

ACCIDENT PREVENTION PLAN

FOR

SOILS REMEDIAL ACTION

AOC 1 AT OCCIDENTAL CHEMICAL CORPORATION
PROPERTY

FORMER LAKE ONTARIO ORDNANCE WORKS

NIAGARA COUNTY, NEW YORK

Contract No.: W912QR-12-D-0011

Delivery Order: W912P417F0022

Prepared by:

ERT, Inc.
14401 Sweitzer Lane, Suite 300
Laurel, Maryland 20707
(301) 361-0620

March 2018

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Acronyms and Abbreviations

AEGCP	Assured Equipment Grounding Control Plan
AHA	Activity Hazard Analysis
AOC	Area of Concern
APP	Accident Prevention Plan
BBP	bloodborne pathogens
CFR	Code of Federal Regulations
CHEMTREC	Chemical Transportation Emergency Center
CPR	cardiopulmonary resuscitation
CSP	Certified Safety Professional
dBA	decibels, A-weighted
DoD	Department of Defense
EM	engineer manual
EMR	experience modification rate
ENG	engineer form
ERT	ERT, Inc.
ES&H	environmental, safety and health
ESP	Explosives Site Plan
ft	feet
HAZCOM	Hazard Communication
HAZWOPER	Hazardous Waste Operations and Emergency Response
hr	hour
HTRW	hazardous, toxic, and radioactive waste
LOOW	Lake Ontario Ordnance Works
MC	munitions constituents
MEC	munitions and explosives of concern
OCCP	Occidental Chemical Company Property
OSHA	Occupational Safety and Health Administration
PM	Project Manager
PMP	Project Management Professional
PPE	personal protective equipment
SDS	Safety Data Sheet
SHM	Safety and Health Manager
SSHO	Site Safety and Health Officer
SSHP	Site Safety and Health Plan
SU	survey unit
TBD	to-be-determined
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
UXO	unexploded ordnance

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APP/SSHP Checklist

**CONTRACTOR ACCIDENT PREVENTION PLAN/
 SITE SAFETY AND HEALTH PLAN (APP/SSHP)
 CHECKLIST**

(EM 385-1-1, Appendix - A, Section 33, dated 30 Nov 2014)
 Minimum Basic Outline for APP/SSHP

The APP/SSHP is the Contractor Safety and Health Program Document. The following Site Specific Areas will be addressed:

- NOTE: 1. Contractor will complete Checklist and Submit with their APP/SSHP. NOTE: 2. Contractor APP/SSHP WILL be submitted in format below.
 NOTE: 3. Safety Office will review Contractor APP/SSHP and return to PM /COR.
 NOTE: 4. Contractor APP/SSHP's ARE NOT APPROVED by the USACE, only found as Acceptable or Non-Acceptable.

Safety Office Review Status: ACCEPTED BY/DATE: _____
 NOT ACCEPTED BY/DATE: _____

Contractor Name: ERT, Inc Contract No: _____

Project Title & Location: Former LOOW AOC 1 at OCCP Soil Remedial Action, Niagara County, New York	Included?			Location Page(s)
	Yes	No	N/A	
1. SIGNATURE SHEET. Title, signature, and phone number of the following:				
a. Plan Preparer (qualified person, Competent Person such as corporate safety staff person, QC).	X			Section 1
b. Plan Approval by company/corporate officers authorized to obligate the company (e.g. owner company president, regional vice president etc.)	X			Section 1
c. Plan Concurrence (e.g. Chief of Operations, Corporate Chief of Safety, Corporate Industrial Hygienist, project manager or superintendent, project safety professional, project QC). Provide concurrence of other applicable corporate and project personnel (Contractor).	X			Section 1
2. BACKGROUND INFORMATION. List the following:				
a. Contractor;	X			Section 2.a
b. Contract number;	X			Section 2.b
c. Project name;	X			Section 2.c
d. Brief project description, description of work to be performed, and location (map); equipment to be used; anticipated high risk activities	X			Section 2.d, Section 2.e, Figure 1
e. Major phases of work anticipated and activities that will require an AHA	X			Section 2.g, Attachment 3

Project Title & Location: Former LOOW AOC 1 at OCCP Soil Remedial Action, Niagara County, New York	Included?			Location Page(s)
	Yes	No	N/A	
3. STATEMENT OF SAFETY AND HEALTH POLICY. Provide a copy of your current corporate/company Safety & Health Policy Statement, detailing commitment to providing a safe and healthful workplace for all employees. The Contractor’s written safety program goals, objectives, and accident experience goals for this contract should be provided.	X			Section 3
4. RESPONSIBILITIES AND LINES OF AUTHORITIES. Provide the following:				
a. A statement of the employer’s ultimate responsibility for the implementation of his SOH program for his own employees, all sub-contractors and all others on the worksite.	X			Section 4.a
b. Identification and accountability of personnel responsible for safety at both corporate and project level. Contracts specifically requiring safety or industrial hygiene personnel shall include a copy of their resumes. Per EM 385-1-1 01.A.17, the SSHO is required to have as a minimum the OSHA 30-hour Construction Safety course and construction industry safety experience; and must be on-site at all times when work is being performed.	X			Section 4.a
c. The names of Competent and/or Qualified Person(s) and proof of competency/qualification to meet specific OSHA Competent/Qualified Person(s) requirements must be attached. The District SOHO will review the qualifications for acceptance;	X			Section 6.f
d. Requirements and details of the employers Risk Management Process (i.e.AHAs)	X			Section 10
e. Requirements for activity specific AHAs to be submitted and accepted at preparatory meetings, prior to work being performed;	X			Section 10
f. Requirements that no work by the Contractor shall be performed unless a designated CP/SSHO is present at the job site;	X			Section 4.b
g. Policies and procedures regarding noncompliance with safety requirements (to include disciplinary actions for violation of safety requirements) should be identified;	X			Section 7.c
h. Lines of authority;	X			Section 4.b
i. Provide written company procedures for holding managers and supervisors accountable for safety.	X			Section 7.d
5. SUBCONTRACTORS AND SUPPLIERS. If applicable, provide procedures for coordinating SOH activities with other employers on the job site:				
a. Identification of subcontractors and suppliers (if known);	X			Section 4.b
b. Safety responsibilities of subcontractors and suppliers.	X			Section 4.b
6. TRAINING.				
a. Requirements for new hire SOH orientation training at the time of initial hire of each new employee.	X			Section 5.a

Project Title & Location: Former LOOW AOC 1 at OCCP Soil Remedial Action, Niagara County, New York	Included?			Location Page(s)
	Yes	No	N/A	
b. Requirements for mandatory training and certifications that are applicable to this project (e.g., explosive actuated tools, confined space entry, crane operator, diver, vehicle operator, HAZWOPER training and certification, PPE) and any requirements for periodic retraining/recertification.	X			Section 5.b
c. Procedures for periodic safety and health training for supervisors and employees.	X			Section 5.d
d. Requirements for emergency response training.	X			Section 5.c
7. SAFETY AND HEALTH INSPECTIONS.				
a. Specific assignment of responsibilities for a minimum daily job site safety and health inspection during periods of work activity: Who will conduct (e.g., SSHO, PM, safety professional, QC, supervisors, employees – depends on level of technical proficiency needed to perform said inspections), proof of inspector’s training/qualifications, when inspections will be conducted, procedures for documentation, deficiency tracking system, and follow-up procedures;	X			Section 6.a, Section 6.b, Section 6.c, Section 6.d, Section 6.e, Section 6.f
b. Any external inspections/certifications that may be required (e.g., USCG).	X			Section 6.g
8. MISHAP REPORTING AND INVESTIGATION. The Contractor shall identify person(s) responsible to provide the following:				
a. Exposure data (man-hours worked);	X			Section 8.a
b. Accident investigations, reports, and logs: Report all accidents/incidents as soon as possible but not more than 4 hours afterwards to the Contracting Officer/Representative (KO/COR). The contractor shall thoroughly investigate the incident/accident per Section 01.D and, if applicable, submit the findings of the investigation along with appropriate corrective actions to the KO/COR in the prescribed format as soon as possible. Implement corrective actions as soon as reasonably possible and provide notice to the KO/COR when corrective actions are completed;	X			Section 8.b
c. The following require immediate accident notification:				
(1) A fatal injury;	X			Section 8.c
(2) A permanent total disability;	X			Section 8.c
(3) A permanent partial disability;	X			Section 8.c
(4) The hospitalization of three or more people resulting from a single occurrence;	X			Section 8.c
(5) Property damage of \$200,000 or more.	X			Section 8.c

Project Title & Location: Former LOOW AOC 1 at OCCP Soil Remedial Action, Niagara County, New York	Included?			Location Page(s)
	Yes	No	N/A	
9. PLANS (PROGRAMS, PROCEDURES) REQUIRED BY THE SAFETY MANUAL. Based on a risk assessment of contracted activities and on mandatory OSHA compliance programs, the Contractor shall address all applicable occupational risks and compliance plans. Using the EM 385-1-1 as a guide, plans may include but not be limited to:				
a. Fatigue Management Plan (01.A.20);	X			Section 9.a
b. Emergency Plans (01.E);	X			Section 9.b
d. Medical Support Agreement (03.A.01; 03.A.03);	X			Section 9.e
e. Blood Borne Pathogen Program (03.A.05);	X			Section 9.f
f. Exposure Control Plan (03.A.05);	X			Section 9.g
g. Automatic External Defibrillator (AED) Program (03.B.04);			X	
h. Site Layout Plan (04.A);	X			Section 9.h
i. Access / Haul Road Plan (04.B);	X			Section 9.i
j. Hearing Conservation Program (05.C);	X			Section 9.j, Attachment 4
k. Respiratory Protection Plan (05.G);	X			Section 9.k, Attachment 5
l. Health Hazard Control Program (06.A);	X			Section 9.l
m. Hazard Communication Program (06.B.01);	X			Section 9.m
n. Process Safety Management Plan (06.B.04);	X			Section 9.n
o. Lead Compliance Plan (06.C.02 & specifications);	X			Section 9.o
p. Asbestos Abatement Plan (06.C.03 & specifications);	X			Section 9.p
q. Radiation Safety Program (06.F);	X			Section 9.q
r. Abrasive Blasting Procedures (06.I.01);	X			Section 9.r
s. Heat Stress Monitoring Plan (HSMP) (06.J.02);	X			Section 9.s
t. Cold Stress Monitoring Plan (CSMP) (06.J.04);	X			Section 9.s
u. Indoor Air Quality Management Plan (06.L);	X			Section 9.t
v. Mold Remediation Plan (06.L.04);	X			Section 9.u
w. Chromium (VI) Exposure Evaluation (06.M);	X			Section 9.v
x. Crystalline Silica Evaluation (06.N.02) ;	X			Section 9.w
y. Lighting Plan for Night Operations (07.A.06);	X			Section 9.y
z. Traffic Control Plan (08.C.05);	X			Section 9.z
aa. Fire Prevention Plan (09.A.01);	X			Section 9.aa
bb. Wild Land Fire Management Plan (09.L);	X			Section 9.bb
cc. Arc Flash Hazard Analysis (11.B);	X			Section 9.cc
dd. Assured Equipment Grounding Control Program (AEGCP) (11.D.05, Appendix E);	X			Section 9.dd
ee. Hazardous Energy Control Program & Procedures (12.A.01);	X			Section 9.ee
ff. Standard Pre-Lift Plan – Load Handling Equipment (16.A.03);	X			Section 9.ff
gg. Critical Lift Plan – Load Handling Equipment (16.H);	X			Section 9.gg

Project Title & Location: Former LOOW AOC 1 at OCCP Soil Remedial Action, Niagara County, New York	Included?			Location Page(s)
	Yes	No	N/A	
hh. Naval Architecture Analysis – Load Handling Equipment (Floating) (16.L);	X			Section 9.hh
ii. Floating Plant Inspection and Certification (19.A.01);			X	
jj. Severe Weather Plan for Marine Activities (19.A.03);	X			Section 9.ii
kk. Emergency Plan for Marine Activities (19.A.04);			X	
ll. Man Overboard/Abandon Ship Procedures (19.A.04);	X			Section 9.b
mm. Float Plan for Launches, Motorboats, and Skiffs (19.F.04);	X			Section 9.kk
nn. Fall Protection & Prevention Plan (21.D);	X			Section 9.ll
oo. Demolition/Renovation Plan (to include engineering survey) (23.A);	X			Section 9.mm
pp. Rope Access Work Plan (24.H2);	X			Section 9.nn
qq. Excavation / Trenching Plan (25.A.01);	X			Section 9.oo
rr. Fire Prevention and Protection Plan for Underground Construction (26.D.01);	X			Section 9.pp
ss. Compressed Air Work Plan for Underground Construction (26.D.01);	X			Section 9.qq
tt. Erection and Removal Plan for Formwork and Shoring (27.C);	X			Section 9.rr
uu. Precast Concrete Plan (27.D.01);	X			Section 9.ss
vv. Lift Slab Plans (27.E);	X			Section 9.tt
ww. Masonry Bracing Plan (27.F.01);			X	
xx. Steel Erection Plan (28.B);	X			Section 9.uu
zz. Blasting Safety Plan (29.A; 26.J);	X			Section 9.ww
aaa. Dive Operations Plan (30.A.14 & 30.A.16);	X			Section 9.xx
bbb. Safe Practices Manual for Diving Activities (30.A.15);			X	
ccc. Emergency Management Plan for Diving (30.A.18);			X	
ddd. Tree Felling and Maintenance Program (31.A.01);	X			Section 9.vv
eee. Aircraft/Airfield Construction Safety & Phasing Plan (CSPP) (32.A.02);	X			Section 9.zz
fff. Aircraft/Airfield Safety Plan Compliance Document (SPCD) (32.A.02);			X	
ggg. Site Safety and Health Plan for HTRW (33.B);	X			Section 9.aaa
hhh. Confined Space Entry Procedures (34.A.05);			X	
iii. Confined Space Program (34.A.06);	X			Section 9.bbb
HTRW Projects - Additional Requirements (EM 385-1-1, Section 33 HAZWOPER): SSHP (Site Safety and Health Plan) shall be attached to the APP as an Appendix. The SSHP shall cover the following in project-specific detail. General information adequately covered in the APP need not be duplicated.				
a. Site description and contamination characterization	X			Section 1
b. Hazard/Risk Analysis - AHA for each task	X			Section 2
c. Staff Organization; Qualifications; Responsibilities	X			Section 3

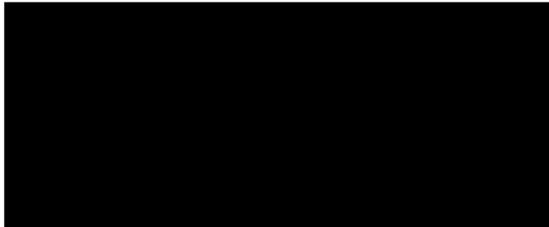
Project Title & Location: Former LOOW AOC 1 at OCCP Soil Remedial Action, Niagara County, New York	Included?			Location Page(s)
	Yes	No	N/A	
d. Training - General, Supervisor and Project Specific	X			Section 4
e. PPE Personal Protective Equipment	X			Section 5
f. Medical Surveillance	X			Section 6
g. Exposure Monitoring/ Air Sampling Program	X			Section 7
h. Heat and Cold Stress - Procedures and Practices	X			Section 8
i. SOPs Standard Operating Procedures; Engineering Controls; Work Practices:	X			Section 9
(1) Site rules/prohibitions (buddy system, eating/drinking/smoking restrictions, etc.)	X			Section 9.1
(2) Work permit requirements (rad work, excavation, hot work, confined space etc.)	X			Section 9.2
(3) Material handling procedures (soil, liquid, rad materials, spill contingency)	X			Section 9.3
(4) Drum/container/tank handling (opening, sampling, draining, removal, etc.)	X			Section 9.4
(5) Comprehensive AHA of treatment technologies employed at site	X			Section 9.5
j. Site Control Measures: Clearly Defined EZ, SZ, CRZ	X			Section 9.6
k. Personal Hygiene and Decontamination	X			Section 9.7
l. Equipment Decontamination	X			Section 10
m. Emergency Equipment and First Aid	X			Section 9.8
n. Emergency Response and Contingency Procedures:	X			Section 11
(1) Pre-emergency planning	X			Section 11
(2) Personnel and lines of authority for emergency situations	X			Section 11
(3) Criteria and procedures for emergency recognition and site evacuation (alarms, etc.)	X			Section 11
(4) Decontamination and medical treatment of injured personnel	X			Section 11
(5) A route map to emergency medical facilities and phone numbers for emergency responders	X			Section 11.6, Exhibit 19
(6) Criteria for alerting the local community responders	X			Section 11

1. SIGNATURE SHEET

ACCIDENT PREVENTION PLAN APPROVAL

By their specific signature, the undersigned certify that they approve this Accident Prevention Plan (APP) for utilization during field activities in support of Contract No. W912QR-12-D-0011, Delivery Order W912P417F0022. This APP has been prepared under the supervision of, and has been reviewed by, a Certified Safety Professional (CSP).

a. Prepared by:



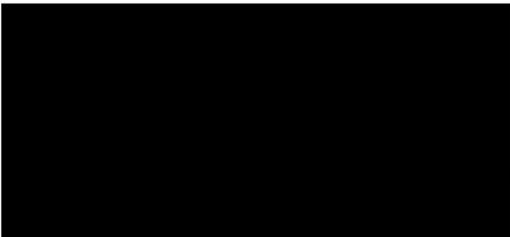
7 March 2018

Date

ERT, Inc. (ERT)

b. Approved by:

By signing the APP, the ERT SHM certifies that  (and alternate ) has completed the required occupational safety and health courses and is qualified, by both training and experience to serve as the Site Safety and Health Officer (SSHO) as well as the “Occupational Safety and Health Administration (OSHA) Competent Person for overall site health and safety,” for the Soil Remediation Action in Niagara County, New York.

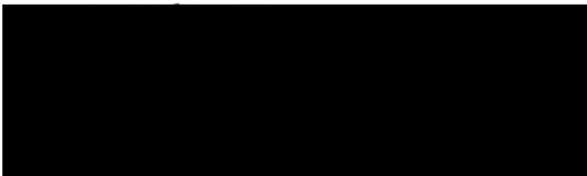


7 March 2018

Date

ERT Safety and Health Manager

Plan Concurrence:



7 March 2018

Date

ERT Quality Control System Manager



8 March 2018

Date

ERT Project Manager

2. BACKGROUND INFORMATION

a. Contractor Name

The prime contractor for the performance of this project is ERT. As the prime contractor for this project, ERT will be responsible for its successful completion and for the management of all resources necessary to meet the requirements of the Performance Work Statement.

b. Contract Number

The contract number for this project is W912QR-12-D-0011, Delivery Order W912P417F0022 issued to ERT by the U.S. Army Corps of Engineers (USACE), Buffalo District.

c. Project Name

This APP applies to ERT's services necessary to remediate contaminated soils and fill at Area of Concern (AOC) 1 on the Occidental Chemical Company Property (OCCP) on the former Lake Ontario Ordnance Works (LOOW) in the Town of Porter, Niagara County, New York.

d. Brief Project Description; Description of Work to be Performed

ERT remedial services may include, but are not limited to:

1. Development and implementation of work plans
2. Construction of support facilities (access, lay-down areas, etc.) on properties with government furnished rights of entry
3. Environmental monitoring, sampling, and analysis during the remediation
4. Civil surveying
5. Excavation, waste characterization, waste packaging, transport and disposal of soils/fill from AOC 1
6. Water handling, management and disposal
7. Backfilling of excavated areas
8. Site restoration
9. Demobilization
10. Preparation of reports and documentation
11. Interaction with emergency response agencies
12. Any other actions necessary to remediate AOC 1

e. Location of the Project

The OCCP is located off Balmer Road in the Town of Porter, Niagara County, New York (**Figure 1**). The physical address of the site is 1014 – 1350 Balmer Road, Youngstown, New York 14174. It is a 304-acre parcel in the undeveloped portion of LOOW that is owned by Occidental Chemical Corporation. AOC 1 is approximately 425 feet (ft) by 325 ft. **Figure 2** depicts the OCCP and AOC 1.

In 1945, the U.S. Congress transferred the 5,000-acre buffer zone to the General Services Administration for sale to private owners. A 304-acre parcel (the OCCP) was purchased by Hooker Chemical and Plastics Corporations in 1975 from a private owner. It was later sold to the Occidental Petroleum Corporation. The use and ownership between 1945 and 1975 is unknown. There is no known use or storage of radioactive materials on the OCCP by the Manhattan Engineer District or the Atomic Energy Commission.

The OCCP is vacant and undeveloped. AOC 1 contains soil, waste materials, and comingled debris from past DoD activities. No structures are present. The area is zoned low-density residential.

f. Contractor Safety Information

The Experience Modification Rate (EMR) is a factor that is calculated by measuring the difference between ERT actual claims experience in worker's compensation (including frequency and severity of the losses) as compared to the average expected claims experience for the entire class code(s) assigned to the company. An EMR is calculated using a three-year rolling period. ERT's EMR for 2016 is 0.77. A summary of ERT's Work-Related Injuries and illnesses for the past three years is included below (Occupational Safety and Health Administration [OSHA] Form 300A Logs are provided in **Attachment 1**):

- 2016 - 5 recordable, 3 involving lost time;
- 2015 - 3 recordable, 1 involving lost time; and
- 2014 - 1 recordable, no lost time.

g. Phases of Work/Hazardous Activities Requiring an Activity Hazard Analysis

The major phases of field work for this remedial action include:

- Mobilization/Demobilization;
- Clear brush at the site to enable performance of remedial action;
- Manage storm water and wastewater from the site;
- Excavation and disposal of contaminated soil/fill and any co-mingled debris;
- Conduct confirmation soil sampling using incremental soil sampling; and
- Restore site to match conditions of surrounding wetlands.

Included in this APP are the Site Safety and Health Plan (SSHP), presented as **Attachment 2**, and the Activity Hazard Analysis (AHA), presented as **Attachment 3**. The attachments are prepared in accordance with Engineer Manual (EM) 385-1-1, Safety and Health Requirements Manual, USACE, 30 November 2014 (USACE, 2014).

As required per EM 385-1-1, the phases of work require AHAs that assess specific hazards, risk levels, and risk mitigation controls. During work, ERT's personnel and subcontractors will be involved in activities that will potentially expose them to chemical, physical, and/or biological hazards. Exposure to these hazards will be controlled using engineering, operational, administrative controls, and personal protective equipment (PPE).

This APP will be ERT's overall project environmental, safety and health (ES&H) document (parent document) while the SSHP will be used to present the site-specific ES&H hazard and exposure mitigation information anticipated for the project tasks.

Prior to site mobilization, the ERT project team will receive a site-specific health and safety briefing. The field team will ensure that all equipment and materials required for safely completing the project objectives are on hand, tested, configured, and setup prior to deployment. ERT will confirm that all on-site personnel have the proper training records and are under medical surveillance.

The location of any underground hazards will be identified prior to intrusive work (e.g., excavation). If any potential hazards are identified, controls will be added to the specific AHA, as needed. ERT will coordinate with local utility companies (via the New York Miss Utility) to identify and mark all potential underground utilities in the remedial areas.

Staging of equipment will be at locations pre-approved by OCCP, and as included in the Site Operations Plan. All equipment brought to the site for the field effort will be removed at demobilization. Mobilization and demobilization AHAs are included in **Attachment 3**.

3. STATEMENT OF SAFETY AND HEALTH POLICY

At ERT, the safety and health of our employees and subcontractors is the first consideration in the operation of this business. Safety and health is part of every operation and business line, and is, without question, the responsibility of every ERT employee.

It is the policy and intent of ERT to comply with all laws and regulations. To do this, ERT must constantly be aware of conditions in all work areas and activities that can produce injuries. No employee is required to work at a job that he or she knows is not safe or healthy. Identification of hazards and controlling them is the responsibility of everyone.

The personal safety and health of each ERT employee is of primary importance. The prevention of occupationally-induced injuries and illnesses is of such consequence that it will be given precedence over project operations, whenever necessary.

ERT maintains a safety and health program that conforms to the best management practices possible. To be successful, such a program must embody the proper attitudes towards injury and illness prevention, not only on the part of managers and employees, but also between each employee and his/her co-workers. Only through such a cooperative effort can a safety and health program that is in the best interest of the entire company be established and preserved.

ERT's safety program goals and objectives are to provide a safe and healthy workplace. ERT's accident experience goal is to have zero safety incidents. In the event an accident does occur, a formal internal audit will take place and all problems/issues related to the incident will be resolved immediately by the ERT SHM.

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4. RESPONSIBILITY OF AUTHORITY

a. Identification and Accountability of Personnel Responsible for Safety

ERT's Safety and Health Program specifies that all ERT personnel and subcontractors are responsible for their safety and the safety of those working with them. However, it is also stated that the ultimate ES&H responsibility begins with the President of ERT and this responsibility radiates outward to all management, administrative, operations, and field personnel. To achieve this philosophy, ERT empowers all personnel with stop work authority regarding known or potential ES&H issues. In addition, all ERT personnel are held accountable for performing their assigned tasks in a manner that promotes continuous, active hazard evaluation and safe task performance. Ultimately, it is the responsibility of the ERT SHM to ensure that the ES&H program is properly implemented.

The key personnel at ERT that are responsible for safe project performance at the corporate and project level include:

- The President of ERT;
- ERT's Program Manager;
- ERT's SHM;
- ERT's SSHO;
- ERT's Project Superintendent, and
- ERT's Project Manager (PM).

