	(D) Date of injury or onset of illness	(E) Where the event occurred (*e.g., Loading dock north end*)	(F) Describe injury or illness, parts of body affected, and object/substance that directly injured or made person ill (*e.g., Second degree burns on right forearm from acetylene torch*)	Death (G)	Days away from work (H)	Job transfer or restriction (I)	Other record-able cases (J)	Away from work (K)	On job transfer or restriction (L)	Injury (1)	Skin disorder (2)	Respiratory condition (3)	Poisoning (4)	Hearing loss (5)	All other illnesses (6)
____	____	____	___/___ month/day	____	____	☐	☐	☐	☐	___ days	___ days	☐	☐	☐	☐	☐	☐
____	____	____	___/___ month/day	____	____	☐	☐	☐	☐	___ days	___ days	☐	☐	☐	☐	☐	☐
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____	____	____	___/___ month/day	____	____	☐	☐	☐	☐	___ days	___ days	☐	☐	☐	☐	☐	☐
					Page totals ➤	____	____	____	____	____	____	____	____	____	____	____	____
												Injury (1)	Skin disorder (2)	Respiratory condition (3)	Poisoning (4)	Hearing loss (5)	All other illnesses (6)

Be sure to transfer these totals to the Summary page (Form 300A) before you post it.

URS	Health, Safety and Environment **PERSONAL PROTECTIVE EQUIPMENT INSPECTION SHEET**	Attachment 029-2 NA Issue Date: July 2000 Revision 6: December 2009

Name of Inspector _____ **Date Inspected** _____

Hard Hats		
1.	The brim or shell does not show signs of exposure and excessive wear, loss of surface gloss, chalking, or flaking.	☐ **Yes** ☐ **No**
2.	Suspension system in hard hat does not show signs of deterioration, including cracking, tearing, or fraying.	☐ **Yes** ☐ **No**
3.	The brim or shell is not cracked, perforated, or deformed.	☐ **Yes** ☐ **No**
4.	Employees use hard hats in marked areas.	☐ **Yes** ☐ **No**
5.	Areas requiring hard hat usage are marked.	☐ **Yes** ☐ **No**
6.	Safety shoes used by employees do not show signs of excessive wear.	☐ **Yes** ☐ **No**
7.	Areas requiring safety shoes are marked.	☐ **Yes** ☐ **No**
8.	Gloves are available and worn when needed.	☐ **Yes** ☐ **No**
9.	Gloves are appropriate for the task.	☐ **Yes** ☐ **No**
10.	Gloves do not show signs of excessive wear such as cracks, scrapes, or lacerations, thinning or discoloration, or break-through to the skin.	☐ **Yes** ☐ **No**
11.	Protective clothing (including traffic control apparel) is worn by employees when required.	☐ **Yes** ☐ **No**
12.	Noise hazard areas are posted.	☐ **Yes** ☐ **No**
13.	Employees are using earplugs or muffs when using noise producing equipment or working in posted noise hazard areas.	☐ **Yes** ☐ **No**
14.	Eye hazard areas are marked or posted.	☐ **Yes** ☐ **No**
15.	Employees use safety glasses when working in eye hazard areas or working with equipment that produces an eye hazard.	☐ **Yes** ☐ **No**
16.	Face shields are used when required and worn over safety glasses.	☐ **Yes** ☐ **No**

REMARKS ***(All "No" answers indicate a hazard which needs to be fixed.)***

URS	Health, Safety and Environment **PERSONAL PROTECTIVE EQUIPMENT INSPECTION SHEET**	Attachment 029-2 NA Issue Date: July 2000 Revision 6: December 2009

Name of Inspector _____ **Date Inspected** _____

Hard Hats		
1.	The brim or shell does not show signs of exposure and excessive wear, loss of surface gloss, chalking, or flaking.	☐ **Yes** ☐ **No**
2.	Suspension system in hard hat does not show signs of deterioration, including cracking, tearing, or fraying.	☐ **Yes** ☐ **No**
3.	The brim or shell is not cracked, perforated, or deformed.	☐ **Yes** ☐ **No**
4.	Employees use hard hats in marked areas.	☐ **Yes** ☐ **No**
5.	Areas requiring hard hat usage are marked.	☐ **Yes** ☐ **No**
6.	Safety shoes used by employees do not show signs of excessive wear.	☐ **Yes** ☐ **No**
7.	Areas requiring safety shoes are marked.	☐ **Yes** ☐ **No**
8.	Gloves are available and worn when needed.	☐ **Yes** ☐ **No**
9.	Gloves are appropriate for the task.	☐ **Yes** ☐ **No**
10.	Gloves do not show signs of excessive wear such as cracks, scrapes, or lacerations, thinning or discoloration, or break-through to the skin.	☐ **Yes** ☐ **No**
11.	Protective clothing (including traffic control apparel) is worn by employees when required.	☐ **Yes** ☐ **No**
12.	Noise hazard areas are posted.	☐ **Yes** ☐ **No**
13.	Employees are using earplugs or muffs when using noise producing equipment or working in posted noise hazard areas.	☐ **Yes** ☐ **No**
14.	Eye hazard areas are marked or posted.	☐ **Yes** ☐ **No**
15.	Employees use safety glasses when working in eye hazard areas or working with equipment that produces an eye hazard.	☐ **Yes** ☐ **No**
16.	Face shields are used when required and worn over safety glasses.	☐ **Yes** ☐ **No**

REMARKS ***(All "No" answers indicate a hazard which needs to be fixed.)***

Americas

Incident Reporting

S3NA-004-PR1

1.0 Purpose and Scope

1.1 To provide direction for timely reporting SH&E incidents.

1.2 This procedure applies to all AECOM Americas based employees and operations, as required per the *S2-001-PR1 Incident Reporting (Global Implementing Procedures).*

2.0 Terms and Definitions

2.1 **Fatality –** Loss of life of any AECOM employee, AECOM subcontractor personnel, client personnel or member of the general public that can be perceived to be related to work performed or controlled by AECOM.

2.2 **General Liability –** Incidents where AECOM could potentially be held liable.

2.3 **Lost Time Injury or Illness –** A work-related injury or illness that has caused a worker to be absent from his or her regular work following the day that the injury or illness occurred.

2.4 **Recordable Injury –** A work-related injury or illness that results in the following. (See *S3NA-601-PR1 Recordkeeping* for definitions).

- Fatality;
- Medical Treatment beyond first aid;
- Days away from work;
- Restricted work or transfer to another job;
- Loss of Consciousness; and/or
- A Significant injury or illness diagnosed by a medical professional.

2.5 **Restricted Work** (also called "**Modified Work**") – A work-related injury or illness that results in the employee being unable to perform one or more of the routine functions of their job. The restricted duties are done within the limitation of the injured person's abilities. (Documentation may be required per regulatory requirements).

2.6 **SH&E Incidents** – The following events or situations as applied to AECOM employees and/or AECOM-controlled operations are considered SH&E Incidents:

- Any injury or illness to an AECOM employee, that could be potentially work related or become aggravated by the work environment. This includes an AECOM subcontractor, temporary employee, or third-party contractor that performs work under the control of an AECOM operation.
- Any potentially work related abnormal condition to include pain and soreness shall be reported.
- Fire, explosion, or flash that is not an intended result of a remediation process, laboratory procedure, or other planned event.
- Any incident involving company-owned, rented, or leased vehicles (including personal vehicles used for company business).
- Any breach of a numeric limit attached to a governmental permit or consent.
- Any failure to perform the requirements of a non-numeric requirement contained in a government permit or consent.
- Any failure to obtain a government permit or consent when required (including failure to obtain revisions before an existing permit or consent expires).

- Any notice of violation or notice of non-compliance received from a regulatory authority with enforcement powers.
- Property damage resulting from any AECOM or subcontractor activity. This would include Motor Vehicle Accidents (MVA), buildings, equipment, and near miss events.
- Unexpected release or imminent release of a hazardous material.
- Unexpected chemical exposures to workers or the public.
- A safety, health or environmental related injury, damage, incident or complaint associated with the public as it relates to an AECOM activity.
- SH&E-related incidents that could result in adverse public media interest concerning AECOM or an AECOM project.
- Any inspection by a Federal, Provincial, or local safety, health, & environmental enforcement agency.

2.6.1 **Major SH&E Incident –** Any SH&E Incident that meets/involves the following criteria:

- Fatality;
- Amputation;
- Hospitalization for treatment for more than 24 hours (Admission);
- Absence from work for more than 30 calendar days due to work-related injury/illness;
- Any single event resulting in more than one employee requiring medical treatment or more than one employee being away from work more than three days;
- Any SH&E-related Consent Agreement/Order/Lawsuit or enforcement action seeking more than $10,000 or alleging criminal activity;
- Any spill or release of a hazardous material that is reportable to a regulatory agency;
- Any Notices of Violation resultant of not operating within a government permit/license or consent;
- Any incident resulting in property damage expected to exceed $2,500 US dollars;
- Any security related incident that could have caused harm to an AECOM employee; and/or
- Near Miss incidents that may have resulted in any of the above but because of “luck” did not happen.

2.6.2 **Near Miss Incidents –** This is defined as an incident having the potential to cause injury, health effects, environmental impairment, or property damage as described in the above categories – but did not. For example:

- A crane drops a 454 kilogram (1,000 pound) beam during a lift – and nobody is hurt, no equipment or property is damaged.
- A work crew is conducting a survey along the highway. A vehicle leaves the roadway and the vehicle enters the survey area at 80 kilmeters per hour (50 miles per hour). The vehicle misses an employee by 1 metre (3 feet); the driver recovers control of the vehicle and leaves the area.
- Awareness of a verified equipment recall or incident that occurs at another similar worksite.
- Unsafe conditions should not be reported as Near Misses but should be identified in Inspection and Observation Programs (such as LifeGuard and Office Inspections) and tracked until resolved/closed.

2.6.3 **Security Incident –** Any security related incident that could cause harm to or is associated with an AECOM employee in the course of duty.

2.7 **SH&E Incident Report (IR) –** Form used to document incidents which shall be completed when there is no internet access to IndustrySafe. Within 4 hours for a Major Incident and 24 hours for all others. IR's should be submitted to the **Supervisor** and **Region SH&E Manager**.

2.8 **SH&E Incident Reporting and Assistance Line –** 1-800-348-5046

- Email – sri@aecom.com (for locations that cannot access IndustrySafe)
- IndustrySafe on-line reporting link – https://www.industrysafe.com/AECOM

2.9 **WC Carrier/Claims –** Workers Compensation Third-Party Insurance Partner.

2.10 **Workers Compensation –** Analyst manages all Americas-based injury and illness claims.

2.11 **Workers Compensation Board** (Canada) – Known provincially by variations such as WCB, WSIB, CSST, WSCC, etc.).

3.0 References

3.1 S2-001-PR1 Incident Reporting (Global Implementing Procedures)

3.2 S3NA-601-PR1 Recordkeeping

3.3 S3NA-603-PR1 Incident Investigation and Review

3.4 S3NA-606-PR1 Modified Duty Program

4.0 Procedure

4.1 Roles and Responsibilities

4.1.1 **Employee**

- Contact the SH&E Incident Line at 1-800-348-5046 for work related non-emergency medical advice by Work Care and/or to obtain AECOM contact information.
- Notify his/her **Supervisor** immediately that an incident (including a Near Miss) has occurred, the circumstances involved, the nature and extent of the injuries/illness, and whether medical treatment may be required. Except for emergency situations, affected employees are required to discuss their injury/illness status with their **supervisor** and **Region SH&E Manager**, **District SH&E Manager**, and/or project SH&E Professional prior to obtaining medical treatment.
- Complete Industry Safe on-line reporting within four hours of incident. If injury/illness prevents input, **Supervisor** will be responsible for initial input. If employees lack internet access to IndustrySafe, a hardcopy Incident Report form shall be completed and submitted to the **Region** or **District SH&E Manager**. If incident is not major as defined above, IndustrySafe input by the end of workday (24 hours maximum) is required.

4.1.2 **Supervisor**

- In an emergency/life-threatening situation, use the appropriate local emergency phone numbers and seek immediate medical care for the employee.
- Address any immediate corrective actions required to make the scene safe. Consult with the **Region SH&E Manager** and leadership if guidance is required.
- For Major Incidents immediately contact leadership up to the **Regional Executive** and **Region SH&E Manager** by phone once the situation has stabilized.
- Complete an initial incident notification in the IndustrySafe on-line report if employee is not capable/incapacitated and any other applicable documentation .pdf and attach to the on-line report such as:

  a. Police Report

b. Photographs of incident scene

c. Witness statements

d. Federal/State/Province Specific Forms

e. Timeline

f. Root cause analysis

- As appropriate, initiate an Incident Investigation and Review per the requirements of *S3NA-603-PR1 Incident Investigation and Review*.
- Completion of any external reporting requirements. For example, the U.S. Coast Guard CG-3865, Recreational Boating Accident Report may be required if the incident involved a boat (contact the **Region SH&E Manager** for clarification). See *S3NA-004-WI2 Incident Response and Reporting* for further instruction.
- Where there is potential for criminal, civil or regulatory action against AECOM or any of its employees or subcontractors, a representative of AECOM Americas legal team (typically regional legal counsel) shall be contacted prior to any external communication, correspondence, or meeting concerning any incident, governmental investigation, or environment impact. AECOM's **Americas Chief Counsel**, or designee, may supplement this policy or require additional measures to protect the best interests of AECOM and its employees. The Office of Risk Management and Region Counsel should also be notified if the public is involved or a claim is anticipated.

4.1.3 Region SH&E Manager

- Monitor phone, messaging, and IndustrySafe for first report of incident and contact those involved for support as necessary.
- Upon receipt of an Incident Notification, contact the **Supervisor** to discuss the incident as well as short term and long term corrective actions.
- Coordinate case management with the AECOM **Workers Compensation Analyst**.
- Notify and coordinate with appropriate **Operations Manager** of the incident.
- As appropriate, assist an Incident Investigation and Review.
- Report all fatalities and/or Major SH&E incidents to the **Americas SH&E Director**, **Business Line Executive** and **Regional Executive** immediately by phone if not already notified by the **Supervisor**.

4.1.4 District SH&E Managers

- Inform appropriate personnel that have not already been notified of incidents that may affect them.
- Review electronic entry of incident information in IndustrySafe and coach **Supervisors** and **Employees** on completing investigations. Be responsible to manage open incidents until closure.
- Coordinate with **Region SH&E Manager** for management of medical support.
- Assist with Incident Investigation and Review per the requirements of *S3NA-603-PR1 Incident Investigation and Review*.
- Forward incident data as needed to SH&E Department, Legal, Human Resources and others as necessary for insurance claims.
- Enter Corrective Actions as a result of Incident Investigation and Executive Incident Review into IndustrySafe to monitor completion.

4.1.5 Workers Compensation Analyst

- Contact the employee and work with the Supervisor as needed to resolve a request for Workers Compensation coverage.
- Obtain from the employee medical clearance to return to work.

- Work with Human Resource or other third parties as needed to facilitate the requirements for the locality are met.

4.2 Workers Compensation Program

If an employee potentially requires support under Worker's Compensation, the employee will be contacted by the **Workers Compensation Analyst.** The employee's **Supervisor** shall also work with the **Workers Compensation Analyst** as needed in support of the employee. Prior to the employee returning to work after any treatment provided by a medical provider, a medical clearance is to be provided by the employee to the **Workers Compensation Analyst** and their **Supervisor**. The medical clearance will be scanned and added to the IndustrySafe incident by the **Employee** or **Supervisor**.

4.3 Modified Work Program

Every attempt will be made to accommodate reasonable restricted and modified duties to facilitate a safe return to work of the injured employee. The return to work program is based on the specific needs and circumstances to each case, refer to *S3NA-606-PR1 Modified Duty Program*. Each instance will be evaluated on a case-by-case basis. The resulting modified work program will be specific to the injured employee. In Canada, a third-party administrator works with the **Workers Compensation Analyst** or other designated Human Resource staff. The third-party administrator is familiar with the reporting requirements by province, which vary slightly between jurisdictions across Canada and completes filings and maintains correspondence with the appropriate board on the company's behalf.

4.4 Refer to the *S3NA-004-WI1 SH&E Reporting Flowchart* and *S3NA-004-WI2 Incident Response and Reporting Instructions* for specifics on the process and work flow for incident reporting.

5.0 Records

5.1 Incident reports and supporting documentation are maintained in the IndustrySafe database.

5.2 If a hardcopy Incident Report is generated it should ultimately be scanned and kept in the IndustrySafe database. All incident information must be retained by AECOM. Records relating to occupational injury and incidents must be kept for up to 30 years (or permanently in the Northwest Territories), depending on the classification of incident.

6.0 Attachments

6.1 S3NA-004-WI1 SH&E Reporting Flowchart

6.2 S3NA-004-WI2 Incident Response and Reporting Instructions

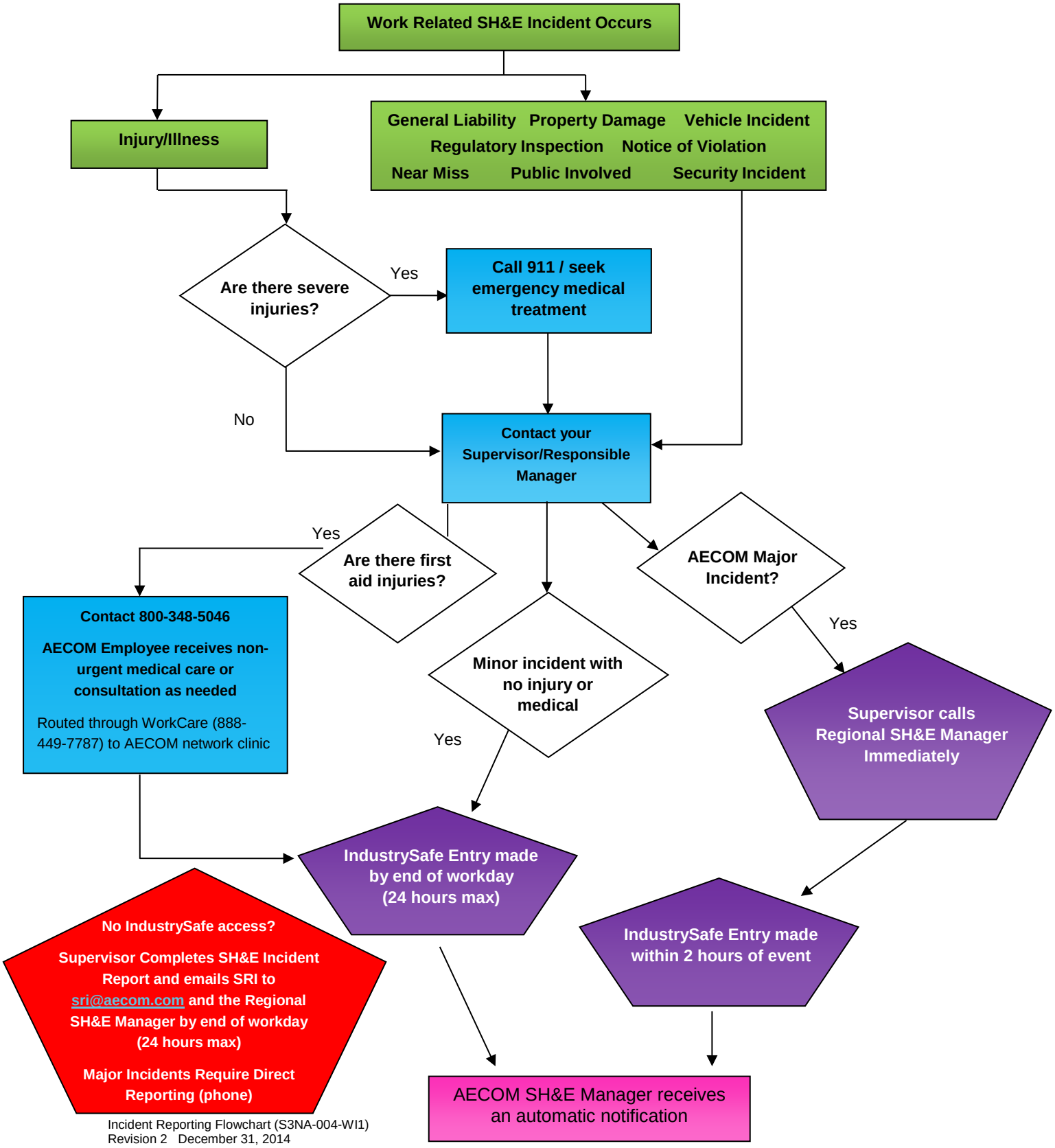
6.3 S3NA-004-FM1 SH&E Incident Report (IR)

6.4 S3NA-004-FM2 Near-Miss Incident Report

Americas

Incident Reporting Flowchart

S3NA-004-WI1



Americas

Incident Response and Reporting Instructions

S3NA-004-WI2

1.0 Steps for Initial Response

1.1 Take control of the scene (get everyone's attention and cooperation).

1.2 If necessary call for emergency services and provide first aid/CPR if individual(s) maintains current certification.

1.3 Control secondary incidents if safe to do so (ensure hazards are removed or controlled; issue a stop work order, if required).

1.4 Identify and preserve sources of evidence and evidence. In the event of a critical injury, the incident scene must be preserved for the potential site visit of a representative from the applicable government agency (if you are unsure, error on the side of caution and leave the site intact).

1.5 Report the incident to the immediate supervisor for implementing stop work orders or immediate corrective action as required.

1.6 Responsible employee/supervisor is to follow SHE Incident Reporting Procedure to initiate internal reporting and obtain guidance, as necessary. If a manager or supervisor is not available, any AECOM employee can initiate the reporting or make the call.

1.7 The employee / supervisor completes the entry into IndustrySafe.

2.0 Fatality or Serious SH&E Incident Notification

2.1 Any fatality or serious SH&E incident is to be directly reported via a verbal dialog as soon as practical (i.e. as soon as the site is secure and appropriate local emergency response is coordinated), but in no case more than 2 hours after the incident to the appropriate **Regional SH&E Manager** and **Regional Executive**.

2.2 Voicemail and/or email alone are not adequate to meet this requirement. The responsibility for this reporting belongs to the responsible manager (i.e. supervisor/office/branch/business line/project manager).

3.0 Internal Reporting Procedures

3.1 The call (from the scene of the incident, if possible) or entry into IndustrySafe initiates the reporting procedures.

3.2 For Emergency Injuries and Incidents

- Call Emergency Services e.g. 911
- **Managers** call their appropriate supervision and their Regional SH&E Manager immediately once the situation is safe and stabilized.
- The responsible manager, or delegate, must make initial notification into IndustrySafe within 4 hours of the event.

3.3 Non-emergency injuries or medical conditions

- Notify your responsible manager, supervisor/project manager.
- Call the Incident Reporting and Assistance Line at 1.800.348.5046 for connection with Work Care medical support

3.4 The **employee** or responsible manager must make initial notification into IndustrySafe within 4 hours of the event.

3.5 Property damage, environmental releases, and non-medical incidents

3.5.1 Immediate assistance circumstances

Contact your responsible manager, supervisor/project manager.

Call the Incident Reporting and Assistance Line at 1.800.348.5046 for situations that require immediate assistance (property damage estimated above $2,500, utility strikes, incidents involving the public, security-related incidents, etc.). The Assistance Line will connect you to the proper authorities within AECOM.

The employee or responsible manager must make initial notification into **IndustrySafe** within four hours of the event.

3.5.2 Non-critical and no-injury incidents

Examples include: Property damage less than $2,500, all near misses, etc.

Contact your responsible manager, supervisor/project manager.

The employee or responsible manager must make case entry into IndustrySafe within 24 hours of the event.

3.5.3 The employee involved in an incident shall complete incident reporting in IndustrySafe, or delegate to their responsible manager, within the required timeline for the category of event from 3.3 through 3.4 above.

- If the employee is unable to complete the report because of the severity of the injuries, the responsible manager, should start the IndustrySafe entry and notification process.

3.6 The **Project Manager/Supervisor** will:

- Confirm that on-site corrective actions were implemented,
- Determine the need for HR involvement (for medical aid incidents, WCB/WSIB/H&W/ WC reporting, and modified work cases),
- Determine the need for review by the District Manager,
- Identify and complete any other external reporting requirements (client, ministry responsible for labour, ministry responsible for environment), and
- Work with Regional Counsel or Media Communications as needed
- Conduct Executive Incident Review and implement at the project/office level corrective actions; dissmenate lessons learned.

3.7 The **Regional SH&E Manager** must:

- Support as requested an internal or external investigation of the incident (Regional Counsel may request/oversee an external investigation).
- Work with regional/business line leadership, Human Resources, and Regional Counsel or Media Communications, as requested.

4.0 External Reporting Procedures

4.1 Notification to external regulatory agencies (i.e. OSHA, ministry of labour/environment, WCB, WSIB, WC, H&W, etc) is to be done in accordance with *S3NA-601-PR1 Recordkeeping.*

4.2 The **Project Manager**, in conjunction with the Regional SH&E Manager, will determine what (if any) external reporting obligations must be met. For example:

4.2.1 Client. To a Client whom the employee was conducting work for at the time of the incident or accident. Health and safety requirements will vary for different clients, and therefore client reporting will be handled on an individual basis by the manager(s) involved.

4.2.2 State and OH&S Governing Agency. Reporting to the State, governing body of labour or OH&S (Canadian provincial/territorial ministry responsible for labour) by the employer (AECOM management/representative) will be done in accordance with regulatory requirements. Since reporting requirements vary slightly between jurisdictions throughout the Americas, the following can only be used as rough guidelines for determining whether or not a call should be made to the governing body:

- If a fatality or permanent injury is incurred;
- If the accident/incident involved a major structural failure or collapse of a building, bridge, tower, crane, hoist, temporary construction support system or excavation; or
- If the accident/incident involved the major release of a hazardous substance
- If required by OSHA (such as 1 or more hospitalized, etc.)

4.2.3 Environmental Governing Agency. To the governing body for the environment and spill reporting (provincial/territorial ministry responsible for environment) by the employer (AECOM management/representative). Reporting requirements vary slightly between jurisdictions:

- Spills, releases or other damage to the environment. (For minimum quantities for reporting based on the type of product spilled or released, refer to the applicable legislation.).

4.3 Medical Treatment Injury, Hazardous Material Spill/Release, Permit Condition Notification

4.3.1 Any SH&E incident involving medical treatment for an AECOM employee, release of a hazardous material/substance and/or breach of a numeric or non-numeric permit/consent limit is to be reported as soon as possible, to the Regional SH&E Manager, Regional/Business Line Manager and Group SH&E Director by using a direct communication method (face-to-face or phone call). Responsibility for this reporting belongs to the responsible project/location/department manager.

4.4 Worker's Compensation

4.4.1 AECOM's Workers Compensation Analyst will be responsible for working with the appropriate manager if the employee is off work for any length of time, if a modified work program will be created for the individual, or if there are any long-term implications from the accident.

4.4.2 Canada. Reporting to the WCB must be completed by both the employee(s) injured in the mishap and the employer (AECOM management/representative). Reporting requirements vary slightly between jurisdictions across Canada, therefore, the following can only be used as rough guidelines for determining whether or not a call should be made to the appropriate agency:

- If the employee requires medical treatment (by a medical practitioner, not just first aid);
- If the employee is off of work beyond the day of the accident;
- If the employee has to perform different or fewer work duties;
- If a fatality or permanent injury is incurred.

4.4.3 United States. Injured U.S. based employees will be referred to the Workers Compensation Analyst for potential claims processing. Workers Compensation regulations vary by State. The Workers Compensation Analyst and the RSH&E Manager will ensure that appropriate State reporting has been completed, as applicable. For property damage incidents with any potential resulting liability to the company will be referred to the Insurance group and liability carrier for claims processing.

Americas

SH&E Incident Report

S3NA-004-FM1

1. SEEK IMMEDIATE MEDICAL ATTENTION IF NECESSARY
2. EMPLOYEE MUST REPORT ALL INCIDENTS TO THEIR SUPERVISOR IMMEDIATELY
3. REPORT THE INCIDENT TO THE APPROPRIATE INCIDENT REPORTING LINE: **(800) 348-5046**

ORGANIZATION INFORMATION

REGION: CANADA NORTH South	**DISTRICT:**
	PROJECT NUMBER:

BUSINESS LINE: AECOM CORP GROUP SERVICES CONSTRUCTION SERVICES (CS) ENERGY & POWER ENVIRONMENT B+P TRANSPORTATION WATER

CLIENT NAME:	**PROJECT NAME:**

ADMINISTRATIVE

EMPLOYEE NAME:	**EMPLOYEE NUMBER:**
WORK PHONE:	**CELL PHONE:**
EMPLOYEE STATUS FULL TIME PART TIME SUB TEMP AGENCY THIRD PARTY	**HOME OFFICE ADDRESS:**
	JOB TITLE:

DESCRIPTION OF EVENT

TYPE OF OCCURRENCE: INJURY/ILLNESS PROPERTY DAMAGE ENV DAMAGE/SPILL REGULATORY INSPECTION MOTOR VEHICLE ACCIDENT BOATING INCIDENT NOV/CITATION OTHER BE SPECIFIC

DATE OF INCIDENT:	**TIME OF INCIDENT:**
DATE REPORTED TO SUPERVISOR:	**TIME REPORTED TO SUPERVISOR:**
INCIDENT ADDRESS/LOCATION:	**CITY:**
STATE/PROVINCE/TERRITORY:	**ZIP/POSTAL CODE:**

WERE THERE ANY SUBCONTRACTORS, WITNESSES OR OTHER PERSONS INVOLVED: **YES** **NO**

IF YES, PLEASE PROVIDE DETAILS TO INCLUDE NAMES AND CONTACT INFORMATION

TYPE OF INJURY: FIRST AID (TREATED ON-SITE) MEDICAL AID (TREATED BY PROFESSIONAL) FATALITY

DESCRIBE THE INJURY AND BODY PART AFFECTED: ***BE SPECIFIC STATEMENTS BELONG ON PAGE 2***

WAS A DOCTOR OR HOSPITAL VISITED? **YES** **NO**	**IF YES, WHEN:**
MEDICAL RECEIVED:	**DOCTOR/HOSPITAL NAME:**
PROVIDER ADDRESS:	**PHONE NUMBER:**

1. **SEEK IMMEDIATE MEDICAL ATTENTION IF NECESSARY**
2. **EMPLOYEE MUST REPORT ALL INCIDENTS TO THEIR SUPERVISOR IMMEDIATELY**
3. **REPORT THE INCIDENT TO THE APPROPRIATE INCIDENT REPORTING LINE:** **(800) 348-5046**

Property Damage

TYPE OF DAMAGE: AECOM PROPERTY MOTOR VEHICLE (COMPLETE MVA REPORT PAGE 3)

SPILL OR RELEASE OF A HAZARDOUS SUBSTANCE MAJOR STRUCTURAL FAILURE CLIENT, SUBCONTRACTOR, OTHER:

DESCRIBE THE SPECIFIC DAMAGE, STRUCTURAL FAILURE OR HAZARDOUS RELEASE: RANK THE SEVERITY OF THE DAMAGE: MINOR SERIOUS MAJOR

WHERE CAN THE PROPERTY BE SEEN?