The ES&H responsibilities of the personnel filling the roles listed above are presented in detail in Section 3.0 of the SSHP (**Attachment 2** of this APP). All on-site personnel will have 40-hour (hr) OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) training and current 8-hr refresher training. In addition, for each field event a minimum of two on-site site personnel will also have current First Aid and cardiopulmonary resuscitation (CPR) training. All current training certifications for field staff, including First Aid/CPR certifications are included in **Appendix C** of the SSHP. Certifications will be added and/or updated as appropriate prior to mobilization of the field effort.

b. Lines of Authority

As a part of its corporate structure, ERT has developed a system whereby the lines of authority for personnel responsible for operations and ES&H are separate. All issues related to on-site operations regarding production and resources are handled initially on-site by the Site Superintendent who will reports to the PM. Issues that cannot be handled by the PM are delegated to the Program Manager. The SSHO reports directly to the ERT SHM for ES&H issues and is responsible for ensuring overall compliance with this APP by site personnel. A detailed list of responsibilities for all field staff working at the site is included in Section 3.0 of the SSHP.

As part of ERT's subcontractor agreement, subcontractors agree to conduct their operations in accordance with ERT's site plans and applicable federal, state, and local ES&H requirements. All subcontractors are required to provide to ERT record of OSHA HAZWOPER training (40-hr) and current 8-hr refresher training as applicable per 29 Code of Federal Regulations (CFR) 1910.120(e)(3) for general site workers or 29 CFR 1910.120(e)(3)(ii) for site-specific workers, dependent upon the task being completed. No subcontractors will be allowed to access the site

unless the OSHA Competent Person is also on-site. Attendance at Daily Safety Briefings is required of all subcontractors and provided by the SSHO.

All subcontractors are responsible for the safety and health of their employees and for complying with the standards established in this APP/SSHP. Specific responsibilities of subcontractors include:

- Complying with the requirements of their Statement of Work;
- Full compliance with ERT Standard Operating Procedures and Safety Guidelines;
- Understanding the AHA for their work activities;
- Maintaining a safe and healthy work environment;
- Compliance with contract requirements, laws, and regulations;
- Reviewing the APP/SSHP to ensure that the ES&H requirements of their specific tasks are satisfied;
- Performing all work in accordance with the APP/SSHP requirements;
- Providing trained and experienced workers for the specific work activities;
- Participating in the Daily Safety Briefings;
- Enforcing company- and project-specific rules and procedures during work activities;
- Reporting all incidents and participate in the investigations;
- Participating in routine site inspection activities; and
- Ensuring all equipment brought to the site is routinely inspected and maintained in safe working order.

It is the responsibility of the ERT SHM to review and accept the subcontractors' safety programs and to ensure that they comply with the requirements of 29 CFR 1910.120. It is the responsibility of the SSHO to ensure subcontractors exclusively follow this APP/SSHP and EM 385-1-1 while on-site. This APP/SSHP will be the ES&H document for the project.

ERT is in charge at the project site for those activities described within this APP (those activities specifically related to the scope of ERT's Delivery Order) and is responsible for the daily coordination of tasks and site personnel, and for ensuring Daily Safety Briefings. As a means of controlling and coordinating subcontractor/supplier activities, no subcontractors/suppliers will be allowed to access the site without signing in/out and meeting with the SSHO and/or Competent Person for the activity. Pre-operational safety briefings will be required of all subcontractors and will be provided by the SSHO.

ERT has subcontracted a highly qualified and trusted team including A-Zone Environmental, LLC. (A-Zone) to provide construction support. Additional trusted subcontractors include, Tree Doctor to provide vegetation clearance, grubbing, and revegetation services; Modern Disposal Services, Inc. to support off-site transportation and disposal of excavated soil; Heinrich Services to support off-site transport and dispose of site debris; A-1 Landcare, Inc. to supply and transport clean fill material; Klettke Land Surveyors, P.C., to provide civil survey services; Test America Inc. St. Louis, to complete the sample analysis; and HSW Engineering, Inc., to complete the data validation.

5. TRAINING

a. Subjects for New Hire Orientation Training at the Time of Initial Hire of Each New Employee

ERT has established an ES&H training program for those staff within the Environmental Division who may conduct field activities at sites that could involve hazardous substances or hazardous, toxic, and/or radioactive waste. This training program establishes minimum training requirements for field workers, field team leaders, safety officers, and PMs, and includes:

- Requirements and responsibilities for accident prevention and the maintenance of safe and healthful work environments;
- General ES&H policies and procedures;
- Employee and supervisor responsibilities for reporting all accidents;
- Provisions for medical facilities and emergency response and procedures for obtaining medical treatment or emergency assistance;
- Procedures for reporting and correcting unsafe conditions or practices;
- Job hazards and the means to control/eliminate those hazards; and
- Specific training as required and appropriate to the role and responsibility level of the employee position.

Upon hire, all ERT staff members are required to undergo training appropriate to their role and responsibility level per ERT's existing ES&H program. Any new hire that has previously undergone such training is required to provide sufficient evidence of completion that satisfies the SHM. Refresher training will also be documented for new hires. General training and certification required for all staff necessary for successful and safe completion of field activities for this project are listed below:

PROJECT MANAGER

- OSHA 40-hr HAZWOPER Training (with up-to-date annual refresher) with a minimum of 3 days of supervised hazardous waste work experience

SAFETY & HEALTH MANAGER

- Certified Safety Professional and/or Certified Industrial Hygienist
- OSHA 40-hr HAZWOPER Training (with up-to-date annual refresher) with a minimum of 3 days of supervised hazardous waste work experience

SSHO

- OSHA 40-hr HAZWOPER Training (with up-to-date annual refresher) with a minimum of 3 days of supervised work experience
- OSHA 8-hr HAZWOPER Supervisor Training
- OSHA 30-hr Construction Safety Training
- Certified First Aid/CPR training

HEAVY EQUIPMENT OPERATOR

- OSHA 40-hour HAZWOPER Training (with up-to-date annual refresher) with a minimum of 3 days of supervised work experience
- Equipment Operator Designation from company

SITE SUPERINTENDENT

- OSHA 40-hr HAZWOPER Training (with up-to-date annual refresher) with a minimum of 3 days of supervised work experience
- Current Construction Quality Management for Contractors Training
- Certified First Aid/CPR training

FIELD PERSONNEL/LABORERS

- OSHA 40-hr HAZWOPER Training (with up-to-date annual refresher) with a minimum of 3 days of supervised work experience
- Certified First Aid/CPR training

In addition to the above training, each new hire in the ERT Environmental Division is required by the ERT Division Manager to: (1) participate in the ERT medical surveillance program (if more than 30 days may be spent engaging in hazardous, toxic, and/or radioactive waste [HTRW] operations); and (2) review the ERT Corporate Safety and Health Plan, and if their position requires fieldwork, the ERT Field Activities Safety and Health Plan. Upon review, each new hire must sign the Corporate Safety and Health Plan review log, acknowledging that they have read and understand all components of the plans.

Copies of all training certifications and medical clearance forms for ERT personnel are maintained by ERT.

b. Requirements for Mandatory Training/Certifications Applicable to this Project

In addition to the general ES&H training required for all employees listed above, all site workers will be provided site-specific hazard information training, as required by OSHA in 29 CFR 1910.120(i), and EM 385-1-1. This training will be based upon general hazards of the site, the specific tasks to be performed, and the hazards associated with the tasks. The SSHO will provide site-specific training at the safety indoctrination. Topics will include:

- Emergency procedures and Hazard Communication (HAZCOM) training, including evacuation routes;
- Areas of restricted access;
- Responsibilities for personnel safety;
- Identification of First Aid/CPR-qualified personnel;
- Site-specific physical, chemical, and biological hazards and hazard control;
- Task specific equipment use;
- Task specific PPE beyond standard PPE training included in HAZWOPER 40-hr training;
- Location and use of the APP/SSHP (including Safety Data Sheets [SDSs]);

- Evacuation area; and
- Route to nearest medical support facility.

All training will be recorded using the ERT Daily Safety Briefing form and will ensure that all site personnel have read and understand the APP and SSHP, and must have signed the SSHP Review Record (contained in the SSHP and available on-site). These documents will be transferred to the ERT PM for record keeping when site work is completed.

c. Requirements for Emergency Response Training

All ERT personnel involved with responding to an on-site emergency will be briefed in their roles and responsibilities as part of the initial indoctrination training discussed above. During this training, ERT personnel will be briefed on the HAZCOM program, emergency equipment, and First Aid/CPR procedures as described in the SSHP. ERT personnel will also be briefed on emergency response and contingency procedures presented in Section 11.0 of the SSHP, which include:

- Procedures and tests;
- Personnel injury/medical emergency;
- Firefighting;
- Emergency telephone numbers; and
- Medical support.

This training will be documented and will also involve a rehearsal of the emergency response procedures prior to the start of site activities. During this training the route to, and location of, the evacuation area and the location of medical support facility will be discussed with each staff member. If site conditions warrant changing the location of the evacuation area, the SSHP and/or Competent Person for the activity will make the determination and inform the field team. Prior to the initial start of work, all site personnel will familiarize themselves with the route to the nearest medical support facility.

The HAZCOM program, provided in Section 9.3 of the SSHP, will be reviewed with each site worker including:

- Chemicals that are at the site and where they are stored;
- Hazards associated with those chemicals, where the SDSs can be found and how to use them;
- Hazard awareness training for specific contaminants of concern present in the soil;
- Appropriate emergency response; and
- Emergency contact information.

ERT will conduct a Daily Safety Briefing, as discussed in Section 4.2.2 of the SSHP, to address potential site and task hazards prior to the deployment of personnel each day. This briefing will be conducted by the SSHP and/or Competent Person for the activity, during which all ERT and subcontractor personnel will be briefed on the tasks to be conducted that day, the hazards associated with the tasks, and the mitigation methods that will be employed by site personnel to

reduce or eliminate their risk of exposure. The briefing will also include review of the previous day's observances, lessons learned, and/or current site-specific relevant topics of interest.

d. Procedures for Periodic Safety and Health Training for Supervisors and Employees

Periodic training will be performed for all site personnel who are on-site for a length of time greater than one week. This project-specific training is intended to review past activities/lessons learned, plan for new or changed operations, review safety hazards and safe working procedures, and provide ES&H training and motivation. In addition to the Daily Safety Briefing, periodic training will also be conducted consistent with the intervals below:

- Upon the first working day of each month, as appropriate, for supervisors, provided by the SSHO; and
- Upon the first working day of each week for all site workers, provided by the SSHO.

Periodic training will be documented via the Daily Safety Briefing form, including dates, persons in attendance, subjects discussed, and persons who conducted the meetings. Documentation will be maintained on-site by the SSHO and provided to the ERT PM.

6. SAFETY AND HEALTH INSPECTIONS

a. Specific Assignment of Responsibilities

Daily and Weekly Safety Inspections and Audits: Daily inspections will be conducted by the SSHO to ensure that site operations and personnel are complying with this APP and SSHP, and other applicable regulatory requirements. At least once per week during site operations, the SSHO will conduct a compliance audit of the site using the Site-Specific Health and Safety Checklist (provided in **Appendix B** to the SSHP).

Periodic Corporate Safety and Health Inspections: During this project, it is possible that the ERT SHM may inspect the project to ensure initial and continued compliance of the project with applicable safety, and health regulations. ERT views the possibility of audits conducted by the ERT SHM to be essential to the ES&H performance of site operations.

b. Inspector Qualifications

The SSHO and/or the SHM will be conducting inspections. Qualifications are provided in the resumes included as **Appendix A** of the SSHP and in the training certificates provided in **Appendix C** of the SSHP.

c. Frequency of Inspections

Per EM 385-1-1, an inspection must occur at least once every two weeks during active field work. Daily inspections and weekly audits will be conducted by the SSHO; therefore, this requirement will already be addressed.

d. Documentation of Safety Inspections

The results of daily inspections will be documented on the Daily Safety Briefing form maintained by the SSHO. Weekly audits will be recorded and documented in the Site-Specific Health and Safety Checklist (provided in **Appendix B** to the SSHP). Any site or operational discrepancies identified, and immediate corrective actions taken will be noted on this form, and the results of the inspection will be reported to the ERT PM.

e. Deficiency Corrective Action Tracking and Follow-Up

Any deficiencies noted during a site inspection or audit will be reported to the ERT SHM and noted on the Site-Specific Health and Safety Checklist (provided in **Appendix B** to the SSHP). The SSHO, in consultation with the ERT PM and SHM, will develop and implement the necessary corrective actions and monitor the progress until all issues are resolved and a follow-up evaluation conducted. These steps include:

- Reviewing and defining the specific procedure or activity found to be deficient;
- Finding the cause of the deficiency;
- Developing a plan to correct the deficiency;
- Implementing the corrective action plan; and
- Evaluation of the effectiveness of the corrective action.

The SSHO will provide all documentation of the deficiency and corrective action to the ERT SHM. The SHM will decide of whether any changes need to be incorporated into any site-specific plans or the ERT Corporate Safety and Health Plan.

f. The names of Competent and/or Qualified Person(s) and Proof of Competency/Qualification to Meet Specific OSHA Competent/Qualified Person(s)

The SSHO for this project is David Sykes; the alternate SSHO has been identified as Bob Koroncai. Proof of competency is provided in the resumes for the SSHO provided in **Appendix A** of the SSHP and in the training certificates provided in **Appendix C** of the SSHP. The SSHO will be considered the OSHA Competent Person on-site for overall site health and safety pertaining to all activities being performed. All OSHA Competent personnel resumes are included as an **Appendix A** to the SSHP (**Attachment 2** to this APP).

No work will be performed for any of the specific tasks listed in Section 2g unless the OSHA Competent Person, as defined in this section, is present on-site.

g. External Inspections

There will be no external inspections or certifications required for this project, but if a representative from a regulatory agency arrives on-site to conduct an inspection, the ERT PM and/or ERT SHM will be contacted immediately.

7. SAFETY AND HEALTH EXPECTATIONS, INCENTIVE PROGRAMS, AND COMPLIANCE

a. Safety Program Goals, Objectives, and Accident Experience Goals

ERT's accident experience goal for this project is to perform this project without accident or defect. To facilitate this goal, the ERT Team will implement the requirements of this APP, the SSHP, and the ERT Safety and Health Program. Additionally, the ERT Team will make all project and site management personnel aware of this goal and will empower all site personnel with stop work authority for known or potential uncontrolled safety hazards.

b. Safety Incentive Programs

ERT organizes work teams and environment to work in a safe manner with no lost time, injury, or damage to government, ERT, or other customer-owned facilities or equipment. ERT realizes safety and health awareness must become inherent to the culture, and strives to engage all staff in active measures through awareness training, corporate and managerial attention, and incentives for safe behaviors.

c. Noncompliance with Safety Requirements

General Requirements: As outlined previously in this APP, designated corporate and on-site personnel have been tasked with the overall responsibility of ensuring the safe and healthful conduct of site operations. Additionally, ERT has expended significant labor and resources towards the design and development of written programs and procedures used to safeguard site personnel from the hazards associated with this project. It is imperative that site personnel realize that their compliance with established safety and health procedures is of paramount importance in the prevention of accidents and emergencies that could compromise their safety and health, and also the well-being of other site personnel, the environment, and the public. Because violations of the safety and health procedures and programs outlined in either this APP or the SSHP can result in serious personal injury, illness, or environmental insult, personnel violating the safety or health requirements of this APP or the SSHP may be subject to disciplinary action.

Safety and Health Violations: It is the general policy of ERT that no personnel engage in any activity for which:

- they are not properly trained;
- the consequences of the activity are uncertain; or
- the activity hazards have not been assessed.

As deemed necessary, the SSHO and/or Competent Person for the activity may impose other prohibitions to ensure the safe conduct of operations. The prohibitions presented below are strictly forbidden at any time during any on-site operation, with violation of these possibly resulting in termination of employment.

- Horseplay or fighting;
- Use of alcohol prior to the mobilization to the site each day, while on-site, and until demobilization from the site each workday;

- Illegal use of drugs;
- Smoking in a work zone or in areas other than authorized designated smoking areas;
- Starting/maintaining an open flame of any kind;
- Use of equipment that has not been inspected and deemed safe for operation;
- Entry into a work site without prior approval of the SSHO;
- Working without the proper PPE;
- Initiation of work without the presence of a buddy; or
- Failure to report an incident that results in personal injury or property damage.

Disciplinary Actions: If an ERT Safety and Health Program, APP/SSHP, or AHA nonconformance occurs, appropriate disciplinary action will be taken. In all cases where a potential violation has been reported, the SSHO, in conjunction with the ERT PM, will conduct an investigation to validate the report and to determine the severity of the violation. Violations will be divided into two categories: major and minor. An example of a minor violation is reporting to work or conducting work without the proper PPE. A major violation is any violation of the APP/SSHP that could have resulted, or did result, in an accident involving personal injury to self or others, or property damage. A major violation will be investigated by the ERT SHM or their designee. **Table 1** below outlines the disciplinary actions and procedures to be followed if a noncompliance issue results from personnel actions.

Table 1. Disciplinary Action for Minor and Major Violations	
Minor Violation Issues	
First Offense	A verbal warning will be given to the individual; the offense to be noted in individual's file and supervisor's project file; a discussion with the individual's supervisor or Site Superintendent will be conducted.
Second Offense	Written reprimand by the Division Manager will be entered in individual's file; discussion with individual and individual's supervisor.
Third Offense	Potential termination of employment as determined by the President of ERT.
Major Violation Issues	
Any Offense	Minimum penalty for a major violation will consist of a written reprimand being entered in individual's file and a discussion between the individual and the Division Manager. Depending upon the severity of the violation, the SSHO may temporarily dismiss the individual from the job site pending further investigation of the offense. Major violations will immediately be reported to the ERT PM and ERT SHM. Upon completion of a full investigation, the individual's employment may be terminated, if deemed appropriate by the President of ERT.

d. Procedures for Holding Managers and Supervisors Accountable for Safety

All ERT employees and subcontractors are responsible for conformance to safety procedures and policies on the job site. Supervisors and managers are responsible for ensuring that the proper safety procedures are documented in safety plans; that all staff have reviewed and acknowledged their understanding of the procedures; and ensuring that the procedures are followed. Should an incident occur resulting in illness or injury of an employee, an internal audit will be performed to assess whether the proper plans were in place and written procedures were followed. Should it be determined that managers or supervisors allowed hazardous work to be performed without proper procedures or worker acknowledgement of the written procedures, corrective actions will be implemented including disciplinary action when necessary.

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8. MISHAP REPORTING

a. Exposure Data (Man-Hours Worked)

The ERT PM will coordinate with the SSHO to ensure the acquisition of all exposure data. This will include the number of man-hours expended toward the contract and any reportable accidents that occurred during the project. This information will be relayed monthly to the USACE COR in a monthly report from the ERT PM.

b. Mishap Investigations, Reports, and Logs

Accidents/incidents will be reported to the USACE COR. Initial reporting will be made via telephone to the ERT PM who will then report the incident to the USACE COR, as soon as possible, but no later than 24 hours after the accident/incident. ERT will then initiate an accident investigation, with assistance from the on-site personnel, and will initiate the completion of the appropriate accident reporting forms, to include the Accident Report Forms (Engineer [ENG] Form 3394 and OSHA 301 forms), presented in **Appendix B** to the SSHP.

The ERT PM and SHM will review the initial data presented on the accident report forms and will ensure they are complete and accurate prior to their submission to the USACE COR. The initial draft of ENG 3394 and OSHA 301 forms, with supporting documentation and appropriate corrective actions will be submitted to the USACE COR within five working days after the date the incident occurred. Corrective actions will be implemented as soon as reasonably possible.

c. Immediate Notification of Major Mishaps

In the event of an accident that requires on-site treatment beyond First Aid, off-site treatment, and/or any incident that could bring adverse attention or publicity to the U.S. Army, the ERT PM will notify the USACE COR immediately. A draft copy of the ERT Incident Reporting Form will be completed and forwarded by ERT within 24 hours of the incident.

As ERT is a Maryland-based firm with operations occurring in multiple states, OSHA will also be notified of all major accidents, which would include: all work-related fatalities, all work-related inpatient hospitalizations of one or more employees, all work-related amputations, and all work-related losses of an eye. Any fatality having occurred within 30 days of a work-related incident is to be reported to OSHA within 8 hours of learning about it. For inpatient hospitalization, amputation, or eye loss happening within 24 hours of a work-related incident, the incident must be reported to OSHA within 24 hours of learning about it. The incident will be reported via the 24-hour OSHA hotline (1-800-321-OSHA [6742]) and an OSHA 301 form will be completed. Information to be reported to OSHA should include:

- Establishment name
- Location of the work-related incident
- Time of the work-related incident
- Type of reportable event (i.e., fatality, inpatient hospitalization, amputation or loss of an eye)
- Number of employees who suffered the event
- Names of the employees who suffered the event
- Contact person and his or her phone number
- Brief description of the work-related incident

Additionally, ENG 3394 forms will be completed and forwarded to USACE within 24 hours. Types of accidents that would be considered major (Class A and Class B) under U.S. Department of Defense (DoD) guidance (DoD, 2009) would include:

Class A:

- A fatal injury;
- A permanent total disability; and
- Property damage of \$2,000,000 or more.

Class B:

- A permanent partial disability;
- The hospitalization of three or more people resulting from a single occurrence; and/or
- Property damage of \$500,000 or more (but less than \$2,000,000).

Minor accidents (Class C and Class D) (USACE, 2010) will also be reported via ENG 3394 forms to USACE within 24 hours, and these would include:

Class C:

- A non-fatal injury or occupational illness;
- One or more days away from work or training beyond the day or shift on which it occurred, or disability at any time (not meeting definition of Class A or B); and/or
- Property damage of \$50,000 or more (but less than \$500,000).

Class D:

- A non-fatal injury or occupational illness;
- Restricted work, transfer to another job, medical treatment greater than First Aid, needle stick injuries and cuts from sharps that are contaminated from another person's blood or other potentially infectious material, medical removal under medical surveillance requirements of an OSHA standard, occupational hearing loss that meets OSHA recordability criteria, or a work-related tuberculosis case, and/or
- Property damage of \$5,000 or more (but less than \$50,000).

ERT's accident experience goal for this project is to perform this project without accident or defect. To facilitate this goal, the ERT will implement the requirements of this APP, the SSHP, and the ERT Safety and Health Program. Additionally, the ERT Team will make all project and site management personnel aware of this goal and will empower all site personnel with stop work authority for known or potential uncontrolled safety hazards.

9. PLANS (PROGRAMS AND PROCEDURES) REQUIRED BY EM 385-1-1

Most applicable plans, programs, and procedures are addressed in the SSHP. Where a specific element does not apply to this project, a statement to that effect has been made.

a. Fatigue Management Plan (01.A.20)

Work hours for any one individual on-site will not exceed 10 hours per day for more than four consecutive days, or 50 hours within a seven-day work week, or 12 hours per day for more than three consecutive days; therefore, a fatigue management plan is not required.

b. Emergency Response Plans

1. Procedures and Tests (01.E.01)

During each morning's Daily Safety Briefing, the SSHO and/or Competent Person for the activity will identify emergency alarms, evacuation routes, and procedures to be followed in the event of an emergency (i.e., fire, lightning storms, etc.). Additionally, internal emergency notification procedures, hospital routes, external emergency support contact information, and notification procedures will be reviewed each day.

An initial review of the Emergency Action Plan will be conducted prior to the start of work. Periodic exercises may also be conducted to ensure that site personnel remain aware of immediate actions to be taken in the event of an emergency.

2. Spill Plans (01.E.01, 06.A.02)

There is a possibility of fuel spills during equipment/vehicle refueling. Fuel spills represent both a potential respiratory hazard and a potential fire hazard. Spill kits will be maintained on-site. Fuel will be stored only in Department of Transportation compliant containers. A fuel spill kit or absorbent will be on hand when fueling of vehicles and/or equipment is taking place at the project site. In the event a spill occurs during refueling, every effort will be made to contain the spill and clean it up immediately. The SDSs for equipment/vehicle fuel (gasoline and/or diesel) is included in **Appendix D** of the SSHP and will be available on-site. Spills resulting from any spill will be disposed of in accordance with the requirements for that item. No cigarette smoking or open flames will be allowed while on-site.

Currently, it is not anticipated that any hazardous materials will be used for this project; however, if any hazardous materials are required on-site they will be properly labeled, the site workers will be made aware of the specific hazards, this APP/SSHP will be amended to reflect the additional hazard, and the appropriate SDSs will be added to **Appendix D** of the SSHP.

3. Firefighting Plan (01.E.01, 19.A)

All site personnel will be trained in the proper use of site fire extinguishers. In the event of a small fire that can easily be controlled with a fire extinguisher, site personnel may extinguish the fire. If the fire continues after initial firefighting efforts by site personnel, then the situation will be immediately recognized as an emergency. The SSHO and/or Competent Person for the activity will initiate the process to evacuate to the initial rally point at the specific property (the front of the driveway for each property) and then off-site. The SSHO and/or Competent Person for the activity will:

- Account for all employees at the rally point;

- Notify local emergency services. A list of emergency contact numbers is provided in **Table 2** of this APP and in the back cover of the SSHP. The emergency contact phone numbers, map to local hospital, and SDSs will also be kept on-site in the front cab of each field vehicle;
- Notify the ERT PM.

Site personnel will only perform the rescue and medical duties that each is trained and qualified to perform. Qualified emergency personnel will perform all other necessary rescue and medical duties. Other than small fires, local emergency response services will be notified to handle the emergency. The SSHO will take measures to reduce injury and illness, primarily by evacuating personnel as quickly as possible, and then notify the ERT PM. Cleanup after such events may require specialized services. Work will not resume until the SSHO declares the incident closed.

Procedures or tests associated with fire emergency response activities will involve a rehearsal of the Emergency Action Plan prior to the start of site activities. During this briefing, the route to and location of the evacuation point will be determined by the SSHO and discussed with each field staff member.