PROPERTY OWNER NAME: **CONTACT INFORMATION:**

IS THERE ANY POTENTIAL FOR CIVIL, CRIMINAL OR REGULATORY LIABILITY AGAINST AECOM OR AN EMPLOYEE? **YES** **NO**

IF YES, DISCUSS WITH AECOM REGIONAL COUNSEL BEFORE PROCEEDING WITH ANY FURTHER REPORTING.

INDICATE WHO HAS BEEN NOTIFIED OF THE EVENT (E.G., OWNER/OPERATOR, STATE (US) OR GOVERNING BODY OF LABOUR, ETC?

What, when, where, why, how? Attached notes/diagrams as required and list any machinery or equipment involved.

ON-SITE/CORRECTIVE ACTIONS

INCIDENT IMMEDIATELY REPORTED ON-SITE TO:

WHAT CORRECTIVE ACTIONS WERE IMMEDIATELY IMPLEMENTED ON-SITE?

WHAT LONG-TERM OR PERMANENT CORRECTIVE ACTIONS ARE RECOMMENDED?

ACKNOWLEDGEMENTS

EMPLOYEE DESCRIPTION OF INCIDENT:

What, when, where, why, how? Attached notes/diagrams as required and list any machinery or equipment involved

EMPLOYEE PRINTED NAME AND PHONE	**SIGNATURE AND DATE**

SUPERVISOR REVIEW OF INCIDENT:

SUPERVISORS PRINTED NAME, EMPLOYEE Number, AND PHONE	**SIGNATURE AND DATE**

MANAGER COMMENTS:

MANAGER PRINTED NAME AND PHONE	**SIGNATURE AND DATE**

1. **SEEK IMMEDIATE MEDICAL ATTENTION IF NECESSARY**
2. **EMPLOYEE MUST REPORT ALL INCIDENTS TO THEIR SUPERVISOR IMMEDIATELY**
3. **REPORT THE INCIDENT TO THE APPROPRIATE INCIDENT REPORTING LINE:** **(800) 348-5046**

FOR REGIONAL SH&E MANAGER USE ONLY:

NAME AND SIGNATURE:	**DATE:**

RECORDABILITY DETERMINATION FIRST AID RECORDABLE RECORDABILITY UNDETERMINED NON WORK

PROPERTY DAMAGE GENERAL LIABILITY VANDALISM

COMMENTS:

ATTENTION:

FOR MINOR INCIDENTS, THIS FORM MUST BE COMPLETED AND EMAILED TO SRI@AECOM.COM OR FORWARDED TO THE REGIONAL SH&E MANAGER BY THE END OF THE WORKDAY IN WHICH THE INCIDENT OCCURRED, OR A MAXIMUIM OF 24 HOURS FOLLOWING THE OCCURRENCE OF THE INCIDENT. MAJOR INCIDENTS MUST BE REPORTED IMMEDIATELY.

Submit Form

MOTOR VEHICLE ACCIDENT (MVA) REPORT

ONLY COMPLETE THIS PAGE FOR VEHICLE INCIDENTS

ADMINISTRATIVE				
AECOM VEHICLE:	FLEET	RENTAL	PERSONAL	JOB ACTIVITY AT TIME OF MVA:
DATE OF MVA:	TIME OF MVA:			LOCATION OF MVA:
MANAGER:				NUMBER OF VEHICLES INVOLVED:

REMEMBER: STAY CALM.
Do not admit liability, agree to pay for any damage or sign any document except as required by law.

AECOM DRIVER INFORMATION		
DRIVER/employee Number	AECOM PASSENGERS:	OTHER PASSENGERS:
DRIVER'S LICENSE:	PROVINCE/STATE ISSUED:	EXPIRATION DATE:
INJURIES TO DRIVER:		
INJURIES TO PASSENGERS:		

AECOM VEHICLE INFORMATION		
YEAR:	MAKE:	MODEL:
SERIAL/VIN #:	LICENSE PLATE #:	REGISTRATION #:
OWNER:	INSURANCE COMPANY:	POLICY #:
COMMERICIAL MOTOR VEHICLE :	I F RENTED OR PERSONAL, CONTACT INFORMATION OF OWNER:	
RANK THE SEVERITY OF THE DAMAGE TO THE VEHICLE:	0 - $500	$500 - $1000	$1000 - $4000	>$4000
DESCRIPTION OF DAMAGE TO THE BODY OF THE VEHICLE:		

OTHER DRIVER/VEHICLE INFORMATION		
YEAR:	MAKE:	MODEL:
SERIAL/VIN #	LICENSE PLATE #:	REGISTRATION #:
DRIVER'S NAME:	CONTACT INFO:	LICENSE #:
OWNER:	INSURANCE COMPANY:	POLICY #:
IF RENTED OR PERSONAL, CONTACT INFORMATION OF OWNER:		
DESCRIPTION OF DAMAGE TO THE BODY OF THE OTHER VEHICLE:		

MOTOR VEHICLE ACCIDENT (MVA) REPORT

ONLY COMPLETE THIS PAGE FOR VEHICLE INCIDENTS

ACCIDENT DESCRIPTION	
EXACT LOCATION OF MVA (HIGHWAY KM, INTERSECTION, EXACT ADDRESS, ETC.)**?**	
OTHER PROPERTY DAMAGED:	
DESCRIBE THE EVENTS LEADING UP TO AND THE INCIDENT (REPORT FACTS ONLY: SPEED OF VEHICLES, DIRECTION TRAVELING, WEATHER CONDITIONS, ETC. DO NOT GIVE OPINIONS REGARDING CAUSE OF ACCIDENT OR LOSS.)**:**	
DID THE POLICE ATTEND THE SCENE: **YES** **NO**	**CITATION ISSUED:** **YES** **NO** **TO WHO:**
POLICE :	**CONTACT INFO:**
WITNESS:	**CONTACT INFO:**
WITNESS:	**CONTACT INFO:**
SUBMIT THIS MVA REPORT WITH A COMPLETED SUPERVISORS REPORT OF INCIDENT TO THE APPROPRIATE MANAGER	
HAS A SUPERVISOR'S REPORT OF INCIDENT BEEN COMPLETED? **YES** **NO**	
COMPLETED BY:	**SIGNATURE:**

DRIVER

Americas

Near Miss Report

S3NA-004-FM2

If unable to access IndustrySafe. Please use this form to report any near-misses, you encounter as a part of your work. This may include office or field locations.

PROJECT NAME & NUMBER: ☐ **N/A**	**LOCATION:**
EMPLOYEE NAME:	**EMPLOYEE NUMBER:**
EMPLOYEE TYPE: ☐ AECOM EMPLOYEE ☐ CONTRACTOR ☐ SUBCONTRACTOR ☐ JV PARTNER ☐ 3RD PARTY/PUBLIC	**SUPERVISOR:**
HOME OFFICE:	**DEPARTMENT NUMBER:**
JOB NUMBER/PROJECT LOCATION/PROJECT DESCRIPTION:	
DATE AND TIME OF NEAR MISS:	**DATE AND TIME REPORTED:**

Work Activity	☐ Office	☐Driving	☐Field	☐Lab	☐Other: _____

REMEMBER: IDENTIFYING A NEAR MISS DOES NOT IMPLY GUILT BUT ASSISTS IN PREVENTING INCIDENTS OR INJURIES.

NEAR MISS POTENTIAL OUTCOME: ☐ INJURY/ILLNESS ☐ PROPERTY DAMAGE ☐ ENVIRONMENTAL DAMAGE

POTENTIAL SEVERITY: ☐ NEGLIGABLE ☐ MARGINAL ☐ CRITICAL ☐ CATASTROPHIC

PROBABILITY: ☐ FREQUENT ☐ IMPROBABLE ☐ OCCASIONAL ☐ PROBABLE ☐ REMOTE

DESCRIPTION OF NEAR MISS:

If unable to access IndustrySafe. Please use this form to report any near-misses, you encounter as a part of your work. This may include office or field locations.

POTENTIAL IMMEDIATE CAUSES

- ☐ Procedures not followed
- ☐ Use of tools or equipment
- ☐ Use of protective measures
- ☐ Inattention/Lack of awareness
- ☐ Protective systems
- ☐ Tools, equipment, & vehicles
- ☐ Work exposures to…
- ☐ Work place environmental/layout

POTENTIAL SYSTEM CAUSES

- ☐ Physical capacity
- ☒ Physical condition
- ☐ Mental state
- ☐ Behavior
- ☐ Skill level
- ☐ Training/Knowledge transfer
- ☐ Mngmt/Supervision/Employee leadership
- ☐ Contractor selection & design
- ☐ Engineering/Design
- ☐ Work planning
- ☐ Purchasing, material handling/controls
- ☐ Tools & equipment
- ☐ Work rules/policies/stds/procedures
- ☐ Communication
- ☐ Other:_____

CORRECTIVE ACTIONS

Corrective Action Category Identified to Prevent Future Reoccurrence

(*Identify relevant issues in checkboxes and provide detail below, as applicable*)

- ☐ Different/New PPE needed
- ☐ New tool(s)/equipment needed
- ☐ Additional/proper personnel needed
- ☐ Change in working procedure
- ☐ New STOP WORK trigger identified
- ☐ Additional training/skills needed
- ☐ Improved housekeeping efforts
- ☐ Modified working behaviors
- ☐ Improved work planning
- ☐ Other:_____

WERE IMMEDIATE CORRECTIVE ACTIONS IMPLEMENTED? ☐ **YES** ☐ **NO** IF YES, PLEASE DESCRIBE:

WHAT LONG-TERM CORRECTIVE ACTIONS ARE RECOMMENDED?

FOR SH&E DEPARTMENT USE ONLY:

CORRECTIVE ACTIONS REQUIRING IMPLEMENTATION:	**RATIONALE:**
COMMUNICATED BACK TO EMPLOYEE: ☐	**COMMUNICATED BACK TO MANAGER:** ☐
COMPLETED BY:	**DATE:**

Americas

Vehicle and Driver Safety Program

S3NA-005-PR1

1.0 Purpose and Scope

1.1 This procedure applies to employees who operate motor vehicles that are owned, rented, or leased by AECOM and to employees who use personal, client or government-supplied vehicles while conducting AECOM business. This Vehicle and Driver Safety Program applies to AECOM Americas operations. Policies and procedures related to the operation of commercial motor vehicles are in addition to this procedure, see *S3NA-404-PR1 Commercial Motor Vehicles.* Operational procedures related to the use of AECOM owned vehicles are addressed in the *Americas Fleet Vehicle Operations Policy*.

1.2 Vehicle and transportation related death is among the leading causes of death in the United States. In the occupational setting, motor vehicle crashes are the number one cause of death.

1.3 Vehicle damage and damage to property by vehicles are generally avoidable incidents that can result in injuries and added costs for repairs and replacements.

2.0 Terms and Definitions

2.1 **Americas Fleet Vehicle Managemen**t – The team of AECOM employees who oversee the operations, safety, and performance of the Americas Fleet.

2.2 **Authorized Driver** – AECOM employees who have provided proof of a current driver's license, proof of insurance and completed AECOM Driver & Vehicle Safety Training. Employees authorized to operate an AECOM Fleet Vehicle must receive additional approval by Region Fleet Vehicle Coordinators. Refer to *Americas Fleet Vehicle Operations Policy*.

2.3 **Commercial Motor Vehicle (CMV)** – For AECOM operations, a CMV is defined as a vehicle used for AECOM business that:

- ≥10,001 lbs gross vehicle weight rating (GVWR); and/or
- Carries a quantity of hazardous material (quantities ≥ 1001 lbs. combined total weight) at any time beyond the criteria in 49 CFR 173.6 (Materials of Trade).

2.4 **Company Business** – Any activity that is performed in the name of the company. This includes vehicle travel between work locations, client sites, meeting locations as well as driving performed as a part of work related travel (driving to and from airports, hotels, train stations). Company business does not include driving that is a part of a routine commute from home to an office location.

2.5 **Distracted Driving** – An activity that takes the driver's attention away from the primary task of driving.

2.6 **Driving Under the Influence (DUI)/Driving While Intoxicated (DWI)** – DUI is the operation of a vehicle on company business under the influence of alcohol, drugs, medications, or other substances capable of inducing an altered mental state and/or impairing physical and mental judgments such that the influence of said substances produces impairment in violation of governmental laws for the location of the impairment.

2.7 **Fatigue** – A general term used to describe the experience of being "sleepy", "tired" or "exhausted". The effect of fatigue is both a physiological and a psychological and can severely impair a driver's judgement. Fatigue can cause lapses in concentration which could prove fatal. Fatigue is not just a problem for drivers on long trips as a drivers can also suffer from fatigue even on short trips.

2.8 **Fleet Vehicle** – A motorized vehicle owned or leased by AECOM. These vehicles may be assigned to a specific driver or may be part of an office vehicle pool.

2.9 **IndustrySafe** – AECOM's internal database for the management of safety, health and environmental incidents. IndustrySafe is accessible to all AECOM employees, and maintains confidentiality for protected information.

2.10 **Journey Management** – A process for planning and executing necessary journeys safely.

2.11 **Local Laws** – Signs, postings, laws, regulations, ordinances and codes applicable for the jurisdiction in which the motor vehicle is being operated.

2.12 **Managers/Management** – All AECOM company personnel with supervisory responsibilities or direct reports.

2.13 **Mobile Communication Device** – A mobile electronic device that is used to receive or communicate voice, email, internet, and/or public media. The device requires user interaction (typing, dialing, reading, keying, etc.) that distracts the motor vehicle operator. Example devices include, but are not limited to:

- Mobile/Cellular phones
- Personal Data Assistant (PDA)
- iPads, iPods, or other tablet models
- Computers
- Global Positioning System receivers

2.14 **Motor Vehicle Report (MVR)** – A listing of the tickets (violations), incidents collision for an individual driver over a period of time (e.g. 3 years, 5 years) provided by a state or provincial authority such as the Department of Motor Vehicles.

2.15 **Personal Vehicle** – A motorized vehicle owned or leased by an employee.

2.16 **Spotters –** Extra personnel that may provide guidance when maneuvering in close and/or complex situations in order to avoid the occurrence of an incident.

2.17 **Task Hazard Analysis (THA)** – A process for planning and evaluating tasks, such as driving, for hazards and control measures to reduce and eliminate the risk of a harmful event.

2.18 **Vehicle Incident** – An incident, for the purposes of this procedure, is a vehicle collision or other vehicle related event where personal injury or property damage occurs. This includes theft, vandalism, and criminal mischief. Citations are considered incidents when the citation is received during the course of business and results in a restricted or suspended license, a governmental motor vehicle agency assigning points to the employee's license, or the employee provides AECOM's insurance as proof of insurance at the time of incident.

3.0 References

3.1 AECOM US, Canada and South America Employee Handbook (HR Department)

3.2 Americas Fleet Vehicle Operations Policy

3.3 AECOM Global Travel Policy

3.4 National Safety Council

3.5 Smith Systems

3.6 WP-001-PR Firearms Standard

3.7 S2-032-PR1 Weapons Safety

3.8 S3NA-003-PR1 SH&E Training

3.9 S3NA-004-PR1 Incident Reporting

3.10 S3NA-209-PR1 Project Hazard Assessment and Planning

3.11 S3NA-404-PR1 Commercial Motor Vehicles

3.12 S3NA-603-PR1 Incident Investigation and Review

4.0 Procedure

4.1 Roles and Responsibilities

4.1.1 **Regional Executive**

- Supports the implementation of the *Americas Fleet Vehicle Operations Policy*, including preventative maintenance, vehicle disposition and insurance.
- Providing necessary resources to manage vehicles and drivers to the extent their operation requires.

4.1.2 **Supervisor**

- Confirming employees are informed of the provisions of this procedure and related vehicle procedures.
- Providing a copy of this procedure to an employee who will be driving an AECOM owned, leased or personal vehicle for company business.
- Verifying that each employee has completed *S3NA-005-FM1 Driver's Authorization* per the instructions on the form.
- Allowing employees to designate time to complete required driving safety training, vehicle inspections and related activities.
- Assigning driving tasks to authorized employees only.
- Selecting and providing vehicles for use by authorized employees that are appropriate for the planned working conditions and environment.
- Supporting employees in the reporting of vehicle incidents per *S3NA-004-PR1 Incident Reporting,* including the entry of the incident into IndustrySafe.

4.1.3 **Employee**

- Following this procedure and applicable laws while operating a vehicle.
- Completing required training consistent with the training needs assessment and requirements per the *S3NA-003-PR1 SH&E Training*.
- Reporting to their supervisor if the vehicle selected is not appropriate for working conditions and environment.
- Reporting to their supervisor if they are inexperienced in operating the type of vehicle they are assigned.
- Reporting to their supervisor if they are inexperienced driving in the type of working conditions and environment they are assigned.
- Review the Driving THA and prepare a Journey Management Plan by completing the *S3NA-005-TP1 Journey Management Plan.*
- Immediately reporting vehicle incidents per *S3NA-004-PR1 Incident Reporting*, including the entry of the incident into IndustrySafe.
- Notifying their Supervisor, Region SH&E Manager, and Region Counsel upon receipt of a legal summons associated with a moving violation related to the use of a company vehicle.
- Immediately reporting a change or limitation(s) to his or her Driver's License to his or her Supervisor.
- Conducting a pre-operational inspection of the vehicle for damage or deficiencies and reporting discovered deficiencies affecting the safe operation of the motor vehicle to the appropriate authority (Region Fleet Vehicle Coordinator, Rental Car Agency or other).

4.1.4 **Region SH&E Manager / SH&E Department**

- Maintaining and updating resources for Driver Safety Training
- Maintaining this procedure and updating it when regulatory or company policies dictate.
- Assisting operational leaders with determining the risk incurred by the use of motor vehicles.
- Participating in the incident investigation and review process.

4.1.5 **Region Fleet Vehicle Coordinator (in their assigned regions)**

- Escalating safety issues related to fleet vehicles for resolution through the Fleet Management Company.
- Disposing of fleet vehicles per the guidance in the *Americas Fleet Vehicle Operations Policy*.
- Refer to the Region SH&E Manager for Fleet Vehicle driver training verification and risk assessment.

4.1.6 **Region Human Resources Manager**

- Responsible for verifying license and proof of personal vehicle insurance at the time of hire and upon verification of the Driver Authorization Form.

4.2 General Procedures and Practices

- Only Authorized Drivers are to operate a motor vehicle (rental, personal, or AECOM owned/leased) while on AECOM business, refer to *S3NA-005-WI1 Authorized Driver Safety Practices*.
- Drivers must comply with *AECOM's Global Travel Policy*, *Americas Fleet Vehicle Operations Policy*, and the applicable laws. (NOTE: *Individual state, provincial, and local laws vary*.)
- AECOM Fleet Vehicles and Rentals Cars should not be operated if the age or mileage on that vehicle exceeds the following:
  - Light/Medium Duty Trucks: 72 months/150,000 miles
  - Sedans: 36 months/80,000
  - Sport Utility Vehicles/Vans: 60 months/100,000 miles
- Seat belts are to be worn by the occupants. The number of passengers shall not exceed the manufacturer's specifications for the vehicle.
- Motorcycles may not be operated on company business unless:
  - Specific approval is provided by the **Supervisor** with concurrence from the **Region SH&E Manager.**
  - A hazard analysis is completed.
  - Required training and license is in place.
  - Headlights or daytime running lights will be used when the vehicle is in operation. Class 2 or 3 safety vest worn while operating a motorcycle.
- Fire arms and weapons are not permitted in AECOM Fleet Vehicles or rental vehicles insured by AECOM. Firearms and weapons in personal vehicles are subject to the laws and regulations of the respective local, provincial, state, territory, federal and region and/or country. In accordance with the Global Safety Department standards, no firearms or weapons are allowed to be used without express permission by the **Region Executive** and **Chief Security Officer**, refer to the *WP-001-PR Global Firearms Standard*. Exceptions can be made in writing from the **Region Executive** and **Chief Security Officer** if knives or weapons are required as part of the work activity or for third party protection and planned for appropriate hazard control measures and training, refer to the *S2-032-PR1 Weapons Safety*. Vehicles are to be selected based on the nature of planned use. In some working conditions, four-wheel drive and higher clearance vehicles may be required to ensure safe travel. Vehicle requirements/specifications must be identified in the project specific safety plan or THA.

- Vehicles are to be outfitted with the appropriate support equipment based on the THA or client vehicle specifications. Support equipment may include cones, rotating waning lights, warning flags, vehicle identification (magnetic door signs or similar,), wheel chocks, cargo nets, rollover protection.
- Drivers are to operate vehicles in a manner that avoids situations where backing is necessary. Reverse parking of all vehicles while on business is required. Backing of trucks and heavy equipment requires then a spotter to assist the driver in avoiding collisions.
- Non-AECOM drivers (subcontractors, joint venture partners, clients) are prohibited from operating an AECOM leased or owned vehicle unless the activity is specifically agreed to in the applicable contract and only if the use of the vehicle is consistent with the terms of the contract.

4.3 Distracted Driving

The use of all mobile communication devices (MCDs) while driving is strictly prohibited. MCDs include all hand-held or hands-free devices, including all mobile phones and other portable electronic devices that cause driver distraction such as tablets (e.g., iPads), PDAs, pagers, iPods, MP3s, GPS, DVD players, laptops, etc. Employees shall not use a personal or company MCD while driving a company vehicle; use a company MCD while driving a personal vehicle; or use a personal MCD while driving a personal vehicle on company business. Driving includes the time spent in traffic or while stopped at red lights or stop signs.

GPS units and GPS units on smart phones may only be used if factory installed or secured to the vehicle with a bracket that allows the driver to view the image without having to take their eyes off the road. Electronic devices shall be setup for operation prior to commencing driving activities.

4.4 Impairment

- Impairment can take many forms ranging from fatigue, to the use of prescription medication or alcohol (even small amounts), to the abuse use of illegal and legal drugs and alcohol. AECOM **Employees** are not to drive in an impaired condition.
- AECOM **employees** are prohibited from being under the influence of alcohol or drugs or improperly using medication in a way that could diminish, or raise questions concerning, an employee's ability to perform at his or her best while performing services for or on behalf of AECOM.
- AECOM **Employees** are prohibited from operating a vehicle if they are experiencing signs and symptoms of fatigue. **Employees** should stop work and rest before driving. No **Employee** should operate a vehicle if they have worked 14 consecutive hours within a 24 hour period.

4.5 Task Hazard Analysis (THA)

All **Employees** are to review a Driving THA prior to driving for company business, refer to *S3NA-209-PR1 Project Hazard Assessment and Planning*.

4.6 Journey Management

Journey Management is a process for planning and executing necessary journeys safely. Journey Management includes the following steps:

- Determining if the trip is necessary;
- Evaluating alternative safer modes of transport;
- Evaluating the potential to combine journeys with others.

Trips in excess of 100 miles (160 kms) (each way), or into remote or hazardous areas, or when otherwise deemed necessary, shall have a Journey Management Plan (JMP). This plan typically includes the route, location of route hazards, timing, rest periods and locations, communications, emergency response and security arrangements.

A sample Journey Management Plan has been provided in *S3NA-005-TP1 Journey Management Plan.*

Drivers are responsible for developing the Journey Management Plan in coordination with their **Supervisor**, **Project Manage**r and **Region SH&E Manager** (as appropriate).

4.7 Driver Safety Training

- Driver safety training is to be assigned based on the risks posed with the work environment and vehicle type, using the training needs assessment process, refer to *S3NA-003-PR1 SH&E Training*. A determination of training type is at the discretion of the **Supervisor**, the following guidance will be applied:
- Driver Safety Awareness – is appropriate for Authorized Drivers who periodically use their personal vehicle, AECOM Fleet Vehicle or rental car for AECOM business. Driver Safety Awareness training is an eLearning module approximately 1 Hour in length.
- Defensive Driver (online) – is appropriate for authorized drivers who are assigned an AECOM Fleet Vehicle or rental vehicle for a significant period of time with the expectation that the **Employee** utilizes the vehicle on a regular basis for AECOM business. Defensive Driver training is provided online through one of the following AECOM-approved training resources:
  - The National Safety Council
  - Alert Driving
- Defensive Driver (hands-on) – is appropriate for Authorized Drivers who drive in remote locations, hazardous environments (such as refineries, ports, terminals etc.), at-risk drivers, and as required by clients. Defensive Driver hands-on training is provided through one of the following AECOM-approved training resources such as Smith Systems. Hands on defensive driver training may also be required as a result of an incident or negative Motor Vehicle Report.
- Driver Retraining – Drivers involved in repeated motor vehicle incidents, incidents of sufficient severity or concern, or drivers identified as at-risk through AECOM's Motor Vehicle Report/Driver Abstract process shall be subject to a driver retraining program that may include any of the above programs or other training programs appropriate for the type of driving the employees performs. Retraining programs will be implemented at the discretion of the **Supervisor** and **Region SH&E Manager** Depending on the severity of the incident, the **Employee** may be subject to disciplinary and refused the right to drive on behalf of AECOM.
- Special Vehicles and Driving Conditions – Vehicles such as All-Terrain Vehicles (ATVs), four wheel drive vehicles, motorized carts, box vans and trailers (towing) require specialized training and supervision. Use of these types of vehicles is limited to AECOM projects, therefore training and qualification programs for drivers will be project specific. The **Project Manager** shall work with the **Region SH&E Manager** to tailor training to the specific needs of the project.

4.8 AECOM Fleet Vehicles (additional requirements)

- The requirements of this procedure apply to the use of AECOM Owned or Leased Vehicle, and additional requirements are set forth in the Americas Fleet Vehicle Operations Policy.
- Fleet Vehicles are to be parked on project sites in a manner that prevents the driver from backing (reversing) upon departure. For example, the vehicle should be backed into a parking spot or drivers should select a parking spot that allows them to "pull" through" so that the vehicle is facing the direction of departure.
- Fleet Vehicles are to have a "Safety Kit" that contains a first-aid kit, portable fire extinguisher, safety triangle, and two reflective safety vests. If not available, contact the **Region Fleet Vehicle Coordinator** about how to obtain one through the procurement system.

4.9 Personal Vehicles (additional requirements)

The requirements of this procedure apply to the use of a personal vehicle for company business. Additional requirements are set forth in the *AECOM Global Travel Policy*.

4.10 Rental Vehicles (additional requirements)

The requirements of this procedure apply to the use of a rental vehicle for company business. Additional requirements are set forth in the *AECOM Global Travel Policy*.

4.11 Requirements for Authorized Drivers

- Review the *S3NA-005-WI1 Authorized Driver Safety Practices* for more specifics.
- Perform pre-operation vehicle inspections, a sample vehicle inspection checklist is provided in *S3NA-005-FM2 Vehicle Inspection Checklist*.
- Arrange for preventive maintenance services for the vehicle and maintain it in sound mechanical condition, per manufacturer's recommendations.
- Drivers are not to permit unauthorized persons to operate an AECOM owned/leased/rented vehicle.
- Do not operate the vehicle if unsafe maintenance conditions exist that would likely result in vehicle damage or personal injury. This applies to vehicles owned or leased by AECOM and to personally-owned vehicles used for company business. Escalate other maintenance issues for correction to appropriate authority (**Region Fleet Vehicle Coordinator**, Rental Car Agency, **Supervisor** etc.).
- Use AECOM owned or leased vehicles for business only. Exceptions to use the vehicle as transportation to and from work, parking at residences overnight, may be permitted only if written approval is obtained from the **Regional Executive**.
- Transport only persons on AECOM related business or those persons receiving transportation as a prescribed service. Only drive vehicles in conditions for which the driver has the appropriate training and experience.
- No smoking by the driver or passengers in the vehicle.
- Drivers are responsible for damage caused by abuse of the vehicle.
- Secure the vehicle when left unattended.
- Securing loads in the inside and outside compartments of the vehicle. Do not rely on weight/shape of load alone. Always use a cargo net, straps, containers or other mechanical device when necessary to ensure load is secure. Mark loads that extend the beyond the end of truck, trailer or similar edge with a red warning flag of at least 16 square inches.
- Refrain from modifying existing equipment (warning sounds, backing alarms etc.) and from installing aftermarket equipment including toolboxes, truck caps, specialty lights, or towing equipment) without approval from the **Regional Executive, Region Fleet Vehicle Coordinator**, and AECOM Procurement Department.
- Shut the engine off when refuelling the vehicle.

4.12 Emergency Preparedness

- The following suggested items should be kept in vehicles used for company business in remote project locations:
  - First Aid kit, appropriate to the work and crew size, or per regulations.
  - Fire extinguisher, safety triangle, and safety vest
  - Emergency equipment (e.g., flares, flashlight, blanket, drinking water, etc.) based on conditions.
  - Means of communication (cell phone, radio or satellite phone), extra batteries or a charger.
- To the extent possible, **Employees** should refrain from changing tires or making repairs to vehicles in the field. A road side assistance service should be identified for vehicles used for company business in advance travel.
- Specific emergency procedures are to be identified in the Journey Management Plan or the THA.