4. Posting of Emergency Telephone Numbers (01.E.05)

Emergency telephone numbers are included below in **Table 2** and on the back cover of the SSHP. ERT field vehicles will function as mobile field offices, and each vehicle will contain a full copy of the APP/SSHP.

Service/Contact	Agency/Position	Telephone No.
Emergency Service	Ambulance, Fire, Police	911
Mount Saint Mary's Hospital 5300 Military Road Lewistown, NY 14092	General Hospital with Emergency Services; Trauma/ Chemical/Burn	(716) 297-4800
Spill Response	CHEMTREC	(800) 424-9300
United States Environmental Protection Agency (USEPA) National Response Center	24-hour hotline	(800) 424-8802
New York State Department of Environmental Conservation	Regulator	(844) 332-3267
New York State Department of Health	Regulator	(866) 881-2809
Poison Control	Poison Control Center	(800) 962-1253
USEPA Region 2	New York Spill Number	(800) 282-9378
[REDACTED]	[REDACTED]	[REDACTED]

5. Man Overboard/Abandon Ship (19.A.04)

This project does not involve any marine activities; therefore, this plan is not required.

6. Medical Support (03.A.02, 03.D)

The Emergency Action Plan is included in Section 11.0 of the SSHP. This includes details regarding on-site medical support, off-site medical support, and a map and turn-by-turn directions to the nearest hospital.

c. Prevention of Alcohol and Drug Abuse (Defense Federal Acquisition Regulation Supplement Subpart 252.223-7004) (01.C.02)

Introduction: The Drug-Free Workplace Act of 1988 set as a goal the elimination of the effects of illegal drugs in the workplace. Because of the inherently hazardous nature of the work performed by ERT personnel, the importance of creating and maintaining a safe, drug-free working environment is paramount. The performance of every employee must, at all times, support the company's mission to conduct site operations with a high level of productivity, reliability, judgment, and safety.

The management of ERT is thoroughly committed to providing a drug-free workplace for all employees. Drug and/or alcohol use and abuse are incompatible with ERT's high standards of performance, safety, and quality. As a term of employment, all employees agree to refrain from the use, distribution, possession, manufacture, or dispensing of a controlled substance, and drug and/or alcohol abuse. Violation of this policy may result in administrative action to include termination of employment.

Substance Use and Abuse Policy: Employee drug or substance use or abuse testing/screening conducted by ERT in support of this policy will be conducted at no expense to the employee, and, except for drug/substance use testing conducted for pre-employment, employees will receive reasonable compensation for the time required for participation in any drug or substance testing/screening.

As a matter of policy, ERT will strictly implement and enforce the policies listed below:

- No employee will report for work, or will work, impaired by any unauthorized or controlled substance;
- No employee will use any alcohol or a controlled substance at the site;
- Applicants for employment are subject to substance abuse screening as part of their baseline or pre-assignment physical examinations;
- Substance use or abuse screening may be conducted randomly and/or when an employee is involved in either a job-related accident or incident; and
- The SSHO has full authority to prevent/halt the work of an individual suspected to be impaired. If this occurs, the ERT PM will be notified immediately.

Prescription Medications: ERT project personnel may possess and use prescription medications and "over-the-counter" medications if all of the following apply:

- The prescription medication has been prescribed by an authorized medical practitioner for the current use (within the past 12 months) of the employee, and the medication is in its original container with a valid pharmacy label;
- The employee does not consume the prescribed, or over-the-counter, medication in quantities greater than, or more frequently than that directed on the label;
- Employees in possession of prescribed medications will not allow any other person to consume any amount of their prescribed medication; and
- If the prescribed medication could cause adverse side effects, or where the medication indicates warnings relevant to side effects affecting the operation of equipment or machinery, the employee will inform the SSHO prior to engaging in project operations that are prohibited by the medication warnings.

While the on-site use of prescription and over-the-counter medications is authorized, under the requirements listed above, ERT reserves the right to have a licensed physician determine if the employee's use of the medication could adversely affect the individual or could increase the potential for injury or illness to the employee or other site personnel. If consumption of the medication could lead to adverse safety or health effects, the SSHO, and/or the ERT SHM may, on the advice of the licensed physician, limit or suspend the employee's work activities.

Suspicion Inspection and Testing: For the purposes of ensuring compliance with the prohibition against the unauthorized possession of controlled substances, employees may be subject to random and reasonable suspicion inspections and testing. An employee's company clothing, locker, closet, work area, desk files, company motor vehicle, and similar areas are subject to inspection. Except for ERT owned/rented/leased property, no person or property search, urine drug test, or breathalyzer test will be conducted without the employee's consent. Refusal to submit to a legal inspection, or request for testing, may result in employee removal from site activities until further inspection or testing can determine the potential for prohibited drug or substance use or abuse.

d. Site Sanitation Plan (02)

ERT requires that all site personnel practice good housekeeping in both common areas and at the work site. The SSHO will conduct periodic inspections to ensure that good housekeeping practices are followed by site personnel.

Portable toilet facilities will be located at the staging area. Additionally, non-toxic hand soap or similar cleansing agents will be available for use within the designated support area and in each field vehicle. Site personnel will also be made aware that certain cleansing agents, such as hand sanitizers, may contain iodopropynyl butylcarbamate, which may cause allergic reactions to the skin. All work areas will be kept clean, and waste receptacles will be available. Drinking water will be readily available to all workers, and will be provided via bottles. No potable water supplies will be mixed with non-potable water supplies.

e. Medical Support Plan (03.A.01; 03.A.06; 03.D)

The Emergency Action Plan is included in Section 11.0 of the SSHP. This includes details regarding on-site medical support, off-site medical support, and a map and turn-by-turn directions to the nearest hospital.

f. Bloodborne Pathogen Plan (03.A.05)

As this effort will involve the use of staff trained in First Aid/CPR, although unlikely, there exists a potential for exposure to bloodborne pathogens (BBPs), if the administration of First Aid is necessary. Information related to BBPs is included in Section 11.0 of the SSHP.

g. Exposure Control Plan (03.A.05)

The Exposure Control Plan to minimize exposure to BBPs is included in Section 11.0 of the SSHP. Work practice controls and engineering controls are presented to minimize exposure.

h. Site Layout Plan (04.A)

The general layout map showing access routes to the site (and evacuation route from the site) is shown in **Figure 3**. Additional features included in the site layout:

- Mini-mobile box
- Construction of access routes
- Haul road
- Loading area
- Fractalization tank.

i. Access and Haul Road Plan (04.B)

ERT's access and haul road plan is included in the Site Operation Plan prepared for this project.

j. Hearing Conservation Program (05.C)

If workers are subjected to noise exceeding an 8-hour time-weighted average of 85 decibels (dBA) on the A-weighted scale, hearing protection will be provided with an appropriate noise reduction rating to comply with 29 CFR 1910.95 and reduce noise levels to or below 85 dBA. ERT's Hearing Conservation Program is presented as Attachment 4 of the APP.

k. Respiratory Protection Plan (05.G)

ERT's Respiratory Protection Program is included as Attachment 5 to this APP.

l. Health Hazard Control Program (06.A)

The Health Hazard Control Program is presented in Section 2.0 of the SSHP.

m. Written Hazard Communications Program (06.B.01)

The Written Hazard Communications Program is presented in Section 9.3 of the SSHP.

n. Process Safety Management Plan (06.B.04)

This plan is not required. No processes involving highly hazardous chemicals are anticipated for this project.

o. Lead Abatement Plan (06.C and Specifications)

This plan is not required. No work with lead abatement is anticipated for this project.

p. Asbestos Abatement Plan (06.C and Specifications)

This plan is not required. No work with asbestos abatement is anticipated for this project.

q. Radiation Safety Program (06.F)

This plan is not required. No contact with radioactive materials is anticipated for this project.

r. Abrasive Blasting Plan (06.I)

This plan is not required. No abrasive blasting is planned during this project.

s. Heat/Cold Stress Monitoring Plan (06.J)

The Heat/Cold Stress Monitoring Plan is presented as Section 8.0 in the SSHP.

t. Indoor Air Quality Management Plan (06.L)

This plan is not required. No indoor field work is planned during this project.

u. Mold Remediation Plan (06.L.04)

This plan is not required. No indoor field work is planned during this project, it is not expected that mold will be encountered.

v. Chromium (VI) Exposure Evaluation (06.M)

This plan is not required. No operations will result in the handling or generation of chromium (VI), i.e., welding, painting, paint removal, heating stainless steel, and/or handling anti-corrosive substances.

w. Crystalline Silica Assessment (06.N)

This plan is not required. No crystalline silica exposure is anticipated during this project.

x. Lighting Evaluation (07.A)

This plan is not required. All work will be performed outside during daylight hours.

y. Lighting Plan for Night Operations (07.A.09)

This plan is not required. No work will be performed during night hours.

z. Traffic Control Plan (07.A.09)

This plan is not required. No work will be performed during night hours.

aa. Fire Prevention Plan (09.A.01)

Explosion and fire hazards may be present at the work site due to the unexpected ignition of chemicals or fuels, the sudden release of materials under pressure, or due to the possibility of careless, unauthorized smoking in work areas. Site operations will be conducted in accordance with local fire codes and regulations.

Site personnel will be advised of all potential ignition sources and be reminded to practice good housekeeping and minimize fuel sources. Personnel will be observant of site conditions and ensure that no operations are conducted that could result in the ignition of a fire. Smoking will be allowed only in designated areas. The SSHO will ensure that fire safety practices are adhered to by site personnel.

Each field vehicle will be equipped with a fire extinguisher. Site personnel will be trained in the proper use of fire suppression equipment. Fires beyond the incipient stage, not able to be controlled with a fire extinguisher, will be handled by professionals of the local fire department. In the event of a fire that cannot be controlled by a fire extinguisher, the Emergency Action Plan will be implemented. The SSHO will initiate making appropriate notifications. Per the Emergency Action Plan, site workers will immediately report to the primary rally point for each area as shown in **Figure 3**, unless this location has become dangerous due to the existing emergency, in which case, personnel will proceed to a secondary rally point, to be determined in the field by the SSHO. Site personnel will always be on the alert for unexpected events, and be prepared to act in these emergencies.

bb. Wild Land Fire Management Plan (09.L)

This plan is not required as this project is not being executed in wild lands.

cc. Arc Flash Hazard Analysis (11.B)

This plan is not required as no work will be completed near energized parts.

dd. Assured Equipment Grounding Control Program (AEGCP) (11.D.05, App D)

It is not anticipated that temporary electrical power will be necessary; however, if needed, all temporary electrical receptacle outlets will be equipped with a ground-fault circuit interrupter.

ee. Hazardous Energy Control Plan (12.A.01)

This plan is not required as no hazardous energy will be involved for this project.

ff. Standard Pre-Lift Plan (LHE) (16.H)

This plan is not required. No lifts are planned during this project.

gg. Critical Lift Plan - LHE (16.H)

This plan is not required. No critical lifts are planned during this project.

hh. Naval Architectural Analysis (16.L)

This plan is not required as this project will not involve the use of floating cranes/derricks, crane barges, and/or auxiliary shipboard-mounted cranes.

ii. Contingency Plan for Severe Weather (19.A.03)

The contingency plan for severe weather is presented in Section 2.1.7 of the SSHP.

jj. Man Overboard/Abandon Ship (19.A.04)

This project does not involve any marine activities; therefore, this plan is not required.

kk. Float Plan (19.F.04)

This plan is not required. No marine work is planned for this project.

ll. Fall Protection Plan (21.D)

This plan is not required. No elevated work is planned for this project.

mm. Demolition/Renovation Plan (to include engineering survey) (23.A.02)

This plan is not required. No building and/or structure demolition is anticipated for this project.

nn. Rope Access Program (24.H.02)

This plan is not required. No climbing will be performed during this project.

oo. Excavation/Trenching Plan (25.A.01)

This project will involve excavating contaminated soil. The excavation is not anticipated to be deeper than 3 feet, and therefore will not require benching, sloping, or shoring. The Equipment Operator and/or Site Superintendent will function as the Excavation Competent person on-site during these excavation activities.

All excavated materials will be placed at least two feet from the edge of the excavation. Perimeter protection will be provided as necessary for unattended excavations. The SSHP/Construction Manager will evaluate the exposure of the excavation to employees, the public, vehicles, and equipment. This evaluation will be used in determining the class of perimeter protection. Warning barricades or flagging will be at an elevation of 3 to 4 feet above ground level. No personnel will be permitted to enter the zone between the warning barricades/flagging and the excavation; therefore, fall protection will not be required.

All project personnel engaged in excavation activities will participate in the site-specific training session and be instructed on the following requirements:

- Determine and document the existence and location of underground pipes, electrical equipment, telephone, gas lines, etc. before commencing intrusive activities such as excavating, etc.

- Determine safe working distances when excavating equipment is being operated near overhead power lines. The guidelines established in EM 385-1-1 will be strictly adhered to.
- Excavations will be sloped appropriately for the soil types observed.

An AHA has been completed for this activity and is presented in **Attachment 3** of this APP.

pp. Underground Construction Fire Prevention and Protection Plan (26.D.01)

This plan is not required. No underground construction is anticipated for this project.

qq. Compressed Air Plan (26.I.01)

This plan is not required. No compressed air operations are anticipated for this project.

rr. Formwork and Shoring Erection and Removal Plans (27.C)

This plan is not required. No formwork or shoring erection is planned during this project.

ss. Pre-Cast Concrete Plan (27.D)

This plan is not required. No pre-cast concrete will be used during this project.

tt. Lift Slab Plans (27.E)

This plan is not required. No slab work that would require lifting is planned during this project.

uu. Steel Erection Plan (28.B)

This plan is not required. No steel erection is anticipated for this project.

vv. Explosives Site Plan (ESP) (29.A)

This plan is not required. No ESP is required for this project.

ww. Blasting Plan (29.A.01)

This plan is not required. No commercial or industrial blasting is anticipated for this project.

xx. Underwater Dive Operations Plan (30.A.14, 16)

This plan is not required. No diving operations are anticipated for this project.

yy. Tree Felling/Maintenance Program (31.A)

This project will include vegetation removal and grubbing within the debris field. All vegetation removal and grubbing activities will be conducted by ERT's subcontractor, Tree Doctor, and overseen by ERT's Project Superintendent and SSHO. All personnel working with vegetation removal and grubbing equipment will be trained in the proper and safe operation of the equipment. Proper and safe operation will be defined as operation in accordance with the manufacturer's recommendations and in accordance with USACE EM 385-1-1. Appropriate level D PPE will be required at all times. Safety vests, hard hats, and safety glasses will be worn by staff performing vegetation clearance and grubbing. Hearing protection is required during the use of powered equipment and other activities the produce sound pressure levels that exceed 85 dBA on the A-weighted scale, as stated in section 9.j of this APP. Prior to any vegetation clearance and grubbing activities, all onsite personnel will be made aware of the pending action and be required to maintain a minimum safe distance from the equipment.

zz. Aircraft/Airfield Construction Safety & Phasing Plan (32.A.02)

This plan is not required. No operations will occur near an airfield for this project.

aaa. Site Safety and Health Plan for Hazardous, Toxic and Radioactive Waste (HTRW) (33.B)

The SSHP is included as **Attachment 2** of this APP.

bbb. Confined Space Entry Program (34.A.06, 07)

This plan is not required. No confined spaces will be entered during this project.

10. RISK MANAGEMENT PROCESS

An analysis of safety and health hazards has been performed and is included in the AHA found in **Attachment 3** of this APP. Risk levels of each hazard and risk mitigation controls are included as part of the AHA.

Prior to initiating any site work, all staff are required to read the APP, SSHP, and AHAs, and sign the Review Record located within the SSHP acknowledging that they have read, understand, and accept responsibility for any activities they perform as part of this project. Pre-operational activity site-specific safety briefings will be performed prior to the initiation of field activities, with sign-off of this briefing by all staff. Additionally, safety briefings will be conducted by the SSHO and/or Competent Person for the activity daily. Safety briefings will also be conducted for temporary site workers and/or visitors entering the site. Personnel will sign an attendance roster, via the Daily Safety Briefing form in **Appendix B** of the SSHP, to acknowledge receipt of the briefing.

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11. REFERENCES

DoD, 2009. *Memorandum from Under Secretary of Defense for Secretaries of the Military Departments, Regarding: Revision to Cost Thresholds for Accident Severity Classification*, July.

USACE, 2010. *USACE Accident Investigation and Reporting, ER 385-1-99*, 15 March 2010.

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

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FIGURES

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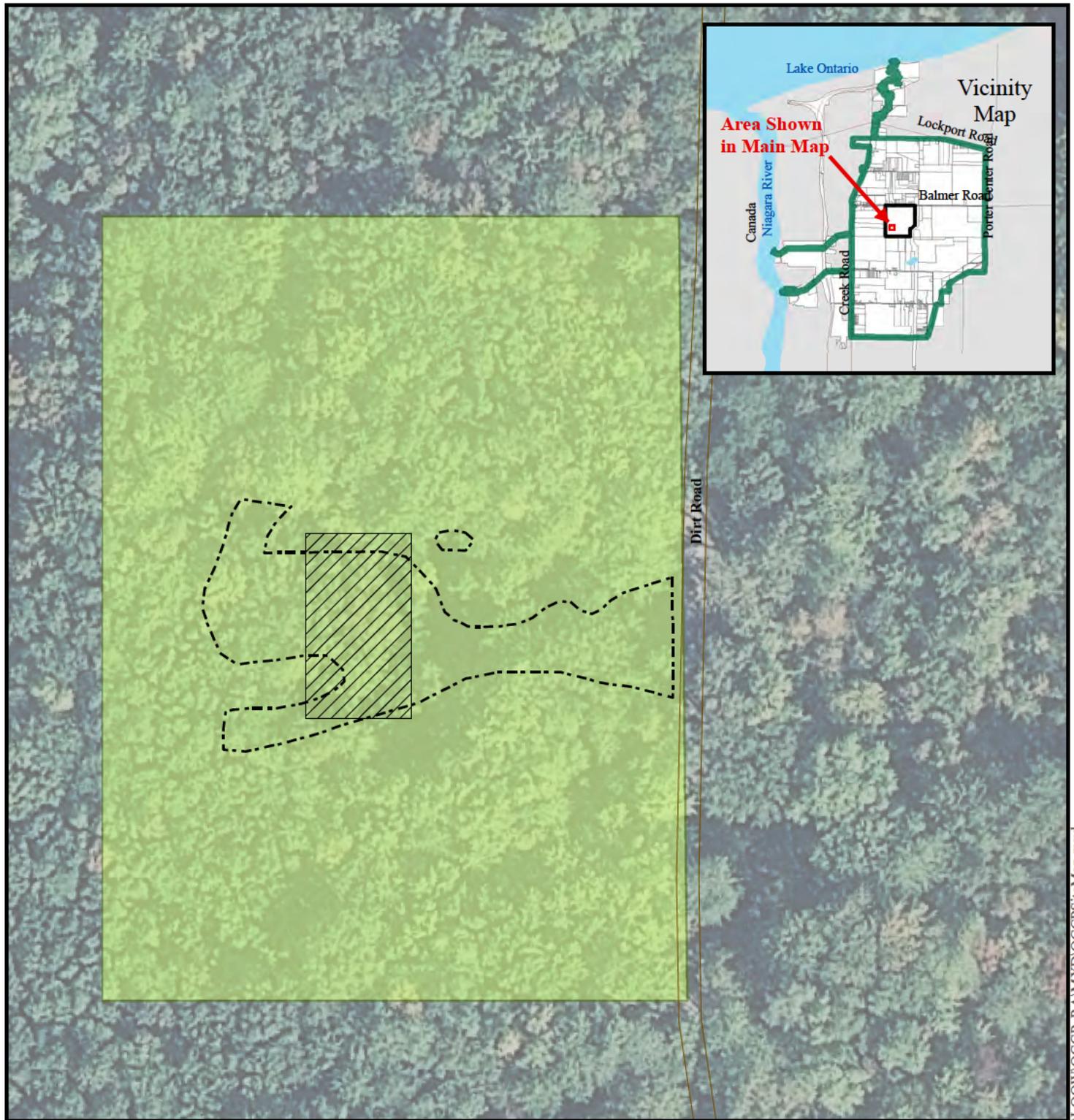
LEGEND

Site Location	Roads
Property Ownership Boundary Occidental Chemical Corporation	Former LOOW Boundary with Easements
Tax Parcel Boundaries	
Lakes/Rivers/Ponds	

Figure 1
Occidental Chemical Corporation
Site Location

Path: N:\GIS\Northeast\NewYork\LOOW\OCCP_RAMXD\SiteLocation.mxd

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LEGEND

 Approximate TNT and Lead Impacted Area

 Approximate Area of Debris – Approximate Extent of Slightly Elevated Areas Within AOC 1 (TEC, 2002)

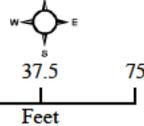
 Area of Concern 1 (AOC 1)

 Property Ownership Boundary Occidental Chemical Corporation

 Tax Parcel Boundaries

 Former LOOW Boundary with Easements

 Roads



**Figure 2
Occidental Chemical Corporation
Property Site Map**

**LAKE ONTARIO ORDNANCE WORKS
OCCIDENTAL CHEMICAL CORPORATION PROPERTY
NIAGARA COUNTY, NEW YORK**



**US Army Corps
of Engineers®**

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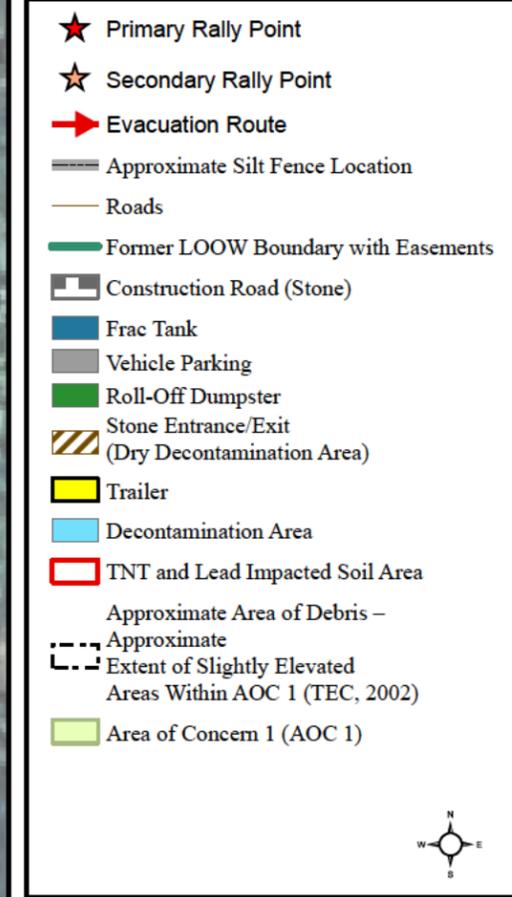
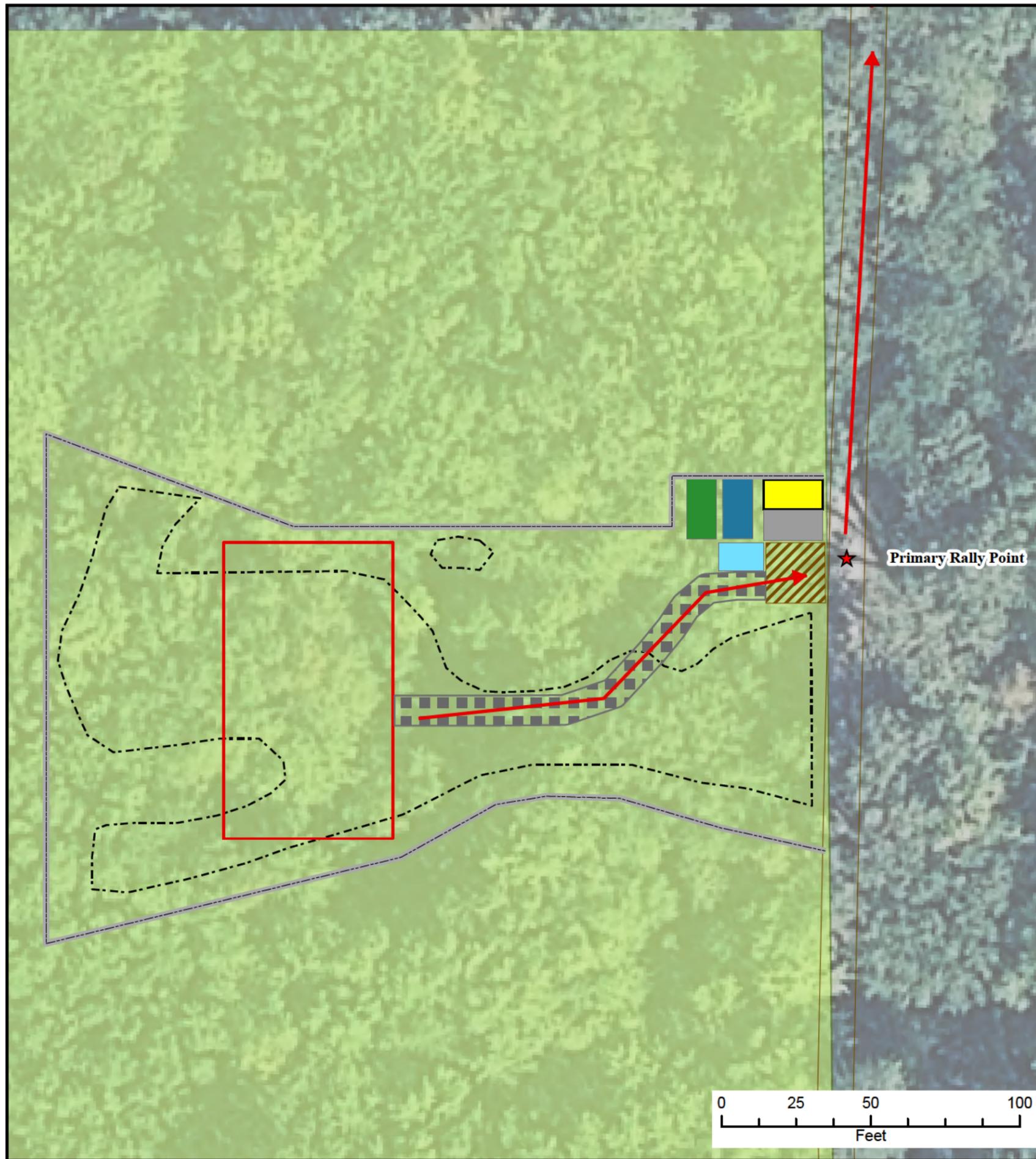
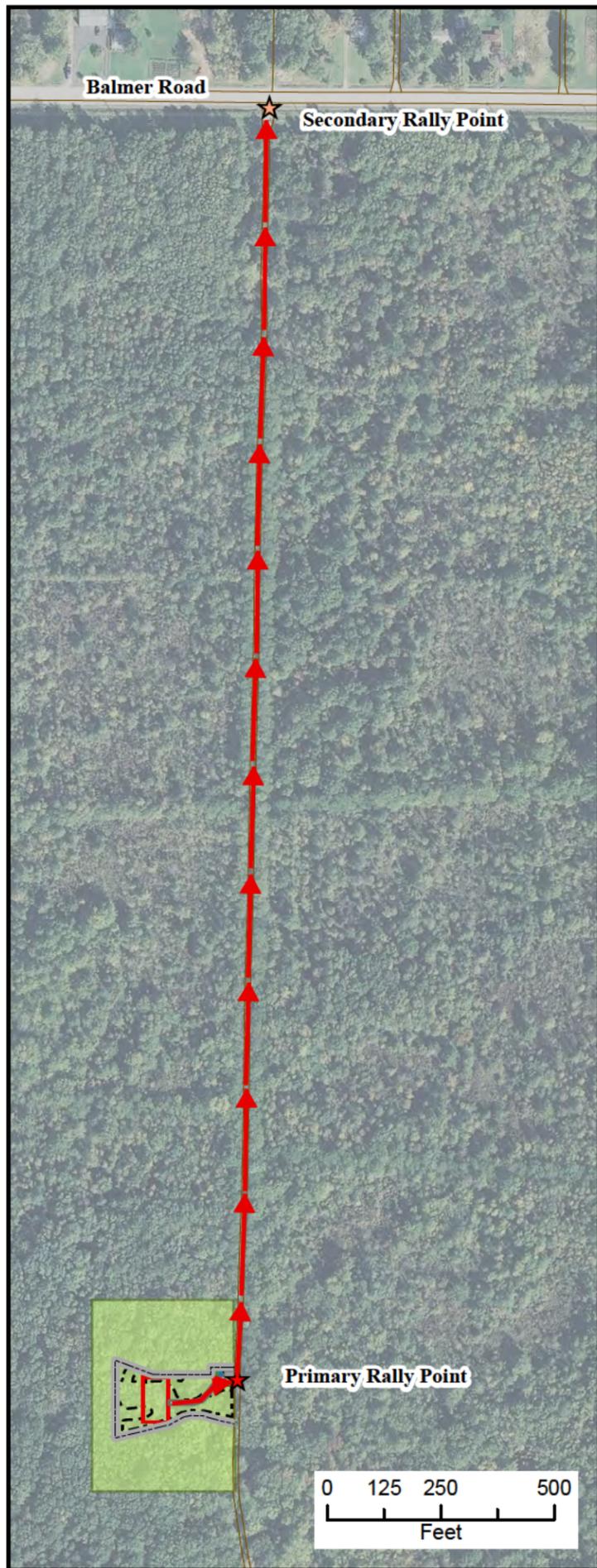


Figure 3
Evacuation Route

US Army Corps of Engineers®

LAKE ONTARIO ORDNANCE WORKS
OCCIDENTAL CHEMICAL CORPORATION PROPERTY
NIAGARA COUNTY, NEW YORK

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ATTACHMENT 1
OSHA 300A Forms, 2014 - 2016

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

Summary of Work-Related Injuries and Illnesses

Year 2016



Occupational Safety and Health Administration

Form approved OMB no. 1218-0178

All establishments covered by Part 1904 must complete this Summary page, even if no injuries or illnesses occurred during the year. Remember to review the Log to verify that the entries are complete and accurate.

Using the Log, count the individual entries you made for each category. Then write the totals below, making sure you've added the entries from every page of the log. If you had no cases write "0."

Employees former employees, and their representatives have the right to review the OSHA Form 300 in its entirety. They also have limited access to the OSHA Form 301 or its equivalent. See 29 CFR 1904.35, in OSHA's Recordkeeping rule, for further details on the access provisions for these forms.

Number of Cases

Total number of deaths	Total number of cases with days away from work	Total number of cases with job transfer or restriction	Total number of other recordable cases
<u>0</u>	<u>3</u>	<u>0</u>	<u>2</u>
(G)	(H)	(I)	(J)

Number of Days

Total number of days away from work	Total number of days of job transfer or restriction
<u>227</u>	<u>0</u>
(K)	(L)

Injury and Illness Types

Total number of... (M)	
(1) Injury	<u>5</u>
(2) Skin Disorder	<u>0</u>
(3) Respiratory Condition	<u>0</u>
(4) Poisoning	<u>0</u>
(5) Hearing Loss	<u>0</u>
(6) All Other Illnesses	<u>0</u>

Post this Summary page from February 1 to April 30 of the year following the year covered by the form

Public reporting burden for this collection of information is estimated to average 58 minutes per response, including time to review the instruction, search and gather the data needed, and complete and review the collection of information. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments about these estimates or any aspects of this data collection, contact: US Department of Labor, OSHA, Office of Statistics, Room N-3544, 200 Constitution Ave. NW, Washington, DC 20210. Do not send the completed forms to this office.

Establishment Information

Your establishment name ERT, Inc

Street 14401 Switzer Lane, Suite 300

City Laurel State MD Zip 20707

Industry description (e.g., Manufacture of motor truck trailers)
IT, Earth Science, Geophysics, Environmental, Remote Sensing

Standard Industrial Classification (SIC), if known (e.g., SIC 3715)
951 871 874 873 179 495

OR North American Industrial Classification (NAICS), if known (e.g., 336212)

Employment Information

Annual average number of employees 437

Total hours worked by all employees last year 786,810

Sign here

Knowingly falsifying this document may result in a fine.

I certify that I have examined this document and that to the best of my knowledge the entries are true, accurate, and

President
Title

301-323-1411
Phone

20-Jan-17
Date

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

Summary of Work-Related Injuries and Illnesses

Year 2015



U.S. Department of Labor
Occupational Safety and Health Administration

Form approved OMB no. 1218-0176

All establishments covered by Part 1904 must complete this Summary page, even if no injuries or illnesses occurred during the year. Remember to review the Log to verify that the entries are complete

Using the Log, count the individual entries you made for each category. Then write the totals below, making sure you've added the entries from every page of the log. If you had no cases write "0."

Employees former employees, and their representatives have the right to review the OSHA Form 300 in its entirety. They also have limited access to the OSHA Form 301 or its equivalent. See 29 CFR 1904.35, in OSHA's Recordkeeping rule, for further details on the access provisions for these forms.

Number of Cases

Total number of deaths	Total number of cases with days away from work	Total number of cases with job transfer or restriction	Total number of other recordable cases
<u>0</u>	<u>1</u>	<u>0</u>	<u>2</u>
(G)	(H)	(I)	(J)

Number of Days

Total number of days away from work	Total number of days of job transfer or restriction
<u>1</u>	<u>0</u>
(K)	(L)

Injury and Illness Types

Total number of... (M)	
(1) Injury	<u>1</u>
(2) Skin Disorder	<u>1</u>
(3) Respiratory Condition	<u>0</u>
(4) Poisoning	<u>0</u>
(5) Hearing Loss	<u>0</u>
(6) All Other Illnesses	<u>1</u>

Post this Summary page from February 1 to April 30 of the year following the year covered by the form

Public reporting burden for this collection of information is estimated to average 58 minutes per response, including time to review the instruction, search and gather the data needed, and complete and review the collection of information. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments about these estimates or any aspects of this data collection, contact: US Department of Labor, OSHA Office of Statistics, Room N-3644, 200 Constitution Ave. NW, Washington, DC 20210. Do not send the completed forms to this office.

Establishment information

Your establishment name ERT, Inc

Street 14401 Sweitzer Lane, Suite 300

City Laurel State MD Zip 20707

Industry description (e.g., Manufacture of motor truck trailers)
IT, Earth Science, Geophysics, Environmental, Remote Sensing

Standard Industrial Classification (SIC), if known (e.g., SIC 3715)
951 871 874 873 179 495

OR North American Industrial Classification (NAICS), if known (e.g., 336212)

Employment information

Annual average number of employees 417

Total hours worked by all employees last year 901,370

Sign here

Knowingly falsifying this document may result in a fine.

I certify that I have examined this document and that to the best of my knowledge the entries are true, accurate, and

President
Title

301-323-1411
Phone

14-Jan-16
Date

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

Summary of Work-Related Injuries and Illnesses

Year 2014



U.S. Department of Labor
Occupational Safety and Health Administration

Form approved OMB no. 1218-0176

All establishments covered by Part 1904 must complete this Summary page, even if no injuries or illnesses occurred during the year. Remember to review the Log to verify that the entries are complete

Using the Log, count the individual entries you made for each category. Then write the totals below, making sure you've added the entries from every page of the log. If you had no cases write "0."

Employees former employees, and their representatives have the right to review the OSHA Form 300 in its entirety. They also have limited access to the OSHA Form 301 or its equivalent. See 29 CFR 1904.35, in OSHA's Recordkeeping rule, for further details on the access provisions for these forms.

Number of Cases

Total number of deaths	Total number of cases with days away from work	Total number of cases with job transfer or restriction	Total number of other recordable cases
<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>
(G)	(H)	(I)	(J)

Number of Days

Total number of days away from work	Total number of days of job transfer or restriction
<u>0</u>	<u>0</u>
(K)	(L)

Injury and Illness Types

Total number of... (M)			
(1) Injury	<u>1</u>	(4) Poisoning	<u>0</u>
(2) Skin Disorder	<u>0</u>	(5) Hearing Loss	<u>0</u>
(3) Respiratory Condition	<u>0</u>	(6) All Other Illnesses	<u>0</u>

Post this Summary page from February 1 to April 30 of the year following the year covered by the form

Public reporting burden for this collection of information is estimated to average 58 minutes per response, including time to review the instruction, search and gather the data needed, and complete and review the collection of information. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments about these estimates or any aspects of this data collection, contact: US Department of Labor, OSHA Office of Statistics, Room N-3644, 200 Constitution Ave. NW, Washington, DC 20210. Do not send the completed forms to this office.

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Street 14401 Sweitzer lane Frost Place, Suite 300

City Laurel State MD Zip 20707

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IT, Earth Science, Geophysics, Environmental, Remote Sensing

Standard Industrial Classification (SIC), if known (e.g., SIC 3715)
951 871 874 873 179 495

OR North American Industrial Classification (NAICS), if known (e.g., 338212)

Employment information

Annual average number of employees 404.33

Total hours worked by all employees last year 825,048.48

Sign here

Knowingly falsifying this document may result in a fine.

I certify that I have examined this document and that to the best of my knowledge the entries are true, accurate, and complete.

Con

President
Title

301-381-0858
Phone

1/30/2015
Date

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ATTACHMENT 2
Site Safety and Health Plan

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**SITE SAFETY AND HEALTH PLAN
(ATTACHMENT 2 TO THE ACCIDENT PREVENTION PLAN)**

FOR

**SOILS REMEDIAL ACTION
AOC 1 AT THE OCCIDENTAL CHEMICAL CORPORATION PROPERTY
FORMER LAKE ONTARIO ORDNANCE WORKS
NIAGARA COUNTY, NEW YORK**

CONTRACT No.: W912QR-12-D-0011

DELIVERY ORDER: W912P417F0022

Prepared by:

ERT, Inc.
14401 Sweitzer Lane, Suite 300
Laurel, Maryland 20707
(301) 361-0620

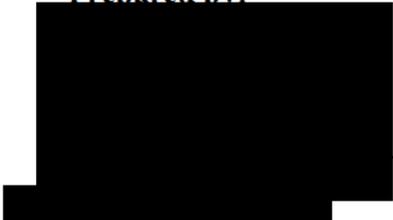
March 2018

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CERTIFICATION

This Site-Specific Safety and Health Plan (SSHP) has been prepared under the supervision of, and has been reviewed by, a Certified Safety Professional (CSP).

Prepared by:



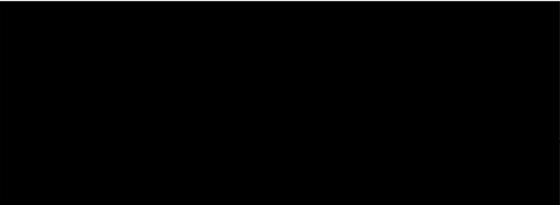
7 March 2018

Date:

ERT, Inc. (ERT)

Approved by:

By signing the SSHP, the ERT, Inc. (ERT) certifies that Dave Sykes (and alternate Bob Koroncai) has completed the required occupational safety and health courses and is qualified, by both training and experience, to serve as the Site Safety and Health Officer (SSHO), as well as the "Competent Person for overall site safety," for each respective phase of work for which he is responsible, for the Soils Remedial Action at Area of Concern (AOC) 1 at the Occidental Chemical Corporation Property (OCCP) at the former Lake Ontario Ordnance Works (LOOW), Niagara County, New York.

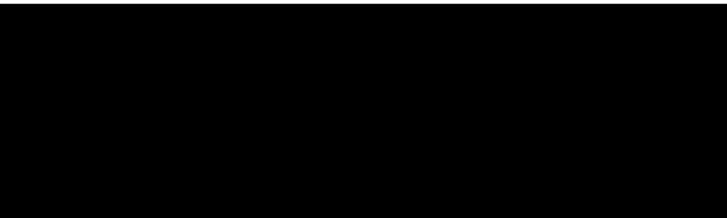


7 March 2018

Date:

ERT Safety and Health Manager

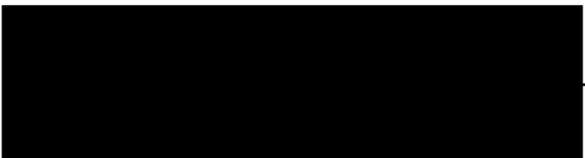
Plan Concurrence:



7 March 2018

Date:

ERT Quality Control System Manager



8 March 2018

Date:

ERT Project Manager

SITE SAFETY AND HEALTH PLAN REVIEW RECORD

Site Name: Former Lake Ontario Ordinance Works, Occidental Chemical Corporation Property (LOOW OCCP)

Work Location Address: 1014 – 1350 Balmer Road, Youngstown, New York 14174.

I have read, understood, and agree to abide by the information set forth in this SSHP and discussed in the initial Daily Safety Briefing.

NAME	SIGNATURE	DATE
_____ Name	_____ Signature	_____ Date

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ACRONYMS AND ABBREVIATIONS

ACGIH	American Conference of Governmental Industrial Hygienists
AHA	Activity Hazard Analysis
APP	Accident Prevention Plan
BBP	bloodborne pathogen
CDC	Centers for Disease Control
CFR	Code of Federal Regulations
CGI	Combustible Gas Indicator
COC	constituent of concern
COR	Contracting Officer's Representative
CPR	cardiopulmonary resuscitation
CQCR	Contractor Quality Control Plan
CSP	Certified Safety Person
dBA	decibels on the A-weighted scale
DO	Delivery Order
DOT	U.S. Department of Transportation
EM	engineer manual
ERT	ERT, Inc.
eV	electron volt
ft	feet/foot
HAZCOM	hazard communication
HAZWOPER	Hazardous Waste Operations and Emergency Response
HI	Hazard Index
hr	hour
IDW	investigative derived waste
LEL	Lower Explosive Limit
LOOW	Lake Ontario Ordnance Works
mg/m ³	milligrams per cubic meter
NA	not applicable
NYSDEC	New York State Department of Environmental Conservation
NYSDH	New York State Department of Health
OCCP	Occidental Chemical Corporation Property
OSHA	Occupational Safety and Health Administration
PM	Project Manager
PMP	Project Manager Professional
PPE	personal protective equipment
ppm	parts per million
RMSF	Rocky Mountain spotted fever
SHM	Safety and Health Manager
SDS	Safety Data Sheet
SSHO	Site Safety and Health Officer
SSHP	Site Safety and Health Plan
TBD	to-be-determined
TLV	threshold limit value
TNT	trinitrotoluene

USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
WBGT	wet bulb globe temperature
WP	Work Plan
°F	degrees Fahrenheit

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1.0 SITE DESCRIPTION AND CONTAMINATION CHARACTERIZATION

This Site Safety and Health Plan (SSHP) is Attachment 2 of the Accident Prevention Plan (APP) for the Lake Ontario Ordnance Works, Occidental Chemical Corporation Property (LOOW OCCP) Soils Remedial Action project being conducted by ERT, Inc. (ERT) under the U.S. Army Corps of Engineers, Buffalo District. This SSHP covers the implementation of field activities described in contract W912QR-12-D-0011-W912P4-17-F-0022 at LOOW OCCP, Niagara County, New York. This SSHP addresses the required components from U.S. Army Corps of Engineers (USACE) Engineer Manual (EM) 385-1-1, September 2014.

The major phases of work involved in this project include:

- Mobilization/Demobilization;
- Clear brush at the site to enable performance of remedial action;
- Manage storm water and wastewater from the site;
- Oversee excavation and disposal of contaminated soil/fill and any co-mingled debris;
- Conduct confirmation soil sampling using incremental soil sampling; and
- Restore site to match conditions of surrounding wetlands.

Field activities included in the phases above are anticipated to occur over non-continuous, multiple mobilizations. Physical, chemical, and biological hazards are associated with these field activities and are discussed in Section 2.0.

1.1 Site Description

The largely undeveloped buffer zone of the former LOOW was transferred to the General Services Administration in 1945 for conveyance to private landowners (U.S. Army Corps of Engineers [USACE], 2013). The OCCP is an approximately 123-hectare (304-acre) parcel situated in the undeveloped buffer zone of the former LOOW where no manufacturing took place. Prior to development of LOOW, the OCCP was mixed agricultural land (e.g., forest, orchard, and farms with some farmsteads and farm ponds). Use and ownership of the OCCP for the period between 1945 and 1975 is unknown. A number of remarks in historical aerial photography from the 1950s refer to local farming (U.S. Army Topographic Engineering Center, 2002). This suggests that the property may have been used for agricultural purposes. The Hooker Chemical and Plastics Corporations purchased the land from a private landowner in 1975 and later sold it to the Occidental Chemical Corporation (USACE, 2013), a wholly-owned subsidiary of Occidental Petroleum Corporation, which currently owns the property.

The OCCP is currently vacant and the portion which contains AOC 1 is zoned low-density residential, although future use has been identified as industrial. No significant former DoD structures are located at AOC 1. However, previous DoD activities are evident in features that consist of disturbed ground, small-bermed clearings, and mounded material or debris piles. AOC 1 contains evidence of municipal waste (e.g., beverage containers, asphalt shingles, and tires) and construction debris (e.g., terra cotta pipes, transite siding, ceramic electrical junctions, and deteriorated steel drums). However, the majority of material identified appears to originate from DoD ownership and past DoD activities (U.S. Army Topographic Engineering Center, 2002). AOC 1 is located within a freshwater forested/shrub wetland. Specifically, the freshwater

wetland designated LE-18 is within the boundary of AOC 1, according to aerial imagery available at New York State Orthos Online for Niagara County (New York Statewide Digital Orthoimagery Program, 2014). Although current zoning does not prevent restrictions on future development, impacting wetlands will require a State Article 24 permit to impact wetlands for any future development. Any form of impact to the State mapped wetland(s) will require the future owner of the property to follow the proper permitting procedures. Future development permits will be difficult to obtain if the wetlands are impacted on AOC 1.

1.2 Constituents of Concern

Based on the results of the human health risk assessment for OCCP AOC 1, lead and 2,4,6-trinitrotoluene (TNT) in surface soil were identified as constituents of concern (COCs) in the soil for the hypothetical future residential land use at OCCP. No further action was recommended for groundwater.

Based on the human health risk assessment scenarios evaluated in accordance with the planned future reuse of the site (i.e., industrial and construction scenarios), cancer risks fall within the target cancer risk range and noncancer hazard indexes (HIs) fall below the target HI for both scenarios.

2.0 HAZARD/RISK ANALYSIS

An activity hazard analysis (AHA) has been completed and is included in Attachment 2 of the APP. The AHA addresses the task-specific activity hazards associated with the remedial action activities that are to be conducted by ERT and its subcontractors, and the appropriate control measures and response actions. Equipment, inspection, and training requirements for each activity are also identified in the AHA. Health and safety equipment, such as personal protective equipment (PPE), is described in Section 5.0 of this SSHP.

The AHA is an ongoing process initiated with the preparation of the SSHP and continuing through the implementation and completion of field activities. As conditions change and new hazards are identified, appropriate AHAs will be prepared and necessary changes to the SSHP will be made.

2.1 Physical Hazards

Physical hazards, to be discussed in depth in the following sub-sections, will potentially be present at the site during field activities. These physical hazards include the following:

- General Physical Hazards;
- Fire/Explosion Hazards;
- Noise Hazards;
- Electrical Hazards;
- Utility Hazards;
- Weather Hazards;
- Material Handling/Moving/Lifting;
- Equipment Use Hazards;
- Environmental Sampling Hazards;
- Excavation Hazards; and
- Chemical Hazards.

2.1.1 General Physical Hazards

The work site may include many basic physical safety hazards, such as:

- Uneven terrain, posing slip, trip, and fall hazards;
- Holes, ditches, etc., posing fall, cave-in and other hazards;
- Potential vegetation and/or brush that may reduce or obstruct visibility, pose trip or fall hazards, or cause cuts or other injuries
- Precariously positioned objects that may cause injuries
- Sharp objects (i.e., nails, metal shards, glass), which may cause cuts, injections, or other injuries;
- Slippery surfaces, posing slip and fall hazards; and
- Unstable surfaces which may cause falls or other injuries.

Basic safety hazards can directly injure workers and create additional hazards. For example, a person could trip due to uneven terrain, causing him/her to fall and be cut on rusty metal shards, and as a result become inoculated with Constituents adhering to the metal.

The site will be visually inspected for the presence of general physical hazards (i.e., trip/slip hazards, unstable surfaces or steep grades, sharp objects) prior to beginning work. If hazards are present, these hazards will be either removed or recorded and precautionary measures will be taken to prevent injury.

Site personnel will look constantly, closely, and carefully for these general physical hazards and immediately inform the Site Safety and Health Officer (SSHO) and Site Superintendent of conditions that they feel may be hazardous.

If hazards are present, other than those discussed in this SSHP, these hazards will be recorded by the SSHO and precautionary measures will be taken to prevent injury. If the newly identified hazards require engineering controls, implementation will be discussed with the ERT Project Manager (PM) and the USACE PM.

2.1.2 Fire/Explosion Hazards

Explosion and fire hazards may be present at the work site due to the unexpected ignition of fuels, the sudden release of materials under pressure, or due to possible careless unauthorized smoking in work areas. Site operations will be conducted in accordance with local fire codes and regulations. To aid in fire prevention within wooded areas, smoking will only be allowed in designated areas, vehicle engines will be powered down when not in use to prevent tall grasses from catching fire, and flammable materials will be properly labeled and stored in well-ventilated areas.

Each field vehicle will be equipped with fire extinguishers. Employees will be trained in the proper use of fire suppression equipment. Fires beyond the incipient stage, uncontrollable with fire extinguishers, will be handled by local fire department professionals. In the event of a fire, employees will contact the fire department by calling 911, and all staff will report to the pre-determined evacuation point (Attachment 1 of the APP, **Figure 4**) unless this location has become dangerous due to the existing emergency. Otherwise, personnel will proceed to a secondary rally point established between the field personnel and USACE personnel during mobilization activities, in order to account for unknown activities that may be ongoing at the installation during field activities. ERT staff will always be on the alert for unexpected events, and be prepared to act in these emergencies.

2.1.3 Noise Hazards

Working around equipment often creates excessive noise. Noise can cause workers to be startled, annoyed, or distracted, and can cause physical damage to the ear, pain, and temporary and/or permanent hearing loss. Lastly, working around equipment can interfere with communication. If workers are subjected to noise exceeding an 8-hour (hr) time-weighted average of 85 decibels on the A-weighted scale (dBA), hearing protection will be provided with an appropriate noise reduction rating to comply with 29 Code of Federal Regulations (CFR) 1910.95 and reduce noise levels to or below 85 dBA. If not already enrolled, affected employees will be included in ERT's Hearing Conservation Program. Completion of project activities will include small mechanical excavation equipment. When using mechanical excavation equipment the SSHO

will select appropriate hearing protection with sufficient passive noise reduction capabilities to reduce noise levels to, or below, 85 dBA. If ear insert devices are used, they will be fitted to the exposed individual by a trained individual who is able to recognize properly fitted, inserted ear protection. If ear muffs are used, the SSHO will ensure proper coverage of the ear by the muff. For this project, it is anticipated that the phases of work where workers will have greatest probability of exposure to sound levels greater than 85 dBA would be the excavation and load-out contaminated soil at each site. As described in the AHAs (Attachment 2 to the APP), during these phases, hearing protection will be worn during operation of open-cab equipment due to elevated noise levels.