4.13 Vehicle Incidents

- Vehicle incidents are to be managed consistent with *S3NA-004-PR1 Incident Reporting*.
- For vehicle incidents that involve non-emergency injuries or potential injuries, **Employees** must call the Incident Reporting and Assistance Line at 1.800.348.5046 for connection with Work Care medical support. The **Employee** or **Supervisor** is responsible for making the initial notification into IndustrySafe within 4 hours of the event.
- For vehicle incidents that involve property damage greater than $2,500, **Employees** are to call the Incident Reporting and Assistance Line at 1.800.348.5046 for connection with appropriate resources within AECOM, The **Employee** or **Supervisor** is responsible for making the initial notification into IndustrySafe within 4 business hours of the event.
- Non-critical and no-injury incidents (property damage less than $2,500, near misses, etc.), the **Employee** or **Supervisor** is responsible for making the case entry into IndustrySafe by the end of the work shift (at least within 24 hours of the event).
- For Fleet Vehicles, employees must contact the AECOM Fleet Management Company (Wheels: 800-477-2211) to report the incident. Refer to the Americas Fleet Vehicle Operations Policy for further information. Vehicle incidents that result in property damage or loss greater than $2,500 or cause injuries to AECOM **Employees** that result in medical treatment are to be investigated using the AECOM Incident Investigation Process in *S3NA-603-PR1 Incident Investigation and Review*.
- The **Employee(s)** involved in the incident are advised to:
  - Provide (if requested) to police and the other driver(s) their liability insurance information.
  - Not operate a damaged vehicle if its safety is questionable, its operating condition is illegal by applicable laws or its condition is such that further damage would likely result from its operation.
  - Cooperate with **Region Counsel** if the incident results in unresolved risks or third party claims, or if the **Employee** receives a Summons, Complaint or other legal documents relating to a traffic incident.
  - NOT ADMIT LIABILITY, AGREE TO PAY FOR DAMAGE OR SIGN A DOCUMENT RELATED TO AN INCIDENT EXCEPT AS REQUIRED BY LAW. Statements made in haste or anger may be legally damaging.
  - **Employees** must report the incident to AECOM's Global Travel Department. If the incident involved a third party, the driver is responsible for obtaining a copy of the police report and providing to global travel

4.14 Drug and Alcohol Testing

- Testing for Alcohol and/or Drugs procedures are specified in the *US and Canadian Employee Handbook* and administered through the AECOM **Human Resources Department**.
- In the event that a police/regulatory officer responding to a vehicle incident administers field and/or laboratory impairment testing AECOM reserves the right to obtain copies of such testing results for inclusion in the incident report and consideration in a subsequent incident investigation.

4.15 Citations and Violations

- Citations and violations which occur while driving for company business are to be reported as a Vehicle incident, using *S3NA-004-PR1 Incident Reporting* within 24-hours.
- The **Employee** is personally responsible for payment of fines for moving violations and parking citations incurred while driving a vehicle on AECOM business and for reporting such Incidents to his/her **Supervisor**, **Region SH&E Manager**, and **Region Counsel**.
- If an Authorized Driver receives a citation for DUI/DWI/Operating Under the Influence, is suspended from driving or has his/her driver's license revoked, he/she is required to notify his/her **Supervisor** and

Region Fleet Vehicle Coordinator within 8 hours of the action. Failure to do this may result in disciplinary action up to and including termination.

5.0 Records

5.1 None

6.0 Attachments

6.1 S3NA-005-WI1 Authorized Driver Safety Practices

6.2 S3NA-005-FM1 Driver Authorization

6.3 S3NA-005-FM2 Vehicle Inspection Checklist

6.4 S3NA-005-TP1 Journey Management Plan

Americas

Authorized Driver Safety Practices

S3NA-005-WI1

1.0 Before Vehicle Operation

1.1 Conduct a Pre-Trip *Vehicle Inspection, S3NA-005-FM2*.

1.2 Be familiar with applicable client rules and regulations when on the client's sites. The employee may, for example, be required to leave their keys in the ignition with the vehicle turned off or to display a vehicle pass. When parking, it is recommended that employees back the vehicle into the parkingspace.

1.3 Plan your travel to avoid being in a rush, traveling during peak traffic hours, and traveling through high traffic volume areas. Utilize the *S3NA-005-TP1 Journey Management Plan* as appropriate.

2.0 During Vehicle Operation

2.1 The Driver and all passengers must wear seatbelts at all times.

2.2 Maintain a safe distance when travelling behind other vehicles.

2.3 Confirm the area behind your vehicle is clear prior to and while reversing a vehicle.

2.4 When parking the vehicle on the edge of a roadway, turn on the four-way indicators (hazard lights) prior to leaving the vehicle. Use cones or other warning devices, and wear a high visibility traffic vest.

2.5 Observe extra caution in and around emergency and construction zones.

2.6 Avoid unattended rest areas, when possible, and especially at night.

2.7 If the vehicle breaks down, attempt to get to a secured location. Call police or roadside assistance as appropriate. Do not leave the vehicle.

2.8 Contact the police to help those with car trouble instead of stopping to assist.When possible, staff should have a car mechanic or roadside assistance change or repair a flat tire. If the Driver or passenger must change a tire, the Driver and passenger must adhere to the manufacturer's specifications and observe the proper lifting technique and safety procedures. Proper lifing is addressed in *S3NA-308-PR1 Manual Lifting, Field*.

3.0 24 – Hour Roadside Assistance, AECOM Fleet Vehicles only: Wheels: 800-477-2211

3.1 Authorized Drivers are to park Vehicles are to on project sites in a manner that prevents the driver from backing (reversing) upon departure. For example, the vehicle should be backed into a parking spot or the driver should select a parking spot that allows them to "pull" through" so that the vehicle is facing the direction of departure.

3.2 Authorized Drivers should use the "Get Out And Look" (GOAL) method before placing a vehicle in motion. Drivers are to make a 360-degree (360°) walk around of the vehicle immediately before placing vehicle into motionin order to determinewhether there are hazards or possible obstructions in the proposed path of travel. Drivers are to clear the area of people and objects before placing the vehicle in motion. A check will also be performed to ensure overhead and side clearances are adequate. The following are recommended best practices:

- Placement of cones on the right side of the front and rear of vehicle upon parking and retrieved during the 360° GOAL walk-around.
- In lieu of cones, place GOAL magnets on the right side of the hood and truck/tailgate of the vehicle upon parking. The GOAL magnets should then be retrieved during the 360° GOAL walk around just prior to moving the vehicle again.

- Place a GOAL sticker on the driver side door window as a reminder to get out and look.

4.0 If Vehicle is to be Left Unattended

4.1 Turn the ignition off, remove the key and set the emergency brake (if parked on an incline).

4.2 Lock and secure the vehicle.

4.3 Secure equipment and property in a locked trunk or tool chest.

4.4 Do not leave keys in an unattended vehicle.

5.0 Staff shall Drive Defensively

5.1 Look aheadtaking at least 15 seconds to visually identify if there is slowing traffic or another type of road hazard ahead or to your side. Don't drive behind vehicles that block your view.

5.2 Get the big pictureand look for hazards (other motorists, pedestrians, cyclists, road debris, etc.)

5.3 Scan your mirrorsevery 5 – 8 seconds to look for hazards. Don't stare or fix your eyes on any one item for too long.

5.4 Leave yourself an outby monitoring your space in front, behind and to each side of the vehicle, leaving enough are as a cushion so that you can take evasive action if needed.

5.5 Be seen by all other drivers, pedestrians, cyclists and others using or crossing the road. Use your headlights and avoid driving in the blind spot of other vehicles. Make sure your horn works and use it to warn others.

6.0 Road Rage

6.1 Road rage is a dangerous driving situation that can occur and should be avoided whenever possible, but NEVER instigated. Do not get drawn into a confrontation. Avoid any confrontational eye contact or gestures.

6.2 The driver should be aware of the vehicles around them, paying frequent attention to the vehicle's mirrors.

6.3 Get out of the way.even if the other motorist is speeding, it is safest not to make a point by staying in your lane. The other driver may be dealing with an emergency situation.

6.4 Unless it is necessary to use the horn as an alert, do so sparingly.

6.5 If someone is following you after an on-the-road encounter, drive to a public place or to the nearest police station and seek assistance.

6.6 Attempt to note the offender's license plate number and write it down as soon as it is safe to do so and the vehicle is not in motion.

6.7 Report any aggressive driving to the police immediately. This action may aid in preventing further occurrences by the same driver.

7.0 Work Trucks

7.1 When accessing any pickup truck box, staff will: step up into the box to avoid excess reaching and strain and; use three point contact getting in and out of the truck box (i.e., avoid jumping off the tailgate).

7.2 Be vigilant of differences between trucks and small cars related to blind spots, turning radius, and required overhead and undercarriage clearances.

8.0 Winter Driving

8.1 Clear snow from exterior vehicle surfaces.

8.2 Avoid using cruise control on icy roads.

8.3 Accelerate and brake gently to reduce skids or spinouts.

8.4 Wear winter clothing that does not restrict movement, vision or hearing.

8.5 Where required, have snow chains for the vehicle and be familiar with their installation.

8.6 Use extra caution while driving during hazardous winter conditions.

8.7 Avoid sudden changes of speed or direction to reduce possibility of skidding.

8.8 Drivers should leave extra distance between their vehicle and the vehicle ahead of them. Stopping on ice takes about eight times the distance that it takes on dry pavement.

8.9 Carry suitable warm clothing and emergency equipment during the winter months. Temperatures can plunge rapidly.

8.10 Be aware of icy patches on the road bridges and intersections that are especially prone to ice patches.

8.11 Be familiar with the skid control procedures for the type of vehicle being driven (i.e., front, rear or four-wheel drive).

9.0 Gravel Roads and Remote Locations

9.1 Prior to driving on a road with an assigned radio frequency, the passenger will test the two-way radio to confirm that the proper radio frequency is set, and that the transmission is being received clearly by other traffic. The passenger will operate the two-way radio.

9.2 Drivers will maintain appropriate speed for the road conditions.

9.3 Headlights will be used when operating the vehicle.

9.4 Drivers will respect the understood road protocol, drive defensively and respect intersections.

9.5 4WD options will be utilized at the discretion and comfort level of the driver. If road conditions are questionable even for 4WD use, the road will not be traveled and either another route found or the job postponed until road conditions improve.

10.0 Off-road

10.1 If inexperienced, seek supervisory advice and training.

10.2 Vehicles should only be driven off roads after other available options (e.g., use of ATV's, etc.) have been considered.

10.3 Prior to driving off-road, check to see that the vehicle is in good operating condition and your tires are properly inflated.

10.4 Realize the limitations of your vehicle and do not become over confident.

10.5 Seat belts should be kept fastened and loose objects in the vehicle securely fastened to prevent them from becoming projectiles in the event of a sudden stop.

10.6 Drive according to the ground conditions.

10.7 Speed and power are normally not required in rough off-road driving.

10.8 Learn to read the surrounding terrain. Monitor the ground conditions ahead of the vehicle -- it is essential to know what to expect in light of the road conditions.

10.9 When slowly traversing difficult areas of soft ground, try to keep the vehicle in motion. Once stopped it will be far more difficult to get the vehicle going again. If the vehicle becomes stuck, do not spin the wheels, as it will only dig in further or deeper until the vehicle chassis rests on the ground. Try to go slowly backwards in the vehicle's own tracks, as these have been previously compressed by the vehicle. In most cases this will

be successful. If not, place appropriate material (e.g., wooden planks, mats, branches, etc.) under the wheel to improve traction.

10.10 Before driving over rough terrain, the terrain should be inspected on foot first.

10.11 When climbing hills in the vehicle go straight up or down. It is also smart to know what is on the other side of the hill before going up. At the base of the hill the driver should apply more power. Ease up on the power while approaching the top and before going over the crest. If the vehicle stalls on the ascent, back straight down the hill in reverse. For downhill travel in a vehicle with manual transmission, always use the lowest appropriate gear, and do not disengage the clutch to allow the vehicle to coast. If the vehicle is equipped with an automatic transmission, use low range and the lowest drive setting. DO NOT drive a hill at an angle this increases the risk for a roll-over incident. If the hill is very steep and you do not feel confident that your vehicle can make it up, then do not attempt it.

10.12 When driving through water, consider the maximum wading depth of the vehicle. The air intake must always be kept clear of water. Driving through water should always be done slowly to keep the bow wave low. In addition, slow speed prevents a hot engine from suffering tension cracks by sudden contact with cold water. Check the brakes after leaving the water.

10.13 Prior to returning to the road, do a vehicle inspection to confirm the vehicle is road worthy.

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Driver Authorization

S3NA-005-FM1

Employee Name :	Employee Number:	Office or Project Location:	Date:

NOTE: It is not a requirement to provide copies of your driver license or proof of insurance as an attachment to this form. Supervisors are responsible for validating these documents are accurately represented in this form.

Employee

Driver's License Expirations Date	
Driver's License Number	
Proof of valid automobile insurance (for personal vehicle use only)	Check if Confirmed ☐

I acknowledge that I have read S3NA-005-Driver and Vehicle Safety and understand that it contains important information about AECOM's procedures regarding employee use of AECOM fleet, rental and personal vehicles. I agree to adhere to the requirements of the Procedure. _____ (Initial)

As a condition of driving a vehicle on AECOM business I will present my driver's license and proof of insurance (personal vehicle only) for validation by my Supervisor. _____ (Initial)

I understand as a condition to operating an AECOM fleet vehicle, AECOM may run a Motor Vehicle Driving Record report and provide this report to my Supervisor. _____ (Initial)

I understand I must notify supervisor immediately of any change to the status of my Driver's License, any citation or violation I receive driving for company business, and any incident that occurs while driving for company business. _____ (Initial)

I understand that AECOM reserves the right to terminate my driving privileges and associated benefits at any time, for any reason, in its sole discretion. _____ (Initial)

I understand that I am required to participate in a defensive driving course at AECOM's expense and may be required to participate in more advance training. _____ (Initial)

This procedure and my signed acknowledgement supplement the terms of my employment relationship with AECOM. _____ (Initial)

Date:	**Signature:**

Supervisor

I confirm that the Driver's License Number, Expiration Date and Proof of Insurance designated above are consistent with the employee's Driver's License and Proof on Insurance.

Date:	**Signature:**

Distribution

When the *Authorization* is completed email a copy to hrrecords@aecom.com (for inclusion in the employee's file). Additional copies must be provided to the following:

1) The employee
2) The supervisor (if the employee is assigned to an office location)
3) Project record (if the employee is assigned to a project location)

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Vehicle Inspection Checklist

S3NA-005-FM2

Vehicle Tag No :	Date:	Time:	Mileage:	Driver Name:	Location:

Inspection Checklist: This Pre-Trip Vehicle Inspection Checklist is intended to be completed by the vehicle driver prior to departing on a trip. Checking boxes means that item is present and functioning. Deficiencies increase risk of an incident and should be repaired or corrected prior to departure. This checklist should only be used in addition to an on-going vehicle maintenance program. For AECOM Fleet Vehicles, report defiencies to: 800-477-2211 (Wheels)

Item	Yes	No	N/A
1. General			
1-1. Proof of insurance and registration available and current?	☐	☐	☐
1-2. Is the date of the last regular maintenance known, or is the mileage/date of next scheduled maintenance known?	☐	☐	☐
1-3. Have any safety recalls issued for this vehicle been addressed?	☐	☐	☐
1-4. Is the overall condition of the vehicle good (no leaks , body damage, unusual sounds when started)?	☐	☐	☐
2. Tires			
2-1. Do all four tires have sufficient tread for driving conditions? Legal limit: 2/32" (for rain/snow: > 4/32")	☐	☐	☐
2-2. Are tires sufficiently inflated for driving conditions?	☐	☐	☐
2-3. Are the lug nuts and stem capspresent and tight for each tire?	☐	☐	☐
2-4. Is the spare tire and jack present and in good condition?	☐	☐	☐
Driver's and Passenger's Seat			
3-1. Are the pedal pads in good condition?	☐	☐	☐
3-2. Are the floor mats in good condition and not interfering with the pedals?	☐	☐	☐
3-3. Is the seat properly adjusted (including the headrest)?	☐	☐	☐
3-4. Is the seatbelt in good condition?	☐	☐	☐
3-5. Are the mirrors is good condition (not broken, dirty)?	☐	☐	☐
3-6. Is the dashboard free of warning lights and do the gauges appear to work when the car is started?	☐	☐	☐
3-7. Does the horn work?	☐	☐	☐
3-8. Are distractions such as cell phones and gps units secured so they do not encourage?	☐	☐	☐
4. Lights and Signals			
4 -1. Do the headlights and high beams work?	☐	☐	☐
4-2. Do the turn signals work (front and rear)?	☐	☐	☐
4-3. Do the brake lights work, including the high light in the rear window?	☐	☐	☐
4-4. Do the hazard lights (emergency flashers) work?	☐	☐	☐
4-5. Do backing lights work?	☐	☐	☐
5. Windows and Windshield			
5-1. Is the windshield clean and unbroken?	☐	☐	☐
5-2. Are the wiper blades in good condition (front and rear)?	☐	☐	☐
5-3. Are all the windows clean and unbroken and windshield fluid available and operational?	☐	☐	☐
6. Emergency Equipment (as needed per conditions/project requirements)			
6-1. Is there a "Safety Kit" (fire extinguisher, first aid, safety triangle and 2 reflective vests)?	☐	☐	☐
6-2. Is there a first aid kit, has it been inspected recently?	☐	☐	☐
6-3. Is a means for emergency communication available?	☐	☐	☐

7. Other Equipment (as needed per conditions/project requirements)			
7-1. Is there a means to secured loads (cargo next, container)?	☐	☐	☐
7-2. Are cones or other warning devices available?	☐	☐	☐
7-3. Is weather specific equipment (snow chains, tired etc.)?	☐	☐	☐

Americas

Journey Management Plan

S3NA-005-TP1

Journey Management Plan – required for trips > 100 miles (one way)	
1. Driver and Passenger Information	
Driver Name:	
Driver Training Completed:	
Passengers:	
2. Vehicle Information	
Vehicle Type/Description:	
3. Trip Information	
What is the purpose of the trip?	
Single Trip: ☐ Reoccurring Trip: ☐ / / to / /	
Is traveling for this purpose necessary?	
Have alternate modes of travel (telepresence, public transportation, air,) been evaluated? ☐ YES ☐ NO	
Departure Location:	
Departure Date: Time:	
Arrival Location:	
Arrival Date: Estimated Time:	
What is the weather forecast:	
What is the route of travel: (okay to insert map)	
4. Special Conditions	
Check all that may apply:	
☐ Night Driving	☐ Rugged Terrain (4 x 4)
☐ Weather	☐ Large Vehicles/Farm Equipment
☐ Long Driving (Over 2 hours)	☐ Animals
☐ Fatigue	☐ Rush Hour/Heavy Traffic
☐ Potential for distraction	☐ Towing
☐ Other _____	☐ Other _____
☐ Other _____	☐ Other _____

5. Site Arrival/Departure Procedure	
1) Notify supervisor of safe arrival.	
6. Site Arrival/Departure Procedure	
1) Notify supervisor of safe arrival.	
7. Emergency Planning	
AECOM Supervisor (Name and Phone):	
AECOM Project Manager (Name and Phone):	
Roadside Service:	For AECOM Fleet Vehicles Use: 800-477-2211 (Wheels)
AECOM Incident Reporting Line: 800-348-5046	
AECOM Fleet Management: 800-477-2211	
8. Approvals: all JMPs shall be reviewed and acknowledged by the driver and the driver's supervisor. A copy of the form shall remain with the driver and the supervisor for the duration of the journey. (Electronic copies are acceptable).	
Driver's Signature:	
Project Manager or Supervisor Name and Signature:	

Americas

Personal Protective Equipment Program

S3NA-208-PR1

1.0 Purpose and Scope

1.1 Provide an effective Personal Protective Equipment (PPE) Program to protect AECOM employees from potential workplace safety and health hazards.

1.2 This procedure applies to all AECOM Americas-based employees and operations.

1.3 The proper use of appropriate PPE, in combination with effective engineering and administrative controls, can provide AECOM employees with protection against potential workplace hazards and can reduce the potential for workplace injury and illness.

2.0 Terms and Definitions

2.1 **PPE** – Personal Protective Equipment

2.2 **CSA** – Canadian Standards Association

2.3 **ANSI** – American National Standards Institute

2.4 **SDSs** – Safety Data Sheets (previously Material SDSs)

3.0 References

3.1 Occupational Safety and Health Administration PPE standard (Title 29 of the Code of Federal Regulations 1910.132)

3.2 Canadian Standards Association (CSA)

3.3 Canada Labor Code, Part II

4.0 Procedure

4.1 Roles and Responsibilities

4.1.1 **Region SH&E Manager**

- Provide guidance to **Project Managers, Supervisors**, and field staff on the assessment of hazards and the selection of PPE.
- Provide training materials to **Project Managers** and **Supervisors** for **employee** training.

4.1.2 **Project Managers** or **Supervisors**

- Conduct Hazard Assessments to identify hazards present and to specify PPE appropriate for those hazards.
- Determine which staff requires employee-issued PPE.
- Approve the purchase of company-issued PPE.
- Verify that appropriate PPE is utilized by **employees** when required or necessary.

4.1.3 **Employee**

- In accordance with training and instructions, utilize appropriate PPE that has been issued when required or necessary.
- Inspect PPE prior to use to confirm that it is functional, and maintain PPE in a clean and functional condition.
- Follow instructions and manufacturers' guidance on the care, use, and storage of PPE.
- Review all relevant site hazard assessments prior to commencing work.

- Only work with materials for which the SDS have been reviewed.
- Refrain from wearing PPE outside of the work area for which it is required if doing so would constitute a hazard.

4.2 Hazard Assessment for Office Locations

4.2.1 *S3NA-208-FM1 PPE Hazard Analysis* will serve as the certificate of hazard assessment, as defined in local legislation for office activities that require PPE. This checklist will also be used to determine the PPE requirements for nonroutine maintenance tasks that may not be evaluated during the initial hazard assessments.

4.3 Hazard Assessment for Project Site Locations

4.3.1 HAZWOPER Locations

- Each Health and Safety Plan (HASP) that is prepared for waste site investigations/remediation includes a hazard assessment for each proposed field activity. Task-specific PPE requirements are listed in the HASP. Therefore, the HASP will serve as the certificate of hazard assessment for each project that involves off-site work activities that require the use of PPE.

4.3.2 All Other Project Site Locations

- The Task Hazard Analysis will serve as the certificate of hazard assessment for projects that involves off-site work activities that require the use of PPE. The checklist will be reviewed with the entire field team prior to arriving at the site.

4.4 Training

4.4.1 Staff will receive adequate instruction on the correct use, limitations, and assigned maintenance duties for the equipment to be used. The following information, at a minimum, will be covered during PPE training:

- What PPE is required.
- When it is required.
- Why it is required.
- How to properly don, doff, adjust, and wear the PPE described.
- The limitations of the PPE, including its expected useful life.
- How to properly care for, maintain, and dispose of the PPE.

4.4.2 Field staff is responsible for confirming that they have reviewed the operation manual for the PPE before work commences.

4.4.3 All staff will receive an orientation to the hazards on the job site as well as initial Field Safety orientation that outlines appropriate PPE requirements.

4.4.4 **Employees** who have participated in the 40-hour HAZWOPER training course are considered to have met the employee training requirements for the use of basic, non-specialized PPE. The training certificates that are issued as documentation of successful completion of the 40-hour HAZWOPER course will also serve as documentation of training as required by the PPE standard for basic PPE. **Employees** who have not participated in the HAZWOPER training will be provided PPE training specific to their assignment and/or location. The PPE Facts Sheets can serve as the basis for training.

4.5 Determining the Need for PPE

4.5.1 Using the Task Hazard Assessment, Safe Work Plan (SWP) or HASP, the need for the following types of PPE will be evaluated.

4.5.2 PPE will:

- Be selected and used in accordance with recognized standards and provide effective protection.

- Not in itself create a hazard to the wearer.
- Be compatible so that one item of PPE does not make another item ineffective.
- Be maintained in good working order and in a sanitary condition.

4.5.3 Prior to entering any regulated work area, employees shall confirm that they have access to or are equipped with the following ANSI/CSA-approved PPE, appropriate to the site hazards:

- Head Protection
- Eye & Face Protection
- Foot Protection
- Hi-Visibility Vests
- Hearing Protection

4.5.4 After the hazard assessments have been completed, the **Project Manager** will select the appropriate PPE for each job category or task, as necessary. The selected equipment will be indicated on the hazard assessment. PPE will be provided to each **employee** appropriate for the hazards present. All PPE selected and purchased by AECOM will meet or exceed the ANSI standards, CSA standards, or other standards as dictated by provincial, territorial, or state legislation.

4.6 Eye and Face Protection

4.6.1 AECOM **employees** must use appropriate eye and face protection when exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acid and caustic liquids, chemical gases or vapors, and injurious light radiation. Eye protection shall provide side protection when there is a hazard from flying objects.

4.7 Head Protection

4.7.1 Protective helmets (hard hats) are required when **employees** are working in areas where there is a potential for falling objects to cause injury to the head. When working near exposed electrical conductors that could contact the head, helmets designed to reduce electrical shock shall be worn.

4.8 Foot Protection

4.8.1 Protective footwear is required when **employees** are working in areas where there is a danger of foot injuries from falling and rolling objects or from objects piercing the sole and where an **employee's** feet are exposed to electrical hazards.

4.9 Hand Protection

4.9.1 Appropriate hand protection is required when **employee's** hands are exposed to hazards such as those from skin absorption of harmful substances, severe cuts and lacerations, severe abrasions, punctures, chemical burns, thermal burns, or harmful temperature extremes.

4.10 Chemically Resistant Clothing

4.10.1 Chemically resistant clothing is required when there is significant potential for the **employee** to come in direct contact with the chemicals he/she is handling. Tasks that involve chemical handling will be evaluated for the potential of splashing or spilling.

4.11 High-Visibility Apparel

4.11.1 High-visibility apparel with reflective banding (CSA/ANSI Class II and III garment) is required for all field activities in close proximity to moving traffic and other modes of transportation (transit, airlines, marine, etc.), in proximity to heavy equipment operations, or whenever otherwise specified in a project SWP or HASP. Color of apparel (orange or lime) may be client/project-specific.

4.11.2 Work conducted at night may require that the minimum level of apparel worn be, at minimum, CSA/ANSI Class III, as required by governing legislation.

4.12 Personal Clothing

4.12.1 **Employees** on a project site shall wear full length trousers and shirts that cover shoulders.

4.12.2 For personal safety on the job site, do not wear

- Loose or unsecured clothing or loose fitting cuffs;
- Greasy or oily clothing, gloves, or boots; or
- Torn or ragged clothing.

4.12.3 Neck chains shall not be worn when working with moving parts or where the risk of entanglement exists. For all other circumstances, they will be worn under clothing so that they do not hang out. Long hair will be tied back or otherwise confined.

4.12.4 Clothing made of synthetic fibres can be readily ignited and melted by electric flash or extreme heat sources. Cotton or wool fabrics are recommended for general use.

4.13 Specialized PPE

4.13.1 In addition to basic PPE, additional specialized PPE may be required to provide appropriate protection to the employee. Refer to applicable legislation and related Standard Operating Procedures for additional information on PPE requirements.

- Fall Protection – Only full-body harnesses with shock-absorbing lanyards will be used for personal fall arrest.
- Respiratory Protection – Respiratory protection shall be selected based on the contaminant and concentration to which the employee will be exposed. Refer to *S3NA-519-PR1 Respiratory Protection Program, the* task- or project-specific hazard assessments and the applicable SDSs for specific requirements.
- Fire Resistant Clothing – Approved fire-resistant outer clothing may be required at work locations with flammable or explosive materials or environments.
- Other Head Protection – Operators and passengers (if permitted) of all-terrain vehicles and snowmobiles will wear approved helmets.
- Chemical Protective Clothing – Approved chemical protection appropriate to the hazard will be worn. Review applicable SDSs for appropriate PPE.
- Protection from Drowning – **Employees** being transported by boat or exposed to any other drowning hazards are required to wear life jackets. Life jackets will have the proper regulatory approval.

4.14 PPE Supplies

4.14.1 Each AECOM office will maintain a supply of safety equipment including hard hats, high visibility vests, safety glasses, gloves, hearing protection and chemically resistant clothing based on the nature of their field activities. The **Office Manager (Operations)** or designee will be responsible for maintaining this inventory. PPE that is required for large field efforts will be ordered by the **Project Manager** or their designee.

4.14.2 At a minimum, operations will review its PPE program annually.

4.15 Obtaining Personalized Safety Gear

4.15.1 PPE for eyes, face, head, and extremities, protective clothing, and respiratory devices shall be provided to **employees** wherever necessary by reason of hazards.

4.15.2 **Employees** are not expected to provide their own general PPE. Certain personalized safety gear such as prescription safety glasses, safety-toed (capped) boots, and cotton coveralls will be ordered and sized specifically for the user.

4.15.3 Most PPE will be provided to the **employee** at no charge, with the exception of the above personalized safety equipment (prescription safety glasses, safety-toed boots, washable coveralls).

A partial cost reimbursement to the **employee** may be made based on company practice or project stipulations.

4.15.4 Prescription Safety Glasses

- Employees who are eligible will be allowed to obtain prescription safety glasses according to the specialized PPPE purchase program in their location.

4.15.5 Safety-Toed Boots/Shoes

- Employees who are eligible will be allowed to obtain safety work boots according to the specialized PPE purchase program in their location.

4.15.6 Reusable Coveralls

- Employees who are eligible will be allowed to obtain reusable coveralls according to the requirements of the project or location they are working at.