2.1.4 Electrical Hazards

Overhead power lines, electrical wiring, electrical equipment, and buried cables pose risks to workers of electric shock, burns, muscle twitches, heart fibrillation, and other physical injuries, as well as fire and explosion hazards. ERT does not anticipate that overhead power lines will pose a hazard during field activities as OCCP.

Prior to construction activities (e.g., excavation and re-grading), ERT will coordinate with local utility companies to mark-out and identify all underground utilities. The location of any ground hazards will be identified prior to intrusive work; the controls for all potential hazards shall become a part of the AHA.

Lightning may be an electrical hazard during outdoor operations, particularly for workers in open areas and handling metal equipment. Weather conditions will be monitored and work suspended by the SSHO during electrical storms. A lightning monitor will be maintained on-site and used to determine lightning hazard. Work will be halted and personnel will take shelter when lightning is located within 5 miles of the site.

2.1.5 Utility Hazards

Overhead utilities may exist but are not anticipated to be a hazard; refer to Section 2.1.4 above.

2.1.6 Ionizing Radiation Hazards

Work around ionizing radiation is not anticipated for this project.

2.1.7 Weather Hazards

Weather conditions will be taken into consideration during site activities. Heavy rains, snowfall, freezing conditions, electrical storms, high winds, and extreme temperatures may create dangerous situations for workers. Inclement weather may also impair equipment performance. Whenever unfavorable conditions arise, the SSHO will evaluate both the safety hazards and the ability of the employees to effectively perform their tasks under such conditions. Activities will be halted by the SSHO during unfavorable conditions. In the event of lightning/thunder, work will be ceased immediately by the SSHO until 30 minutes after the last lightning strike is visually observed or the last thunder clap has been heard.

2.1.8 Material Handling/Moving/Lifting

Materials handling at the subject site may include manually moving/lifting items which could potentially result in physical injury. Injuries to the back and abdominal muscles from the improper lifting of loads are the most common occupational injuries reported. Such injuries can

range from relatively mild strains to major, permanently disabling injuries. Before lifting a load, personnel will consider the overall weight, distribution of weight, awkwardness of the load, distance to be carried, obstacles to be negotiated, site conditions, and visibility.

When using equipment to move materials, proper work practices will be followed; equipment used will be designed for the task to be performed. Equipment will be inspected regularly by the qualified operator and/or SSHO, and damaged or defective equipment will be removed for service. Planning is critical when handling materials. The SSHO will assist in the planning of material movement, taking into consideration the current location of such materials and hazards associated with moving them. Routes for moving materials will be clearly communicated to site personnel, with paths cleared of obstructions.

Loads will be lifted using the strength of the leg muscles rather than the back, stomach, or arm muscles. The item will be approached so that when lifted, the load will be balanced evenly. Backs will be kept straight and the arms nearly parallel with the body. The knees will be bent to grasp the load. Lifting will be done by straightening the legs without bending the body, holding the load as close to the body as possible and the back remaining as straight as possible. Bulky, heavy loads in excess of 50 pounds will be handled by at least two people, ensuring that the load is level and evenly distributed between personnel helping to carry it. Carriers will know the destination and path for the load.

2.1.9 Equipment Use Hazards

During mechanical equipment use, all equipment will be operated in accordance with the manufacturer's recommendations. Staff working in the area will wear appropriate PPE (Standard Level D) and maintain a minimum safe distance from the equipment and will be made aware of the pending action prior to the excavation equipment being turned on.

Only qualified personnel will be permitted to operate heavy equipment. Heavy equipment shall be inspected daily by the qualified operator; unsafe equipment will not be used. All equipment will have motion backing alarms, will be operated at safe speeds and in a safe manner, and equipment operators will wear safety belts. Personnel are only permitted to approach equipment after a signal from the operator. Ground personnel, working near heavy equipment, will wear high visibility reflective vests/hard hats, and equipment swing areas will be isolated. A spotter will be assigned to assist the excavation operator. All personnel in the area will understand and review hand signals during tool box talks.

Proper and safe operation of equipment is defined as operation in accordance with the manufacturer's recommendation and in accordance with EM 385-1-1. Standard Level D plus safety glasses with side shields, hearing protection, and cut-resistant work gloves (i.e., leather or heavy cotton) will be required at all times when using equipment. Hard hats and safety vests are also required during use of the excavator if the cab is not enclosed. Additional safety protocols to follow when operating heavy equipment include:

- All equipment will have working audible reverse or motion alarms
- Getting on and off equipment while in motion is strictly forbidden
- Use of earphones for entertainment while operating machinery is strictly forbidden
- All equipment will be inspected weekly while in use by a competent and knowledgeable person

- Personnel will wear safety harness and only equipment with roll-over protection shall be utilized.
- Where needed, a spotter will be used for moving heavy equipment.

2.1.10 Environmental Sampling Hazards

Environmental sampling activities will take place as part of pre-characterization and confirmatory activities. Soil samples may be collected using an incremental sampler. Actions to eliminate or minimize noted hazards are provided in the AHA (Attachment 3 of the APP).

2.1.11 Excavation Hazards

As outlined in Section 2.1.4, underground utilities shall be located and marked and all electrical, gas, and telephone utilities are to be hand dug within 5 feet (ft) of utility markings. Intrusive work will not be performed in areas where underground utility markouts have not been completed. Work will cease immediately if unknown utility markers are uncovered.

Although this project will involve excavating soil, no excavation is expected to exceed a depth of 3 ft. Excavations less than 5 ft in depth, and where no potential exists for cave-in, do not require protective systems (i.e., benching or shoring). None-the-less, soil will not be stockpiled nor will equipment be parked within 10 feet of excavations extending below the native material surface by more than 3 ft. Under no circumstances will personnel be allowed to work under raised loads, and will be required to stand at least 10 ft away from equipment being loaded, or unloaded. Personnel will not enter any excavation that has been infiltrated with standing water.

Additional hazards associated with excavation include leading of dump trucks for offsite disposal of contaminated soil. When dump trucks are being loaded, no personell will be allowed to observe the load from atop the cab or side of the truck bed. Drivers will remain in the cab of the truck unless donning appropriate Level D PPE. Spotters will remain at least 10 feet from the bed of the truck, and will never be allowed under a raised load.

An AHA has been completed for this activity and is presented in Attachment 3 of the APP.

2.1.12 Chemical Hazards

Lead and trinitrotoluene are expected to be present in limited concentrations within soil to be excavated; exposure to these constituents is not anticipated to be a health hazard. However, standard safety precautions will be adhered to during this project. Only personnel meeting the training requirements of 29 CFR 1910.120 may perform this work. Any unnecessary contact with potentially contaminated material will be avoided. Where needed, wetting of soil will be conducted to minimize dispersion of soil dust. Personnel in the work zone will not eat, drink, smoke or apply cosmetics, and will be instructed and required to wash exposed skin prior to such activities. Personnel shall, at a minimum, be wearing Level D Personal Protective Equipment (PPE) Skin and eye irritation will be mitigated by on-site personnel wearing the appropriate PPE (gloves, glasses, long sleeve clothing). Dust-generating activities will be kept to the minimum required for accomplishment of excavation activities; water for dust suppression will be applied on an as-needed basis. In addition, personnel performing excavation activities

will be enclosed within the cab of the excavator. Any daily conditions warranting site-specific procedures will be discussed in coordination with USACE site contact each day while crew is on site.

It is not anticipated that permissible exposure limits (PELs) for the contaminants of concern will be exceeded during these activities. The OSHA PELs for 2,4,6-trinitrotoluene is 1.5 mg/m^3 , while the OSHA Action Level and PEL for lead is 25 and $50 \text{ }\mu\text{g/m}^3$, respectively. Immediate danger to life and health (IDLH) values have also been established by OSHA for 2,4,6-trinitrotoluene (500 mg/m^3), and for lead (100 mg/m^3).

Trinitrotoluene presents a danger from the formation of methemoglobinemia, which is the oxidation and inactivation of hemoglobin in the blood. Specific routes of exposure include dermal contact/skin absorption, eye contact, ingestion and inhalation. Symptoms that a worker may exhibit when exposed to 2,4,6-trinitrotoluene include skin and eye irritation, jaundis, cyanosis, sneezing, coughing, sore throat, muscular pain, weakness, drowsiness, shortness of breath, irregular heartbeat, and unconsciousness. Emergency procedures for exposure include:

- Soliciting emergency medical care immediately
- Washing out eyes with copious amounts of water while occasionally lifting eye lids
- Removing clothes that have been contaminated.
- Washing skin with copious amounts of water and soap or mild detergent
- Move to an area of fresh, clean air
- Induced vomiting

Lead causes diseases affecting the central and peripheral nervous system, the kidneys and blood. Specific routes of exposure for lead include inhalation, ingestion and dermal contact. Symptoms that a worker may exhibit when exposed to lead include eye irritation, insomnia, nausea, malnutrition, constipation, colic, anemia, abdominal pain, hypotension, paralysis of ankles and/or wrists, and severe aggravation of pre-existing gout conditions. Emergency procedures for exposure include:

- Soliciting emergency medical care immediately
- Removing clothes that have been contaminated.
- Washing skin with copious amounts of water and soap or mild detergent

2.2 Biological Hazards

2.2.1 Poisonous Plants

Workers will wear protective clothing to protect against biological hazards including poisonous plants. Poisonous wild plants known to be found in New York, including: poison ivy, poison sumac, giant hogweed, cow parsnip, and/or stinging nettle (NYSDEC, 2017), may be present at OCCP; personnel are trained to recognize these plants and will avoid them. No leaves or berries will be ingested by any worker for any reason. If incidental dermal contact occurs, the affected areas will be washed with soap and water immediately. If extreme contamination has occurred, the worker will wash his/her hands, face, and other exposed skin areas and change clothes at the

project site. Refer to the photographs below to aid in identification of poisonous plants (**Exhibit 1** through **Exhibit 5**).



Exhibit 1. Poison Ivy

Poison ivy can grow as a vine or small shrub trailing along the ground or climbing on low plants, trees and poles. Each leaf has three glossy leaflets, with smooth or toothed edges. Leaves are reddish in spring, green in summer, and yellow, orange, or red in fall. The plant may have greenish-white flowers and whitish-yellow berries. Poison ivy is often found in young woodlands, thickets, path edges, sand dunes, walls and roadways. Every part of the plant contains an oil that inflames skin and results in painfully itchy blisters and rashes. Inhalation of smoke from burning leaves and vines is extremely hazardous.



Exhibit 2. Poison Sumac

Poison sumac is a woody shrub or small tree growing up to 20 feet tall. Each leaf has clusters of seven to 13 smooth-edged leaflets. Leaves are orange in spring, green in summer, and yellow, orange, or red in fall. The plant may have yellow-greenish flowers and whitish green fruits hang in loose clusters. The plant grows exclusively in very wet or flooded soils, usually in swamps and peat bogs. Every part of the plant contains an oil that inflames skin and results in painfully itchy blisters and rashes. Inhalation of smoke from burning leaves and vines is extremely hazardous.



Exhibit 3. Giant Hogweed

Giant hogweed is a very large, erect biennial or perennial. Small white flowers appear in late summer, forming a large, flat-topped umbel up to 2.5 feet across. Hollow, rigid stems grow 2-4 inches in diameter and 8-14 feet tall, and have purple blotches and coarse hairs. Leaves can be 5 feet across, are lobed and deeply incised. Giant hogweed grows in rich, moist soils in open fields, wooded areas, tree lines, roadsides, ditches and along streams and rivers. Sap contains a phototoxin that reacts with ultraviolet light to cause skin irritation ranging from a mild rash to severe blistering.



Exhibit 4. Cow Parsnip

Cow parsnip is a large plant that grows from 3-10 feet tall. Leaves are 12"-18" and rough and hairy. Leaves are divided into 3 segments, with coarsely toothed leaflets and a broad wing at the base of each leaf stalk. Stems are rough, hairy, hollow and grooved. It has white or cream-colored flowers with a sweet fragrance. Flowers have 5 petals of different sizes and are arranged in broad, flat-topped clusters at the top of short stalks. Blooms in mid-summer. Grows in a variety of habitats including woodlands, forest openings, grasslands, stream and river edges and along roadsides. Sap contains a phototoxin that reacts with ultraviolet light to cause skin irritation ranging from a mild rash to severe blistering.



Exhibit 5. Stinging Nettle

Stinging nettle is found in forests and natural areas at the edges of woods and streams. Perennial, erect herb with stinging hairs; opposite heart-shaped leaves, small greenish flowers. The stinging hairs on stems and leaves produce an intense burning and itching sensation that can last up to thirty minutes.

2.2.2 Insect Bites and Stings

Insect bite symptoms may include redness, rash, swelling, chills, fever, diarrhea, and vomiting. A worker who has been bitten or stung and shows symptoms of a severe reaction will immediately inform the SSHO and seek medical assistance. Workers with allergies to insects (i.e., bees) should advise the SSHO prior to field activities and should carry an antidote kit, if necessary.

Efforts will be made to avoid disturbing insect nests encountered on the job site if possible, as an insect swarm may develop. If an insect nest (i.e., a bee hive) is encountered in an area that is likely to be disturbed during site activities, the nest will be eradicated prior to site activities to ensure employee safety.

2.2.2.1 Fleas and Ticks

To prevent contact with fleas or disease-carrying ticks known to be present in New York (i.e., American Dog Ticks, Lone Star Ticks, Deer Ticks, Brown Dog Ticks, and/or Winter Ticks) (NYSDH, 2017), workers will be encouraged to wear long-sleeved shirts, coveralls or long pants, and boots that extend above the ankle. Workers are encouraged to tape their pant cuffs to their boots, especially when working in wooded, overgrown, or high grass areas. Workers will thoroughly check clothing, skin, and hair for the presence of ticks at the end of each workday. If a tick attaches to the body, it will be removed by gently tugging with tweezers where the mouthparts enter the skin. The tick should not be killed prior to removal. If a worker suspects he/she has been bitten by a tick, he/she will immediately inform the SSHO and the bite will be

documented. The tick will be saved if possible. The bite area will be monitored for several days/weeks for the development of a noticeable bulls-eye shaped skin rash at the affected area or other tick bite-related symptoms, including:

- Fever/chills: With all tick-borne diseases, patients can experience fever at varying degrees and time of onset;
- Aches and pains: Tick-borne disease symptoms include headache, fatigue, and muscle aches. With Lyme disease patients may also experience joint pain. The severity and time of onset of these symptoms can depend on the disease and the patient's personal tolerance level.
- Rash: Lyme disease, Rocky Mountain spotted fever (RMSF), and ehrlichiosis can result in distinctive rashes:
 - In Lyme disease, the rash may appear within 3-30 days, typically before the onset of fever. The Lyme disease rash is the first sign of infection and is usually a circular rash called erythema migrans. This rash occurs in approximately 70-80 percent of infected persons and begins at the site of a tick bite. The rash may be warm, but is not usually painful. Some patients develop additional erythema migrant lesions in other areas of the body several days after the bite.
 - The rash seen with RMSF varies greatly from person to person in appearance, location, and time of onset. Approximately 10 percent of people with RMSF never develop a rash. Most often, the rash begins 2 to 5 days after the onset of a fever taking the appearance of small, flat, pink, non-itchy spots (macules) on the wrists, forearms, ankles, and spreads to the trunk of the body. Sometimes the rash may spread to the palms of the hands and/or soles of the feet. The red to purple, spotted (petechial) rash of RMSF is usually not seen until the sixth day or later after onset of symptoms and occurs in 35-60 percent of patients with the infection.
 - In about 30 percent of patients (and up to 60 percent of children), ehrlichiosis and/or anaplasmosis can cause a rash. The appearance of the rash ranges from macular to maculopapular to petechial, and may appear after the onset of fever. Symptoms can also include mild to severe fever, headache, muscle pain, vomiting, and general discomfort.

If any of these symptoms develop, seek immediate medical attention for a possible infection of tick-related disease.

Insect repellent containing *DEET*[®] or permethrin is an effective means of tick control. Permethrin should only be applied to clothing and allowed to dry before wearing the clothing; do not apply it directly to skin. Do not use petroleum jelly, hot matches, nail polish, or other products to assist in tick removal. **Exhibit 6** presents a photograph of the American Dog Tick life cycle: from left to right are larva, nymph, adult male, and adult female. **Exhibit 7** presents a photograph of a Lone Star Tick. **Exhibit 8** presents a photograph of the Deer Tick life cycle on a centimeter scale: from left to right are adult female, adult male, nymph, and larva. **Exhibit 9** presents a photograph of a Brown Dog Tick, and **Exhibit 10** presents a photograph of a Winter Tick.

The Centers for Disease Control (CDC) reported 3252 confirmed cases of Lyme Disease in 2015 (42,291 cases since 2005) in all of New York State (CDC, 2017).



Exhibit 6. American Dog Tick (*Dermacentor variabilis*)



Exhibit 7. Lone Star Tick (*Amblyomma americanum*)



Exhibit 8. Deer Tick (*Ixodes scapularis*)



Exhibit 9. Brown Dog Tick (*Rhipicephalus sanguineus*)



Exhibit 10. Winter Tick (*Dermacentor albipictus*)

2.2.2.2 Mosquitoes

Mosquitoes may also carry disease, therefore workers will wear long-sleeved shirts, long pants, and boots that extend above the ankle; workers will be encouraged to tape their pant cuffs to their boots, especially when working in wooded, overgrown, or high grass areas. General guidelines for prevention of exposure to mosquitoes and the potential diseases that they carry (i.e., encephalitis and West Nile Virus) include the following:

- Wear long-sleeved shirts;
- Spray exposed skin with an insect repellent containing 15-30 percent DEET;
- Spray clothing with products containing DEET or permethrin, as mosquitoes may bite through thin clothing. Permethrin should only be applied to clothing and allowed to dry before wearing the clothing; do not apply it directly to skin. Wash treated clothing before wearing it again;
- Do not apply repellent to skin that is under clothing;
- Wash treated skin with soap and water after returning indoors.

Encephalitis symptoms usually occur within 2 to 10 days after being bitten by an infected mosquito. These symptoms include high fever, stiff neck, headache, confusion, lethargy and swelling of the brain.

West Nile Virus symptoms include fever, headache, nausea, vomiting, and rash, which are mild symptoms to severe symptoms that include neck stiffness, stupor, disorientation, tremor, coma, vision loss, and paralysis. These severe symptoms could last weeks or could be permanent. The

onset of symptoms usually begins 3 to 14 days after a mosquito bite. Medical attention should be sought as soon as any symptoms of mosquito related illness are noticed. The CDC reports 42 cases of West Nile Virus in New York State for 2015 (CDC, 2015).

2.2.2.3 Spiders

During work outdoors, venomous spiders may also present a concern to workers. All spider bites need to be immediately reported to the SSHO and the incident/accident forms need to be completed. Venomous spiders are not common in New York, but the Black Widow Spider may be encountered (**Exhibit 11**) (Spiders.us, 2015).

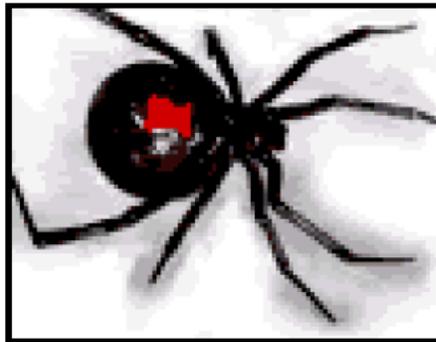


Exhibit 11. Black Widow Spider (*Latrodectus mactans*)

In general, most spiders are not aggressive unless agitated while guarding their egg sacs. They live in a variety of natural and domestic habitats such as under rocks and wooden boards, and in dense plant growth. Spider venom affects the nervous system and can cause pain in the lymph nodes. Other symptoms of a severe bite include nausea, elevated blood pressure, sweating, tremors, and increased white blood cell counts. The wound may appear as a bluish-red spot, surrounded by a whitish area. Victims of a spider bite may exhibit the following signs or symptoms:

- Sensation of a pinprick or minor burning at the time of the bite;
- Appearance of small punctures (but sometimes none are visible); and/or
- After 15 to 60 minutes, intense pain is felt at the site of the bite which spreads quickly, and is followed by profuse sweating, rigid abdominal muscles, muscle spasms, breathing difficulty, slurred speech, poor coordination, dilated pupils, and generalized swelling of face and extremities.

2.2.3 Animal Bites

Rodents, snakes, stray dogs and cats, raccoons or other animals may be encountered on the job site. The only effective measure to preclude animal bites is avoidance. Contact with wild animals will be avoided. Personnel will not reach into an object such as a pipe that may contain a rodent or other animal, or attempt to remove the animal. If possible, delay activity in this area until the animal leaves or has been removed by an animal control unit. If it is necessary to use or move an object where an animal is hiding, the SSHO may have to notify the local animal control agency. Niagara County does not have public animal control. The SSHO will contact the Niagara Country Health Department. The phone number is (716) 439-7591. Animal control

should be contacted to subdue an animal that may cause a risk to workers (i.e., a raccoon). Do not approach an animal, as this may cause the animal to become aggressive. Persons bitten by an animal will seek medical assistance immediately, especially if it is suspected that the animal may be rabid. Aggressive or disoriented behavior, as well as foaming at the mouth, can be signs of rabid animals. Until medical assistance can be reached, bitten persons will watch for symptoms of severe swelling, nausea, and shock. The local animal control agency will be contacted if a stray dog is observed on the property, especially if its presence will obscure work activity or the animal's safety. Do not attempt to leash a stray dog (no matter how harmless it may appear); doing so would greatly increase the risk of an animal bite.

Venomous snakes that may be found at OCCP include: the Northern Copperhead , the Timber Rattlesnake, and the Eastern Massauga Rattlesnake.



Exhibit 12. Northern Copperhead



Exhibit 13. Timber Rattlesnake



Exhibit 14. Eastern Massasauga

All personnel should be aware that site activities may have the potential for encountering or disturbing snakes. Areas with heavy undergrowth or shrubs are of special concern. Prompt first aid measures are extremely important. If an individual is bitten by a snake, the basic rule is -- **TREAT ALL SNAKEBITES AS VENOMOUS.**

A probability exists that all snakes may be potential carriers of tetanus (lockjaw); if bitten by any snake, whether poisonous or not, seek medical attention immediately. This information is valuable to medical personnel when treating snakebites. Call for emergency assistance immediately if someone has been bitten by a snake. Responding quickly in this type of emergency is crucial. While waiting for emergency assistance:

- Wash the bite with soap and water;
- Immobilize the bitten area and keep it lower than the heart;
- Cover the area with a clean, cool compress or a moist dressing to minimize swelling and discomfort; and
- Monitor vital signs.

If a victim is unable to reach medical care within 30 minutes, the American Red Cross recommends applying a bandage, wrapped two to four inches above the bite, to help slow the venom. This should not cut off the flow of blood from a vein or artery - the band should be loose enough to slip a finger under it. The emergency procedures for snakebites will be reviewed during the initial site safety briefing.

2.2.4 Bacteria

Adherence to personal protective equipment requirements, personal hygiene measures and work site rules will minimize exposures. Bacteria are not expected to be a hazard based on the location of field activities.

2.2.5 Humans

While unauthorized personnel are not expected to be present or pose a threat to personnel working at the site, precautions will be taken to prohibit the presence of unauthorized personnel

in the work site. Onlookers will be asked to maintain a safe distance from the work site (as determined by the SSHO). Any obstinate or malicious behavior will be dealt with by calling the police (911). In addition, the ERT PM and the USACE PM will be notified.