5.0 Records

5.1 Completed *S3NA-208-FM1 PPE Hazard Analysis* forms will be maintained in local office safety files.

6.0 Attachments

6.1 S3NA-208-WI1 PPE Selection

6.2 S3NA-208-WI2 Eye and Face Protection Fact Sheet

6.3 S3NA-208-WI3 Head Protection Fact Sheet

6.4 S3NA-208-WI4 Foot Protection Fact Sheet

6.5 S3NA-208-WI5 Hand Protection Fact Sheet

6.6 S3NA-208-WI6 Protective Clothing Fact Sheet

6.7 S3NA-208-FM1 PPE Hazard Analysis

1.0 Lists of Potential Hazards

	POTENTIAL HAZARDS
HEAD	Falling overhead objects
	Spark contact
	Chemical contamination
	Cold/heat
	Electrical (>600 volts)
HANDS	Cuts, punctures, abrasions
	Burns
	Dermatitis
	Chemical absorption
	Cold
FEET	Falling or rolling objects
	Chemical absorption
	Dermatitis
	Burns
	Cold
	Slips, trips
FACE	Burns (chemical, spark, UV radiation)
	Chemical splashing
	Flying particulates
	Abrasions, cuts
EYES	Burns (gas, liquid, spark)
	Abrasions-flying particulates
	Absorption
	Retinal/corneal damage (UV/IR radiation)
EARS	Noise
	Cold

BODY PROTECTION	**Chemical splashing**
	Burns (chemical, UV radiation)
	Absorption
	Spark contact
	Cuts/abrasions/punctures
	Heat/cold stress
	Moving vehicles/heavy equipment
MISCELLANEOUS	**Insects (ticks, spiders, mosquitoes, bees/wasps)**
	Animals (dogs, bears, wild boars, raccoons)
	Reptiles (snakes)
	Poison plants (poison ivy, poison sumac, poison oak)
	Biological (fungus, bacteria, fungus, viral)

2.0 Eye & Face Protection Selection Chart

		ASSESSMENT	PROTECTOR TYPE (see Table 3.0)	PROTECTOR	LIMITATIONS	NOT RECOMMENDED
I M P A C T	Chipping, grinding, machining, masonry work, riveting, and sanding.	Flying fragments, objects, large chips, particles, sand, dirt, etc.	B, C, D, E, F, G, H, I, J, K, L, N	Spectacles, goggles, faceshields SEE NOTES (1) (3) (5) (6) (10) For severe exposure Add N	Protective devices do not provide unlimited protection. SEE NOTE (7)	Protectors that do not provide protection from side exposure. SEE NOTE (10) Filter or tinted lenses that restrict light transmittance, unless it is determined that a glare hazard exists. Refer to OPTICAL RADIATION.
H E A T	Furnace operation, pouring, casting, hot dipping, gas cutting, and welding.	Hot sparks	B, C, D, E, F, G, H, I, J, K, L, *N *N N	Faceshields, goggles, spectacles. *For severe exposure, add N SEE NOTE (2) (3) *Faceshields worn over goggles H, K SEE NOTE (2) (3) Screen faceshields. Reflective faceshields. SEE NOTE (2) (3)	Spectacles, cup and cover type goggles do not provide unlimited facial protection. SEE NOTE (2) SEE NOTE (3)	Protectors that do not provide protection from side exposure.
		Splash from molten metals				
		High temperature exposure				
C H E M I C A L	Acid and chemicals handling, degreasing, plating	Splash	G, H, K *N	Goggle, eyecup and cover types. *For severe exposure, add N	Ventilation should be adequate but well protected from splash entry	Spectacles, welding helmets, handshields
		Irritating mists	G	Special purpose goggles	SEE NOTE (3)	
D U S T	Woodworking, buffing, general dusty conditions.	Nuisance dust	G, H, K	Goggles, eyecup and cover types	Atmospheric conditions and the restricted ventilation of the protector can cause lenses to fog. Frequent cleaning may be required.	

	ASSESSMENT	PROTECTOR TYPE	PROTECTOR	LIMITATIONS	NOT RECOMMENDED
OPTICAL RADIATION	WELDING: Electric Arc	O, P, Q	**TECTORS FILTER LENS PRO-SHADE TECTORS** SEE NOTE (9) 10-14 Welding Helmets or Welding Shields	Protection from optical radiation is directly related to filter lens density. SEE NOTE (4). Select the darkest shade that allows adequate task performance.	Protectors that do not provide protection from optical radiation. SEE NOTE (4)
	WELDING: Gas CUTTING TORCH BRAZING	J, K, L, M, N, O, P, Q	SEE NOTE (9) 4-8 Welding Goggles or Welding Faceshield 3-6 3-4	SEE NOTE (3)	
	TORCH SOLDERING	B, C, D, E, F, N	1.5-3 Spectacles or Welding Faceshield		
	GLARE	A, B	Spectacle SEE NOTE (9) (10)	Shaded or Special Purpose lenses, as suitable. SEE NOTE (8)	

NOTES

(1) Care shall be taken to recognize the possibility of multiple and simultaneous exposure to a variety of hazards. Adequate protection against the highest level of each of the hazards must be provided.
(2) Operations involving heat may also involve optical radiation. Protection from both hazards shall be provided.
(3) Faceshields shall only be worn over primary eye protection.
(4) Filter lenses shall meet the requirements for shade designations in Table 9-2.
(5) Persons whose vision requires the use of prescription (Rx) lenses shall wear either protective devices fitted with prescription (Rx) lenses or protective devices designated to be worn over regular prescription (Rx) eyewear.
(6) Wearers of contact lenses shall also be required to wear appropriate covering eye and face protection devices in a hazardous environment. It should be recognized that dusty and/or chemical environments may represent an additional hazard to contact lens wearers.
(7) Caution should be exercised in the use of metal frame protection devices in electrical hazard areas.
(8) Refer to Section 6.5, Special Purpose Lenses. (ANSI A87.1-1989)
(9) Welding helmets or handshields shall be used only over primary eye protection.
(10) Non-sideshield spectacles are available for frontal protection only.

3.0 Eye and Face Protector Selection Guide

A. SPECTACLE, No sideshield
B. CUP GOGGLE, Direct ventilation
C. CUP GOGGLE, Indirect ventilation
D. SPECTACLE, Headband temple
E. COVER WELDING-BURNING
F. GOGGLES, Indirect Ventilation
G. FACESHIELD
H. WELDING HELMET, Hand held
I. WELDING HELMET, Stationary window
J. WELDING HELMET, Lift front
K. COVER GOGGLE, Direct ventilation
L. SPECTACLE, Half sideshield
M. SPECTACLE, Full sideshield
N. SPECTACLE, Detachable sideshield
O. SPECTACLE, Non-removable lens
P. SPECTACLE, Lift front
Q. COVER GOGGLE, No ventilation
R. COVER GOGGLE, Indirect ventilation

4.0 Filter Lenses for Protection Against Radiant Energy

OPERATIONS	ELECTRODE SIZE 1/32 INCH	ARC CURRENT	MINIMUM PROTECTIVE SHADE
Shielded metal-arc welding	Less than 3 More than 3-5 More than 5-8 More than 8	Less than 60 60-160 161-250 251-550	7 8 10 11
Gas metal arc welding and flux cored arc welding		Less than 60 60-160 161-250 251-500	7 10 10 10
Gas tungsten arc welding		Less than 50 50-150 151-500	8 8 10
Air carbon	(Light)	Less than 500	10
Air cutting	(Heavy)	500-1000	11
Plasma arc welding		Less than 20 20-100 101-400 401-800	6 8 10 11
Torch brazing			3
Torch soldering			2
Carbon arc welding			14
OPERATIONS	**PLATE THICKNESS (INCHES)**	**(MM)**	**MINIMUM* PROTECTIVE SHADE**
Gas welding: Light Medium Heavy	 Under 1/8 1/8 to ½ Over 1/2	 Under 3.2 3.2 to 12.7 Over 12.7	 4 5 6
Oxygen cutting: Light Medium Heavy	 Under 1 1 to 6 Over 6	 Under 25 25 to 150 Over 151	 3 4 5

Americas

Eye and Face Protection Fact Sheet

S3NA-208-WI2

1.0 Introduction

1.1 Personal protective equipment (PPE) is designed to protect employees from health and safety hazards that cannot be removed from the work environment. PPE is designed to protect many parts of the body including eyes, face, head, hands, and feet. This fact sheet has been developed to inform employees about why eye and face protection is needed, when it should be worn, how to wear and adjust it properly, the limits of this type of PPE, and how to properly maintain and clean the eye and face protection issued.

2.0 Types of Eye and Face Protection

There are three major types of eye and face protection, including:

2.1 Primary Protectors

2.1.1 Safety glasses – The most widely used form of eye protection is safety glasses. To prevent lateral exposure to impact fragments, safety glasses are often equipped with side shields. Depending on the hazard, side shields can be either a cup-type or flat-folded. The cup-type provides more complete protection.

2.1.2 Safety goggles

- Vented goggles—impact only
- Indirectly vented—chemical splash and impact
- Non-vented—chemical fumes

2.1.3 Glasses offer excellent protection against impact; however, goggles form a tight-fitting seal to the skin around the entire eye and are more appropriate for chemical concerns.

2.2 Secondary Protectors

2.2.1 Faceshield

- Wear faceshields when there is a severe danger from impact or chemical splash. Faceshields are secondary protectors and must be worn over safety glasses or goggles.

2.2.2 Welding Helmet or Faceshield

- When welding, employees must use equipment with filter lenses that has a shade number appropriate for protection against injurious light radiation.

3.0 Cleaning and Maintaining Safety Eyewear

3.1 Clean lenses and frames regularly with soap and water. Store in a clean, dry area.

3.2 Replace scratched, pitted, cracked, or broken safety eyewear immediately.

4.0 Proper Fit/Adjusting Glasses

4.1 PPE that fits poorly will not afford the necessary protection. When fitting devices for eye protection against dust and chemical splashes, be sure that the devices are sealed to the face. If the temple bars of the glasses are too long, the glasses will have a tendency to fall forward and slide down your nose. Check with your SH&E coordinator if you need glasses with adjustable temple bars. Standard safety glasses are 58 millimeter; however, smaller sizes (54 millimeter) are also available.

WHEN TO WEAR PROTECTION

Hazard	Concern	Glasses	Goggles	Faceshield
Impact	Flying fragments from front/sides.	Safety glasses with sideshields.	Vented goggles.	Severe danger from impact. Wear with glasses/goggles.
Chemicals	Splash.		Indirectly vented.	Severe splash. Wear with goggles.
Chemicals	Fumes.		Non-vented.	
Injurious Light			Welding goggles with appropriate shaded lens.	Welding helmet with appropriate shaded lens.
Dust	Dust entering the eye.	Safety glasses with sideshields.	Vented goggles.	

5.0 Prescription Glasses/Contact Lenses

5.1 Prescription eyeglasses must not be substituted for safety eyeglasses. Regular eyeglasses do not offer the same impact resistance of the lens and frame assembly as safety glasses and are not Canadian Standards Association (CSA)/American National Standards Institute (ANSI) approved. Goggles can be worn over eyeglasses. If you wear corrective lenses, contact your SH&E coordinator for information about how to obtain prescription safety glasses.

5.2 Contact lenses are not recommended for any industrial job. Dust caught underneath the lens can cause painful abrasions. Some chemicals can react with your contacts to cause permanent injury.

6.0 Guidelines

6.1 Eye Protection – The following standards apply to eye and face protection:

Association	Standard
ANSI	Z87.1-2003, Practice for Occupational and Educational Eye and Face Protection Z87.1-1989, Practice for Occupational and Educational Eye and Face Protection
CSA	Z94.3-02, Eye and Face Protectors Z94.3.1-02, Protective Eyewear: A User's Guide Z94.3-99, Industrial Eye and Face Protectors CAN/CSA-Z94.3-92, Industrial Eye and Face Protectors

6.1.1 AECOM will offer safety glasses with permanently attached sideshields or directly vented goggles to all employees working in an area or at a process that involves flying particles.

6.1.2 Non-vented and indirectly vented goggles will be worn when employees are handling chemicals.

6.1.3 Faceshields, in combination with glasses or goggles, will be required where a severe splash or impact hazard has been identified.

6.1.4 When welding, employees must use equipment with filter lenses that have a shade number appropriate for protection against injurious light radiation.

6.1.5 **Supervisors** are responsible for ensuring that crews have access to the eye and face protection necessary to ensure their safety. This may include:

- Safety glasses with side shields,
- Safety goggles, or
- Face shield.

6.1.6 CSA/ANSI-approved eye and face protection shall be worn by all employees while engaged in activities where a risk of injury to the eyes or face may exist.

6.1.7 Face shields shall be worn when using grinding, drilling, buffing, or striking tools.

6.1.8 Eye protection shall be worn when handling liquid or powder chemicals and when draining or breaking joints on any pressure vessel, line, or equipment. In some situations, a face shield should be used in conjunction with goggles for additional eye and face protection.

6.1.9 Face shields shall be made available or installed whenever they may be required. Goggles shall be provided, as required.

6.1.10 Hardened glass prescription lenses and sport glasses are not an acceptable substitute for proper, required industrial safety eye protection.

6.1.11 Comfort and fit are very important in the selection of safety eyewear. Lens coatings, venting, or fittings may be needed to prevent fogging or to fit with regular prescription eyeglasses.

6.1.12 Sunglasses shall be worn when glare is a concern. Glare from sun and snow or water should be taken seriously as it can cause reduced vision and fatigue.

6.1.13 A combination of types of PPE may be necessary if more than one type of hazard exists. For example, where the potential hazards are chemical splashes and flying objects, chemical splash goggles used in combination with safety glasses may be required.

6.1.14 When contact lenses are worn (and where a hazard exists), extra precautions are required to reduce the potential for injury. As previously stated, contact lenses are not protective devices. PPE for contact lens wearers includes splash or dust-resistant goggles, and safety glasses. Other workers not wearing contact lenses would wear the same PPE when exposed to the same hazards.

6.1.15 Prescription eyewear may be worn if it is safety eyewear meeting CSA/ANSI standards and appropriate to the hazard or if it is worn behind equipment that meets the above requirements.

6.1.16 Personal eye and face protection is regulated for specific job tasks. For the most up-to-date information and for guidance, application or interpretation of these laws or guidelines, you should contact your local regulatory authority directly.

6.1.17 DO

- Replace pitted, scratched, bent, and poorly fitted PPE (damaged face/eye protection interferes with vision and will not provide the protection it was designed to deliver).
- Wear proper fitting eye protection (close to the face).
- Clean safety glasses daily, more often if needed.
- Store safety glasses in a safe, clean, dry place when not in use.

6.1.18 DON'T

- Modify eye/face protection.
- Use eye/face protection that does not have CSA/ANSI certification (a CSA stamp for safety glasses is usually on the frame inside the temple near the hinges of the glasses).

Americas

Head Protection Fact Sheet

S3NA-208-WI3

1.0 Introduction

1.1 Personal protective equipment (PPE) is designed to protect **employees** from health and safety hazards that cannot be removed from **the** work environment. PPE is designed to protect many parts of **the** body including eyes, face, head, hands, and feet. AECOM has evaluated each of the job tasks that are performed in the office. The purpose of these evaluations was to assess the hazards associated with a specific task and to determine what type or types of PPE will adequately protect **employees** from those hazards.

1.2 Because there is no potential for injury to the head from falling objects in the office, head protection is not required. However, some nonroutine maintenance tasks or construction activities may require such equipment. The need for this type of PPE while performing such nonroutine tasks will be evaluated by your project manager.

2.0 Types of Head Protection

2.1 The main type of head protector is the helmet. Helmets are designed to protect you from impact and penetration caused by objects hitting your head and from limited electrical shock or burns. The shell of the helmet is designed to absorb some of the impact. The suspension, which consists of a headband and strapping, not only holds the helmet in place but is critical for absorbing and distributing impact shock loads. AECOM recommends ratchet style suspension for rapid adjustment during changing site conditions.

3.0 Hard Hat Impact Types

3.1 Type I Hard Hats

3.1.1 Type I hard hats are intended to reduce the force of impact resulting for a blow only to the top of the head.

3.2 Type II Hard Hats

3.2.1 Type II hard hats are intended to reduce the force of impact resulting from a blow that may be received off center or to the top of the head. A Type II hard hat typically is lined on the inside with thick, high-density foam.

3.3 Electrical Classes

3.3.1 Class G (General) – Class G hard hats are intended to reduce the danger of contact exposure to low voltage conductors. Test samples are proof-tested at 2,200 volts (phase to ground). However, this voltage is not intended as an indication of the voltage at which the hard hat protects the wearer. Please note: Class G hard hats were formerly known as Class A.

3.3.2 Class E (Electrical) – Class E hard hats are intended to reduce the danger of exposure to high voltage conductors. Test samples are proof-tested at 20,000 volts (phase to ground). However, this voltage is not intended as an indication of the voltage at which the helmet protects the wearer. Please note: Class E hard hats were formerly known as Class B.

3.3.3 Class C (Conductive) – Class C hard hats are not intended to provide protection against contact with electrical conductors.

4.0 Proper Fit/Maintenance

4.1 The suspension of the hard hat must be adjusted to fit the wearer and to keep the shell a minimum distance of 1-1.5 inches (3 centimetres) above the wearer's head. Periodically inspect the suspension of your hard hat. Look for loose or torn cradle straps, loose rivets, broken sewing lines, or other defects. Replace the hat after a major impact.

5.0 Guidelines

5.1 Head Protection – The following standards apply to PPE for the head:

Association	Standard
American National Standard (ANSI)	Z89.1-2003, American National Standard for Industrial Head Protection Z89.1-1997, American National Standard for Industrial Head Protection
Canadian Standards Association (CSA)	CAN/CSA-Z94.1-92 (R1998), Industrial Protective Headwear CSA Standard Z94.1-05, Industrial Protective Headwear - Performance, Selection, Care and Use

5.1.1 On all construction projects and in the event that an overhead hazard exists, a four-point suspension Type II, Class G or E hard hat will be provided to affected employees.

5.1.2 Supervisors and staff are responsible for confirming that crews have the head protection necessary for their safety. This may include, as required by the specific job task:

- Hard hat, or
- Helmet

5.1.3 CSA/ANSI-approved industrial protective headwear that is appropriate to the hazards and meets applicable legislative requirements shall be worn by all personnel while engaged in construction, operation, maintenance, or other activities where there exists a foreseeable danger of injury to a worker's head at a work site and/or a significant possibility of lateral impact to the head.

5.1.4 Visitors to areas where the above activities are being conducted shall comply with the hard hat requirement.

5.1.5 Helmets, hard hats, and hard hat accessories (as required) shall be provided by AECOM.

5.1.6 Proper care is required for headgear to perform efficiently. The service life is affected by many factors including temperature, chemicals, sunlight, and ultraviolet radiation (welding). The usual maintenance for headgear is simply washing with a mild detergent and rinsing thoroughly.

5.1.7 DO

- Replace headgear that is pitted, holed, cracked, or brittle.
- Replace headgear that has been subjected to a blow even though damage cannot be seen.
- Remove from service any headgear if its serviceability is in doubt.
- Replace headgear and components according to manufacturers' instructions.
- Consult the Safety, Health and Environment team or your supplier for information on headgear.

5.1.8 DON'T

- Drill, remove peaks, or alter the shell or suspension in any way.
- Use solvents or paints on the shells.
- Put chin straps over the brims of Class B headgear.
- Use any liner that contains metal or conductive material.
- Apply any unnaproved stickers to the hard hat.
- Carry anything in the hard hat while wearing the hard hat.

Americas

Foot Protection Fact Sheet

S3NA-208-WI4

1.0 Introduction

1.1 Personal protective equipment (PPE) is designed to protect employees from health and safety hazards that cannot be removed from the work environment. PPE is designed to protect many parts of the body including the feet.

Foot injuries are most likely to occur:

- When heavy or sharp objects fall on your foot.
- When something rolls over your foot.
- When you step on an object that pierces the sole of your boot.
- When there is improper ankle support when walking on uneven surfaces.

2.0 Types of Foot Protection

2.1 Safety boots must meet the regulated standard. Safety boots are made with a steel-reinforced box toe to protect your foot from being pierced or crushed by a falling object. Safety boots with flexible steel insoles provide puncture resistance. They will stop or deflect nails or other objects that have penetrated the sole of the boot. Oil-resistant soles provide the added safety feature of preventing slips and trips on slippery work floors. Safety boots with tall upppers provide ankle support only when laced and tied appropriately.

3.0 Proper Fit

3.1 With most PPE, the more comfortable it is to use, the more likely you will be to use it. The fit of the safety boot is of the utmost importance. You must try on safety boots before purchasing them. When selecting boots, be sure that they are Canadian Standards Association (CSA)/American National Standard (ANSI) approved. Consult with your supervisor about how to obtain safety boots.

4.0 Guidelines

4.1 Foot Protection – The following standards apply to foot protection equipment:

Association	
ANSI	Z41-1991, American National Standard for Personal Protection - Protective Footwear
CSA	Z195-02, Protective Footwear Z195.1-02, Guideline on Selection, Care, and Use of Protective Footwear Z195-M92 (R2000), Protective Footwear

4.1.1 Safety work boots shall have leather or rubber uppers, an oil-resistant sole, and a distinctive heel. When required by the regulations or the client, AECOM will provide affected employees with safety-toed boots that meet the requirements of the applicable ANSI or CSA standard.

4.1.2 **Supervisors** are responsible for confirming that employees have foot protection necessary to ensure their safety. This may include the following types as required by the specific job task:

- Steel-toed boots;
- Caulk boots;
- Chemical-resistant boot covers;
- Non-slip wading boots; or

- Rubber boots.

4.1.3 CSA/ANSI-approved safety-toed boots shall be worn by all **employees** while engaged in construction, operation, maintenance, or other activities where a risk of injury to the feet may exist.

4.1.4 The purchase of normal footwear for work is the responsibility of the **employee**.

4.1.5 **Employees** are responsible for confirming that the PPE they are provided with is in good working condition before work commences.

4.1.6 DO

- Choose a high-cut boot to provide ankle support.
- Choose footwear according to job hazard and CSA/ANSI standards.
- Lace up boot and tie laces securely. Boots do not protect if they are a tripping hazard or fall off.

4.1.7 DON'T

- Wear defective safety footwear (e.g., exposed steel-toe caps).
- Underprotect your feet or modify safety footwear.

Americas

Hand Protection Fact Sheet

S3NA-208-WI5

1.0 Introduction

1.1 Personal protective equipment (PPE) is designed to protect employees from health and safety hazards that cannot be removed from the work environment. PPE is designed to protect many parts of the body including eyes, face, head, hands, and feet. This fact sheet will inform employees about why and when hand protection is needed, the limits of gloves, and how to properly clean and dispose of gloves.

1.2 Gloves most commonly used in the construction industry are made from:

- Leather,
- Cotton,
- Rubber,
- Synthetic rubbers and other manmade materials, or
- Combinations of materials.

2.0 Types of Hand Protection

2.1 Hand protection is required when there is a potential for:

- Skin absorption of harmful substances,
- Severe cuts or lacerations, abrasions, or punctures,
- Vibration, or
- Temperature extremes.

2.2 Gloves are the most common protectors for the hands. Unfortunately, no one type of glove provides adequate protection against all potential hand hazards. Leather gloves provide good protection from cuts and lacerations but offer no protection against chemicals. Nitrile or neoprene rubber gloves offers good resistance to certain chemicals but they tear and rip easily when sharp objects are handled. The chemically resistant gloves used by AECOM shall be selected based on the manufacturer's chemical compatibility data, which indicates how each glove material performed in breakthrough time tests against certain chemicals. Do not substitute another type of glove for the chemically resistant gloves that have been selected. They may not offer adequate protection for the chemicals you handle.

3.0 Proper Fit/Cleaning Disposal

3.1 Gloves will deteriorate over time depending on the types and amount of chemicals with which they come into contact. Remove excessive chemical residue that builds up on the glove. Replace cracked, ripped, or torn gloves or when breakthrough occurs. Breakthrough is the time between initial contact of the chemical on the glove surface and the detection of the chemical on the inside of the glove. Tight-fitting gloves can cause fatigue while loose-fitting gloves can be hazardous. Measure the circumference of your hand around the palm area. This measurement, in inches, is closest to your actual glove size. For example, 7" is equal to a size 7 glove. Always select the right size glove. Dispose of chemically resistant gloves in accordance with the established protocols at the site or office. The product Safety Data Sheet (SDS) will need to be consulted if the glove is contaminated from chemical handling.

4.0 Guidelines

4.1 Hand Protection – Use performance characteristics as listed by the Manufacturer.

4.1.1 Leather or Kevlar gloves should be used as appropriate to prevent cuts, lacerations, abrasions, and punctures. Chemically resistant gloves such as neoprene or nitrile rubber will be issued to employees who are likely to come into direct contact with chemicals. When selecting chemically resistant gloves, AECOM will review the manufacturer's data tables regarding degradation of the glove material when exposed to the chemicals of concern, penetration of the chemicals of concern through imperfections in the gloves, and permeation (breakthrough times) of the chemicals of concern through the glove material.

- PPE must be provided to protect a worker's skin from harmful substances that may injure the skin on contact or may adversely affect a worker's health if it is absorbed through the skin.
- Employees shall wear appropriate gloves or mitts to protect their hands from workplace hazards, including hazardous material, heat, cold, abrasion, and sharp edges.
- Vinyl coated or leather gloves are good for providing protection while handling wood or metal objects.
- Inspect and maintain hand PPE regularly. If in doubt about the selection or need for glove or hand PPE, consult your safety supplier, Material SDSs, or local Safety, Health and Environment office.

4.1.2 DO

- Inspect hand PPE for defects before use.
- Wash all chemicals and fluids off gloves before removing hand PPE.
- Use gloves that fit properly.
- Use the proper hand PPE for the job.
- Follow manufacturer's instructions on the care and use of the hand PPE you are using.
- Cover exposed skin (no gap between the sleeve and the hand).

4.1.3 DON'T

- Wear gloves when working with moving machinery (gloves can get tangled or caught).
- Wear hand PPE with metal parts near electrical equipment.

Americas

Protective Clothing Fact Sheet

S3NA-208-WI6

1.0 Introduction

1.1 Some projects require job tasks where there is a recognized hazard of injury to a person if protection is not provided to the legs or body of the individual. These hazards are effectively mitigated through the use of proper personal protection equipment (PPE).

1.2 Employees will dress appropriately for the climate & weather (cold, heat, wet, dry).

1.3 Supervisors are responsible for confirming that crews have the limb and body protection necessary to ensure their safety. This may include, as required by the specific job task:

- Leg chaps;
- Gloves (leather, cotton, latex, chemical-resistant, etc.);
- Fire-retardant overalls;
- High visibility vests;
- Retro-reflective strips; and/or
- Chemically resistant suits or overalls.

2.0 Chemically Resistant Clothing

2.1 Whenever there is a potential for chemical splashing, chemically resistant, disposable clothing, such as a coated-Tyvek coverall or apron, will be worn. Examples of when such clothing may be required include:

- Cleaning of small spills.
- Washing and rinsing of the printing presses.
- Non-routine tasks involving the use of chemicals.
- The transfer of large quantities of chemicals from large containers to smaller ones.

The process for selecting chemically resistant clothing will be similar to that described for the selection of chemically resistant gloves. The need for chemically resistant clothing will be determined by your Project Manager. The **Project Manager** will issue the required clothing to you.

3.0 Types of Chemically Resistant Clothing

Like gloves, the objective of whole body protection is to separate the person from a contaminating or hazardous material. Disposable garments, such as Tyvek coveralls or aprons, provide this type of barrier. Uncoated Tyvek coveralls are made of a porous fabric and are designed to prevent contact with particulates. Coated Tyvek coveralls provide a nonporous barrier to protect the worker from chemical splash and vapors. Protective aprons are made from nitrile or neoprene rubber like that used to make chemically resistant gloves.

4.0 Proper Fit/Cleaning/Disposal

Before donning a protective coverall, inspect it for rips or tears. Promptly remove any protective clothing that becomes ripped or torn during a particular task. Be sure the garment fits properly. The garment-to-glove seam will be taped when there is a potential for liquids to directly contact the skin if the arm of the suit shifts upward.

Single-use garments, such as Tyvek coveralls, will be disposed of in accordance with the environmental protocols at the site. Some clothing, such as rubber aprons, is meant for repeated use. Wipe down the apron using soap and water to remove any remaining liquids or residues.

5.0 Guidelines

5.1 "High visibility safety apparel" means personal protective safety clothing that is intended to provide conspicuity during both daytime and nighttime usage and that meets the Performance Class II or III requirements of the American National Standards Institute (ANSI) and Canadian Standards Association (CSA) standards.

5.2 The following standards apply to visibility protection:

Association	Standard
CSA	CAN/CSA-Z96-02, High-Visibility Safety Apparel
ANSI	ANSI/ISEA 107 - High-Visibility Safety Apparel

5.3 If there is a specific need to be visible to the passing public, to machine operators, or to other crew members, high visibility vests shall be worn (and retro-reflective striping on arms and legs at night).

5.4 Chemically Resistant Protective Clothing – use performance characteristics as listed by the Manufacturer

5.4.1 Whenever there is a potential for chemical splashing, disposable, chemically resistant clothing, such as a coated Tyvek coverall or apron will be worn. Examples of when such clothing may be required include the cleaning of small spills, nonroutine tasks involving the use of chemicals, and the transfer of large quantities of chemicals from large containers to smaller ones. The process for selecting chemically resistant clothing will be similar to that described for the selection of chemically resistant gloves.

5.5 All employees shall wear suitable clothing for the existing conditions and the work being performed.If there is a danger that a worker's hand, arm, leg, or torso may be injured, an employer ensure that the worker wears properly fitting hand, arm, leg, or body protective equipment that is appropriate to the work, the work site, and the hazards identified.

5.6 In the presence of a flash fire or electrical equipment flashover hazard, staff must wear flame resistant outerwear (overalls) and use other protective equipment appropriate to the hazard.

5.7 Where there is a risk of drowning, a personal flotation device or lifejacket must be worn, as per the applicable regulations.

5.8 Electrically rated rubber gloves and rubber boots must be worn when working around electricity (waders must also be worn for electro fishing where there is an electric current passing through the water).

5.9 When wearing flame resistant outerwear (coveralls), staff must not wear against their skin clothing that is made of a fabric or material that will melt when exposed to heat (e.g., fleece).

Americas

PPE Hazard Analysis

S3NA-208-FM1

This form will be used for office activities that require PPE. It will also be used to determine the PPE requirements for non-routine maintenance tasks that may not be evaluated during the initial hazard assessments.

1. **Job Title(s):** This hazard analysis describes the tasks and required personal protective equipment (PPE) for the following job titles:

2. **Description of Tasks:** The tasks performed by personnel in the above job titles include:

3. **Potential Hazards and PPE Selection** (see *S3NA-208-WI1 PPE Selection Guidelines* for assistance).

TASK	POTENTIAL HAZARDS (1)	PPE SELECTION

The signature of the certifying manager below verifies that the tasks are accurately described:

Signature _____ Date _____

Print _____ Date _____

Americas

Excavation and Trenching

S3NA-303-PR1

1.0 Purpose and Scope

1.1 To evaluate all excavation operations to provide proper protective systems for employee protection from associated hazards.