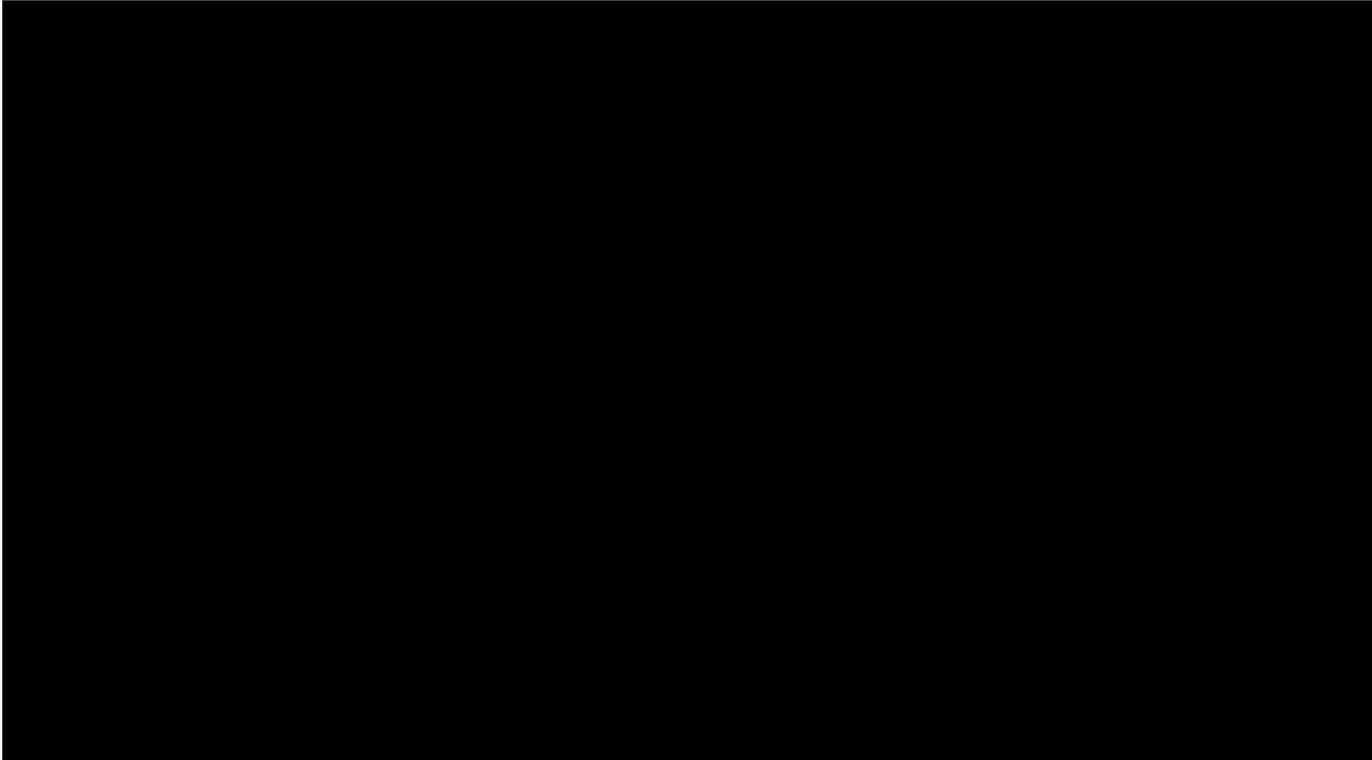
2.3 Vehicle Traffic Hazards

Field personnel may be exposed to vehicle accident hazards associated with the operation of vehicles (including excavation equipment and dump trucks) during the project. To control these hazards, the following safety requirements will be strictly enforced in accordance with ERT's Corporate Health and Safety Manual:

- Seat belts/safety harnesses will be worn anytime a vehicle is in motion, regardless of speed or distance to be traveled
- The speed limit will be followed at all times, and on the access road from Balmer Road speed will be limited to 15 miles per hour;
- Vehicles will never be operated at a speed that is unsafe for the conditions (i.e., road surface, traffic, visibility, weather, etc.)
- Talking on cell phones and texting are prohibited while driving
- Operating vehicles or dump trucks with earphones for entertainment is prohibited
- Hand signals will be used with a signal person during backing if a back-up alarm is not present
- Dump trucks will not be allowed to drive with the bed raised (however, it is noted that to dump a load, a truck may be allowed to move forward no more than 10 feet with the bed raised)
- Smoking is not permitted in ERT vehicles

3.0 STAFF ORGANIZATION, QUALIFICATIONS, AND RESPONSIBILITIES

Ensuring safe performance of site operations and maintenance of a safe and healthy work site is the responsibility of everyone assigned to the site. Project personnel assigned to this remedial action are identified in **Table 1**; resumes for ERT/A-Zone Environmental personnel are included in Appendix A.



3.1 ERT Project Manager

The ERT PM is responsible for the overall direction, implementation, and enforcement of health and safety requirements on this project.

3.1.1 Qualifications

The ERT PM has Occupational Safety and Health Administration (OSHA) 40-hr Hazardous Waste Operations and Emergency Response (HAZWOPER) Training (with up-to-date annual 8-hr refresher) with a minimum of three days of supervised work experience.

3.1.2 Responsibilities

Other ERT PM responsibilities include:

- Ensure that the project is being performed in a manner consistent with the ERT's Corporate Health and Safety Program;
- Ensure that an SSHP is prepared and approved;
- Provide the field team with project information related to health and safety matters and the development of the SSHP;

- Monitor compliance with the SSHP by ERT and subcontractor personnel;
- Ensure adequate resources are provided to the safety and health staff, so that they may carry out their duties;
- Ensure that all ERT and subcontractor personnel designated to work at the project sites are qualified according to ERT’s medical surveillance and training requirements;
- Determine and implement personnel disciplinary actions for safety violations;
- Maintain communication with USACE;
- Approve the appointment of the SSHO and any replacement personnel;
- Direct personnel to change a work practice if it is determined to be hazardous to the health and safety of site personnel;
- Remove personnel from the project if their actions endanger their health and safety, or the health and safety of co-workers and
- Exposure hour reporting.

3.2 ERT Safety and Health Manager

3.2.1 Qualifications

The SHM has over 30 years of experience in industrial hygiene and environmental safety and health and is a certified industrial hygienist (CIH) and certified safety professional (CSP).

3.2.2 Responsibilities

The SHM is responsible for the following actions:

- Oversee development and implementation of the SSHP;
- Visit the project as needed to audit the effectiveness of the SSHP;
- Remain available for project emergencies;
- Oversee modifications to the SSHP as needed;
- Serve as a Quality Control staff member (for safety); and
- Approve the SSHP by signature.

3.3 Site Safety and Health Officer

The SSHO will communicate with the ERT PM, but will report directly to the SHM and is the primary person responsible for day-to-day health and safety during all field activities.

3.3.1 Qualifications

The SSHO, [REDACTED] meets all qualification requirements of EM 385-1-1 (SSHO). The SSHO has completed the OSHA 40-hr HAZWOPER Training (with up-to-date annual refresher as needed), has at least 5 years of experience implementing safety and occupational health procedures at hazardous, toxic and radioactive waste sites, has experience selecting PPE, has completed the OSHA 8-hr HAZWOPER Supervisor Training, and has completed the OSHA 30-

hr Construction Safety and Health Training, or as an equivalent, 30 hrs of formal construction safety and health training covering the subjects of the OSHA 30-hr course.

3.3.2 Responsibilities

The SSHO will be assigned the following responsibilities:

- Provide implementation/oversight of ERT safety and health matters;
- Confirm suitability for work of contractor and subcontractor personnel, based on OSHA and site-specific medical and training requirements;
- Conduct visitor orientation;
- Conduct on-site safety orientation and operational review on the first working day;
- Maintain a list of training records and expiration dates of applicable training at the worksite for all on-site personnel (including any government workers);
- Ensure copies of all documents listed in the SSHP are readily accessible by site personnel and visitors (these will be on-site in hard copy form when practicable and feasible);
- Conduct daily safety briefings;
- Conduct and document daily safety inspections, weekly safety audits, and self-assessments;
- Maintain safety, training, and visitor logs;
- Consult with the ERT SHM as needed to ensure all potential hazards are addressed appropriately;
- Implement and document the ERT Site-Specific Hazard Information Training Program (as specified by 29 CFR 1910.120[1]);
- Enforce the ERT Alcohol/Drug Abuse Policy;
- Train personnel on the emergency action plan requirements for the site;
- Ensure prominent display of descriptions and maps associated with local hospital and emergency evacuation routes;
- Enforce the use of the “buddy” system;
- Ensure first aid kits are on-site and adequately stocked (includes consideration of the blood borne pathogens standard);
- Provide oversight and serve as the interface for subcontractor health and safety representatives;
- Conduct injury/illness/incident/near miss reporting and investigation if needed;
- Have access to medical-specific information for all site personnel (i.e., blood type, allergies, medications, high blood pressure);
- Stop work that is not in compliance with the contract;
- Work with field crew to identify, evaluate, and control hazards;

- Ensure all site activities are performed in a manner consistent with the ERT’s Corporate Health and Safety Program and the SSHP;
- Oversee on-site implementation of the SSHP;
- Ensure that all ERT personnel and subcontractors designated to work at the project sites are qualified according to ERT’s medical surveillance and training requirements;
- Report all incidents, accidents, and near misses to the ERT PM and the USACE PM if needed;
- Maintain health and safety equipment on-site;
- Inspect ongoing activities, and report any health and safety deficiencies to the ERT PM;
- Accompany or maintain communication with each work crew;
- Perform site monitoring to assure that site personnel are adequately protected;
- Conduct initial site-specific safety training and regular safety briefings for site personnel;
- Account for all personnel in the event of fire, explosion, severe storm, or other incident;
- Monitor weather conditions;
- Stop site activities if an “imminently dangerous” situation exists. The emergency situation will be immediately reviewed with the ERT PM;
- Direct personnel to change a work practice if it is determined to be hazardous to the health and safety of site personnel;
- Temporarily suspend an individual from site activities for infractions of the SSHP, pending discussion with the ERT PM; and
- Report to the ERT PM all exposure hours for ERT and subcontractor personnel.

During an emergency, the SSHO will be responsible for initiating and coordinating responses including:

- Initiating the evacuation of the work site when needed, communicating with off-site emergency responders, and coordinating activities of on-site and off-site emergency responders; and
- Determining if hazardous conditions are adequately alleviated prior to allowing resumption of work operations after an emergency.

3.4 Field Personnel

3.4.1 Qualifications

All field personnel will have completed the OSHA 40-hr HAZWOPER Training (with up-to-date annual refresher). Equipment operators will have Equipment Operator Designations from the company.

3.4.2 Responsibilities

Field Personnel responsibilities include:

- Following this SSHP and applicable safety and health rules, regulations, and procedures;
- Using required controls and safety devices, including PPE;
- Inspecting PPE before use for noticeable flaws;
- Notifying the SSHO of suspected safety or health hazards; and
- At least two field team members will be current in First Aid and cardiopulmonary resuscitation (CPR) certification.

3.5 Subcontractors

All subcontractors will fully comply with the provisions of the site Soils Remedial Action Work Plan, APP, and this SSHP. The SSHO will provide oversight and ensure subcontractor compliance.

3.6 Visitors and Authorized Entrants

All visitors to OCCP work areas must be approved by the SSHO. Visitors to the site will receive a health and safety briefing and will be escorted by the SSHO or his/her designee. The Site Control Log (Appendix B) will be utilized to document any visitor access to the site. All site personnel will complete the U.S. Citizenship and Immigration Service E-Verification process.

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4.0 TRAINING

4.1 General

Hazardous waste workers will be trained to meet 29 CFR 1910.120 requirements. At a minimum, site personnel will have the following training certifications:

- 40 hrs of OSHA Initial Off-site HAZWOPER training for general site workers and a more than of 3 days of field experience under the direct supervision of a trained, experienced supervisor;
- If more than 12 months have passed since initial training, an 8-hr OSHA HAZWOPER Annual Refresher Training must be completed;
- SSHO must comply with the 8-hr HAZWOPER supervisory training requirements; and
- OSHA 30-hr Construction Safety Training, or as an equivalent, 30 hrs of formal construction safety and health training covering the subjects of the OSHA 30-hr course for the SSHO.

In addition to the required training, a minimum of two site workers will be current in First Aid and CPR training.

4.2 On-site Training

Employees, subcontractors, and site visitors will read this SSHP and will indicate their understanding of the requirements by signing the SSHP Review Record, which is included in this SSHP on page ii, prior to the Table of Contents. The SSHO will brief employees on the potential hazards at the site and protective measures to be implemented, both prior to entry and daily during the work. APP **Figure 3** shows the evacuation routes to be used in the event of an emergency; this will be communicated to personnel during the daily safety brief.

4.2.1 Pre-Entry Briefing

The SSHO will provide site-specific training on the contents of this SSHP, including: emergency procedures; areas of restricted access; responsibilities for safety of personnel, and property; physical, chemical, and biological hazards; PPE; and location of safety data sheets (SDSs). Pre-entry briefings will be held prior to personnel working on-site. Following review of this document and receipt of the pre-entry briefing, personnel shall indicate their understanding of the site-specific hazards and appropriate emergency response by signing the plan Review Record at the front of this SSHP.

4.2.2 Daily Safety Briefings

The SSHO is responsible for conducting daily safety briefings during field activities to discuss status of site health and safety, the day's activities specific safety concerns, and to identify the designated primary and secondary rally points during an emergency. These briefings will also address employees' concerns regarding on-site safety and hazard control practices and procedures.

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5.0 PERSONAL PROTECTIVE EQUIPMENT

5.1 PPE Use

All personnel performing operations on-site will be required to use the appropriate level of protection. The minimum level of protection required to begin each activity of this project is standard Level D, long pants and shirt with sleeves, and work boots, composite toe boots, or other appropriate footwear. Additional PPE required for specific tasks are described in the **Table 2**. Effective use of PPE requires that the equipment be properly used, maintained, and inspected prior to use and periodically during the day. Site-specific issues and standard procedures will be reiterated during pre-entry training.

Table 2. Minimum Level of Protection Requirements	
Activity	Level of Protection
Mobilization/Demobilization	Level D, modified to consist of: Coveralls or Work Clothes, Safety Shoes/Boots with Steel-toe, and Work Gloves – Cotton or Leather Palm
Site preparation; brush clearance, silt fence installation, etc.	Level D modified to consist of: Coveralls or Work Clothes, Safety Shoes/Boots with Steel-toe, Work Gloves – Cotton or Leather Palm, Safety Glasses, Hard Hat, High Visibility Vest/Shirt (as needed)
Excavate and load-out contaminated soil and associated debris	Level D modified to consist of: Coveralls or Work Clothes, Safety Shoes/Boots with Steel-toe, Work Gloves – Cotton, Leather Palm, and/or cut-resistant, as needed, Safety Glasses, Hard Hat, High Visibility Vest/Shirt, and Hearing Protection (as needed)
Collect constituent of concern waste characterization samples and confirmation soil samples	Level D modified to consist of: Coveralls or Work Clothes, Safety Shoes/Boots with Steel-toe, Work Gloves – Cotton or Leather Palm, Safety Glasses, and High Visibility Vest/Shirt (as needed)
Restore/re-grade to match surrounding wetlands	Level D modified to consist of: Coveralls or Work Clothes, Safety Shoes/Boots with Steel-toe, Work Gloves – Cotton or Leather Palm, Safety Glasses, Hard Hat, and High Visibility Vest/Shirt (as needed)

Hearing protection is required during use of equipment and other activities that produce sound pressure levels that exceed 85 dBA steady state expressed as the time weighted average as specified in Table 5-4, EM 385-1-1, or 140 dBA impulse. Hearing protection will be worn during operation of open cab equipment associated with excavation and soil load out.

Any site personnel working on site activities that involve exposure to Poison Ivy, Oak, or Sumac will be afforded the opportunity to wear an additional, light weight coverall over-garment to help mitigate the effects of exposure. Additionally, Poison Ivy treatments such as Ivy Dry, Cortaid, Benadryl, or Caladryl have proven to be effective treatment for exposure. The best treatment is avoidance.

The SSHO will conduct hazard assessments when site conditions change and hazards are identified requiring a change in the level of protection; the SSHO will re-evaluate the SSHP and the level of protection may be upgraded or downgraded prior to re-entry to the site.

The SSHO will ensure PPE users are trained to know when PPE is necessary and what level, how to properly wear and adjust the PPE, limitations of the PPE, and the proper care, inspection, testing, maintenance, useful life, storage, and disposal of the PPE. The SSHO will also review PPE usage in the field to determine whether employees have the proper understanding of PPE importance, and if not, will re-train the employee.

5.2 Written Certification of PPE Training

By signature and acceptance of this SSHP (as well as the parent APP), ERT certifies that all site workers whose certificates appear in Appendix C of this SSHP (or will be provided prior to mobilization) have been trained in the proper use of PPE via their respective 40-hr OSHA HAZWOPER training and their 8-hr HAZWOPER refresher training on the dates listed on the completion certificates. Applicable certificates not included in Appendix C for site workers will be furnished upon mobilization to the work site.

6.0 MEDICAL SURVEILLANCE

Field team members must have satisfactorily completed a comprehensive physical examination within 12 months (or 24 months if approved by an occupational physician) prior to the start of the field activities. Non-hazardous waste site workers will be medically examined to meet OSHA requirements specific to their job. Medical examinations and consultations will comply with the protocols of 29 CFR 1910.120 and 29 CFR 1910.134 and will be provided according to the following schedule:

- Prior to fieldwork assignment;
- At least annually for employees covered by the program;
- At termination of employment or reassignment to an area where the employee had not been examined within the past 6 months; and
- As soon as possible after an identified overexposure to hazardous substances or health hazards.

A physician's clearance letter/form will be available for review by USACE upon request.

Medical examinations will be conducted more frequently if the physician deems such examinations as necessary to maintain employee health. Documentation for compliance with 29 CFR 1910.120 will be maintained in ERT's Human Resources Office and the records will be kept on file for at least 5 years after termination of employment. A minimum of the following information will be kept:

- Name and social security number;
- Physician's written opinions, recommendations, limitations, and test results;
- Employee medical complaints related to hazardous waste operations; and
- Information provided to the physician by the employee concerning possible exposures, accidents, etc.

Certification of medical surveillance for field personnel is included in Appendix C.

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7.0 EXPOSURE MONITORING/AIR SAMPLING

Site-specific COCs only have the potential to be present in limited concentrations in site soil. Although exposure to COCs is not anticipated to pose a health hazard to workers, due to the site's history, as a precaution, breathing zone monitoring will occur during excavation and sampling activities. To be conservative, monitoring action levels will be based on lead dust.

7.1 Real-Time Monitoring of Dust

A DustTrak TSI 8534 handheld dust monitor (or equivalent) will be used continuously during intrusive and sampling operations to conduct real time monitoring and assess the concentration of airborne dust.

The OSHA Action Level for lead is 25 micrograms per cubic meter of air ($\mu\text{g}/\text{m}^3$) over an 8-hr time-weighted average; therefore, 25 $\mu\text{g}/\text{m}^3$ will be considered the action level for dust monitoring on this project. If the continuous dust monitoring indicates 25 $\mu\text{g}/\text{m}^3$ sustained above background in the breathing zone for 10 minutes, work will be halted, the area will be evacuated until dust levels are reduced by wetting the area or natural settling. If the condition persists, the ERT SHM and ERT PM will be consulted, and USACE will be notified. Any changes necessary to work activities will be documented via amendment to this SSHP and provided to USACE for acceptance prior to implementation.

7.2 Calibration of Real-Time Monitoring Equipment

Monitoring and calibration protocols will be performed in accordance with the manufacturer's guidelines. A copy of each instrument's manual will be kept in ERT field vehicles.

Air monitoring equipment will be calibrated against fresh air (0 ppm) at a minimum, on a daily basis and calibration results recorded.

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8.0 HEAT AND COLD STRESS

ERT will monitor the temperature at the work site using a wet bulb globe temperature (WBGT) 8758 digital psychrometer, which monitors wet bulb globe temperature, globe temperature, air temperature, and relative humidity. In addition to the WBGT, per EM 385-1-1 06.I.01, ERT will also monitor the weather via wireless internet connection to the National Weather Service website, smart phone application, and/or local radio, depending on availability. In the event of severe weather, work will be terminated and all site workers will seek shelter.

8.1 Cold Stress

As the field effort is set to occur during summer months, cold stress may not be a concern. Cold stress hazards are most likely to occur at low temperatures or low wind chill factors, with wet, windy conditions contributing to the risk. Site personnel will respect the OSHA Cold Stress Equation while working in cold conditions:

LOW TEMPERATURE + WIND SPEED + WETNESS = INJURIES and ILLNESS

Site personnel will be made familiar with the signs and symptoms of cold stress, which include hypothermia and frostbite. **Figure 3** below will be used to determine the degree of cold stress hazard:

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

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

 Equivalent chill temperature requiring dry clothing to maintain core body temperature above 35 deg C (96.8 deg F) per cold stress TLV

Source: American Conference of Industrial Hygienists, Threshold Limit Values, Biological Exposure Indices, April 2011

Exhibit 18. Wind Chill Chart

8.1.1 Hypothermia

Hypothermia is caused by a cold-induced decrease of the core body temperature that produces shivering, numbness, drowsiness, and muscular weakness. If severe enough, it can lead to unconsciousness and eventual death.

8.1.2 Frostbite

Frostbite can occur when constriction of blood vessels in the extremities decreases the efficient, ready supply of warming blood. This may result in formation of ice crystals in the tissues, causing tissue damage. Conditions may range from frostnip, which is a numbing of extremities, to deep-freezing tissue beneath the skin. Symptoms include white or grayish skin, blisters, numbness, mental confusion, failing eyesight, fainting, shock, and cessation of breathing. Death may occur from heart failure.

8.1.3 Monitoring, Prevention, and Response

Pain in the extremities may be the first warning of cold stress, and precautions will be taken to reduce exposure. Severe shivering will be taken as a sign of immediate danger to the worker, and exposure to cold will be immediately terminated. Personnel exhibiting signs and symptoms of cold stress will be removed from the site and decontaminated (if necessary). Decontamination will only occur if no further injury will be caused to the victim; first aid will be administered as appropriate. Emergency medical services will be contacted if symptoms are severe (e.g., more than numbness of the extremities or shivering). If decontamination is not possible due to injury, emergency medical services will be informed that the victim(s) is contaminated and appropriate PPE is required. When air temperatures are less than 36°F (including wind chill), workers who become immersed in water or whose clothing becomes wet will be immediately provided a change of clothing, transported to a heated area, and be treated for hypothermia (if necessary) (Mylar blankets and towels will be included as part of first aid kits, and employees will insure they have a change of clothing available).

ERT will mitigate these risks in the investigation areas on-site through the use of appropriate PPE, such as climate appropriate clothing and boots, layered clothing, head covers, and gloves. The SSHO will monitor site personnel for signs of cold stress and/or general fatigue. Field personnel will receive breaks as outlined in the Cold Work-Rest Regimen Table (**Table 3**). Personnel not appropriately dressed for the elements will not be allowed within the investigation area until proper attire is donned.

As a precautionary measure, employees should wear layers of loose-fitting clothing including insulated coveralls, head cover (e.g., a wool cap), and boots when temperatures fall below 40°F, including wind chill. Protection of the hands, feet, and head is particularly important because these are likely to be injured first by cold. For light work occurring at 40°F and below, thermally protective gloves will be required. However, actual injury to hands, feet, and head is not likely to occur without prior development of early signs, such as numbing and shivering. Bare skin contact with cold surfaces (below 32°F) will be avoided. If wind chill becomes a factor at the work location, personnel will wear wind-resistant outer shell to decrease wind chill effects. Less than one minute of exposure to cold is permitted when the air speed and temperature results in an equivalent chill temperature of -26°F to -72°F (this scenario is highly unlikely, however).

At air temperatures below 45°F, the temperature will be monitored a minimum of every eight hours. At temperatures below 45°F and above 30°F, the temperature and wind speed will be monitored every 4 hours. At air temperatures below 30 °F, the temperature and wind speed will be measured and recorded at least every 4 hours or more frequently if it begins to lower.

A temperature-dependent work regimen limiting lengthy periods of outdoor activity may be necessary; **Table 3** (CCOHS, 2008) provides guidance for working in severe cold weather. This table should be used as guidance; however, the SSHO will make determinations on the work schedule based on site conditions and worker feedback. Additionally, when possible, work will be scheduled during the warmer part of the day if cold stress is a concern on the day work is to occur. Workers entering heated shelters will remove the outer layer of clothing and loosen remaining clothing to permit the evaporation of perspiration. Workers will avoid dehydration by drinking water or other decaffeinated beverages, including warm drinks and soups, as necessary and available.

Air Temperature/ Sunny Sky	No Noticeable Wind		5 mph Wind		10 mph Wind		15 mph Wind		20 mph Wind	
°F	Max. Work Period	No. of Breaks								
-15 to -19	(Norm breaks) 1		(Norm breaks) 1		75 min	2	55 min	3	40 min	4
-20 to -24	(Norm breaks) 1		75 min	2	55 min	3	40 min	4	30 min	5
-25 to -29	75 min	2	55 min	3	40 min	4	30 min	5	Cease non-emergency work	
-30 to -34	55 min	3	40 min	4	30 min	5	Cease non-emergency work			
-35 to -39	40 min	4	30 min	5	Cease non-emergency work					
-40 to -44	30 min	5	Cease non-emergency work							
-45 and below	Cease non-emergency work				Cease non-emergency work		Cease non-emergency work		Cease non-emergency work	

8.2 Heat Stress

Heat stress hazards can occur even in temperatures not commonly considered “hot” due to the level of physical activity, the level of PPE the worker is wearing, or the physical condition of the worker. Illness resulting from exposure to extreme heat is possible during field operations. Factors affecting heat stress include high temperatures and humidity, direct sun or heat, limited air movement, physical exertion and poor physical condition. Personnel will be familiar with the signs and symptoms of heat stress, including heat cramps, heat exhaustion, and heat stroke.

8.2.1 Heat Cramps

Symptoms of heat cramps include muscle spasms in the abdomen or limbs. Frequent rest periods and fluid intake are appropriate measures to prevent or reduce heat cramps.

8.2.2 Heat Exhaustion

Symptoms of heat exhaustion include severe dehydration; pale, clammy skin; profuse sweating; dizziness, light-headedness; slurred speech; rapid pulse; confusion; fainting; fatigue; cool skin; and nausea. Affected personnel will be escorted from the site to rest in a cool, shaded area, and given fluids slowly.

8.2.3 Heat Stroke

Heat stroke is a life-threatening condition occurring when the body's temperature-regulating system improperly functions. The symptoms are: hot dry skin; rapid, deep breathing; lack of perspiration; delirium; high fever (often 106°F or more); nausea; and unconsciousness. Brain damage and/or death may occur if body temperature is not reduced. Provide fluids, use cooling devices (hose-down or shower), call emergency medical services, or transport to hospital immediately.

Some preventive measures to avoid heat stress include:

- Frequent resting in cool or shaded areas; and
- Staying hydrated by consuming large quantities of fresh potable water (more than amount needed to simply “quench thirst”). Drink at least 8 ounces of water or diluted electrolyte sports drink beverages every 2 hours when temperatures exceed 75°F – do not consume alcoholic beverages to combat dehydration or heat stress.

8.2.4 Monitoring, Prevention, and Response

Heat stress monitoring is typically conducted in a manner that anticipates and prevents the onset of heat stress symptoms. Non-acclimated workers, workers having had previous heat stress injuries, and workers wearing full body impermeable chemical protective clothing shall be monitored when the work area temperature is greater than 70°F. The worker’s heart rate and blood pressure will be measured at the start of a rest break, and the work period will be decreased so that after 1 minute of rest, a worker’s heart rate does not exceed 110 beats per minute. In the field, heart rate can be monitored manually (i.e., index finger on pressure point while looking at a watch). The SSHO will assess the condition of the employees, specific weather conditions, work tasks, and any other environmental factors and conditions to determine when to begin monitoring. **Table 4** (MSU, 1999) provides general guidance for working in hot weather conditions.

Work-Rest Regimen	Work Load		
	Light	Moderate	Heavy
Continuous	86°F	80°F	77°F
75% Work, 25% Rest each hour	87°F	82°F	78°F
50% Work, 50% Rest each hour	89°F	85°F	82°F

Work-Rest Regimen	Work Load		
	Light	Moderate	Heavy
25% Work, 75% Rest each hour	90°F	88°F	86°F

If a worker's heart rate is greater than 110 beats per minute, the next work period will be shortened by 33 percent, while the length of the rest period stays the same. If the heart rate is 110 beats per minute at the beginning of the next rest period, the following work cycle will be shortened by 33 percent. When ambient temperatures are expected to exceed 75°F, the resting heart rate of each worker will be measured prior to the start of on-site activities.

Other factors, such as a worker's level of acclimation, level of physical fitness, and age, may increase or decrease his susceptibility to heat stress. Before assigning a task to an individual worker, these factors will be taken into account to ensure that the task will not endanger the worker's health.

If a heat-related illness is suspected or observed, the affected person will be moved to a cool or shaded area and given plenty of liquids. If symptoms of heat stroke are observed, the victim will be cooled. Another worker will immediately call Mercy Medical Center, (563) 244-5555 (**if the affected person is able to be transported**), or Emergency Services at 911 if an ambulance is needed.

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9.0 STANDARD OPERATING SAFETY PROCEDURES, ENGINEERING CONTROLS, AND WORK PRACTICES

The following applies to all ERT work performed at OCCP.

9.1 Site Rules/Prohibitions

Site entry will not be allowed until staff have read and acknowledged understanding of the APP and this SSHP and received required site-specific safety training. All work will be performed using the “buddy system,” meaning that no work can be performed by a single employee or subcontractor working alone. Smoking is not permitted in work areas. Designated smoking areas will be established by the SSHO in an area that is free and clear of potential fire hazards. Cigarette butts will be collected and disposed of along with all trash at an appropriate receptacle near the work site. Eating is only permitted at designated break areas (usually where vehicles are parked). Drinking water will be made available to field staff.

9.2 Work Permit Requirements

No formal work permits are required for any work to be performed as part of this project. Right-of-entry will be coordinated through USACE.

9.3 Material Handling Procedures/Hazard Communication (HAZCOM) Program

There is a possibility of fuel spills during equipment/vehicle refueling. Fuel spills represent both a respiratory and fire hazard. Fuel will be stored only in Department of Transportation (DOT) compliant containers. A fuel spill kit or absorbent will be on hand when fueling of vehicles and/or equipment is taking place. In the event a spill occurs during refueling, every effort will be made to contain the spill and clean it up immediately. Spoils resulting from any spill will be disposed of in accordance with the requirements for that item. No cigarette smoking or open flames will be allowed within 50 ft of the refueling area.

SDSs are included as Appendix D and will be available on-site for chemicals to be used. Employees and subcontractors will be informed by the SSHO of the location of SDSs and all chemical, physical, and biological hazards associated with site work. Decontamination solutions brought on-site to facilitate environmental sampling operations are included. Currently, it is not expected that any hazardous materials will be used for this project; however, if any are brought onsite they will be properly labeled and the site workers will be made aware of the specific hazards.

All site workers will receive the following training during the initial startup of project operations:

- Requirements and use of the HAZCOM Program on the project;
- The location of all hazardous or toxic agents on the project;
- Identification and recognition of hazardous or toxic agents on the project;
- Physical and health hazards of the hazardous or toxic agents pertinent to project activities, including lead and TNT, and
- Protective measures employees can implement when working with project-specific hazardous or toxic agents.

The inventory listed below in **Table 5** constitutes hazardous substances that could be brought on site. Fuel used for fueling power equipment that may be used during excavation and grading/re-grading activities will be stored in approved containers in remote locations adjacent to the work areas, as designated at the onset of field activities.

Table 5. Inventory of Hazardous Chemicals				
Chemical	SDS on Site	Quantity On Site	Storage Location	Use on Site
Diesel Fuel ¹	Yes	NA	NA	To fuel equipment
Gasoline ¹	Yes	NA	NA	To fuel equipment
Alconox	Yes	< 4 pounds	Work area or field vehicle portable storage unit	Sampling equipment decontamination

Legend:
 SDS = Safety Data Sheet
 NA = not applicable
 < = less than
¹ = Fuel will be brought to the site on an as-needed basis for refueling of equipment; no storage of fuel will occur.

Hazardous or Toxic Agent Labeling: EM-385-1-1 specifies that procedures for assuring that containers used to store and transport hazardous or toxic agents around the project site are appropriately labeled to communicate the physical and health hazards associated with the agents in the containers. Further, in accordance with 1910.1200(f), the chemical manufacturer, importer, or distributor must ensure that each container of hazardous chemicals used is labeled, tagged or marked with the following information: identity of the hazardous chemical(s); appropriate hazard warnings; and name and address of the chemical manufacturer, importer, or other responsible party.

For the items specified for use at OCCP, ERT will ensure that the required information is contained on the labeled chemicals as supplied by the manufacturer. Further, the SSHA will ensure through daily inspection that the labels remain affixed and legible. ERT has no plan to transfer chemicals from their primary container to a secondary container. In the event of transfer of contents from a primary to secondary container, the container will properly labeled, unless the contents are be for the immediate use of the employee who performs the transfer.

9.4 Drum/Container/Tank Handling

Excavated soil will be loaded into tandem-axle dump trucks, and transported offsite for disposal. Tires and cleared vegetation will be loaded into roll-off containers, and transported offsite for recycling and composting.

9.5 Comprehensive AHA of Treatment Technologies Employed at the Site

No treatment technologies are being employed at the site.

9.6 Site Control Measures

Site access will be coordinated with USACE and the ERT PM. There are no security fences installed and based on the nature of the work, it is not intended to install security fences at the

site. Prior to the commencement of site activities, a temporary project safety fence will be erected along the perimeter of the proposed work area. This safety fence will be a high visibility orange colored, high-density polyethylene grid no shorter than 42 inches in height. Steel posts will be used to support the fence, affixed at a maximum of 10 ft on center. The project safety fence will be maintained throughout the course of field activities and removed during demobilization. Field vehicles, used as mobile offices, support equipment, emergency supplies, and first aid equipment will be located within 30 seconds of walking from the safe working area whenever possible.

All other work such as excavation and sampling activities, will establish a 25-ft safe working area and line of sight communication pathways. Only personnel essential to the task at hand will be permitted within the safe working area. If unauthorized personnel are identified, the Site Superintendent will be notified. If necessary, local law enforcement should be contacted.

All site visitors will be required to sign in, complete a basic safety orientation, adhere to the safety and health plan, and maintain the “buddy system” with a field employee while onsite.

9.7 Site Sanitation and Personal Hygiene

The work site will be kept as clean and neat as possible; regular cleaning shall be conducted in order to maintain safe and sanitary conditions with all work areas. An adequate supply of bottled drinking water will be provided, to be used for both drinking and personal cleansing, if needed. A portable toilet will be maintained on-site during construction activities. Hand washing facilities and sanitizer will also be available near or in the portable toilet and in all site vehicles.

9.8 Emergency Equipment and First Aid

Field crews will have cellular telephones as a means of communication to effectively care for injured workers. Emergency telephone numbers and a highly visible map delineating the best route to the nearest medical facility, Mount St Mary’s Hospital, will be contained in each field vehicle. This figure also appears on the back cover of this SSHP.

First Aid kits will be readily accessible to all workers and protected from the weather. The individual contents of the First Aid kit will be kept sterile. First Aid kit locations will be clearly marked and distributed throughout the site, as appropriate. The contents of a First Aid kit will be checked prior to each mobilization to ensure serviceability and completeness. The contents of the First Aid kit will, at a minimum, contain the items listed in Table 3-1, EM 385-1-1.

Additionally, an emergency eyewash station will be available for use. The eye wash station will be portable and ANSI Z358.1 compliant. The eyewash station will be located in close proximity to all work sites for easy access. Site workers will be reminded daily of the location of the eyewash station.

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10.0 EQUIPMENT DECONTAMINATION

It is anticipated that decontamination procedures of sampling equipment will not be required as it is intended to use dedicated and disposable sampling equipment. In the event that, at the time of field activities, dedicated and disposable sampling equipment is not available, the following decontamination procedures will be conducted. Decontamination of excavation equipment that comes into contact with potentially contaminated soil will be required. Decontamination fluids consist of non-potable water and detergent, and will be maintained on-site. Decontamination will be performed on any reusable materials that come in contact with soils. The SDSs for decontamination fluids are included in Appendix D and will be maintained on-site.

10.1 Decontamination of Excavation Equipment

1. Place equipment to be washed in the designated decontamination area, on the fabricated decontamination pad;
2. Use a brush or broom to remove heavy soil spoils;
3. Wash and scrub with laboratory-grade, non-phosphate detergent all surfaces of equipment that have come into contact with contaminated material;
4. Rinse equipment using clean non-potable water;
5. Allow to air dry.

10.2 Decontamination of Environmental Sampling Equipment

1. Set up a decontamination area by covering sufficient ground surface area with polyethylene sheeting in order to comfortably conduct all decontamination procedures and minimize conditions resulting in potential cross-contamination;
2. Wash and scrub with laboratory-grade, non-phosphate detergent all accessible equipment surfaces. This includes all internal surfaces that are readily accessible and may come into contact with the sample media;
3. Rinse with detergent-free de-ionized or distilled water;
4. Rinse a second time with detergent-free de-ionized or distilled water;
5. Wrap in new, unused contractor-grade plastic trash bag, or polyethylene sheeting.

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11.0 EMERGENCY ACTION PLAN AND CONTINGENCY PROCEDURES

Prior to work start-up, personnel will be made familiar with this Emergency Action Plan. The SSHO will make this plan available for inspection and copying by subcontractors and will review the location of evacuation areas exit routes and notification procedures. The evacuation point will be established at the pre-determined location at OCCP (see Attachment 1 of the APP, **Figure 4**). The SSHO will identify the location of the evacuation area and discuss evacuation procedures during daily safety meetings.

11.1 Emergency Incident Procedures

In the event of an emergency, the information available at that time will be properly evaluated and the appropriate steps will be taken to implement the Emergency Action Plan. The SSHO will assume command of the situation and will call the appropriate emergency services, evacuate personnel to the designated evacuation location as needed, and take other steps necessary to gain control over the emergency.

11.2 Emergency Notification Procedures

Field crews will utilize cellular telephones as a means of communications within the workforce and with the SSHO. The SSHO will notify site workers by a predetermined alarm when the Emergency Action Plan is being implemented.

Emergency telephone numbers of the nearest hospital are provided in Section 10.5, **Table 7**, and on the back cover of this SSHP; a map showing the route and direction to the nearest hospital is provided in Section 10.6 and on the back cover of this SSHP. The field personnel will immediately stop work and report to the SSHO under the following potential emergency situations:

- Medical emergency;
- Discovery of unanticipated hazards [e.g., drums, heavily contaminated materials, munitions with unknown fillers, etc.];
- Overexposure of personnel to on-site contamination; and
- Cold/heat-related injury or heat stress

Work being performed at the time of the accident should be temporarily suspended and a preliminary investigation/assessment conducted to determine cause and ensure mitigation measures are employed to prevent reoccurrence prior to work resuming.

Accidents will be reported according to procedures described in Section 8.0 of the project APP.

Bloodborne pathogen (BBP) awareness is a subject of First Aid/CPR annual recertification and a subject taught in annual 8-hr HAZWOPER refresher training. As part of the ERT Corporate Safety and Health Program, it is recognized that employees trained in First Aid/CPR may be exposed to blood, and as such, ERT, via its corporate health and safety provider, has made voluntarily available the hepatitis B vaccine and vaccination series to all employees who may have an occupational exposure. ERT also makes available via its corporate healthcare provider post-exposure evaluation and follow-up to all employees who have had an exposure incident.

For this project, personnel will not be involved in activities reasonably expected to result in exposure to blood. Additionally, personnel will be wearing all appropriate protective equipment, including eye and hand protection. In the rare situation that First Aid needs to be administered, supplies present in the kits (e.g., gloves, barriers, etc.) will be sufficient to prevent exposure to any BBPs.

ERT personnel will not be providing medical assistance as a primary job duty at the site; however, these BBP exposure control procedures will be applicable to designated potential First Aid providers on this project. ERT personnel expected to administer First Aid must have a basic understanding of BBPs in order to protect themselves effectively from any hazards.

ERT field personnel, who possess current certification to do so, may find themselves in a rare situation where they must deliver First Aid and/or CPR in a nonclinical setting. First Aid/CPR duties are often performed in uncontrolled environments, which, due to a lack of time and other factors, do not allow for application of a complex decision-making process to the emergency at hand. Only minor injuries will be treated via First Aid, and only small volume of bodily fluids/soiled supplies will be cleaned up by the First Aid provider. Any injury requiring medical support beyond basic First Aid, however, will be handled in full to by emergency responders (to include cleanup of blood).

Via the provision of First Aid/CPR training to employees, ERT provides information on BBPs and the Occupational Exposure to BBPs Standard to all field personnel with special emphasis on those employees who may be certified and called upon to perform First Aid.

This training is designed to eliminate or minimize employee exposure to BBPs through information and training, engineering controls, administrative controls, use of PPE, safe handling procedures, decontamination, and proper disposal methods.

When treating a victim for an injury, conducting CPR, or handling potentially infectious waste, the use of universal precautions is the recommended approach to infection control. Universal precautions assume all human blood and certain human body fluids are infectious for Human Immunodeficiency Virus, Hepatitis B Virus, and other BBPs. Other body substances, including feces, urine, or vomit are not included, unless they contain visible blood. Under circumstances in which differentiation between body fluid types is difficult or impossible, all body fluids shall be considered potentially infectious materials. Work practice controls to minimize exposure to BBPs are as follows:

- Work practice controls reduce the likelihood of exposure by formalizing the manner in which a task is performed.
- All First Aid procedures involving blood or other potentially infectious materials shall be performed in a manner that minimizes splashing, spraying, spattering, and generation of droplets of these substances.
- Mouth suctioning of blood or other infectious materials is prohibited.
- When handling red bag waste, hold the top end of the bag rather than the bottom.
- Containers of potentially infectious waste should be labeled with a biohazard label.
- All PPE should be inspected prior to use. PPE should not be worn if the PPE barrier is

compromised.

- Hands and other skin surfaces should be washed with soap immediately and thoroughly if contaminated with blood, other body fluids to which universal precautions apply, or their potentially contaminated articles. Hands should always be washed after gloves are removed even if the gloves appear intact.
- Where hand washing facilities are not readily accessible, antiseptic hand cleaner along with clean cloth/paper towels or antiseptic towelettes should be used. When antiseptic hand cleaners or towelettes are used hands shall be washed with soap and running water as soon as feasible.

Engineering controls isolate or remove the BBP hazard from the workplace:

- Proper containerizing, labeling, and disposal of contaminated items are required for all potentially infectious waste.
- Limiting access or close off areas which contain potentially infectious materials.
- Assessing each work area for potential sharp edge hazards, and covering them with a tarp (or equivalent).

Administrative controls reduce or eliminate BBP hazards from the workplace by program development, auditing to ensure these programs are in place and implemented and providing information and training.

Where BBP hazards cannot be mitigated via engineering controls or administrative controls, PPE should be utilized. Work gloves should be worn to protect the hands from potential cuts, scrapes, and/or abrasions.

For protection against BBPs, for an employee administering First Aid, minimum PPE would require nitrile gloves. For an employee administering CPR, a face shield should be employed to prevent possible exposure to blood in the mouth. First-aid kits will be supplemented with BBP kits or supplies and will be readily accessible at all times.

If the chance of being exposed to blood is high, the caregiver should put on protective attire before beginning CPR or First Aid. Protective barriers should be used in accordance with the level of exposure encountered.

Under rare or extraordinary circumstances, a responding employee may decide, based on his or her judgment, that use of PPE would prevent delivery of care or pose an increased hazard to safety of the employee or co-worker. When this judgment has been made, an investigation of the event will be initiated and documented in order to determine what changes in procedures or protective equipment is needed.

In the event that off-site medical care becomes necessary, the location of the closest local medical facility from the evacuation point is provided. Turn by turn directions are also included. In addition, although not anticipated, should work locations change significantly requiring updated hospital maps, ERT will generate new site maps including routes to the hospital from each work location. The maps will be reviewed with site personnel prior to beginning work as well as placed within the front cab of each field vehicle.

On-site emergencies may ultimately be handled by off-site emergency support personnel. Initial response and First Aid treatment will be available through on-site personnel. In case of a hazardous materials emergency, the SSHO will assume control and insure that the site remains clear of personnel until the arrival of off-site emergency personnel.

Emergency response services will be activated by calling 911; the Lewiston Fire Department will be able to provide the quickest response to an incident, and also ensure that off-site emergency support will be expedited through the installation security as appropriate. When possible, the following information will be provided when reporting an emergency:

1. Name and location of person reporting
2. Location of accident/incident (global positioning system [GPS] coordinates, if available)
3. Name and affiliation of injured party
4. Description of injuries, fire, spill, or explosion
5. Status of medical aid and/or other emergency control efforts
6. Details of chemicals involved
7. Summary of accident, including suspected cause and time it occurred
8. Temporary control measures taken to minimize further risk

Once emergency response agencies have been notified, the ERT PM and USACE PM will be notified immediately.

11.3 Personnel Injury/Medical Emergency

Personnel will always be alert for signs and symptoms of illnesses related to chemical, physical, and disease factors on-site. Severe injuries resulting from accidents will be recognized as emergencies and treated as such.

In a medical emergency, the SSHO will stop work. Personnel currently trained in First Aid/CPR will evaluate the nature of the injury, and initiate First Aid assistance immediately. First Aid/CPR will be administered as appropriate. A fellow worker will accompany injured workers to the hospital to assist in providing necessary information regarding the injured worker. The nearest hospital is Mount St. Mary's Hospital which has an emergency room and a trauma center. Mount St. Mary's Hospital will have been contacted and made aware of the site operations to be conducted before work begins.

The SSHO will complete an Incident Report Form (Appendix B), which will be submitted to the ERT PM and SHM within 24 hrs of the following types of incidents:

- Job-related injuries and illnesses;
- Accidents resulting in significant property damage;
- Accidents involving vehicles and/or vessels; and
- Accidents in which there may have been no injury or property damage, but which have a high probability of recurring with at least a moderate risk to personnel or property

An accident that results in a fatality or the hospitalization of 3 or more employees will be reported within 8 hrs to the U.S. Department of Labor by the ERT PM. ENG Form 3394

(Appendix B) will be submitted to USACE within 24 hrs of the accident. An Incident Report (Appendix B) will be completed when a near-miss occurs that could have potentially resulted in serious physical harm.

11.4 Fire/Explosion Emergencies

In the unlikely event of a fire or explosion, the SSHO will immediately initiate the sounding of an alarm and implement the Emergency Action Plan. Once at the predetermined evacuation location, the SSHO will:

- Account for all employees at the evacuation location;
- Notify local emergency services; a list of the contact numbers is provided in **Table 6**. The emergency contact phone numbers and map to local hospital that appear in Section 10.6 will be also kept on-site in each field vehicle; and
- Notify the ERT PM and follow the guidance provided by the ERT PM.

The SSHO will determine if the situation requires evacuation. If no evacuation is required, then personnel properly trained in fire suppression and other response procedures will attempt to deal with the situation. The SSHO and field crew will only perform the rescue and medical duties that each is trained and qualified to perform. All other necessary rescue and medical duties will be performed by qualified emergency personnel. Other than small fires or spills, local emergency response services will be notified to handle the emergency. The SSHO will take measures to reduce injury and illness, primarily by evacuating personnel as quickly as possible when necessary. Cleanup after such events may require specialized services. Work will not resume until the SSHO declares the incident closed.

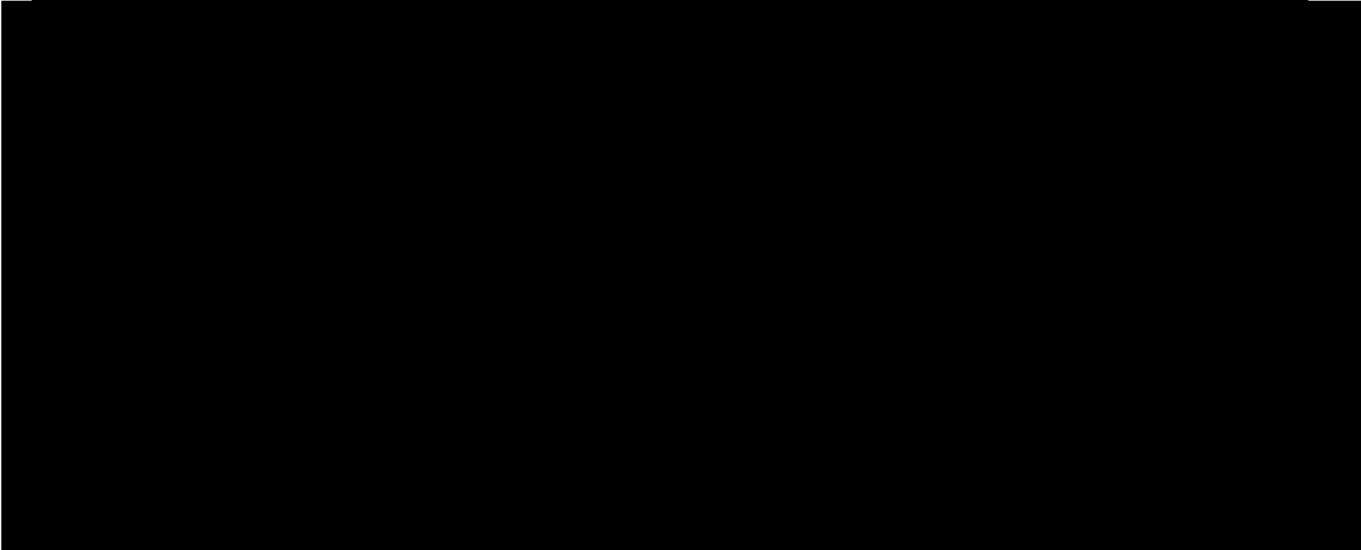
11.5 Emergency Contacts

The following emergency telephone numbers shall be posted in ERT’s field vehicles:

Table 6. Emergency Contact Phone Numbers		
Service/Contact	Agency/Position	Telephone No.
Emergency Service	Ambulance, Fire, Police	911
Mount Saint Mary’s Hospital 5300 Military Road Lewistown, NY 14092	General Hospital with Emergency Services; Trauma/ Chemical/Burn	(716) 297-4800
Spill Response	CHEMTREC	(800) 424-9300
United States Environmental Protection Agency (USEPA) National Response Center	24-hour hotline	(800) 424-8802
New York State Department of Environmental Conservation	Regulator	(844) 332-3267
Poison Control	Poison Control Center	(800) 962-1253
USEPA Region 2	New York Spill Number	(800) 282-9378

Table 6. Emergency Contact Phone Numbers

Service/Contact	Agency/Position	Telephone No.
-----------------	-----------------	---------------



11.6 Hospital Routes

The nearest emergency hospital to OCCP is Mount Saint Mary's Hospital. The route from the evacuation point to Mount Saint Mary's Hospital is shown below and on the back cover of this SSHP. The turn-by-turn directions are provided below as well.