1.2 This procedure applies to all AECOM Americas-based employees and operations.

2.0 Terms and Definitions

2.1 **Benching (Benching system)** – A series of horizontal levels or steps, usually with vertical or near-vertical surfaces between levels to protect employee from cave-ins.

2.2 **Cave-in (collapse)** – The separation of a mass of soil or rock material from the side of an excavation or the loss of soil from under a trench shield or support system and its sudden movement into the excavation, either by falling or sliding, in sufficient quantity so that it could entrap, bury, or otherwise injure and immobilize a person.

2.3 **Competent person** – Person, who, by way of training, knowledge, and/or experience, is capable of classifying soils and is also capable of identifying existing and predictable hazards in excavation/trenching work area and who has the authority to take prompt corrective measures to eliminate them. The person must also be familiar with the requirements in the regulation.

2.4 **Excavation** – A manmade cut, cavity, trench, or depression in an earth surface formed by earth removal. Examples include trenches, tunnels, shafts, caissons and open cut holes.

2.5 **Faces (or sides) –** The vertical or inclined earth surfaces formed as a result of excavation work.

2.6 **Failure** – A structural member's integrity and supportive capabilities is compromised, causing a breakage, displacement, or permanent deformation.

2.7 **Hazardous Atmosphere** – An atmosphere that by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen-deficient, toxic, or otherwise harmful may cause death, illness, or injury.

2.8 **Protective Systems** – Devices or methods in protecting employees in an excavation from cave-ins, a collapse or falling material. Protective systems include support systems, sloping and benching systems, shield systems, and other systems that provide the necessary protection.

2.9 **Ramp** – An inclined walking or working surface that is used to gain access to one point from another and is constructed from earth or from structural materials such as steel or wood.

2.10 **Professional Engineer** – A registered engineer who can authorize any state of work by his professional designation. A **Professional Engineer** registered in the State, Province, or territory is deemed to be a "registered professional engineer" within the meaning of this standard when approving designs for "manufactured protective systems" or "tabulated data" to be used in interstate commerce.

2.11 **Shield (Shield system)** – A structure that is able to withstand the forces imposed on it by a cave-in and thereby protects employees within the structure. Shields can be permanent structures or can be designed to be portable and moved along as work progresses. Additionally, shields can be either pre-manufactured or job-built. Shields used in trenches are usually referred to as "trench boxes" or "trench shields."

2.12 **Shoring (Shoring system) –** A structure such as a metal hydraulic, mechanical, or timber shoring system that supports the sides of an excavation and that is designed to prevent cave-ins.

2.13 **Sloping (Sloping system)** – An alternative to shoring is trench sloping. This means that the trench walls are cut back to decrease the possibility of cave-ins. The angle of incline required to prevent a cave-in varies with such factors as soil type, environmental conditions of exposure, and application of surcharge loads.

2.14 **Stable rock** – A natural solid mineral material that can be excavated with vertical side wall; unstable rock is considered to be stable when the rock material on the side or sides of the excavation is secured against cave-in or movement by rock bolts or by another protective system that has been designed by a **Professional Engineer**.

2.15 **Support system** – A structure such as underpinning, bracing, or shoring that provides support to an adjacent structure, underground installation, or the sides of an excavation.

2.16 **Trench** – An open narrow excavation made below the surface of the ground. In general, the depth is greater than the width, but the width (measured at the bottom) is often not greater than 15 feet (4.57 meters). If forms or other structures are installed or constructed in an excavation so as to reduce the dimension measured from the forms or structure to the side of the excavation to 15 feet (4.57 meters) or less (measured at the bottom of the excavation), the excavation is also considered a trench.

2.17 **Trench Box –** A trench box is a unit of shoring that is an engineered shoring system capable of protecting workers in case of cave-in of trench walls. The space between the trench wall and the trench box must be backfilled.

3.0 References

3.1 None

4.0 Procedure

4.1 Roles and Responsibilities

4.1.1 **Project Managers**

- Shall ensure that all projects under their direct control or authority and which involve excavations or trenching are conducted in a safe and efficient manner and in accordance with the requirements of this procedure and local legislation.
- Shall ensure that all projects under their direct control or authority have a written Safe Work Plan (SWP)/Health and Safety Plan (HASP) prepared for the activity.

4.1.2 **Professional Engineer**

- The professional status and the actual practice of professional engineering is legally defined and protected by law. In some jurisdictions, only licensed engineers (sometimes called registered engineers) are permitted to "practice engineering.
- For the purposes of this procedure soil condition, and the safe management of the shoring, sloping or benching shall be determined by a **Professional Engineer**.

4.1.3 **Competent Person**

- Must be present during all work that involves entry by AECOM personnel into trenches or excavations greater than 5 feet (1.52 meters) in depth (as above).
- Does not have to be an AECOM employee; however, an AECOM competent person must be qualified per *S3NA-202-PR1 Competent Person Designation*.
- For the purpose of this procedure, a **competent person** is defined as an individual who, by education or experience, is capable of evaluating the hazards associated with trench or excavation collapse and is capable of classifying soils. The competent person for the project will be indicated in the Task Hazard Analysis/SWP/HASP for the project.
- The **competent person**:
  - Will determine the maximum allowable slope for the walls of the trench or excavation.

- Will classify the soil in the trench or excavation in accordance with the requirements specified in the applicable legislation prior to determining that a maximum allowable slope, other than 34 degrees with the horizontal is selected.
- Will inspect the excavation or trench on a daily basis when the potential for employee exposure to the hazards of the trench or excavation exists (*S3NA-303-FM1 Daily Excavation Checklist*).

4.2 Restrictions

4.2.1 Because of their inherent dangers, entry into trenches and excavations shall not be performed if there are means other than entry to perform the work. Where entry into trenches and excavations is necessary, strict adherence to the procedures specified below is extremely important. Whenever there are questions regarding the safety of trench or excavation entry, contact shall be made with the **Competent Person** or the **District SH&E Manager**.

4.2.2 No one shall enter any trench or excavation until the walls have been adequately cut back or temporary protective structures have been installed unless the trench or excavation is shallower than stabilized.

4.2.3 Excavation work must be completed and inspected in accordance with the written instructions of a qualified professional and in accordance to the State, Federal or legislative regulations.

4.3 Underground and Overhead Utilities

4.3.1 Prior to beginning any excavation work at a site, the location of all underground and overhead utilities shall be identified and work locations will be carefully planned to avoid any potential for inadvertent contact with them.

4.3.2 Locate underground utilities and expose prior to excavating.

4.3.3 Identify any overhead power lines and de-energize or protect by other appropriate means.

4.4 Excavation Requirements

4.4.1 Soil conditions, wall slope, or shoring must be identified and designed by a **Professional Engineer** to meet the Federal, State, Provincial, Territorial, or legislative regulations.

4.4.2 Excavated (spoil) material shall be kept at least 3.2 feet (0.98 meters) from the edge of the excavation, or further if local regulations are more stringent.

4.4.3 If the walls of an excavation or trench are not sloped or cutback, barriers must be placed around the perimeter. The barrier must be at least 3.6 feet (1.10 meters) in height.

4.4.4 Workers must be protected whenever shoring is being installed or removed.

4.4.5 If water is controlled or prevented from accumulating by the use of water removal equipment, the water removal equipment and operations shall be monitored regularly to ensure proper operation.

4.4.6 If excavation work interrupts the natural drainage of surface water (such as streams), diversion ditches, dikes, or other suitable means shall be used to prevent surface water from entering the excavation and to provide adequate drainage of the area adjacent to the excavation. Excavations subject to runoff from heavy rains will require regular inspections.

4.4.7 All excavations must be secured at the end of the day with a protective covering or appropriate barriers to prevent the public from falling into the open excavation.

4.4.8 Backfill trenches as soon as reasonably possible after work is complete.

4.5 Sloping or Shoring Protection Requirements

4.5.1 A **Professional Engineer** can properly assess the need for and the type of shoring required for specific applications. Shoring may not be needed in all cases, but failure to recognize the need for shoring can be catastrophic.

4.5.2 Exceptions. Each individual in an excavation shall be protected from cave-ins and trench collapse by an adequate protective system except when

- Excavations are made entirely in stable rock.
- Excavations are less than 5 feet (1.52 meters) (and as above) in depth and an examination of the excavation by a **Competent Person** reveals no indication of a potential cave-in.

4.5.3 The depth of the excavation is to be measured at its greatest vertical dimension. Be aware that crouching or kneeling in a trench that is greater than 3 feet (0.91 meter) in depth may still pose significant hazard for the employee involved. The three means for supporting trench walls are sloping, shoring, and trench boxes.

4.5.4 The protective system may include sloping the excavation walls, shoring the excavation walls, or installing a shielding system. The protective system chosen must have the capacity to resist, without failure, all loads to be applied to the system.

4.5.5 For any excavation deeper than 20 feet (6.10 meters), a **Professional Engineer** must approve and sign on all protective systems.

4.5.6 Trenches must be protected from cave-ins or loss of ground prior to workers entering the trench when the following conditions apply:

- The trench is greater than 3 feet 11 inches (1.19 meters) in depth (however, even if the trench is less than 3 feet 11 inches (1.19 meters) deep the potential for a cave-in exists, and appropriate controls must be implemented prior to entry to ensure the trench is safe);
- A worker is required to enter the trench;
- A worker is required to be closer to a trench wall than the height of the trench wall; and,
- If an excavation may affect the stability of an adjacent building or structure, precautions must be taken to prevent damage to the structure. The precautions shall be specified in writing by a **Professional Engineer**.

4.6 Use of Sloping as a Means of Protection

4.6.1 Sloping the walls of the trench or excavation is the preferred, and typically simplest, means of protecting employees who must enter trenches or excavations which are greater than 5 feet (1.52 meters) in depth or where there is danger of collapse.

4.6.2 The trench or excavation walls may be sloped back so that the ratio of the horizontal distance to the vertical rise (H:V ratio) of the sloped wall is at least 1½:1 (i.e., equivalent to an angle with the horizontal of 34 degrees or less) or,

4.6.3 In many cases, determining the maximum allowable slope may allow the use of a steeper slope, which will result in a narrower excavation. However, determination of soil classification is complicated and requires that the **Competent Person** be familiar with the manual and visual tests. Since incorrect soil classification may result in the use of a steeper, and potentially unsafe, slope, it is recommended that an angle of 34 degrees (or less) with the horizontal typically be selected.

4.7 Use of Shoring or Shielding as a Means of Protection

4.7.1 Where sloping the walls of the trench or excavation is unfeasible (e.g., when there are dimensional constraints or adjacent structures), the use of shoring or shield systems (e.g., trench boxes) may be necessary.

4.8 Work Around the Trench/Excavation

4.8.1 While workers are in a trench, an aboveground observer must be present to warn of earth movements and to advise equipment operators of the presence and location of those in the trench so as to avoid vibrating equipment near trenches or excavations.

4.8.2 If there is a danger of a worker or equipment falling into an excavation, or whenever the edge is not clearly visible, you must identify the trench or excavation perimeter with visual markers (e.g.,

barricade tape, wooden railings, stop logs, etc). If the trench or excavation is 4 feet (1.22 meters) or greater in depth, the visual barrier must be a minimum of 6 feet (1.83 meters) from the edge.

4.8.3 Personnel must notify workers of the excavation through flagging, marking, safeguards, or other appropriate and effective means.

4.8.4 Where employees or equipment are required or permitted to cross over excavations, walkways, or bridges must have a minimum clear width of 20 inches (0.51 meters), be fitted with standard guard rails and extend a minimum of 24 inches (0.61 meters) past the surface edge of the trench. If vehicle crossings over excavations are required, they must be designed by and installed under the direction of a **Professional Engineer**.

4.8.5 Precautions must be taken to isolate loose rocks or other materials that may slide, roll, or fall into the trench and onto workers are stripped prior to entry by workers into an excavation.

4.8.6 While operating heavy equipment in the work area, the equipment operator shall maintain communication with a designated signal person through either direct voice contact or approved standard hand signals.

4.8.7 When mobile equipment is operated adjacent to an excavation or when such equipment is required to approach the edge of an excavation and the operator does not have a clear and direct view of the edge of the excavation, a warning system such as barricades, hand or mechanical signals, or stop logs shall be used. If possible, the grade should be away from the excavation.

4.8.8 All site personnel should maintain a safe distance and remain clear of the swing of operating excavation equipment.

4.8.9 Employees shall be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials. Operators may remain in the cabs of vehicles being loaded or unloaded when the vehicles are equipped to provide adequate protection for the operator during loading and unloading operations.

4.8.10 All site personnel that operate or work in the vicinity of heavy equipment shall wear all AECOM-required Personal Protective Equipment.

4.8.11 All materials such as pipe, rebar, etc., shall be kept out of traffic lanes and access ways. Materials and equipment shall be stored in a designated area so as not to endanger personnel at any time.

4.8.12 A flagman with roadwork, signs, cones, and high-level warning signs shall be provided when it is necessary to control normal vehicular traffic due to vehicles, such as end-dumps, entering, or leaving the site.

4.9 Work Within the Trench/Excavation

4.9.1 Employees shall not work in excavations in which there is accumulated water or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by water accumulation. The precautions necessary to protect employees adequately vary with each situation, but could include special support or shield systems to protect from cave-ins, water removal to control the level of accumulating water, or use of a safety harness and lifeline.

4.9.2 A stairway, ladder, ramp, or other safe means of egress shall be located in excavations or trenches that are 4 feet (1.22 meters) or more in depth so as to require no more than 25 feet (7.62 meters) of lateral travel for employees. Ladders should extend at least 3 feet (0.91 meters) above the trench top.

4.9.3 Structural ramps that are used solely by employees as a means of access or egress from excavations shall be designed by a competent person. Structural ramps used for access or egress of equipment shall be designed by a competent person qualified in structural design and shall be constructed in accordance with the design.

4.9.4 Ramps and runways constructed of two or more structural members shall have the structural members connected together to prevent displacement. Structural members used for ramps and

runways shall be of uniform thickness. Cleats or other appropriate means used to connect runway structural members shall be attached to the bottom of the runway or shall be attached in a manner to prevent tripping. Structural ramps used in lieu of steps shall be provided with cleats or other surface treatments on the top surface to prevent slipping.

4.10 Hazardous Atmospheres

4.10.1 Confined spaces may exist in excavations where there is limited access or egress and in which a hazardous gas, vapor, dust, or fume or an oxygen-deficient atmosphere may occur.

4.10.2 To prevent exposure to harmful levels of atmospheric contaminants, entry into trenches and excavations greater than 5 feet (1.52 meters) in depth in which a hazardous atmosphere exists, or could reasonably be expected to exist, such as in excavations in landfill areas or excavations in areas where hazardous substances are stored nearby, entry must be performed in accordance with the requirements specified in *S3NA-301-PR1 Confined Spaces.*

4.10.3 Adequate precautions, such as mechanical ventilation or appropriate respiratory protection, shall be taken prior to entry into trenches and excavations in which the oxygen concentration is less than 19.5 percent or the concentration of flammable gases or vapors is in excess of 10 percent of the lower explosive limit.

4.10.4 When controls are used that are intended to reduce the level of atmospheric contaminants to acceptable levels, testing shall be conducted as often as necessary to confirm that the atmosphere remains safe. Atmospheric testing will be conducted in the anticipated breathing zone of the work area to determine oxygen content, combustible gas, and toxic gases and vapors, if applicable.

4.10.5 Appropriate respiratory protection shall be donned prior to entry into any trench or excavation in which airborne levels of toxic substances are present at concentrations in excess of their Threshold Limit Value/Occupational Exposure Limit or Permissible Exposure Limit.

4.10.6 If a confined space is identified, emergency rescue procedures will be in place in accordance with *S3NA-301-PR1 Confined Spaces.*

4.11 Stability of Adjacent Structures

4.11.1 Where the stability of adjoining buildings, walls, or other structures is endangered by excavation operations, support systems such as shoring, bracing, or underpinning shall be provided to ensure the stability of such structures for the protection of employees.

4.11.2 Excavation below the level of the base or footing of any foundation or retaining wall that could be reasonably expected to pose a hazard to employees shall not be permitted except when

- A support system, such as underpinning, is provided to ensure the safety of employees and the stability of the structure; or
- The excavation is in stable rock; or
- A **Professional Engineer** has approved the determination that the structure is sufficiently removed from the excavation so as to be unaffected by the excavation activity; or
- A **Professional Engineer** has approved the determination that such excavation work will not pose a hazard to employees.

4.11.3 In addition, sidewalks, pavements, and appurtenant structures shall not be undermined unless a support system or another method of protection is provided to protect employees from the possible collapse of such structures.

4.12 Inspections

4.12.1 Daily inspections of excavations, the adjacent areas, and protective systems shall be made by a **Competent Person** for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions.

4.12.2 An inspection shall be conducted by the **Competent Person** prior to the start of work and as needed throughout the shift. Inspections shall also be made after every rainstorm or other hazard-

increasing occurrence. These inspections are only required when employee exposure can be reasonably anticipated.

4.12.3 Where the **Competent Person** finds evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, exposed employees shall be removed from the hazardous area until the necessary precautions have been taken to ensure their safety.

4.13 Personal Protective Equipment

4.13.1 Hard hat

4.13.2 Steel-toed boots

4.13.3 Reflective vest

4.13.4 Respiratory equipment, as required

4.13.5 Safety glasses with side shields

4.14 Special Excavation Entry Permit Required for California

4.14.1 In California, for the construction of trenches or excavations that are 5 feet (1.5 meters) or deeper and into which a person is required to descend, an additional permit must be obtained from California Occupational Safety and Health Administration.

5.0 Records

5.1 Completed Daily Excavation Checklist—must be retained in the project files for +1 year

6.0 Attachments

6.1 S3NA-303-WI1 Selection of Protective Systems

6.2 S3NA-303-WI2 Sloping Options

6.3 S3NA-303-WI3 Shoring or Shielding Options

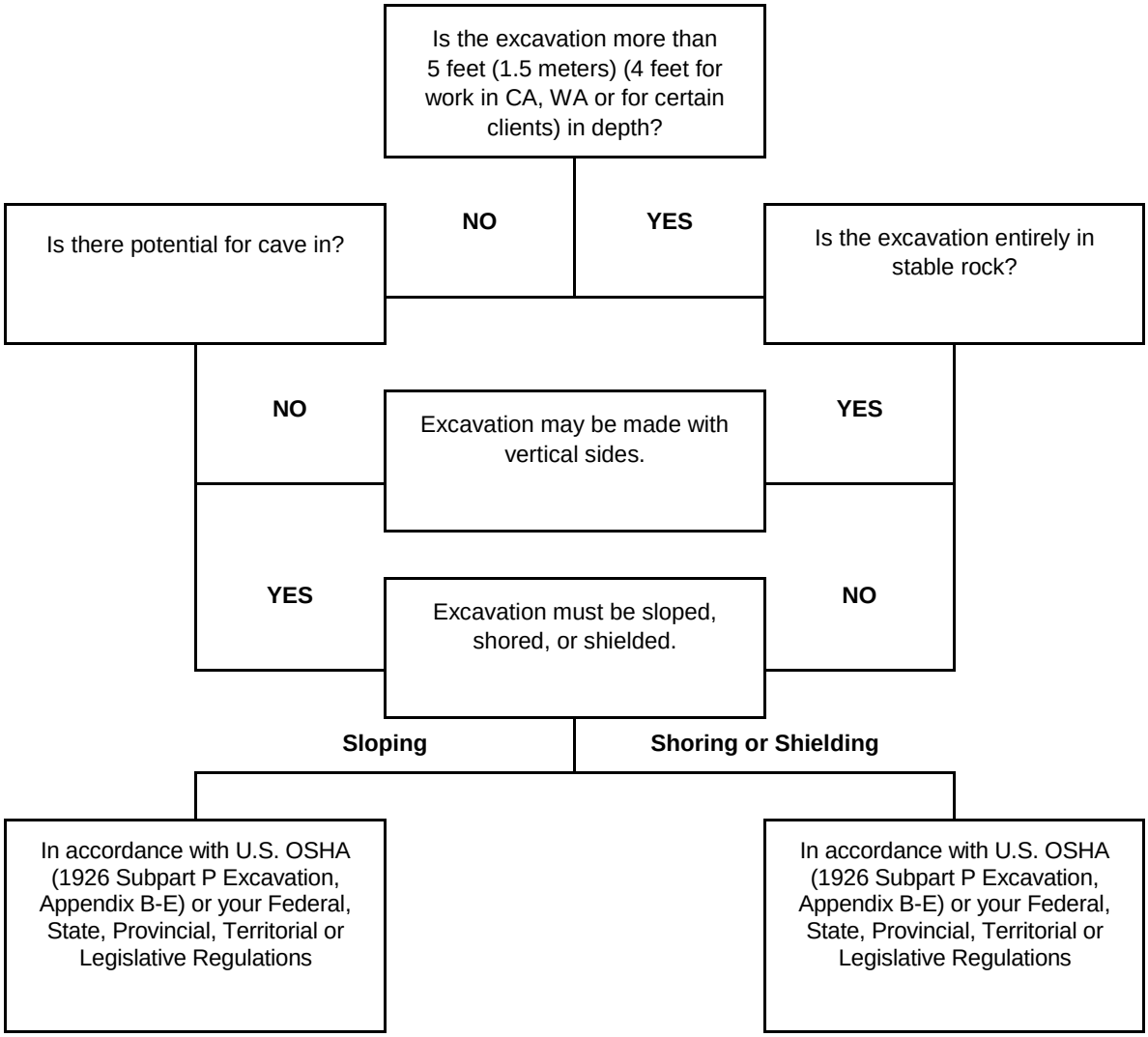
6.4 S3NA-303-WI4 Factors Affecting Shoring Methods

6.5 S3NA-303-FM1 Daily Excavation Checklist

Americas

Selection of Protective Systems

S3NA-303-WI1

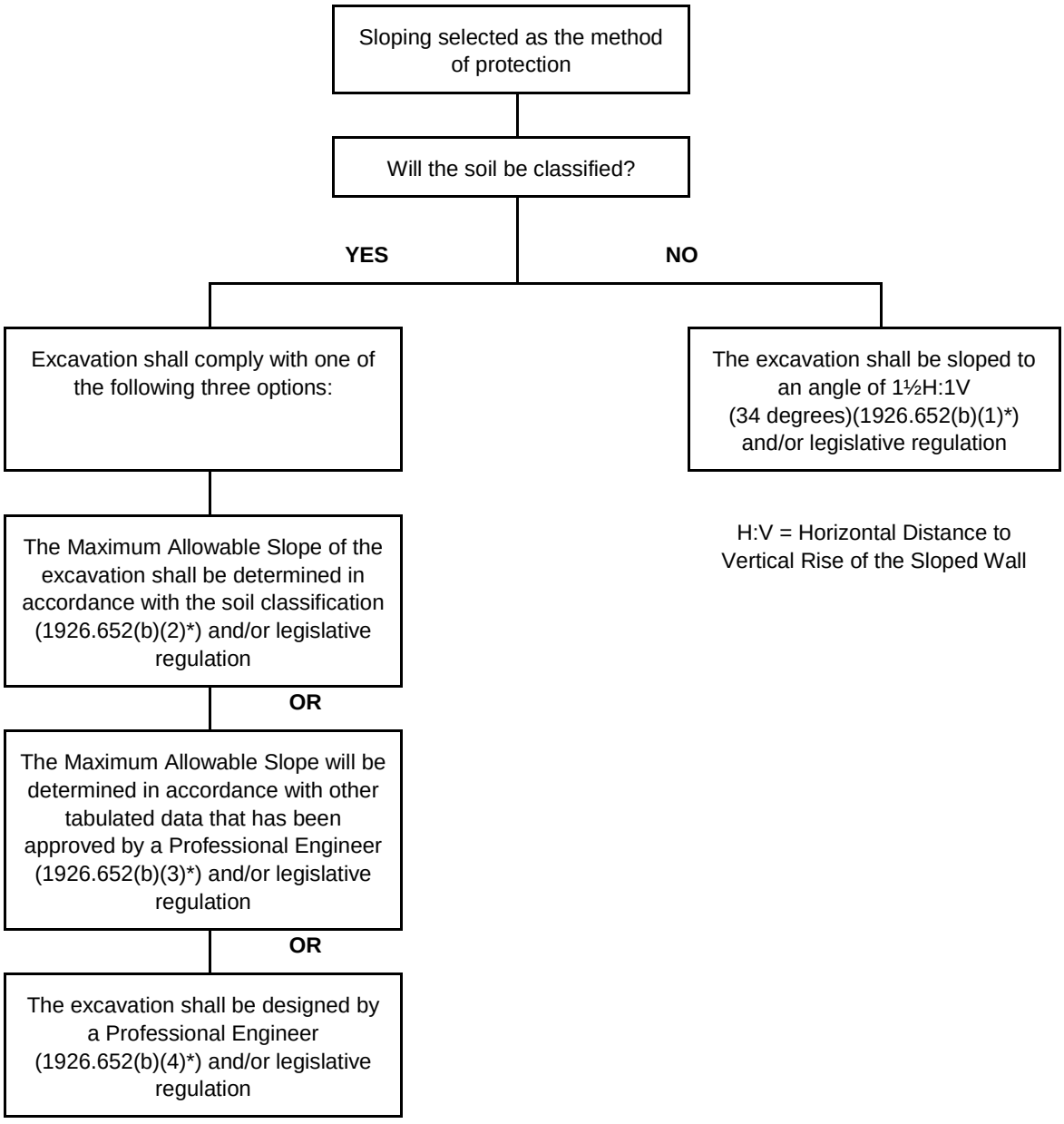


(1) Protective systems for excavations greater than 20 feet (6 meters) in depth must be designed by a professional engineer in accordance with 1926.652 (b) and (c) in the United States.

Americas

Sloping Options

S3NA-303-WI2



** Please refer to your Provincial, Territorial, for local requirements.*

Americas

Shoring or Shielding Options

S3NA-303-WI3

If shoring or shielding is selected as the method or protection:

Soil classification is required. The excavation must comply with one of the four options below:

The soil shall be classified and the timber shoring be constructed in accordance with legislative regulations and/or(29 CFR 1926.652(c)(1); 29 CFR 1926 Subpart P - Appendix C*). **Contact RSHEM before utilizing this option.**

OR

Other protective systems be utilized (e.g., shield systems, trench jacks, aluminum hydraulic shoring, etc.) and the manufacturer's data shall be explicitly followed (1926.652(c)(2)*) and legislative regulations. **Contact RSHEM before utilizing this option.**

OR

A protective system shall be utilized which is based on tabulated data which has been approved by a registered professional engineer (1926.652(c)(3)*)and/or legislative regulations. **Contact RSHEM before utilizing this option.**

OR

A protective system be designed by a registered professional engineer (1926.652(c)(4)*) and/or legislative regulations. **Contact RSHEM before utilizing this option.**

** Please refer to your provincial, territorial, for local requirements.*

RSHEM = Regional Safety, Health and Environment Manager

Americas

Factors Affecting Shoring Methods

S3NA-303-WI4

Factor	Description
Soil Structure and Strength	Trench walls, at first glance, may appear to have strength, particularly if rock is encountered. Fractures in the rock can develop because of construction and soil strength may fail when subjected to undercutting or high-energy impacts. Irregular slopes on stratified soils that appear stable can fail if lower materials do not have adequate strength.
Soil Moisture Content	Soil may be moist even though the weather has been dry. Care must be taken and shoring provided if the soil appears to be moist.
Weather and Humidity	These can have a significant impact on shoring requirements. Frozen stable soil may collapse if warm mild weather persists. Percolation of water into the soil can increase the load on the shoring due to the increased weight and mobility of saturated soils. Frozen ground does not preclude the need to install shoring unless the freezing process is designed and approved by a Professional Engineer.
Soil Stress	Stress can originate from many sources. Heavy machinery passing close to the shoring creates vibrations that decrease the soil strength and can result in shoring failure. Stationary equipment at the edges of the excavation can transmit loads and additional stresses to the shoring.
Trench Depth and Width	These directly influence the choice of materials and the spacing of support bracing. The shoring requirements of a wide and deep trench differ substantially from those of a narrower trench.
Erosion Time	If excavations are to be left for extended periods, shoring materials may have to be increased.

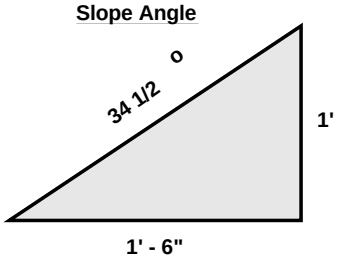
Americas

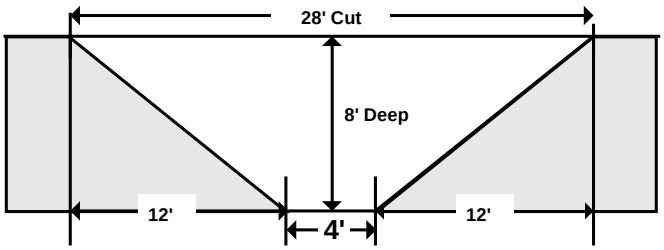
Daily Excavation Checklist

S3NA-303-FM1

Daily Excavation Checklist			
Competent Person Name:		Date:	
Competent Person Signature:			
Site Location:		Project Number:	
Soil Type:	Excavation Depth:	Excavation Width:	
Type of Protective System Used:			
Indicate for each item: Yes – No – or N/A for not applicable:			
1. General Information:	**Yes**	**No**	**N/A**
a. Is excavation less than 5 feet (1.5m) in depth?			
b. Is there a potential for a cave-in? ***IF YES, excavation must be sloped, shored, or shielded.**			
c. Is excavation deeper than 5 feet (1.5m)? *** IF YES, excavation must be sloped, shored, or shielded.**			
d. Is sloping used as your protective system?			

Slope information to keep in mind:





Example of a Simple 34-degree Slope commonly used around the site for cave-in protection.

e. 1- Manual and 1- Visual Method utilized to determine Soil Classification as A-B-C.			

2. Inspection of Job Site	Yes	No	N/A
a. Excavations, adjacent areas, and protective systems inspected by a competent person daily before the start of work.			
b. Competent person has the authority to remove all individuals from the excavation immediately.			
c. Surface encumbrances removed or supported.			
d. All individuals protected from loose rock or soil that could pose a hazard by falling or rolling into the excavation.			
e. Hard hats, safety-toed boots, and safety glasses worn by all individuals.			
f. Spoils, materials, and equipment set back at least 3 feet (1.0 m) from the edge of the excavation.			
g. Adequate barriers provided at all excavations, wells, pits, shafts, etc.			
h. Warning vests or other highly visible clothing provided and worn by all individuals. Wearing a vest at all times around heavy equipment is required.			
i. All individuals are required to stand away from vehicles being loaded or unloaded.			
j. Warning system established and utilized when mobile equipment is operating near the edge of the excavation (e.g., barricade tape, signalpersons, stop logs, etc).			
k. All individuals prohibited from going under suspended loads.			
3. Utilities	**Yes**	**No**	**N/A**
a. Location of utilities marked.			
b. Prior to the use of equipment, underground utilities have been located by hand digging.			
c. Underground utilities are protected, supported, or removed when excavation is open.			
4. Means of Access and Egress:	**Yes**	**No**	**N/A**
a. Travel distance to means of egress no greater than 25 feet in excavations 4 feet or more in depth.			
b. Straight ladders used in excavations extend at least 3 feet above the edge of the trench.			
c. Ramps being used for employee access have been designed by the competent person.			
d. All individuals are protected from cave-ins when entering or exiting the excavation.			
5. Wet Conditions:	**Yes**	**No**	**N/A**
a. Precautions have been taken to protect all individuals from the accumulation of water.			
b. Water removal equipment monitored by a competent person.			
c. Surface water or runoff is diverted or controlled to prevent accumulation in the excavation.			
d. Inspections have been made after every rainstorm or other hazard-increasing occurrence (freeze/thaw, local demolition, rerouting of traffic, etc).			

6. Hazardous Atmosphere: The atmosphere within the excavation must be tested where there is a reasonable possibility of an oxygen deficiency or a combustible or other harmful contaminant exposing any individual to a hazard.	**Yes**	**No**	**N/A**
a. Are there exposed sewer or natural gas lines in excavation?			
b. Is excavation near a landfill area, or are hazardous substances being stored close to the excavation?			
If you answered YES to A or B, then treat the excavation as a confined space. **See *S3NA-301-PR1 Confined Spaces***			
c. All individuals will contact the Fire/Rescue Group at prior to entry and in case of emergencies.			
7. Support Systems:	**Yes**	**No**	**N/A**
a. Materials and/or equipment for support systems are selected based on soil analysis, trench depth, and expected loads.			
b. Materials and equipment used for protective systems have been inspected and are in good condition.			
c. Materials and equipment not in good condition have been removed from service.			
d. Protective systems installed without exposing all individuals to the hazards of cave-ins, collapses, or the threat of being struck by materials or equipment.			
e. Members of support system are securely fastened to prevent failure.			
f. Support systems are provided to ensure stability of adjacent structures, buildings, roadways, sidewalks, walls, etc.			
g. Excavations below the level of the base of a footing have been approved by a registered Professional Engineer.			
h. Removal of support systems progresses from the bottom, and members are released slowly so that you can note any indication of possible failure.			
i. Backfilling progresses with the removal of the support system.			
j. Material is excavated to a level no greater than 2 feet (0.6m) below the bottom of the support system and only if the system is designed to support the loads calculated for the full depth.			
k. A shield system has been placed to prevent lateral movement.			
l. All individuals are prohibited from remaining in the shield system during vertical movement.			
8. Training:	**Yes**	**No**	**N/A**
a. All individuals have had Excavation Safety Awareness Training.			

S3NA-307-PR Housekeeping, Worksite

1.0 Purpose and Scope

1.1 This procedure provides AECOM's work practices as well as personal hygiene and work site sanitation standards for housekeeping.

1.2 Applies to all AECOM North America-based staff and field worksites.

2.0 Terms and Definitions

None.

3.0 References

None.

4.0 Procedure

4.1 Roles and Responsibilities

4.1.1 **Project Manager (Field Task Manager, Supervisor)** is responsible for the procedure's implementation and the details of addressing housekeeping policy within the construction/demolition worksite.

4.1.2 **SH&E Department** personnel will monitor, assess, and report on project housekeeping when visiting locations.

4.1.3 Employees are responsible for reporting any areas of concern to the Site Supervisor for prompt resolution as well as for maintaining worksites that are free from debris, clutter, and slipping or tripping hazards.

4.2 Smoking, Eating, and Drinking

4.2.1 Eating and drinking will be permitted in designated areas at AECOM project sites and as specified on client sites. Smoking will be permitted only in areas designated in compliance with applicable local laws, regulations, legislation, and ordinances, by the Field Supervisior and situated in locations that are not in the immediate vicinity of activities associated with work site activities. Additionally, Field Supervisior will designate each smoking area giving primary consideration to those personnel who do not smoke.

4.2.2 Personnel involved in the performance of certain activities will not be permitted to smoke, eat, drink, or use smokeless tobacco, except during breaks (e.g., HAZWOPER-controlled work areas).

4.2.3 Site personnel will first wash hands and face after completing work activities and prior to eating or drinking.

4.3 Water Supply

4.3.1 Water supplies will be available for use on site and will comply with the following requirements:

4.3.2 Potable Water: An adequate supply of drinking water will be available for site personnel consumption. Potable water can be provided in the form of approved well or city water, bottled water, or drinking fountains. Where drinking fountains are not available, individual use cups will be provided as well as adequate disposal containers. Potable water containers will be properly identified in order to distinguish them from nonpotable water sources.

4.3.3 Nonpotable Water: Nonpotable water will not be used for drinking purposes. Nonpotable water may not be used for hand washing or other personal hygiene activities but may be used for other types of cleaning activities. All containers/supplies of nonpotable water used will be properly identified and labeled as such.

4.4 Toilet Facilities

4.4.1 Toilet facilities will be available for site personnel and visitors. Should subcontractor personnel be located on-site for extended periods, it may become necessary to obtain temporary toilet facilities.

Exceptions to this requirement will apply to mobile crews where work activities and locations permit transportation to nearby toilet facilities.

4.4.2 A minimum of one toilet will be provided for every 20 site personnel, with separate toilets maintained for each sex, except where there are less than five total personnel on site. For mobile crews where work activities and locations permit use of nearby toilet facilities (e.g., gas station, or rest stop), on-site facilities are not required.

4.4.3 Washing Facilities

4.4.4 Hand and Face: Site personnel will wash hands and face after completing work activities and prior to breaks, lunch, or completion of workday.

4.4.5 Personal Cleaning Supplies: Cleaning supplies at AECOM project sites will consist of soap, water, and disposable paper towels or items of equal use/application (e.g., anti-bacterial gels, wipes, etc.).

4.5 Clothing and Personal Protective Equipment (PPE)

4.5.1 All PPE will be kept clean at all times and maintained in accordance with the manufacturer's, AECOM's. and applicable regulatory, legislative, or provincial requirements.

4.5.2 General Work Areas

4.5.3 At all times work areas will be kept free of dirt and debris that may impact the safety of site personnel and visitors. All trash receptacles will be emptied regularly.

4.5.4 Break Areas and Lunchrooms

Site personnel will observe the following requirements when using break areas and lunchrooms at AECOM project sites:

4.5.5 All food and drink items will be properly stored when not in use.

4.5.6 Food items will not be stored in personal lockers for extended periods in order to prevent the potential for vermin infestation.

4.5.7 Perishable foods will be refrigerated whenever possible.

4.5.8 All waste food containers will be discarded in trash receptacles.

4.5.9 All tables, chairs, counters, sinks, and similar surfaces will be kept clean and free of dirt, waste food, and food containers at all times.

4.5.10 Refrigerators used to store food items will be maintained at 45 degrees Fahrenheit and emptied of all unclaimed food items weekly. Refrigerators used to store food will be labeled as such so that only food and drinks are stored within the refrigerator.

4.5.11 Routine cleaning of refrigerators will also be performed on a regular basis.

4.6 Vermin Control

4.6.1 Every enclosed workplace shall be constructed, equipped, and maintained, so far as reasonably practicable, to prevent the entrance or harborage of rodents, insects, and other vermin.

4.6.2 A continuing and effective extermination program shall be instituted where the presence of rodents, insects, or other vermin is detected.

4.7 General Housekeeping

4.7.1 All work areas shall be kept clean to the extent that the nature of the work allows.

4.7.2 Every work area shall be maintained, so far as practicable, in a dry condition. Where wet processes are used, drainage shall be maintained and platforms, mats, or other dry standing places shall be provided, where practicable, or appropriate waterproof footgear shall be provided.

4.7.3 Protruding objects or placement of materials on paths or foot traffic areas present a problem with regard to slips, trips, falls, and puncture wounds. Personnel will use a reasonable amount of effort to keep slip, trip, and fall hazards to a minimum.

4.7.4 Excess debris and trash will be collected and stored in an appropriate container (e.g., plastic trash bags, garbage can, roll-off bin) prior to disposal.

4.7.5 At no time will debris or trash be intermingled with waste PPE or contaminated materials.

4.7.6 Material and equipment must be placed, stacked, or stored in a stable and secure manner. Stacked material or containers must be stabilized as necessary by interlocking, strapping, or other effective means of restraint to protect the safety of workers.

4.7.7 An area in which material may be dropped, dumped, or spilled must be guarded to prevent inadvertent entry by workers or protected by adequate covers and guarding.

4.7.8 Floors, platforms, ramps, stairs, and walkways available for use by workers must be maintained in a state of good repair and kept free of slipping and tripping hazards. If such areas are taken out of service, the employer must take reasonable means for preventing entry or use.

4.7.9 Hazardous areas not intended to be accessible to workers must be secured by locked doors or equivalent means of security and must not be entered unless safe work procedures are developed and followed.

4.8 Worksite Offices and Trailers

Worksite offices and trailers will be maintained in accordance with *S3NA-103-PR Housekeeping, Office.*

5.0 Records

None.

6.0 Attachments

None.

S3NA-308-PR Manual Lifting, Field

1.0 Purpose and Scope

1.1 This procedure provides the requirements for use when performing manual materials handling activities (e.g., lifting/handling of items or materials).

1.2 This procedure applies to all field staff for AECOM North America-based operations.

2.0 Terms and Definitions

2.1 **Manual Materials Handling:** Moving or handling things by lifting, lowering, pushing, pulling, carrying, holding, or restraining.

2.2 **Team Handling:** Team handling occurs when more than one person is involved during the lift.

3.0 References

3.1 OSHA Technical Manual: http://www.osha.gov/dts/osta/otm/otm_vii/otm_vii_1.html

3.3 National Safety Council: www.nsc.org

4.0 Procedure

4.1 Roles and Responsibilities

4.1.1 The **Project Manager** will effectively implement the procedure, providing resources as required, and providing direction on proper lifting/handling techniques.

4.1.2 The **Regional SH&E Manager** will assist in identifying activities with a high potential for lifting/handling strains/injuries as well as the associated mitigation strategies and training on proper lifting/manual materials handling techniques.

4.1.3 **Employees** are responsible for reviewing and following *S3NA-308-WI Manual Lifting Safe Work Practices*.

4.2 Mechanical Controls

4.2.1 Mechanical equipment or assistance such as dollies, carts, come-alongs, or rollers are preferable to be used whenever possible rather than the employee physically moving materials.

4.2.2 Mechanical assistance will be of proper size, have wheels sized for the terrain, and be designed to prevent pinching or undue stress on wrists.

4.2.3 Objects to be moved will be secured to prevent falling and properly balanced to prevent tipping.

4.3 Administrative Controls

4.4 When significant, sustained lifting work is required, it is desirable to rotate employees to spread the work load among several people and thereby avoid fatigue.

4.5 Rotation is not simply performing a different job but instead is performing a job that utilizes a completely different muscle group from the ones that have been overexerted.

5.0 Records

None.

6.0 Attachments

6.1 S3NA-308-WI Manual Lifting Safe Work Practices

SITE SAFETY BRIEFING FORM

Project Name _____

Project Number _____ Date _____ Time _____

Location _____

Type of Work _____

_____

_____

SAFETY TOPICS PRESENTED

Protective Clothing/Equipment _____

_____

Chemical Hazards _____

_____

Physical Hazards _____

_____

Biological Hazards _____

_____

Emergency Procedures _____

_____

Hospital/Clinic _____ Phone _____

Hospital Address _____

Special Equipment _____

_____

Other _____

_____

ATTENDEES

Name (Printed)	**Signature**

Meeting Conducted by: _____

Site Safety Officer: _____

URS Group, Inc
SITE SAFETY TAILGATE MEETING

PROJECT NAME:		CLIENT NAME:	
PROJECT NUMBER:		PROJECT LEADER:	
PREPARED BY:		DATE:	

ON-SITE SAFETY MEETING RECORD

LOCATION:

TASK TO BE PERFORMED:

I. Purpose for meeting: (check all that apply)

	DAILY SAFETY BRIEFING
	Begin New Task. Task:
	Periodic Safety Meeting
	New Site Procedures
	New Site Conditions / Information
	New Site Workers

MEETING ATTENDEES:

NAME (Print)	**SIGNATURE**	**COMPANY**
1.		
2.		
3.		
4.		
5.		

ON-SITE SAFETY MEETING RECORD *Page 2 of 2*

II. Topic (check all that apply)

	Site Safety Personnel		Decontamination
	Work Area Description		Emergency Response
	Site Characterization		Hazard Communication
	Equipment Hazard(s)		On-site Emergency
	Biological Hazard(s)		On-site Injuries
	Chemical Hazard(s)		Evacuation Procedures
	Physical Hazard(s)		Rally Point
	Heat Stress		Emergency Communications
	Cold Stress		Directions to Hospital
	Site Control		Emergency Equipment
	Work and Support Zones		Drug and Alcohol Policies
	PPE		Medical Monitoring
	Air Monitoring		Task Training
	Safe Work Practices		Unexploded Ordnance (UXO)

III. Remarks

V. Verification I certify that the personnel listed on this roster received the briefing described above. Site personnel not attending this meeting will be briefed before beginning their assigned duties.

Field Project Manager Date

UXO Safety Supervisor Date

URS	Health, Safety and Environment **HSE TRAINING EVALUATION**	Attachment 055-1 NA Issue Date: November 2000 Revision 6: December 2009

Name _____ Location _____ Date _____

Course Title	Regulatory	Frequency	Should You Attend?	Check if Required ☒	Comments
Asbestos Inspector	Y	Annual	You perform asbestos sampling tasks.	☐	
Asbestos Planner	Y	Annual	You serve as the project asbestos planner.	☐	
Automated External Defibrillator (AED)	Y	As established by the training provider	You are designated to be an AED user in a URS office or project site.	☐	
Behavior Based Safety	N	Annual	Required for all Infrastructure & Environment employees.	☐	Concepts of behavior based safety, including the observation process (how to do one, who does one, the purpose). Available online through the URS Learning Management System (LMS).
Bloodborne Pathogens	Y	Annual	Required for employees designated as a first aid responder or others who have a potential bloodborne pathogen exposure.	☐	
Cardiac Pulmonary Resuscitation (CPR)	Y	As established by the training provider	Required for 1) employees who are designated as first aid responders, 2) employees who are performing high hazard activities (e.g., potential for falls, suffocation, electrocution, amputation) and medical attention is more than 4 minutes away, or 3) required by client contract.	☐	Acquire training from recognized source (e.g., Red Cross, American Heart).
Confined Space Entry	Y	Once	You perform confined space entry/authorizer/attendant duties (including anyone performing non-entry rescue activities).	☐	30-minute CSE Awareness module offered online through URS LMS.
Confined Space Refresher	N	As needed	Recommended if you perform entry activities.	☐	
Confined Space Rescuer	Y	Once	You may have to enter a confined space to perform a rescue.	☐	
Construction Safety (OSHA 500)	N	Once	Recommended if you are a Supervisor and/or Safety Officer at Construction Sites	☐	
Emergency Preparedness Plan	Y	Once	Required for all URS employees.	☐	For office personnel, this information is covered in employee orientation. For field/site personnel, this is covered in project/site safety training.
Ergonomics	N	Once	Recommended for staff who are primarily office employees.	☐	Available online through the URS LMS.

Course Title	Regulatory	Frequency	Should You Attend?	Check if Required ☒	Comments
Excavations/Trenching Awareness	Y	Once	You work at sites where excavation/trenching tasks are performed.	☐	Available online through URS LMS.
Excavations/Trenching Competent Person	Y	Once	You are or may be designated as a competent person (educational background and experience may allow for grandfathering).	☐	
Experienced Miner Training	Y	Once, followed by annual refreshers	You meet the US Mine Safety and Health Administration (MSHA) definition of an "Experienced Miner."	☐	See Surface Miner and Underground Miner training for information on annual refreshers.
Fall Prevention/Protection	Y	Once	You supervise tasks or perform tasks at heights (on roofs, scaffolding, ladders, unfinished flooring).	☐	
Field Safety Training (4 hours)	N	Biennial	Required for all Infrastructure & Environment non-craft employees performing field work who are not in the hazardous waste training program.	☐	Specific content will depend on the office and the employees' expected work. When offered as a combination of online modules and classroom instruction, online modules must be completed prior to the classroom portion for participants to receive credit. Both portions (online and classroom) need to be completed within the same calendar year.
Fire Extinguisher	Y	Annual	You may be expected to use fire extinguishers (fixed facilities and project sites).	☐	
First Aid	Y	As established by the training provider	Required for 1) employees who are designated as first aid responders, 2) employees who are performing high hazard activities (e.g., potential for falls, suffocation, electrocution, amputation) and medical attention is more than 4 minutes away, or 3) required by client contract.	☐	Acquire training from recognized source (e.g., Red Cross, American Heart).
H&S Issues for Project Managers	N	Once	Required if you manage projects involving field work.	☐	Offered as part of PM Training. Online courses available through URS LMS include Handling Specific Health and Safety Issues, Planning for Health and Safety, and Project Delivery Aspects of Health and Safety.

Course Title	Regulatory	Frequency	Should You Attend?	Check if Required ☒	Comments
Hazard Communication	Y	Initially and if hazards change	Required for anyone who is potentially exposed to/works with hazardous chemicals.	☐	Training must occur before any work with hazardous chemicals. Included (as needed) in HSE Orientation. After the initial training, required updates will typically be handled as part of project-specific HSE training. Refresher training is also available online through the URS LMS.
Hazardous Materials Shipping	Y	Biennial	Required for anyone who packages, labels, transports, completes paperwork for, or offers for shipment, hazardous materials/dangerous goods.	☐	Initial training is approximately 16 hours. 30-minute Hazmat Shipping Awareness class is available online through the URS LMS.
Hazardous Waste Operations (40-hours – U.S.) (24-hours – non U.S.)	Y	Once	Anyone performing work or expected to perform at hazardous waste sites or treatment, storage, and disposal facilities.	☐	See SMS 017.
Hazardous Waste Operations – Refresher (8 hours)	Y	Annual	(See Hazardous Waste Operations.)	☐	When offered as a combination of online modules and classroom instruction, online modules must be completed prior to the classroom portion for participants to receive credit. Both portions (online and classroom) need to be completed within the same calendar year.
Hazardous Waste Operations – Supervisor (8 hours)	Y	Once	Required for anyone serving as the site supervisor at a hazardous waste site.	☐	When offered as a combination of online modules and classroom instruction, online modules must be completed prior to the classroom portion for participants to receive credit. Both portions (online and classroom) need to be completed within the same calendar year.
Health, Safety, and Environment (HSE) Orientation	Y	Once	Required for all URS employees.	☐	Specific content will depend on the office and the employees' expected work. See SMS 025.
Hearing Conservation	Y	Annual	Employees exposed to noise at or above 85 decibels averaged over an 8-hour day.	☐	Available online through URS LMS.

Course Title	Regulatory	Frequency	Should You Attend?	Check if Required ☒	Comments
HSE Representative Training	N	Once; follow-up as needed	Required for anyone assigned to the role of URS HSE Representative.	☐	URS company metrics, training programs, and technical topics to support the HSE Representative position. HSE training for non-HAZWOPER trained personnel, describing OSHA and EPA regulatory requirements.
Injury/Illness Prevention	Y	Once	You are assigned to California offices.	☐	Covered in California office HSE Orientation.
Laboratory Safety	Y	Once	You work in a fixed or mobile wet chemistry lab.	☐	Completed as part of site or project orientation.
Lead Project Designer	Y	Every 3 years	You are a lead project designer.	☐	
Lead Risk Assessor	Y	Every 3 years	You are a project lead risk assessor inspector.	☐	
Lockout/Tagout Awareness	Y	Once	You work with and around equipment that may need to be locked out/tagged out. (You are not responsible for applying tags/locks).	☐	Available online through the URS LMS.
Marine Trash and Debris Awareness and Limitation	Y	Annual	You work on contract operations for lessees and/or operators of oil and gas operations in the Gulf of Mexico.	☐	Provided by lessee or operator.
Nuclear Density Gauge Operator	Y	Once	You operate nuclear density gauges.	☐	Troxler or equivalent training.
Nuclear Density Gauge Transporter	Y	Every 3 years	You transport nuclear density gauges.	☐	Hazardous Materials shipping.
Powered Industrial Trucks (Forklifts)	Y	Once	Your job assignments include operating a powered industrial truck (forklift).	☐	Required more frequently if assessments indicate the need.
Radiation Safety Officer	Y	Once	You are designated as a Radiation Safety Officer.	☐	
Respiratory Protection	Y	Annual	Required for any employee who may be required to wear a respirator.	☐	Initial training is approximately 1 hour. Annual refresher training is approximately 0.5 hour. Annual refresher training is available online through the URS LMS.
Self Contained Breathing Apparatus (SCBA)/Cascade Systems	Y	Once	Required for any employee required to wear SCBAs or to operate a supplied air system.	☐	Part of Project HSE training as needed.
Shipping Specialist	Y	Once	You are designated as a Shipping Specialist and/or are a Regional/SBU HSE Manager.	☐	Updates are required as regulations change.
Site Safety Training (4 hours)	N	Biennial	Required primarily for Federal Services employees performing tasks at fixed locations (e.g., warehouses, laboratories, vehicle maintenance, aircraft maintenance).	☐	Specific content will depend on the site and the employees' expected work.

Course Title	Regulatory	Frequency	Should You Attend?	Check if Required ☒	Comments
Site Supervisor Training	N	Once	Required for all Federal Services Supervisors who are responsible for a site.	☐	
Substance Specific	Y	Once	Any employee potentially exposed to a substance covered by the 29 CFR substance specific regulations. See SMS 050.	☐	Includes lead, asbestos, benzene, etc. Offered as part of project-specific training.
Surface Miner Training – New (24 hours)	Y	Once	You perform work at surface mine sites regulated by MSHA.	☐	Training is conducted by MSHA-approved instructors under MSHA-approved training plan.
Surface Miner Training – Annual Refresher (8 hours)	Y	Annual	You perform work at surface mine sites regulated by MSHA.	☐	Training is conducted by MSHA-approved instructors under MSHA-approved training plan.
Underground Miner Training – New (40 hours)	Y	Once	You perform work in underground mine sites regulated by MSHA.	☐	Training is conducted by MSHA-approved instructors under MSHA-approved training plan.
Underground Miner Training – Annual Refresher (8 hours)	Y	Annual	You perform work in underground mine sites regulated by MSHA.	☐	Training is conducted by MSHA-approved instructors under MSHA-approved training plan.
Vehicle Safety	N	Once	Required for employees who drive on company business.	☐	Authorized Drivers are those individuals permitted to drive URS-owned, -leased, or -rented vehicles, and employees who drive a personal vehicle for work purposes and are reimbursed for mileage. See SMS 057.
Waste Awareness	Y	Annual	You generate, handle, or manage hazardous waste at a fixed facility or field project.	☐	Available online through the URS LMS.
Waste Specialist	Y	Once with Annual Refresher	You are responsible for waste management at a small or large quantity generator facility.	☐	
Welding/Brazing/Cutting	Y		You job duties include these activities.	☐	
Workplace Hazardous Materials Information System (WHMIS)	Y		You are assigned to a Canadian facility and work with or around hazardous materials.	☐	Canadian Hazard Communications.

URS	Health, Safety and Environment **VEHICLE INSPECTION CHECKLIST**	Attachment 057-3 NA Issue Date: June 1999 Revision 10: September 2011

Make/Model/Plate #: _____ Inspector's Name: _____

Mileage: _____ Date: _____

ITEM INSPECTED	CHECK IF SATISFACTORY	COMMENTS
Vehicle Registration	☐	
Insurance Information	☐	
Tires (Tread Depth, Inflation)	☐	
Spare Tire	☐	
Shocks	☐	
Exhaust System	☐	
Engine	☐	
Steering	☐	
Horn	☐	
Mirrors	☐	
First Aid Kit	☐	
Fire Extinguisher	☐	
Brakes	☐	
Parking Brake	☐	
Windshield Wipers	☐	
Windshield	☐	
Washers	☐	
Headlights (High, Low)	☐	
Turn Signals	☐	
Brake Lights	☐	
Back-up Lights	☐	
Instrument Lights	☐	
Tail Lights	☐	
Body Condition	☐	
Back-up Alarm	☐	
Ice Scraper	☐	
Spare Tire	☐	
Clutch	☐	
Safety Restraints	☐	
Fluids	☐	
Engine Oil	☐	
Brake Fluid	☐	
Transmission Fluid	☐	
Engine Coolant	☐	
Washer Fluid	☐	
Power Steering Fluid	☐	

Attachment B

URS Corporation

WORK STATUS REPORT

Employer Copy

TYPE OF EXAMINATION: URS Corp - Periodic Exam

EMPLOYEE:	**Abrams, Gregory**	**COMPANY:**	**URS IE**
SSN:	**XXX-XX-3701**	**POSITION:**	**Geophysicist**
DATE OF EXAM:	**09/18/14**	**LOCATION:**	**URS IE-Gaithersburg**
EXPIRATION DATE:	**09/18/16**	**SITE:**	

The following recommendations are based on a review of one or all of the following: a base history questionnaire, supporting diagnostic tests, physical examination, and the essential functions of the position applied for or occupied by the individual named above.

	Yes	No	Undecided
Has the employee any detected medical conditions that would increase his/her risk of material health impairment from occupational exposure in accordance with 29 CFR §1910.120?	☐	☒	☐
Does the employee have any limitations in the use of respirators in accordance with 29 CFR §1910.134?	☐	☒	☐

STATUS

1. ☒ **QUALIFIED** The examination indicates no significant medical condition. Employee can be assigned any work consistent with skills and training.

2. ☐ **QUALIFIED - WITH LIMITATIONS** The examination indicates that a medical condition currently exists that limits work assignments on the following basis:

3. ☐ **NOT QUALIFIED**

4. ☐ **DEFERRED** The examination indicated that additional information is necessary. The employee has been given the following instructions.

COMMENTS:

I have reviewed the medical data of the above named employee, and informed the employee of the results of the medical examination and any medical conditions that require follow-up examination or treatment.

Name of Physician: Peter P. Greaney, M.D. Date: 09/23/14

Signature: Peter P Greaney MD

300 S. Harbor Blvd., Suite 600, Anaheim, CA 92805 • (714) 978-7488 • (800) 455-6155 • FAX (714) 456-2154

AECOM

Certificate of Completion

Awarded to

Greg Abrams

For successful completion of

2015 HAZWOPER Refresher

Has completed eight hours of annual refresher training for hazardous waste/materials workers under OSHA 29 CFR 1910.120.

on 22-JUN-2015

Lorna R. Simon

Lorna Simon
Senior Director
AECOM Talent Management & Development
Americas Design & Consulting Services

Jeff Kleinfelter
Vice President, Corporate SH&E Deputy
Director of Training and Development

IN THAT EACH STATE HAS ITS OWN CRITERIA FOR WHAT CONSTITUTES ACCEPTABLE COURSE CONTENT AND LENGTH, YOU WILL NEED TO DETERMINE IF THE CRITERIA OF THE CERTIFYING ENTITIES NOTED ABOVE WILL BE ACCEPTED IN RESPECTIVE STATES.

State of Louisiana

BOARD OF PROFESSIONAL GEOSCIENTISTS

In accordance with the provisions of the Louisiana Professional Geoscience Practice Act, the Louisiana Board of Professional Geoscientists hereby certifies that the individual named here has met all qualifications for and has been duly licensed as a Professional Geoscientist.

GREGORY M. ABRAMS

LICENSEE NAME

LICENSE # 235

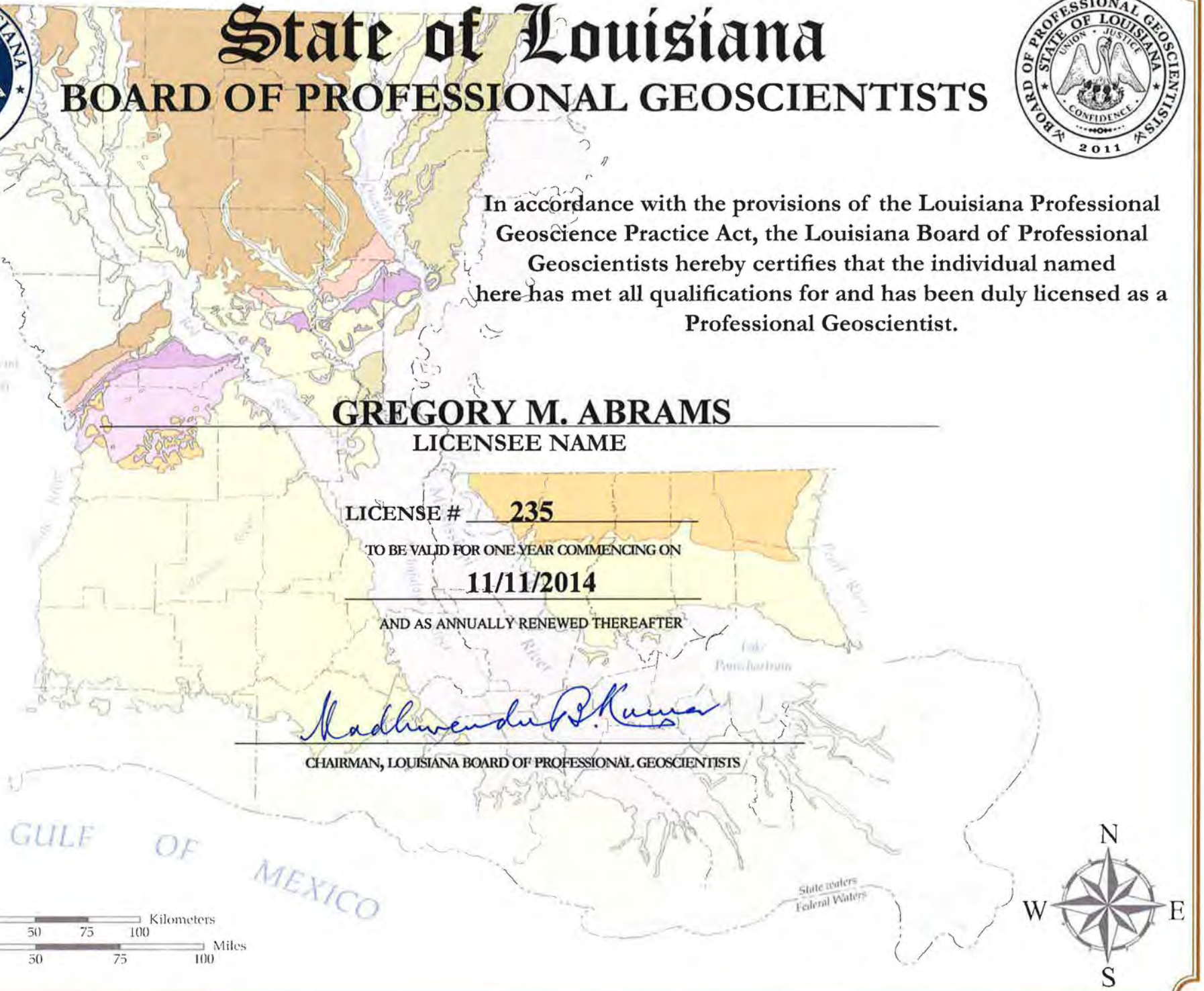
TO BE VALID FOR ONE YEAR COMMENCING ON

11/11/2014

AND AS ANNUALLY RENEWED THEREAFTER

Madhuvendu B. Kumar

CHAIRMAN, LOUISIANA BOARD OF PROFESSIONAL GEOSCIENTISTS



Certificate of Completion

360training.com™

This Certifies That

Greg M Abrams

is awarded this certificate for

OSHA - 10 Hour Construction Industry Outreach

Credit Hours: 10

Completion Date: 03/14/2013 07:47 CST

Marie Athey

Marie Athey, Trainer C 0026383 and G 0034871

"As an OSHA authorized trainer, I verify that I have conducted this OSHA outreach training class in accordance with OSHA Outreach Training Program requirements. I will document this class to my authorizing OSHA training organization. Upon successful review of my documentation, I will provide each student their completion card within 90 days of the end of the class."

360training.com ♦ 13801 Burnet Rd., Suite 100 ♦ Austin, TX 78727 ♦ 888-360-TRNG ♦ www.360training.com

American Red Cross

Greg Abrams

has successfully completed requirements for

Adult First Aid/CPR/AED: valid 2 Years

Date Completed: 12/07/2015

conducted by: American Red Cross

Instructor: Morrisa Arnett Hargrove

Francisca Salazar-Cruz

ID: GSKGFL

Scan code or visit:

redcross.org/confirm

ALL AMERICAN ENVIRONMENTAL SERVICES, INC.

This is to certify that

GREGORY M. ABRAMS

has successfully completed

"HAZARDOUS WASTE SITE WORKER" 40-HOUR COURSE
SATISFYING OSHA 29 CFR 1910.120 (e) (3) (i)

at

ALL AMERICAN SCHOOL OF OCCUPATIONAL SAFETY AND HEALTH
COLUMBIA, MARYLAND

January 7-11, 2008
40S-0801A

School Director

URS Corporation

WORK STATUS REPORT

Employer Copy

TYPE OF EXAMINATION: URS Corp - Periodic Exam

EMPLOYEE:	**Salvatore, Amibeth**	**COMPANY:**	**URS IE**
SSN:	**XXX-XX-5023**	**POSITION:**	**Environmental Scientist**
DATE OF EXAM:	**03/03/15**	**LOCATION:**	**URS IE-Gaithersburg**
EXPIRATION DATE:	**03/03/16**	**SITE:**	

The following recommendations are based on a review of one or all of the following: a base history questionnaire, supporting diagnostic tests, physical examination, and the essential functions of the position applied for or occupied by the individual named above.

	Yes	No	Undecided
Has the employee any detected medical conditions that would increase his/her risk of material health impairment from occupational exposure in accordance with 29 CFR §1910.120?	☐	☒	☐
Does the employee have any limitations in the use of respirators in accordance with 29 CFR §1910.134?	☐	☒	☐

STATUS

1. ☒ **QUALIFIED** The examination indicates no significant medical condition. Employee can be assigned any work consistent with skills and training.

2. ☐ **QUALIFIED - WITH LIMITATIONS** The examination indicates that a medical condition currently exists that limits work assignments on the following basis:

3. ☐ **NOT QUALIFIED**

4. ☐ **DEFERRED** The examination indicated that additional information is necessary. The employee has been given the following instructions.

COMMENTS:

I have reviewed the medical data of the above named employee, and informed the employee of the results of the medical examination and any medical conditions that require follow-up examination or treatment.

Name of Physician: Peter P. Greaney, M.D. Date: 03/06/15

Signature: Peter P Greaney MD

300 S. Harbor Blvd., Suite 600, Anaheim, CA 92805 • (714) 978-7488 • (800) 455-6155 • FAX (714) 456-2154

TRAINING CERTIFICATION

In Compliance with OSHA 29 CFR 1910.120

Amibeth Sheridan

has successfully completed a training course entitled:

40-hour Hazardous Waste Site Worker

Certificate Expires:

08/12

(illegible signature)

School Director

ALL AMERICAN
ENVIRONMENTAL
SERVICES, INC.

1-800-777-8474

AECOM

Certificate of Completion

Awarded to

Amibeth Salvatore

For successful completion of

2015 HAZWOPER Refresher

Has completed eight hours of annual refresher training for hazardous waste/materials workers under OSHA 29 CFR 1910.120.

on 15-JUL-2015

Lorna Simon
Senior Director
AECOM Talent Management & Development
Americas Design & Consulting Services

Jeff Kleinfelter
Vice President, Corporate SH&E Deputy
Director of Training and Development

IN THAT EACH STATE HAS ITS OWN CRITERIA FOR WHAT CONSTITUTES ACCEPTABLE COURSE CONTENT AND LENGTH. YOU WILL NEED TO DETERMINE IF THE CRITERIA OF THE CERTIFYING ENTITIES NOTED ABOVE WILL BE ACCEPTED IN RESPECTIVE STATES.

Certificate of Completion

This is to certify that:

Amibeth Sheridan

HAZWOPER Supervisor Training
successfully completed

Course ID - OSH01
Version - 2012
Offering - 00003679

Has completed eight hours of training for management/supervisor requirements for hazardous waste/materials workers under OSHA 29 CFR 1910.120.

taught by

Millard Griffin

conducted on

June 27, 2012, HSE Seminar

URS Health, Safety & Environment

Phillip L. Jones, M.S., C.I.H,
Vice President Health, Safety, and Environment
URS Infrastructure and Environment

American Red Cross

Amibeth Salvatore

has successfully completed requirements for

Adult First Aid/CPR/AED: valid 2 Years

Date Completed: 12/07/2015

conducted by: American Red Cross

Instructor: Morrisa Arnett Hargrove

Francisca Salazar Cruz

ID: GSKG8Y

Scan code or visit:

redcross.org/confirm

JKO

JOINT KNOWLEDGE ONLINE

Amibeth Salvatore

has successfully completed

JS-US007 Level I Antiterrorism Awareness Training

10/29/2015

J.D. Camacho, GS-15
Chief, Joint Knowledge Online Division
Deputy Director Joint Training, JS J7

CENTER FOR DEVELOPMENT OF SECURITY EXCELLENCE

Certificate of Training

Open eLearning

AMIBETH SALVATORE

has successfully completed

OPSEC AWARENESS FOR MILITARY MEMBERS, DOD EMPLOYEES AND CONTRACTORS

10/29/2015

Learn. Perform. Protect.

BRIAN K. MILLER
Chief of Training Division

Naval School
Explosive Ordnance Disposal

This is to certify that

PR3 Michael P. Shoop, USN

has successfully completed the

Basic EOD Course

Navy (CIN A-431-0011)
Class 02030N

In witness thereof this certificate has been signed and given under my hand at
Naval School Explosive Ordnance Disposal, Eglin AFB, Florida

This 31st day of January in the Year of Our Lord, Two Thousand Three

Commanding Officer

SAFETY UNLIMITED, INC.
OSHA Compliant Safety Training & Consulting
690A East Los Angeles Ave.Suite. 180 Agoura Hills , CA 91301
888 309-7233 * 805 306-8027 * 805 526-0377
www.SafetyUnlimited.com

Certifies that

MICHAEL SHOOP

has successfully completed

0SHA 40 Hour HAZWOPER Training

In Accordance With Federal OSHA Regulation 29 CFR 1910.120(e)

Julius P. Griggs
Julius P. Griggs
Instructor #892

4/14/2006
Issue Date

06041414823
Certificate Number

TO VERIFY THE VALIDITY OF THIS CERTIFICATE, go to www.SafetyUnlimited.com/certificate.htm

AECOM

Certificate of Completion

Awarded to

Mike Shoop

For successful completion of

2015 HAZWOPER Refresher

Has completed eight hours of annual refresher training for hazardous waste/materials workers under OSHA 29 CFR 1910.120.

on 10-MAR-2015

Lorna R. Simon

Lorna Simon
Senior Director
AECOM Talent Management & Development
Americas Design & Consulting Services

Jeff Kleinfelter
Vice President, Corporate SH&E Deputy
Director of Training and Development

IN THAT EACH STATE HAS ITS OWN CRITERIA FOR WHAT CONSTITUTES ACCEPTABLE COURSE CONTENT AND LENGTH, YOU WILL NEED TO DETERMINE IF THE CRITERIA OF THE CERTIFYING ENTITIES NOTED ABOVE WILL BE ACCEPTED IN RESPECTIVE STATES

Striving towards an injury-free workplace

Health, Safety, & Environment

8-Hour Supervisor

This certifies that

Michael P Shoop

has completed eight hours of training toward fulfillment of management/supervisor requirements for hazardous waste/ materials workers under OSHA 29 CFR 1910.120.

Course Date: 9/30/2008

Course Location: Web Seminar

Serial Number: 08-290

Phillip L. Jones, M.S., C.I.H.
Vice President – URS Health, Safety, & Environment

Health, Safety, & Environment

URS

Quality Training: When you want it, where you want it.

ProFirstAid®

a ProTrainings.com company

This card certifies that the individual has successfully completed the National Cognitive Evaluation in accordance with ProTrainings Curriculum and the American Heart Association® guidelines

MIKE SHOOP

has completed Adult and Pediatric CPR & First Aid (AED inclusive) Certification

Date Issued: **18 Oct 2015** Renew By: **18 Oct 2017**

Certificate # **14451950273650**

This Certification includes the following objectives and is consistent with national consensus 2010 ECC/ILCOR and American Heart Association® Guidelines.

- Adult, Child, Infant CPR
- AED
- Bleeding Control
- Musculoskeletal Injuries
- Poisoning
- Shock Management
- Breathing Emergencies
- Heart Attack
- Choking, Conscious and Unconscious
- Universal Precautions
- Diabetic Emergencies
- Stroke
- Burns
- Bites and Stings
- Allergic Reactions
- Seizures
- Heat and Cold Emergencies

Instructor: ROY W. SHAW

888-406-7487 www.profirstaid.com support@protrainings.com

Dear Mike,

Above you will find your ProFirstAid certification card. You may also access this page at a later time by logging into www.profirstaid.com and clicking the Print Certificate button.

You will also receive a permanent copy of your card in the mail 5-7 business days after the date of purchase.

Below is the mailing address to which we will mail your card.
If there are any problems with any part of this card or address please let us know

ProTrainings Customer Solutions Mon - Fri, 9am - 8pm EST
Phone: 888-406-7487
Email: support@protrainings.com

MIKE SHOOP
801 SHELBY AVE
NASHVILLE, TN 37206-3733
US

URS Corporation

WORK STATUS REPORT

Employer Copy

TYPE OF EXAMINATION: **URS Corp - Periodic Exam**

EMPLOYEE:	**Shoop, Michael**	**COMPANY:**	**URS IE**
		POSITION:	**UXO Technician**
DATE OF EXAM:	**06/26/15**	**LOCATION:**	**URS IE-Omaha**
EXPIRATION DATE:	**06/26/17**	**SITE:**	**Franklin**

The following recommendations are based on a review of one or all of the following: a base history questionnaire, supporting diagnostic tests, physical examination, and the essential functions of the position applied for or occupied by the individual named above.

	Yes	No	Undecided
Has the employee any detected medical conditions that would increase his/her risk of material health impairment from occupational exposure in accordance with 29 CFR §1910.120?	☐	☒	☐
Does the employee have any limitations in the use of respirators in accordance with 29 CFR §1910.134?	☐	☒	☐

STATUS

1. ☒ **QUALIFIED** The examination indicates no significant medical condition. Employee can be assigned any work consistent with skills and training.

2. ☐ **QUALIFIED - WITH LIMITATIONS** The examination indicates that a medical condition currently exists that limits work assignments on the following basis:

3. ☐ **NOT QUALIFIED**

4. ☐ **DEFERRED** The examination indicated that additional information is necessary. The employee has been given the following instructions.

COMMENTS:

I have reviewed the medical data of the above named employee, and informed the employee of the results of the medical examination and any medical conditions that require follow-up examination or treatment.

Name of Physician: Peter P. Greaney, M.D. Date: 07/02/15

Signature: Peter P Greaney MD

300 S. Harbor Blvd., Suite 600, Anaheim, CA 92805 • (714) 978-7488 • (800) 455-6155 • FAX (714) 456-2154

Attachment C

Attachment C

1. Unleaded Gasoline Safety Data Sheet
2. Ultra-Low Sulfur Diesel Fuel #2 Safety Data Sheet
3. Liquinox Safety Data Sheet

CHEVRON -- UNLEADED GASOLINE, CPS201110 -- 9130-00N018990

========== Product Identification ==========

Product ID:UNLEADED GASOLINE, CPS201110
MSDS Date:03/06/1991
FSC:9130
NIIN:00N018990
MSDS Number: CFZGX
=== Responsible Party ===
Company Name:CHEVRON
Box:4054
City:RICHMOND
State:CA
ZIP:94804
Country:US
Info Phone Num:800-582-3835
Emergency Phone Num:800-582-3835
CAGE:0AHD1
=== Contractor Identification ===
Company Name:CHEVRON ENVIRONMENTAL HEALTH CENTER INC
Address:15299 SAN PABLO AVE
Box:4054
City:RICHMOND
State:CA
ZIP:94804
Country:US
Phone:800-582-3835
CAGE:0AHD1

========== Composition/Information on Ingredients ==========

Ingred Name:ING 12:BE EPIGENETIC PROCESS UNIQUE TO FEMALE MOUSE. INHAL
EXPOS TO WHOLE GAS VAP ALSO CAUSED KIDNEY DMG & (ING 14)
RTECS #:9999999ZZ

Ingred Name:ING 13:EVENTUALLY KIDNEY CANCER IN MALE RATS. NOTE:TOLUENE
APPEARS ON NAVY LIST OF OCCUP CHEM REPRO HAZS. SEEK (ING 15)
RTECS #:9999999ZZ

Ingred Name:ING 14:CONSULTATION FROM APPROP HLTH PROFESSIONALS
CONCERNING LATEST HAZ LIST INFO & SAFE HNDLG & EXPOS INFO (ING 16)
RTECS #:9999999ZZ

Ingred Name:ING 15:. FOR MORE COMPLETE INFORMATION, CONTACT NEHC .
RTECS #:9999999ZZ

Ingred Name:FIRST AID PROC:OBTAINED, THEN TAKE PERS & PROD CNTNR TO
NEAREST MED EMER TREATMENT CENTER/HOSPITAL. NOTE TO MD: (ING 18)
RTECS #:9999999ZZ

Ingred Name:ING 17:INGESTION OF THIS PRODUCT OR SUBSEQUENT VOMITING CAN
RESULT IN ASPIRATION WHICH CAN CAUSE PNEUMONITIS.
RTECS #:9999999ZZ

Ingred Name:SPILL PROC:REPORTING SPILLS OF THIS MATL THAT COULD REACH
ANY SURF WATERS. TOLL FREE NUMBER FOR U.S. COAST GUARD(ING 20)
RTECS #:9999999ZZ

Ingred Name:ING 19:NATIONAL RESPONSE CENTER IS (800) 424-8802.
RTECS #:9999999ZZ

Ingred Name:WASTE DISP METH:CONTAM MATLS IN DISPOSABLE CNTNRS & DISPOSE
OF IN A MANNER CONSISTENT W/APPLIC REGS. CONT LOC (ING 22)
RTECS #:9999999ZZ

Ingred Name:ING 21:ENVIRONMENTAL OR HEALTH AUTHORITIES FOR APPROVED
DISPOSAL OF THIS MATERIAL.
RTECS #:9999999ZZ

Ingred Name:ING 11:LIVER TUMORS IN FEMALE MICE. MECHANISM OF THIS
RESPONSE IS STILL BEING INVESTIGATED BUT IT IS THOUGHT TO (ING 13)
RTECS #:9999999ZZ

Ingred Name:GASOLINE
CAS:8006-61-9
RTECS #:LX3300000
Fraction by Wt: 100%
OSHA PEL:300 PPM
ACGIH TLV:300 PPM;500 STEL

Ingred Name:BENZENE, ETHYL-; (ETHYLBENZENE) (SARA 313)
CAS:100-41-4
RTECS #:DA0700000
Fraction by Wt: <1.4%
OSHA PEL:100 PPM
ACGIH TLV:100 PPM;125 STEL
EPA Rpt Qty:1000 LBS
DOT Rpt Qty:1000 LBS

Ingred Name:P-XYLENE; (P-DIMETHYLBENZENE) (SARA 313) (CERCLA)
CAS:106-42-3
RTECS #:ZE2625000
Fraction by Wt: <0.9%
OSHA PEL:100 PPM
ACGIH TLV:100 PPM;150 STEL
EPA Rpt Qty:1000 LBS
DOT Rpt Qty:1000 LBS

Ingred Name:M-XYLENE; (M-DIMETHYLBENZENE) (SARA 313) (CERCLA)
CAS:108-38-3
RTECS #:ZE2275000
Fraction by Wt: <4.6%
OSHA PEL:100 PPM
ACGIH TLV:100 PPM;150 STEL
EPA Rpt Qty:1000 LBS
DOT Rpt Qty:1000 LBS

Ingred Name:O-XYLENE; (O-DIMETHYLBENZENE) (SARA 313) (CERCLA)
CAS:95-47-6
RTECS #:ZE2450000
Fraction by Wt: <2.2%
OSHA PEL:100 PPM
ACGIH TLV:100 PPM;150 STEL
EPA Rpt Qty:1000 LBS
DOT Rpt Qty:1000 LBS

Ingred Name:TOLUENE (SARA 313) (CERCLA)
CAS:108-88-3

RTECS #:XS5250000
Fraction by Wt: <6.5%
OSHA PEL:200 PPM
ACGIH TLV:50 PPM, S
EPA Rpt Qty:1000 LBS
DOT Rpt Qty:1000 LBS

Ingred Name:HEXANE; (N-HEXANE) (CERCLA)
CAS:110-54-3
RTECS #:MN9275000
Fraction by Wt: <3%
OSHA PEL:500 PPM
ACGIH TLV:50 PPM
EPA Rpt Qty:1 LB
DOT Rpt Qty:1 LB

Ingred Name:CYCLOHEXANE (SARA 313) (CERCLA)
CAS:110-82-7
RTECS #:GU6300000
Fraction by Wt: <2.4%
OSHA PEL:300 PPM
ACGIH TLV:300 PPM
EPA Rpt Qty:1000 LBS
DOT Rpt Qty:1000 LBS

Ingred Name:METHYL TERT-BUTYL ETHER (SARA 313) (CERCLA)
CAS:1634-04-4
RTECS #:KN5250000
Fraction by Wt: <15%
OSHA PEL:N/K
ACGIH TLV:N/K
EPA Rpt Qty:1 LB
DOT Rpt Qty:1 LB

Ingred Name:BENZENE (SARA 313) (CERCLA). OSHA PEL:1 PPM TWA; 5 PPM STEL
    (MFR).
CAS:71-43-2
RTECS #:CY1400000
Fraction by Wt: <4.9%
OSHA PEL:SEE INGREDIENT
ACGIH TLV:10 PPM
EPA Rpt Qty:10 LBS
DOT Rpt Qty:10 LBS

Ingred Name:SUPDAT:(CALLED ASPIR). CAN CAUSE SEV INJURY TO LUNGS &
    DEATH. LIFETIME INHAL OF WHOLE GAS VAP HAS CAUSED INCR (ING 12)
RTECS #:9999999ZZ

========== Hazards Identification ==========

LD50 LC50 Mixture:LD50:(ORAL,RAT) >5 ML/KG.
Routes of Entry: Inhalation:YES Skin:YES Ingestion:YES
Reports of Carcinogenicity:NTP:YES   IARC:YES   OSHA:YES
Health Hazards Acute and Chronic:EYE CONT:SLIGHTLY IRRIT & COULD CAUSE
    PRLNG (DAYS) IMPAIRMENT OF VISION. SIGNS & SYMPS MAY INCL PAIN,
    TEARS, SWELL, REDNESS & BLURRED VISION. VAPS, FUMES/SPRAY MIST
    COULD ALSO CAUSE SIMILAR SIGNS & SY MPS. SKIN IRRIT:RPTD CONT MAY
    CAUSE SKIN TO CRACK/DRY FROM DEFAT ACTION. INHAL:SLIGHTLY TOX.
    TARGET (EFTS OF OVEREXP)
Explanation of Carcinogenicity:BENZENE:IARC MONOGRAPHS, SUPP, VOL 7, PG

120, 1987:GRP 1. NTP 7TH ANNUAL RPT ON CARCINS, 1994:KNOWN TO BE (SUPP DATA)
Effects of Overexposure:HLTH HAZ:ORGAN:NERV SYS. CONCS >1000 PPM MAY CAUSE CNS EFTS SUCH AS HDCH, DIZZ, LOSS OF APPETITE, WEAK & LOSS OF COORD. CONCS >5000 PPM MAY CAUSE LOSS OF CONSCIOUSNESS, COMA & DEATH. INGEST:SLIGHTLY T OX IF SWALLOWED. TARGET ORGAN:NERV SYS.SIGNS & SYMPS OF CNS EFTS MAY INCL HDCH, DIZZ, LOSS OF APPETITE, WEAK & (SUPDAT)
Medical Cond Aggravated by Exposure:NONE SPECIFIED BY MANUFACTURER.

========== First Aid Measures ==========

First Aid:EYES:FLUSH IMMED W/FRESH WATER FOR AT LST 15 MINS WHILE HOLDING LIDS OPEN. REMOVE CONT LENSES IF WORN. IF IRRIT PERSISTS, SEE MD. SKIN:WASH THORO W/SOAP & WATER. REMOVE & WASH CONTAM CLTHG. INHAL:MOVE TO FRESH AIR. IF ANY EFTS CONTINUE, SEE MD. INGEST:GIVE WATER/MILK TO DRINK & TELEPHONE FOR MED ADVICE. DO NOT MAKE PERS VOMIT UNLESS DIRECTED TO DO SO BY MED PERS. IF MED ADVICE CANNOT BE (ING 17)

========== Fire Fighting Measures ==========

Flash Point Method:PMCC
Flash Point:<-49F,<-45C
Lower Limits:1.4%
Upper Limits:7.6%
Extinguishing Media:FIRE FIGHTING FOAM:ALCOHOL RESISTANT TYPE (AR). AFFF, CO*2, DRY CHEMICAL.
Fire Fighting Procedures:USE NIOSH APPROVED SCBA & FULL PROTECTIVE EQUIPMENT .
Unusual Fire/Explosion Hazard:EXTREME FIRE HAZ. LIQ VERY QUICKLY EVAPS, EVEN AT LOW TEMPS & FORMS VAP (FUMES) WHICH CAN CATCH FIRE & BURN W/EXPLO VIOLENCE. INVISIBLE VAP SPREADS (SUPP DATA)

========== Accidental Release Measures ==========

Spill Release Procedures:ELIM ALL SOURCES OF IGNIT. CLEAN UP SPILLS IMMED, OBSERVING PRECS IN PROT EQUIP SECTION. MATL IS CONSIDERED TO BE WATER POLLUTANT & RELS SHOULD BE PREVENTED FROM CONTAM SOIL & WATER & FROM ENTERING DR AINAGE & SEWER SYS. U.S.A. REGS REQ (ING 19)
Neutralizing Agent:NONE SPECIFIED BY MANUFACTURER.

========== Handling and Storage ==========

Handling and Storage Precautions:USE ONLY AS MOTOR FUEL. DO NOT USE FOR CLEANING, PRESS APPLIANCE FUEL/ANY OTHER SUCH USE. USE ONLY IN WELL VENTED AREA. KEEP OUT OF REACH OF CHILDREN.
Other Precautions:DO NOT USE/STORE NEAR FLAME, SPKS/HOT SURFS. KEEP CNTNR CLSD. DO NOT TRANSFER LIQ TO UNLABELED CNTNR. DO NOT WELD, HEAT/DRILL CNTNR. REPLACE CAP/BUNG. EMPTIED CNTNR STILL CNTNS HAZ/EXPLO VAP/LIQ. READ & OBSERVE ALL PRECS ON PROD LABEL.

========== Exposure Controls/Personal Protection ==========

Respiratory Protection:NO SPECIAL PROTECTION IS NORMALLY REQUIRED. HOWEVER, IF OPERATING CONDITIONS CREATE AIRBORNE CONCENTRATIONS WHICH EXCEED RECOMMENDED EXPOSURE STANDARDS, USE OF A NIOSH APPROVED RESPIRATOR IS REQUIRED.
Ventilation:USE ONLY IN WELL VENTILATED AREAS.

Protective Gloves:IMPERVIOUS GLOVES .
Eye Protection:ANSI APPROVED CHEM WORKERS GOGGS .
Other Protective Equipment:ANSI APPROVED EYE WASH FOUNTAIN & DELUGE SHOWER . CONTACT CAN BE MINIMIZED BY WEARING PROTECTIVE CLOTHING.
Work Hygienic Practices:NONE SPECIFIED BY MANUFACTURER.
Supplemental Safety and Health
EXPLO HAZ:EASILY & CAN BE SET ON FIRE BY MANY SOURCES SUCH AS PILOT LIGHTS, WELDING EQUIP & ELEC MOTORS & SWITCHES. EXPLAN OF CARCIN:CARCIN. OSHA REGULATED:29 CFR 1910.1028. HUMAN:MYELOID LEUKEMIA, HO DGKINS DISEASE, LYMPHOMA. EFTS OF OVEREXP:LOSS OF COORD. SUBSTANCE CAN DIRECTLY ENTER LUNGS IF IT IS SWALLOWED (ING 11)

========== Physical/Chemical Properties ==========

Boiling Pt:B.P. Text:>77F,>25C
Vapor Pres:5-15 @100F
Vapor Density:3-4
Spec Gravity:0.7-0.8
Solubility in Water:INSOLUBLE
Appearance and Odor:ORANGE TO BRONZE LIQUID.
Percent Volatiles by Volume:>99

========== Stability and Reactivity Data ==========

Stability Indicator/Materials to Avoid:YES
MAY REACT W/STRONG OXIDIZING AGENTS, SUCH AS CHLORATES, NITRATES, PEROXIDES, ETC.
Stability Condition to Avoid:NEVER SIPHON GASOLINE BY MOUTH.
Hazardous Decomposition Products:NORMAL COMBUSTION FORMS CARBON DIOXIDE & WATER VAPOR; INCOMPLETE COMBUSTION CAN PRODUCE CARBON MONOXIDE.

========== Disposal Considerations ==========

Waste Disposal Methods:DISP MUST BE I/A/W FED, STATE & LOC REGS . CLEAN UP SM SPILLS USING APPROP TECHNIQUES SUCH AS SORBENT MATLS/PUMPING. WHERE FEASIBLE & APPROP, REMOVE CONTAM SOIL. FOLLOW PRESCRIBED PROCS FOR REPO RTING & RESPONDING TO LGR RELS. PLACE (ING 21)

24-HOUR EMERGENCY TELEPHONE

SPRAGUE: 603-431-1000 CHEMTREC: 800-424-9300

SDS – SAFETY DATA SHEET

1. Identification

Product Identifier: ULTRA LOW SULFUR DIESEL FUEL # 2
Synonyms: HIGHWAY DIESEL FUEL OIL, #2, FUEL OIL (ULTRA LOW SULFUR DIESEL)
Chemical Formula: Not applicable to mixtures
Recommended Use of the Chemical and Restrictions On Use: Fuel
Manufacturer / Supplier: Sprague Operating Resources LLC **Phone:** 603-431-1000
185 International Drive, Portsmouth, NH 03801
Emergency Phone Number: SPRAGUE: 603-431-1000; CHEMTREC: 800-424-9300

2. Hazard(s) Identification

Classification of the Substance or Mixture:
Flammable Liquids - Category 4
Carcinogenicity - Category 2
Specific Target Organ Toxicity (Single Exposure) – Category 3
Aspiration Hazard – Category 1
Acute Aquatic Toxicity – Category 3

Risk Phrases:
R40: Limited evidence of a carcinogenic effect.
R52: Harmful to aquatic organisms.
R65: Harmful: may cause lung damage if swallowed.
R67: Vapors may cause drowsiness and dizziness.

Label Elements:

Trade Name: ULTRA LOW SULFUR DIESEL FUEL # 2

Signal Word: Warning

Hazard Statements:
H227: Combustible liquid.
H304: May be fatal if swallowed and enters airways.
H336: May cause drowsiness or dizziness.
H351: Suspected of causing cancer.
H402: Harmful to aquatic life.

Precautionary Statements:
P261: Avoid breathing dust / fume / gas / mist / vapors / spray.
P281: Wear protective equipment as required.
P301 + 310: IF SWALLOWED: Immediately call a POISON CENTER or doctor / physician.
P331: Do NOT induce vomiting.

3. Composition / Information on Ingredients

CAS Number: Not applicable to mixtures
EC Number: Not applicable to mixtures
Index Number: Not applicable to mixtures
Molecular Weight: Not applicable to mixtures

Ingredient	CAS Number	Percent	Hazardous	Chemical Characterization
Fuel, Diesel	68476-34-6	99%	Yes	Substance
Polycyclic Hydrocarbons	08-007-452	< 1%	Yes	Substance

4. First-aid Measures

Inhalation: Remove from vapor to fresh air. If breathing has stopped, give artificial respiration. Get medical Immediately.

Ingestion: DO NOT INDUCE VOMITING or give anything by mouth to an unconscious person. If more than 1 mg/kg of petroleum distillates are swallowed, remove by gastric ravage by qualified medical personnel. If vomiting occurs, keep person's head lower than hips to help prevent pulmonary aspiration. After vomiting stops, give 30-60 ml of Fleet's Phosphor-Soda diluted 1:4 in water. Get medical attention immediately.

Skin Contact: Remove contaminated clothing. Wipe off excess oil with a dry cloth and then wash affected area with soap or mild detergent and large amounts of water until no evidence of chemical remains (approximately 15-20 minutes.) If irritation develops, seek medical aid.

Eye Contact: Check for and remove any contact lenses. Flush eyes immediately with large amounts of water, occasionally lifting upper and lower lids until no evidence of chemical remains (approximately 15-20 minutes). Get medical attention if symptoms occur.

5. Fire-fighting Measures

Fire: Flammable Liquid and Vapor!

Explosion: Do not mix or store with strong oxidants. Do not store or pour near sources of ignition. Do not pressurize, cut, heat, weld, or expose empty containers to sources of ignition. Vapors are heavier than air and may travel a considerable distance to a source of ignition and flash back.

Fire Extinguishing Media*:* Foam, Carbon Dioxide, Dry Chemical, and for larger fires, Water Spray, Fog, or Foam.

Special Information: Use supplied-air breathing equipment for enclosed areas. Cool exposed containers with water spray. Continue water spray until entire container contents are cool. Withdraw immediately in the event of rising sound from venting safety device or any discoloration of storage tank due to fire (subject to the fire chief's directions.)

6. Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment as per Section 8.

Environmental Precautions and Methods and Materials for Containment and Cleaning Up: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Observe local, state and federal governmental spill and water quality regulations.

If properly trained, proceed with the following measures:

1. For small spills: Stop leak if without risk. Move containers from spill area. take up with sand or other absorbent material and place into containers for alter disposal.
2. For large spills: Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Dike far ahead of spill to prevent entrance into watercourses and / or ground water.

Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product.

7. Handling and Storage

Precautions for Safe Handling and Conditions for Safe Storage, Including Any Incompatibilities:

Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Use appropriate containment to avoid environmental contamination.

8. Exposure Controls / Personal Protection

Airborne Exposure Limits:
ACGIH Threshold Limit Value (TWA): 100 mg/m3 (measured as total hydrocarbons) 8 h (skin)

Ventilation System: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved): A respirator is not needed under normal and intended conditions of use. If the exposure limit is exceeded and engineering controls are not feasible, use a mask with an organic vapor cartridge or positive pressure air supplied (SCBA) unit. Breathing air quality must meet the requirements of the OSHA respiratory protection standard (29CFR1910.134).

Skin Protection: Gloves – Neoprene, PVC. Disposable outer garments or impervious garments of equal or greater protection should be worn.

Eye Protection: Use chemical safety goggles and / or a full face shield where splashing is possible.

Hygiene Measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

9. Physical and Chemical Properties

Appearance: Clear, slightly viscous liquid
Odor: Gasoline-like, diesel fuel odor

Odor Threshold: Not determined
pH: No information found
% Volatiles by volume @ 21C (70F): Greater than 50%
Melting Point: Not determined
Boiling Point / Boiling Range: 200 - 350C (392 - 662F) at 1,013 hPa (750 mm Hg)
Flash Point: 50 - 80C (122 - 176F) Closed Cup
Evaporation Rate (BuAC=1): Not determined
Flammability: Combustible
Upper / Lower Flammability or Explosive Limits: Upper - 10.0 / Lower – 0.6
Vapor Pressure (mm Hg): 1 mm Hg @ 20C (68F)
Vapor Density (Air=1): Greater than 5
Relative Density: 0.86
Solubility: Insoluble
Partition Coefficient: n-octanol / water: Not determined
Auto-ignition Temperature: > 260C (500F)
Decomposition Temperature: Not determined
Viscosity: Not determined

10. Stability and Reactivity

Reactivity and / or Chemical Stability: Stable under ordinary conditions of use and storage at normal temperatures and pressures.

Possibility of Hazardous Reactions and Conditions to Avoid: Heat, flames, ignition sources and incompatibles.

Incompatible Materials: Reactive or incompatible with oxidizing materials.

Hazardous Decomposition Products: Thermal decomposition may release various hydrocarbons and hydrocarbon derivatives including carbon dioxide, water, organic acids, and aldehydes.

11. Toxicological Information

Emergency Overview: WARNING! COMBUSTIBLE. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. HARMFUL IF INGESTED. ASPIRATION HAZARD.

Combustible liquid. Keep away from heat, sparks and flame. Avoid exposure - obtain special instructions before use. Do not breathe vapor or mist. Do not ingest. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

Potential Health Effects:

Inhalation: Mist or vapor may cause respiratory tract irritation. CNS depressant. High levels may cause giddiness, headache, dizziness, nausea, vomiting, and loss of coordination, narcosis, stupor, coma, and unconsciousness.

Ingestion: Irritation, giddiness, vertigo, headache, anesthetic stupor, CNS depression, coma and death.

Skin Contact: Drying, cracking, and defatting dermatitis. Direct contact may cause extreme irritation with severe erythema and edema with blistering and open sores. Absorption of large amounts may result in narcosis.

Eye Contact: Moderately irritating to eyes.

Chronic Exposure:

Inhalation: Prolonged exposure may cause dizziness, weakness, weight loss, anemia, nervousness, and pain in the limbs, peripheral numbness, and paresthesia. Renal failure possible. Degenerative changes of liver and kidneys may occur after prolonged exposure to high concentrations.

Skin Contact: Repeated or prolonged exposure may cause irritation, dermatitis, and a rash of pimples and spots.

Carcinogenicity:
For Fuel, Diesel:
ACGIH: A3 - Animal carcinogen. “Available evidence suggests that the agent is not likely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure.”
IARC: 3 - The agent (mixture, exposure circumstance) is not classifiable as to its carcinogenicity to humans.

Reproductive Toxicity: This product is not reported to have any reproductive toxicity effects.

Specific Target Organ Toxicity - Single Exposure (Globally Harmonized System:) May cause drowsiness or dizziness.

Specific Target Organ Toxicity - Repeated Exposure (Globally Harmonized System:) No data available.

Aspiration Respiratory Organs Hazard: The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs,) severe lung damage, respiratory failure and even death.

Acute Toxicity: Oral LD50: > 5000 mg/kg (rat)

12. Ecological Information

Ecotoxicity: Very toxic to aquatic life with long lasting effects. 96 h LC50 Pimephales promelas - 35 mg/L (flow-through)

Persistence and Degradability: No information available

Bioaccumulative Potential: No information available

Mobility in Soil: No information available

Other adverse effects: No information available

13. Disposal Considerations

The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal should be in accordance with applicable regional, national, state, and local laws and regulations. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

14. Transport Information

Packing Group: III

DOT **IMDG** **IATA**

Land Transport ADR/RID and GGVS/GGVE (Cross Border / Domestic)
UN Number: UN1993
UN Proper Shipping Name: COMBUSTIBLE - LIQUID, N.O.S. (FUEL, DIESEL)
Transport Hazard Class(es): Combustible Liquid

Maritime Transport IMDG/GGVSea
UN Number: UN1202
UN Proper Shipping Name: FLAMMABLE LIQUID, N.O.S. (FUEL, DIESEL)
Not regulated if flashpoint is > 60C
Transport Hazard Class(es): 3
Marine Pollutant: Yes

Air Transport ICAO-TI and IATA-DGR
UN Number: UN1202
UN Proper Shipping Name: FLAMMABLE LIQUID, N.O.S. (FUEL, DIESEL)
Not regulated if flashpoint is > 60C
Transport Hazard Class(es): 3

Transport in Bulk according to Annex II of MARPOL 73/78 and the IBC Code

Special Precautions for User: No additional information

15. Regulatory Information

HCS Classification: Combustible liquid
Carcinogen

U.S. Federal Regulations:
TSCA 4(a) final test rules: No products listed.
TSCA 8(a) PAIR: No products listed.
United States inventory (TSCA 8b): All components are listed or exempted.
TSCA 12(b): No products listed.
SARA 302/304/311/312 extremely hazardous substances: No products listed.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: No products listed.
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: No products listed.
Clean Water Act (CWA) 307: Ethylbenzene
Clean Water Act (CWA) 311: Ethylbenzene
Clean Air Act (CAA) 112 accidental release prevention: No products were found.
Clean Air Act (CAA) 112 regulated flammable substances: No products listed.
Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

SARA 313
Form R – Reporting Requirements and Supplier Notification: No products listed.
SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State Regulations:
Connecticut Carcinogen Reporting: None of the components are listed.
Connecticut Hazardous Material Survey: None of the components are listed.
Florida substances: None of the components are listed.
Illinois Chemical Safety Act: None of the components are listed.
Illinois Toxic Substances Disclosure to Employee Act: None listed.
Louisiana Reporting: None of the components are listed.
Louisiana Spill: None of the components are listed.
Massachusetts Spill: None of the components are listed.
Massachusetts Substances: None of the components are listed.
Michigan Critical Material: None of the components are listed.
Minnesota Hazardous Substances: None of the components are listed.
New Jersey Hazardous Substances: The following components are listed: Diesel Fuel
New Jersey Spill: None of the components are listed.
New Jersey Toxic Catastrophe Prevention Act: None of the components are listed.
New York Acutely Hazardous Substances: None of the components are listed.
New York Toxic Chemical Release Reporting: None of the components are listed.

Pennsylvania RTK Hazardous Substances: None of the components are listed.
Rhode Island Hazardous Substances: None of the components are listed.

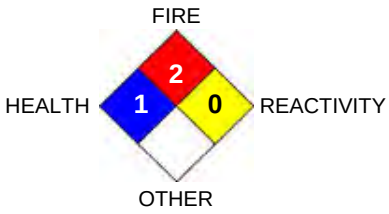
California Prop. 65 Ingredient Name	Cancer	Reproductive	No significant Risk Level	Maximum Acceptable Dosage Level
Ethylbenzene	Yes	No	No	No

International Lists: This product, (and its ingredients) is (are) listed on national inventories, or is (are) exempted from being listed, in Australia (AICS), in Europe (EINECS/ELINCS), in Korea (TCCL), in Japan (METI), in the Philippines (RA6969.)

16. Other Information

HMIS / NFPA Hazard Rating:

4=EXTREME
3= SERIOUS
2= MODERATE
1=SLIGHT
0=MINIMAL



Effective Date: 11/01/13 – Standardized for GHS and REACH
Previous Revisions: 11/02, 06/05, 10/08, 1/11

The information contained herein is based on data available at this time and is believed to be accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. Since information contained herein may be applied under conditions beyond our control and with which we may be unfamiliar, no responsibility is assumed for the results of its use. The person receiving this information shall make his / her own determination of the suitability of the material for his / her particular purposes.

MATERIAL SAFETY DATA SHEET

LIQUINOX®

Prepared to U.S. OSHA, CMA, ANSI, Canadian WHMIS, Australian WorkSafe, Japanese Industrial Standard JIS Z 7250:2000, and European Union REACH Regulations

ALCONOX

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME:	**LIQUINOX®**
CHEMICAL FAMILY NAME:	Detergent.
PRODUCT USE:	Critical-cleaning detergent for laboratory, healthcare and industrial applications
U.N. NUMBER:	Not Applicable
U.N. DANGEROUS GOODS CLASS:	Non-Regulated Material
SUPPLIER/MANUFACTURER'S NAME:	Alconox, Inc.
ADDRESS:	30 Glenn St., Suite 309, White Plains, NY 10603. USA
EMERGENCY PHONE:	**TOLL-FREE in USA/Canada** 800-255-3924
	International calls 813-248-0585
BUSINESS PHONE:	914-948-4040
DATE OF PREPARATION:	May 2011
DATE OF LAST REVISION:	February 2008

SECTION 2 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: This product is a pale yellow liquid no odor. Exposure can be irritating to eyes, respiratory system and skin. It is a non-flammable liquid. The Environmental effects of this product have not been investigated.

US DOT SYMBOLS	CANADA (WHMIS) SYMBOLS	EUROPEAN and (GHS) Hazard Symbols
Non-Regulated	Not Controlled	None

Signal Word: **Caution!**

EU LABELING AND CLASSIFICATION:

Classification of the substance or mixture according to Regulation (EC) No1272/2008 Annex 1
EC# 231-791-2 This substance is not classified in the Annex I of Directive 67/548/EEC
EC# 268-356-1 This substance is not classified in the Annex I of Directive 67/548/EEC
CAS# 84133-50-6 Not Listed in EU Chemical Inventory
EC# 232-483-0 This substance is not classified in the Annex I of Directive 67/548/EEC
EC# 215-090-9 This substance is not classified in the Annex I of Directive 67/548/EEC
EC# 241-543-5 This substance is not classified in the Annex I of Directive 67/548/EEC

GHS Hazard Classification(s):
None

Hazard Statement(s):
None

Precautionary Statement(s):
P264: Wash hands thoroughly after handling
P271: Use only in well ventilated area.

Hazard Symbol(s):
Not Classified

Risk Phrases:
None

Safety Phrases:
S24/25: Avoid contact with skin and eyes

HEALTH HAZARDS OR RISKS FROM EXPOSURE:

ACUTE: Exposure to this product may cause irritation of the eyes, respiratory system and skin. Ingestion may cause gastrointestinal irritation including pain, vomiting or diarrhea.

CHRONIC: This product contains an ingredient which may be corrosive.

TARGET ORGANS: ACUTE: Eye, respiratory System, Skin CHRONIC: None Known

SECTION 3 - COMPOSITION and INFORMATION ON INGREDIENTS

HAZARDOUS INGREDIENTS:	CAS #	EINECS #	ICSC #	WT %	HAZARD CLASSIFICATION; RISK PHRASES
Water	7732-18-5	231-791-2	Not Listed	40 – 60%	HAZARD CLASSIFICATION: None RISK PHRASES: None
Sodium (C10 – C16) Alkylbenzene Sulfonate	68081-81-2	268-356-1	Not Listed	10 – 20%	HAZARD CLASSIFICATION: None RISK PHRASES: None
Alcohol Ethoxylate	84133-50-6	Not Listed	Not Listed	1 – 5%	HAZARD CLASSIFICATION: None RISK PHRASES: None
Coconut Diethanolamide	8051-30-7	232-483-0	Not Listed	1 – 5%	HAZARD CLASSIFICATION: None RISK PHRASES: None
Sodium Xylene Sulfonate	1300-72-7	215-090-9	1514	2 – 7%	HAZARD CLASSIFICATION: None RISK PHRASES: None
Tripotassium EDTA	17572-97-3	241-543-5	Not Listed	1 - 5%	HAZARD CLASSIFICATION: None RISK PHRASES: None
Balance of other ingredients are non-hazardous or less than 1% in concentration (or 0.1% for carcinogens, reproductive toxins, or respiratory sensitizers).					

NOTE: ALL WHMIS required information is included in appropriate sections based on the ANSI Z400.1-2004 format. This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR, EU Directives and the Japanese Industrial Standard *JIS Z 7250: 2000*.

SECTION 4 - FIRST-AID MEASURES

Contaminated individuals of chemical exposure must be taken for medical attention if any adverse effect occurs. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to health professional with contaminated individual.

EYE CONTACT: If product enters the eyes, open eyes while under gentle running water for at least 15 minutes. Seek medical attention if irritation persists.

SKIN CONTACT: Wash skin thoroughly after handling. Seek medical attention if irritation develops and persists. Remove contaminated clothing. Launder before re-use.

INHALATION: If breathing becomes difficult, remove victim to fresh air. If necessary, use artificial respiration to support vital functions. Seek medical attention if breathing dificulty continues.

INGESTION: If product is swallowed, call physician or poison control center for most current information. If professional advice is not available, do not induce vomiting. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or who cannot swallow. Seek medical advice. Take a copy of the label and/or MSDS with the victim to the health professional.

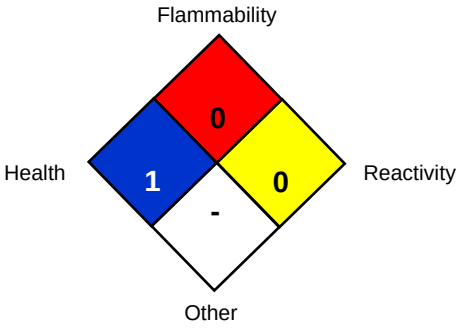
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Pre-existing skin, or eye problems may be aggravated by prolonged contact.

RECOMMENDATIONS TO PHYSICIANS: Treat symptoms and reduce over-exposure.

SECTION 5 - FIRE-FIGHTING MEASURES

FLASH POINT:	Not Flammable
AUTOIGNITION TEMPERATURE:	Not Applicable
FLAMMABLE LIMITS (in air by volume, %):	Lower (LEL): NA Upper (UEL): NA
FIRE EXTINGUISHING MATERIALS:	As appropriate for surrounding fire. Carbon dioxide, foam, dry chemical, halon, or water spray.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	This product is non-flammable, however containers may rupture if exposed to heat or fire.
Explosion Sensitivity to Mechanical Impact:	Not Sensitive.
Explosion Sensitivity to Static Discharge:	Not Sensitive
SPECIAL FIRE-FIGHTING PROCEDURES:	Incipient fire responders should wear eye protection. Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. Isolate materials not yet involved in the fire and protect personnel. Move containers from fire area if this can be done without risk; otherwise, cool with carefully applied water spray. If possible, prevent runoff water from entering storm drains, bodies of water, or other environmentally sensitive areas.

NFPA RATING SYSTEM



HMIS RATING SYSTEM

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM

HEALTH HAZARD (BLUE)	1
FLAMMABILITY HAZARD (RED)	0
PHYSICAL HAZARD (YELLOW)	0

PROTECTIVE EQUIPMENT

EYES	RESPIRATORY	HANDS	BODY
	See Sect 8		See Sect 8

For Routine Industrial Use and Handling Applications

Hazard Scale: **0** = Minimal **1** = Slight **2** = Moderate **3** = Serious **4** = Severe * = Chronic hazard

SECTION 6 - ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK RESPONSE: Personnel should be trained for spill response operations.

SPILLS: Contain spill if safe to do so. Prevent entry into drains, sewers, and other waterways. Soak up with an absorbent material and place in an appropriate container for disposal. Dispose of in accordance with applicable Federal, State, and local procedures (see Section 13, Disposal Considerations).

SECTION 7 - HANDLING and STORAGE

WORK PRACTICES AND HYGIENE PRACTICES: As with all chemicals, avoid getting this product ON YOU or IN YOU. Wash thoroughly after handling this product. Do not eat, drink, smoke, or apply cosmetics while handling this product. Avoid breathing dusts generated by this product. Use in a well-ventilated location. Remove contaminated clothing immediately.

STORAGE AND HANDLING PRACTICES: Containers of this product must be properly labeled. Store containers in a cool, dry location. Keep container tightly closed when not in use. Store away from strong acids or oxidizers.

SECTION 8 - EXPOSURE CONTROLS - PERSONAL PROTECTION

EXPOSURE LIMITS/GUIDELINES:

Chemical Name	CAS#	ACGIH TWA	OSHA TWA	SWA
Water	7732-18-5	Not Listed	Not Listed	Not Listed
Sodium (C10 – C16) Alkylbenzene Sulfonate	68081-81-2	Not Listed	Not Listed	Not Listed
Alcohol Ethoxylate	84133-50-6	Not Listed	Not Listed	Not Listed
Coconut Diethanolamide	8051-30-7	Not Listed	Not Listed	Not Listed
Sodium Xylene Sulfonate	1300-72-7	Not Listed	Not Listed	Not Listed
Tripotassium EDTA	17572-97-3	Not Listed	Not Listed	Not Listed

Currently, International exposure limits are not established for the components of this product. Please check with competent authority in each country for the most recent limits in place.

VENTILATION AND ENGINEERING CONTROLS: Use with adequate ventilation to ensure exposure levels are maintained below the limits provided below. Use local exhaust ventilation to control airborne dust. Ensure eyewash/safety shower stations are available near areas where this product is used.

The following information on appropriate Personal Protective Equipment is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132) or equivalent standard of Canada, or standards of EU member states (including EN 149 for respiratory PPE, and EN 166 for face/eye protection), and those of Japan. Please reference applicable regulations and standards for relevant details.

RESPIRATORY PROTECTION: Maintain airborne contaminant concentrations below guidelines listed above, if applicable. If necessary, use only respiratory protection authorized in the U.S. Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), equivalent U.S. State standards, Canadian CSA Standard Z94.4-93, the European Standard EN149, or EU member states.

EYE PROTECTION: Safety glasses. If necessary, refer to U.S. OSHA 29 CFR 1910.133 or appropriate Canadian Standards.

HAND PROTECTION: Use chemical resistant gloves to prevent skin contact.. If necessary, refer to U.S. OSHA 29 CFR 1910.138 or appropriate Standards of Canada.

BODY PROTECTION: Use body protection appropriate to prevent contact (e.g. lab coat, overalls). If necessary, refer to appropriate Standards of Canada, or appropriate Standards of the EU, Australian Standards, or relevant Japanese Standards.

SECTION 9 - PHYSICAL and CHEMICAL PROPERTIES

PHYSICAL STATE:	Liquid
APPEARANCE & ODOR:	Pale yellow liquid with no odor.
ODOR THRESHOLD (PPM):	Not Available
VAPOR PRESSURE (mmHg):	17 @ 20°C (68°F)
VAPOR DENSITY (AIR=1):	>1
BY WEIGHT:	Not Available
EVAPORATION RATE (nBuAc = 1):	<1
BOILING POINT (C°):	100°C (212°F)
FREEZING POINT (C°):	Not Available
pH:	8.5
SPECIFIC GRAVITY 20°C: (WATER =1)	1.083
SOLUBILITY IN WATER (%)	Complete
COEFFICIENT OF WATER/OIL DIST.:	Not Available
VOC:	None
CHEMICAL FAMILY:	Detergent

SECTION 10 - STABILITY and REACTIVITY

STABILITY: Product is stable
DECOMPOSITION PRODUCTS: When heated to decomposition this product produces Oxides of carbon (COx), and Hydrocarbons
MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: Strong acids and strong oxidizing agents.
HAZARDOUS POLYMERIZATION: Will not occur.
CONDITIONS TO AVOID: Contact with incompatible materials.

SECTION 11 - TOXICOLOGICAL INFORMATION

TOXICITY DATA: Toxicity data is not available for mixture:

SUSPECTED CANCER AGENT: None of the ingredients are found on the following lists: FEDERAL OSHA Z LIST, NTP, CAL/OSHA, IARC and therefore is not considered to be, nor suspected to be a cancer-causing agent by these agencies.
IRRITANCY OF PRODUCT: Contact with this product can be irritating to exposed skin, eyes and respiratory system.
SENSITIZATION OF PRODUCT: This product is not considered a sensitizer.
REPRODUCTIVE TOXICITY INFORMATION: No information concerning the effects of this product and its components on the human reproductive system.

SECTION 12 - ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.
ENVIRONMENTAL STABILITY: No Data available at this time.
EFFECT OF MATERIAL ON PLANTS or ANIMALS: No evidence is currently available on this product's effects on plants or animals.

EFFECT OF CHEMICAL ON AQUATIC LIFE: No evidence is currently available on this product's effects on aquatic life.

SECTION 13 - DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL: Waste disposal must be in accordance with appropriate Federal, State, and local regulations, those of Canada, Australia, EU Member States and Japan.

SECTION 14 - TRANSPORTATION INFORMATION

US DOT; IATA; IMO; ADR:

THIS PRODUCT IS NOT HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.
PROPER SHIPPING NAME: Non-Regulated Material
HAZARD CLASS NUMBER and DESCRIPTION: Not Applicable
UN IDENTIFICATION NUMBER: Not Applicable
PACKING GROUP: Not Applicable.
DOT LABEL(S) REQUIRED: Not Applicable
NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (2004): Not Applicable
MARINE POLLUTANT: None of the ingredients are classified by the DOT as a Marine Pollutant (as defined by 49 CFR 172.101, Appendix B)

U.S. DEPARTMENT OF TRANSPORTATION (DOT) SHIPPING REGULATIONS:
This product is not classified as dangerous goods, per U.S. DOT regulations, under 49 CFR 172.101.

TRANSPORT CANADA, TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:
This product is not classified as Dangerous Goods, per regulations of Transport Canada.

INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA):
This product is not classified as Dangerous Goods, by rules of IATA:

INTERNATIONAL MARITIME ORGANIZATION (IMO) DESIGNATION:
This product is not classified as Dangerous Goods by the International Maritime Organization.

EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY ROAD (ADR):
This product is not classified by the United Nations Economic Commission for Europe to be dangerous goods.

SECTION 15 - REGULATORY INFORMATION

UNITED STATES REGULATIONS

SARA REPORTING REQUIREMENTS: This product is not subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act., as follows: None

TSCA: All components in this product are listed on the US Toxic Substances Control Act (TSCA) inventory of chemicals.

SARA 311/312:

Acute Health: Yes Chronic Health: No Fire: No Reactivity: No

U.S. SARA THRESHOLD PLANNING QUANTITY: There are no specific Threshold Planning Quantities for this product. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lb (4,540 kg) may apply, per 40 CFR 370.20.

U.S. CERCLA REPORTABLE QUANTITY (RQ): None

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): None of the ingredients are on the California Proposition 65 lists.

CANADIAN REGULATIONS:

CANADIAN DSL/NDSL INVENTORY STATUS: All of the components of this product are on the DSL Inventory

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITIES SUBSTANCES LISTS: No component of this product is on the CEPA First Priorities Substance Lists.

CANADIAN WHMIS CLASSIFICATION and SYMBOLS: This product is categorized as a Controlled Product, Hazard Class D2B as per the Controlled Product Regulations

EUROPEAN ECONOMIC COMMUNITY INFORMATION:

EU LABELING AND CLASSIFICATION:

Classification of the mixture according to Regulation (EC) No1272/2008. See section 2 for details.

AUSTRALIAN INFORMATION FOR PRODUCT:

AUSTRALIAN INVENTORY OF CHEMICAL SUBSTANCES (AICS) STATUS: All components of this product are listed on the AICS.

STANDARD FOR THE UNIFORM SCHEDULING OF DRUGS AND POISONS: Not applicable.

JAPANESE INFORMATION FOR PRODUCT:

JAPANESE MINISTER OF INTERNATIONAL TRADE AND INDUSTRY (MITI) STATUS: The components of this product are not listed as Class I Specified Chemical Substances, Class II Specified Chemical Substances, or Designated Chemical Substances by the Japanese MITI.

INTERNATIONAL CHEMICAL INVENTORIES:

Listing of the components on individual country Chemical Inventories is as follows:

Asia-Pac:	Listed
Australian Inventory of Chemical Substances (AICS):	Listed
Korean Existing Chemicals List (ECL):	Listed
Japanese Existing National Inventory of Chemical Substances (ENCS):	Listed
Philippines Inventory if Chemicals and Chemical Substances (PICCS):	Listed
Swiss Giftliste List of Toxic Substances:	Listed
U.S. TSCA:	Listed

SECTION 16 - OTHER INFORMATION

PREPARED BY: Paul Eigbrett Global Safety Management, 10006 Cross Creek Blvd. Suite 440, Tampa, FL 33647

Disclaimer: To the best of Alconox, Inc. knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness is not guaranteed and no warranties of any type either express or implied are provided. The information contained herein relates only to this specific product.

ANNEX:

IDENTIFIED USES OF LIQUINOX® AND DIRECTIONS FOR USE

Used to clean: Healthcare instruments, laboratory ware, vacuum equipment, tissue culture ware, personal protective equipment, sampling apparatus, catheters, tubing, disk drives, clean rooms, medical devices, optical parts, electronic components, pharmaceutical apparatus, cosmetics manufacturing equipment, metal castings, forgings and stampings, industrial parts, pipes, tanks and reactors. Authorized by USDA for use in federally inspected meat and poultry plants. Passes inhibitory residue test for water analysis. Used for phosphate sensitive analysis ware. FDAcertified. Used to remove: Soil, grit, grime, slime, grease, oils, blood, tissue, particulates, deposits, chemical and solvents.

Surfaces cleaned: Corrosion inhibited formulation recommended for glass, metal, stainless steel, porcelain, ceramic, plastic, cement and fiberglass. Can be used on soft metals such as copper, aluminum, zinc and magnesium if rinsed promptly. Used for art restoration. Corrosion testing may be advisable.

Cleaning method: Soak, brush, sponge, cloth, ultrasonic, flow through clean-inplace. Will foam—not for spray or machine use.

Directions: Make a fresh 1% solution (2 1/2 Tbsp. per gal., 1 1/4 oz. per gal. or 10 ml per liter) in cold, warm or hot

water. If available, use warm water. Use cold water for blood stains. For difficult soils, raise water temperature and use more detergent. Clean by soak, circulate, wipe or ultrasonic method. Not for spray machines, will foam. RINSE THOROUGHLY—preferably with running water. For critical cleaning, do final or all rinsing in distilled, deionized or purified water. For food contact surfaces, rinse with potable water. Used on a wide range of glass, ceramic, plastic and metal surfaces. Corrosion testing may be advisable.