Mount Saint Mary's Hospital, 5300 Military Rd, Lewiston, NY 14092
Phone number: (716) 297-4800

Distance from Evacuation Point to Mount Saint Mary's Hospital = 6.8 miles (10 minutes)

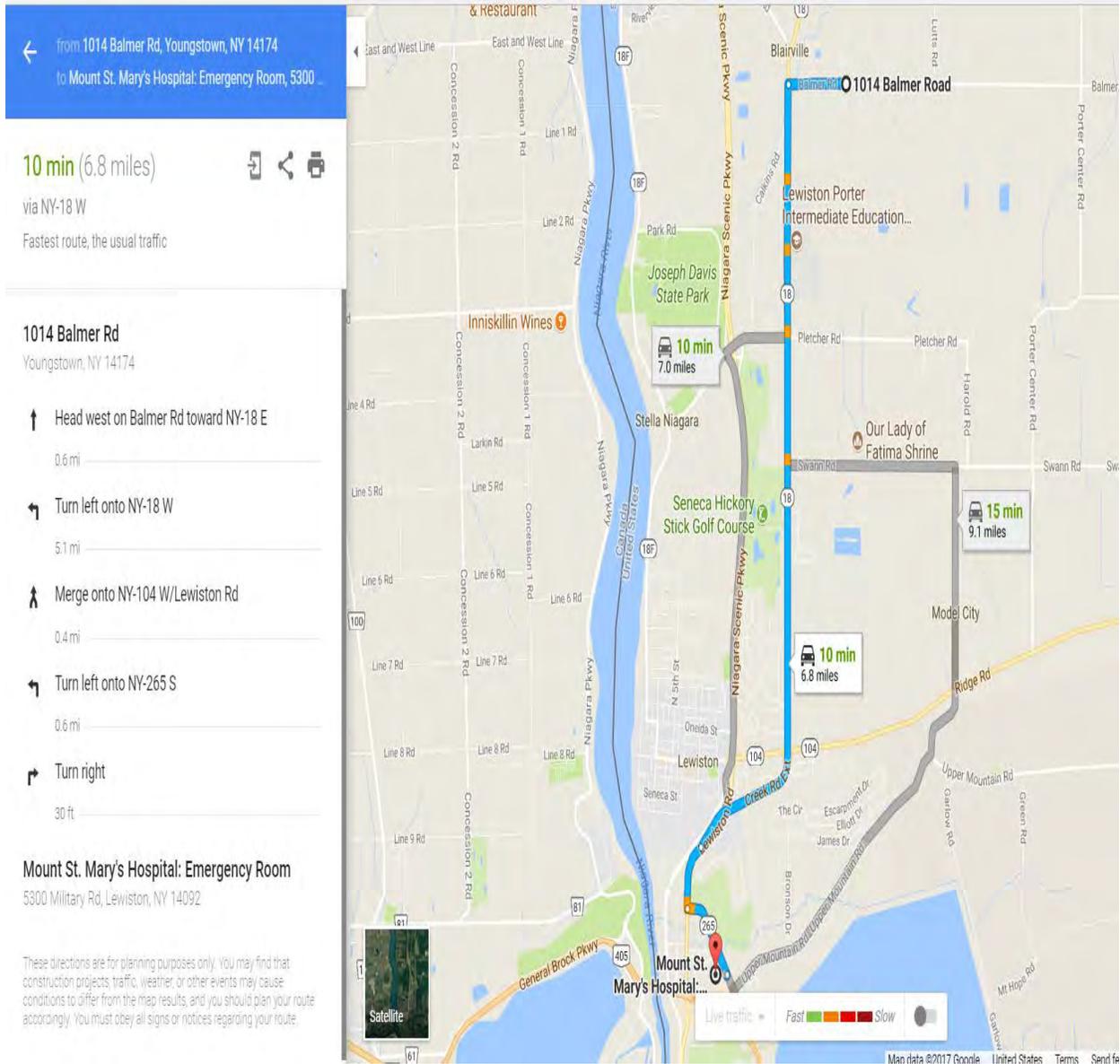


Exhibit 19. Directions from Evacuation Point to Mount Saint Mary’s Hospital

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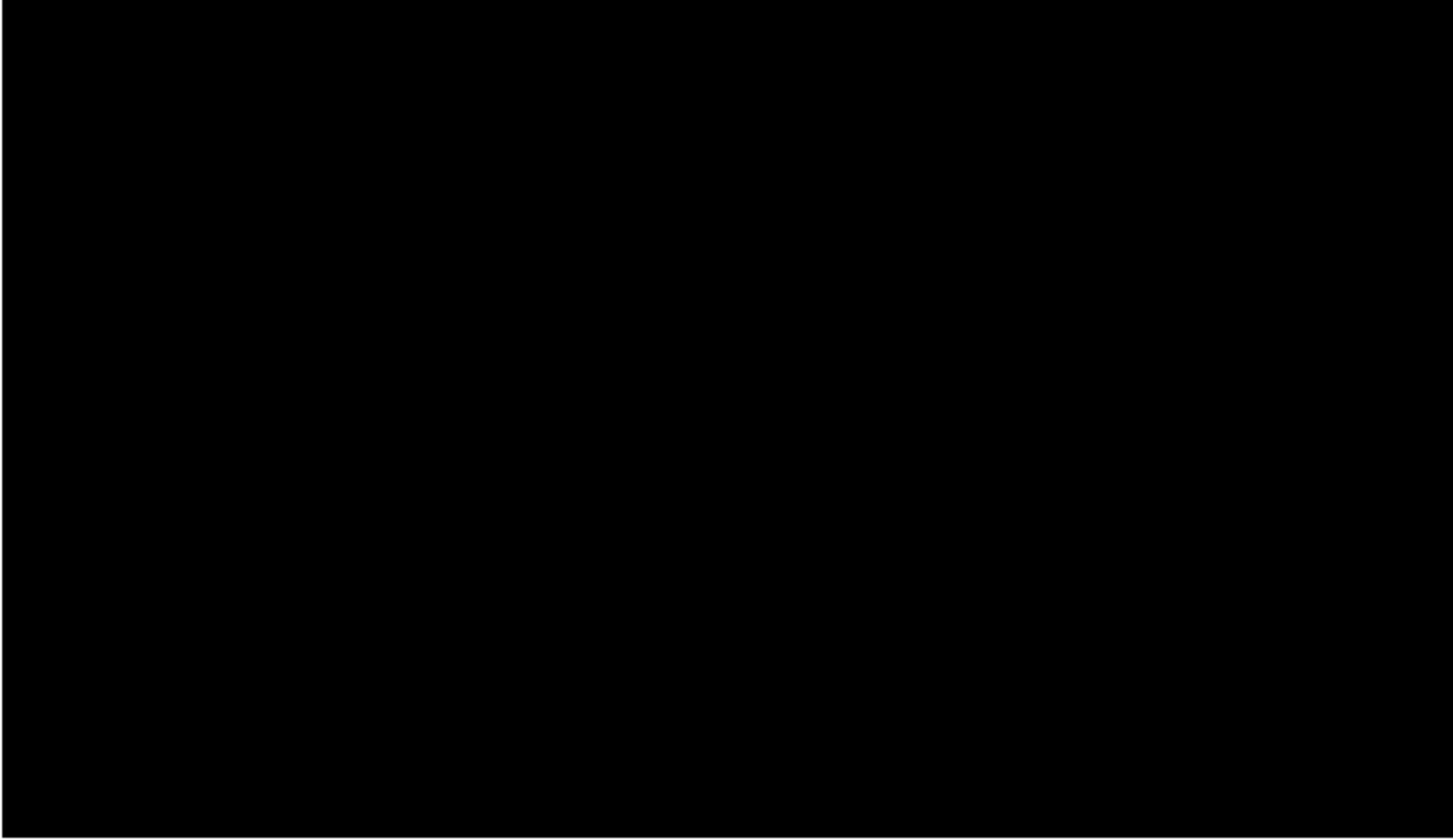
12.0 REFERENCES

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APPENDIX A
Personnel Resumes

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APPENDIX B
Health and Safety Report Forms

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SITE SAFETY AND HEALTH PLAN REVIEW RECORD

Site Name: Former Lake Ontario Ordinance Works, Occidental Chemical Corporation Property (LOOW OCCP)

Work Location Address: 1014 – 1350 Balmer Road, Youngstown, New York 14174.

I have read, understood, and agree to abide by the information set forth in this SSHP and discussed in the initial Daily Safety Briefing.

NAME	SIGNATURE	DATE
_____ Name	_____ Signature	_____ Date

INCIDENT/INJURY/ILLNESS REPORTING FORM (page 1)

Date: _____ **Project No:** _____

Time: _____ **Project Name:** _____

Employee's Name: _____ **Employee No.:** _____

Employee Office: _____ **Employee Phone:** _____

Incident/Injury/Illness Location: _____

Incident/Injury/Illness Description:

Extent of Injury or Damage:

INCIDENT/INJURY/ILLNESS REPORTING FORM (page 2)

Actions Taken:

List of all personnel involved and their home phone numbers:

Describe any measures taken to prevent reoccurrence:

Other Notes:

Employee's Signature/Date:

Site Supervisor's Signature/Date:

==

ENG FORM 3

11. CAUSAL FACTOR(S) (Read Instruction Before Completing)					
a. (Explain YES answers in item 13) DESIGN: Was design of facility, workplace or equipment a factor? <input type="checkbox"/> YES <input type="checkbox"/> NO INSPECTION/MAINTENANCE: Were inspection & maintenance procedures a factor? <input type="checkbox"/> YES <input type="checkbox"/> NO PERSON'S PHYSICAL CONDITION: In your opinion, was the physical condition of the person a factor? <input type="checkbox"/> YES <input type="checkbox"/> NO OPERATING PROCEDURES: Were operating procedures a factor? <input type="checkbox"/> YES <input type="checkbox"/> NO JOB PRACTICES: Were any job safety/health practices not followed when the accident occurred? <input type="checkbox"/> YES <input type="checkbox"/> NO HUMAN FACTORS: Did any human factors such as, size or strength of person, etc., contribute to accident? <input type="checkbox"/> YES <input type="checkbox"/> NO ENVIRONMENTAL FACTORS: Did heat, cold, dust, sun, glare, etc., contribute to the accident? <input type="checkbox"/> YES <input type="checkbox"/> NO					
a. (CONTINUED) 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? <input type="checkbox"/> YES <input type="checkbox"/> NO OFFICE FACTORS: Did office setting such as, lifting office furniture, carrying, stooping, etc., contribute to the accident? <input type="checkbox"/> YES <input type="checkbox"/> NO SUPPORT FACTORS: Were inappropriate tools/resources provided to properly perform the activity/task? <input type="checkbox"/> YES <input type="checkbox"/> NO PERSONAL PROTECTIVE EQUIPMENT: Did the improper selection, use or maintenance of personal protective equipment contribute to the accident? <input type="checkbox"/> YES <input type="checkbox"/> NO DRUGS/ALCOHOL: In your opinion, was drugs or alcohol a factor to the accident? <input type="checkbox"/> YES <input type="checkbox"/> NO					
b. WAS A WRITTEN JOB/ACTIVITY HAZARD ANALYSIS COMPLETED FOR TASK BEING PERFORMED AT TIME OF ACCIDENT? <input type="checkbox"/> YES (If yes, attach a copy.) <input type="checkbox"/> NO					
12. TRAINING					
a. WAS PERSON TRAINED TO PERFORM ACTIVITY/TASK? <input type="checkbox"/> YES <input type="checkbox"/> NO	b. TYPE OF TRAINING: <input type="checkbox"/> CLASSROOM <input type="checkbox"/> ON JOB	c. DATE OF MOST RECENT FORMAL TRAINING: (Month) (Day) (Year)			
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 <p style="text-align: center;">See attached page.</p>					
b. INDIRECT CAUSE(S) <p style="text-align: center;">See attached page.</p>					
14. ACTION(S) TAKEN, ANTICIPATED OR RECOMMENDED TO ELIMINATE CAUSE(S).					
DESCRIBE FULLY: <p style="text-align: center;">See attached page.</p>					
15. DATES FOR ACTIONS IDENTIFIED IN BLOCK 14.					
a. BEGINNING (Month/Day/Year)			b. ANTICIPATED COMPLETION (Month/Day/Year)		
c. SIGNATURE AND TITLE OF SUPERVISOR COMPLETING REPORT		d. DATE (Mo/Da/Yr)	e. ORGANIZATION IDENTIFIER (Div, Br, Sect)	f. OFFICE SYMBOL	
CORPS _____					
CONTRACTOR _____					
16. MANAGEMENT REVIEW (1st)					
a. <input type="checkbox"/> CONCUR b. <input type="checkbox"/> NON CONCUR c. COMMENTS					
SIGNATURE		TITLE		DATE	
17. MANAGEMENT REVIEW (2nd - Chief Operations, Construction, Engineering, etc.)					
a. <input type="checkbox"/> CONCUR b. <input type="checkbox"/> NON CONCUR c. COMMENTS					
SIGNATURE		TITLE		DATE	
18. SAFETY AND OCCUPATIONAL HEALTH OFFICE REVIEW					
a. <input type="checkbox"/> CONCUR b. <input type="checkbox"/> NON CONCUR c. ADDITIONAL ACTIONS/COMMENTS					
SIGNATURE		TITLE		DATE	
19. COMMAND APPROVAL					
COMMENTS					
COMMANDER SIGNATURE				DATE	

10.	ACCIDENT DESCRIPTION <i>(Continuation)</i>

13a.	DIRECT CAUSE <i>(Continuation)</i>

13b.	INDIRECT CAUSES (Continuation)

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



Form: QA-001 V2
 Date: 21 Sept 2012
 Version 1.3

SITE SPECIFIC HEALTH AND SAFETY CHECKLIST

Project Name/Number: _____
 Site Information/Location: _____
 Inspection Date: _____
 Inspector: _____

Answer each question by checking the appropriate column (yes, no, or N/A). If "no" is checked, please provide an explanation on the form.

Documentation	Yes	No	N/A
1 Is the WP, APP and SSHP on the Site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 Have all amendments to the WP, APP, SSHP been entered and reviewed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 Are the tasks being completed as reflected in the plans?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 Is there a written acknowledgement that all employees have been briefed on and read the APP/SSHP (signature sheet)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5 Are the following training records current and available:			
- Appropriate Qualification Certificates (UXO, Equip Operator, Confined Space etc.)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- 40 Hour HAZWOPER for ALL employees?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- 8-Hour HAZWOPER Annual Refresher?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- CPR/First Aid (minimum two individuals on site)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- 8-Hour Hazardous Waste Site Supervisor?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Initial Site Health and Safety Briefing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6 Tailgate Safety Briefings conducted?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7 Is the hospital route clearly posted in vehicles?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8 Were applicable Material Safety Data Sheets at the Site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9 Personnel and supervisory positions appropriate for the work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10 Are work/exclusion zones adequately designated and secured?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11 Is personal protective equipment available and correctly used, maintained and stored?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12 Is the following emergency equipment located at each site:			
- Fire extinguisher (inspected)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Eye wash (minimal)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Communications (radio and phone)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- First aid kit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13 Is the buddy system in use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14 Are personnel refraining from drinking, chewing, smoking, taking medications, or other hand-to-mouth contact while working in the exclusion zone?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15 Is the site organized with good housekeeping and sanitation practices?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16 Was a random employee asked if he/she know site hazard and emergency procedures?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The QC/Safety Inspector shall sign this checklist upon completion of all items on the checklist.

QC/Safety Inspector _____

Signature: Notes:

APPENDIX C

Training Certificates

(Certifications will be renewed and updated prior to starting field efforts, as required)

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APPENDIX D
Safety Data Sheets

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Safety Data Sheet

Material Name: Diesel Fuel, All Types

SDS No. 9909
US GHS

Synonyms: Ultra Low Sulfur Diesel; Low Sulfur Diesel; No. 2 Diesel; Motor Vehicle Diesel Fuel; Non-Road Diesel Fuel; Locomotive/Marine Diesel Fuel

*** Section 1 - Product and Company Identification ***

Manufacturer Information

Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095-0961

Phone: 732-750-6000 Corporate EHS
Emergency # 800-424-9300 CHEMTREC
www.hess.com (Environment, Health, Safety Internet Website)

*** Section 2 - Hazards Identification ***

GHS Classification:

Flammable Liquids - Category 3
Skin Corrosion/Irritation – Category 2
Germ Cell Mutagenicity – Category 2
Carcinogenicity - Category 2
Specific Target Organ Toxicity (Single Exposure) - Category 3 (respiratory irritation, narcosis)
Aspiration Hazard – Category 1
Hazardous to the Aquatic Environment, Acute Hazard – Category 3

GHS LABEL ELEMENTS

Symbol(s)



Signal Word

DANGER

Hazard Statements

Flammable liquid and vapor.
Causes skin irritation.
Suspected of causing genetic defects.
Suspected of causing cancer.
May cause respiratory irritation.
May cause drowsiness or dizziness.
May be fatal if swallowed and enters airways.
Harmful to aquatic life.

Precautionary Statements

Prevention

Keep away from heat/sparks/open flames/hot surfaces. No smoking
Keep container tightly closed.
Ground/bond container and receiving equipment.

Safety Data Sheet

Material Name: Diesel Fuel, All Types

SDS No. 9909

Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Wear protective gloves/protective clothing/eye protection/face protection.
Wash hands and forearms thoroughly after handling.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Avoid breathing fume/mist/vapours/spray.

Response

In case of fire: Use water spray, fog or foam to extinguish.
IF ON SKIN (or hair): Wash with plenty of soap and water. Remove/Take off immediately all contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical advice/attention.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell.
If swallowed: Immediately call a poison center or doctor. Do NOT induce vomiting.
IF exposed or concerned: Get medical advice/attention.

Storage

Store in a well-ventilated place. Keep cool.
Keep container tightly closed.
Store locked up.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 3 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
68476-34-6	Fuels, diesel, no. 2	100
91-20-3	Naphthalene	<0.1

A complex mixture of hydrocarbons with carbon numbers in the range C9 and higher.

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes

In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

First Aid: Skin

Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or with waterless hand cleanser. Obtain medical attention if irritation or redness develops. Thermal burns require immediate medical attention depending on the severity and the area of the body burned.

First Aid: Ingestion

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Monitor for breathing difficulties. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

Safety Data Sheet

Material Name: Diesel Fuel, All Types

SDS No. 9909

First Aid: Inhalation

Remove person to fresh air. If person is not breathing, provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

* * * Section 5 - Fire Fighting Measures * * *

General Fire Hazards

See Section 9 for Flammability Properties.

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

Hazardous Combustion Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

Extinguishing Media

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO₂, water spray, fire fighting foam, and other gaseous agents.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

Unsuitable Extinguishing Media

None

Fire Fighting Equipment/Instructions

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment. Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing. Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

* * * Section 6 - Accidental Release Measures * * *

Recovery and Neutralization

Carefully contain and stop the source of the spill, if safe to do so.

Materials and Methods for Clean-Up

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal. Caution, flammable vapors may accumulate in closed containers.

Emergency Measures

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Safety Data Sheet

Material Name: Diesel Fuel, All Types

SDS No. 9909

Personal Precautions and Protective Equipment

Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

Environmental Precautions

Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Prevention of Secondary Hazards

None

* * * Section 7 - Handling and Storage * * *

Handling Procedures

Handle as a combustible liquid. Keep away from heat, sparks, excessive temperatures and open flame! No smoking or open flame in storage, use or handling areas. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil) is loaded into tanks previously containing low flash point products (such as this product) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents."

Storage Procedures

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks."

Incompatibilities

Keep away from strong oxidizers.

* * * Section 8 - Exposure Controls / Personal Protection * * *

Component Exposure Limits

Fuels, diesel, no. 2 (68476-34-6)

ACGIH: 100 mg/m³ TWA (inhalable fraction and vapor, as total hydrocarbons, listed under Diesel fuel)
Skin - potential significant contribution to overall exposure by the cutaneous route (listed under Diesel fuel)

Safety Data Sheet

Material Name: Diesel Fuel, All Types

SDS No. 9909

Naphthalene (91-20-3)

ACGIH: 10 ppm TWA
15 ppm STEL
Skin - potential significant contribution to overall exposure by the cutaneous route
OSHA: 10 ppm TWA; 50 mg/m³ TWA
NIOSH: 10 ppm TWA; 50 mg/m³ TWA
15 ppm STEL; 75 mg/m³ STEL

Engineering Measures

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

Personal Protective Equipment: Respiratory

A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

Personal Protective Equipment: Hands

Gloves constructed of nitrile, neoprene, or PVC are recommended.

Personal Protective Equipment: Eyes

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

Personal Protective Equipment: Skin and Body

Chemical protective clothing such as of E.I. DuPont TyChem®, Saranex® or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

* * * Section 9 - Physical & Chemical Properties * * *

Appearance:	Clear, straw-yellow.	Odor:	Mild, petroleum distillate odor
Physical State:	Liquid	pH:	ND
Vapor Pressure:	0.009 psia @ 70 °F (21 °C)	Vapor Density:	>1.0
Boiling Point:	320 to 690 °F (160 to 366 °C)	Melting Point:	ND
Solubility (H₂O):	Negligible	Specific Gravity:	0.83-0.876 @ 60°F (16°C)
Evaporation Rate:	Slow; varies with conditions	VOC:	ND
Percent Volatile:	100%	Octanol/H₂O Coeff.:	ND
Flash Point:	>125 °F (>52 °C) minimum	Flash Point Method:	PMCC
Upper Flammability Limit (UFL):	7.5	Lower Flammability Limit (LFL):	0.6
Burning Rate:	ND	Auto Ignition:	494°F (257°C)

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability

This is a stable material.

Hazardous Reaction Potential

Will not occur.

Safety Data Sheet

Material Name: Diesel Fuel, All Types

SDS No. 9909

Conditions to Avoid

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources.

Incompatible Products

Keep away from strong oxidizers.

Hazardous Decomposition Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

* * * Section 11 - Toxicological Information * * *

Acute Toxicity

A: General Product Information

Harmful if swallowed.

B: Component Analysis - LD50/LC50

Naphthalene (91-20-3)

Inhalation LC50 Rat >340 mg/m³ 1 h; Oral LD50 Rat 490 mg/kg; Dermal LD50 Rat >2500 mg/kg; Dermal LD50 Rabbit >20 g/kg

Potential Health Effects: Skin Corrosion Property/Stimulativeness

Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are repeatedly exposed.

Potential Health Effects: Eye Critical Damage/ Stimulativeness

Contact with eyes may cause mild irritation.

Potential Health Effects: Ingestion

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

Potential Health Effects: Inhalation

Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

Respiratory Organs Sensitization/Skin Sensitization

This product is not reported to have any skin sensitization effects.

Generative Cell Mutagenicity

This material has been positive in a mutagenicity study.

Carcinogenicity

A: General Product Information

Suspected of causing cancer.

Safety Data Sheet

Material Name: Diesel Fuel, All Types

SDS No. 9909

Studies have shown that similar products produce skin tumors in laboratory animals following repeated applications without washing or removal. The significance of this finding to human exposure has not been determined. Other studies with active skin carcinogens have shown that washing the animal's skin with soap and water between applications reduced tumor formation.

B: Component Carcinogenicity

Fuels, diesel, no. 2 (68476-34-6)

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans (listed under Diesel fuel)

Naphthalene (91-20-3)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

NTP: Reasonably Anticipated To Be A Human Carcinogen (Possible Select Carcinogen)

IARC: Monograph 82 [2002] (Group 2B (possibly carcinogenic to humans))

Reproductive Toxicity

This product is not reported to have any reproductive toxicity effects.

Specified Target Organ General Toxicity: Single Exposure

This product is not reported to have any specific target organ general toxicity single exposure effects.

Specified Target Organ General Toxicity: Repeated Exposure

This product is not reported to have any specific target organ general toxicity repeat exposure effects.

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.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Fuels, diesel, no. 2 (68476-34-6)

Test & Species

Test & Species	Conditions
96 Hr LC50 Pimephales promelas	35 mg/L [flow-through]

Conditions

Naphthalene (91-20-3)

Test & Species

Test & Species	Conditions
96 Hr LC50 Pimephales promelas	5.74-6.44 mg/L [flow-through]
96 Hr LC50 Oncorhynchus mykiss	1.6 mg/L [flow-through]
96 Hr LC50 Oncorhynchus mykiss	0.91-2.82 mg/L [static]
96 Hr LC50 Pimephales promelas	1.99 mg/L [static]

Conditions

Safety Data Sheet

Material Name: Diesel Fuel, All Types

SDS No. 9909

96 Hr LC50 Lepomis macrochirus	31.0265 mg/L [static]
72 Hr EC50 Skeletonema costatum	0.4 mg/L
48 Hr LC50 Daphnia magna	2.16 mg/L
48 Hr EC50 Daphnia magna	1.96 mg/L [Flow through]
48 Hr EC50 Daphnia magna	1.09 - 3.4 mg/L [Static]

Persistence/Degradability

No information available.

Bioaccumulation

No information available.

Mobility in Soil

No information available.

*** Section 13 - Disposal Considerations ***

Waste Disposal Instructions

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

Disposal of Contaminated Containers or Packaging

Dispose of contents/container in accordance with local/regional/national/international regulations.

*** Section 14 - Transportation Information ***

DOT Information

Shipping Name: Diesel Fuel

NA #: 1993 Hazard Class: 3 Packing Group: III

Placard:



*** Section 15 - Regulatory Information ***

Regulatory Information

Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Naphthalene (91-20-3)

CERCLA: 100 lb final RQ; 45.4 kg final RQ

SARA Section 311/312 – Hazard Classes

<u>Acute Health</u>	<u>Chronic Health</u>	<u>Fire</u>	<u>Sudden Release of Pressure</u>	<u>Reactive</u>
X	X	X	--	--

Safety Data Sheet

Material Name: Diesel Fuel, All Types

SDS No. 9909

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product may contain listed chemicals below the de minimis levels which therefore are not subject to the supplier notification requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372. If you may be required to report releases of chemicals listed in 40 CFR 372.28, you may contact Hess Corporate Safety if you require additional information regarding this product.

State Regulations

Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Fuels, diesel, no. 2	68476-34-6	No	No	No	Yes	No	No
Naphthalene	91-20-3	Yes	Yes	Yes	Yes	Yes	No

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

WARNING! This product contains a chemical known to the state of California to cause cancer.

Component Analysis - WHMIS IDL

No components are listed in the WHMIS IDL.

Additional Regulatory Information

Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
Fuels, diesel, no. 2	68476-34-6	Yes	DSL	EINECS
Naphthalene	91-20-3	Yes	DSL	EINECS

*** Section 16 - Other Information ***

NFPA® Hazard Rating

Health	1
Fire	2
Reactivity	0



HMIS® Hazard Rating

Health	1*	Slight
Fire	2	Moderate
Physical	0	Minimal

*Chronic

Safety Data Sheet

Material Name: Diesel Fuel, All Types

SDS No. 9909

Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists; ADG = Australian Code for the Transport of Dangerous Goods by Road and Rail; ADR/RID = European Agreement of Dangerous Goods by Road/Rail; AS = Standards Australia; DFG = Deutsche Forschungsgemeinschaft; DOT = Department of Transportation; DSL = Domestic Substances List; EEC = European Economic Community; EINECS = European Inventory of Existing Commercial Chemical Substances; ELINCS = European List of Notified Chemical Substances; EU = European Union; HMIS = Hazardous Materials Identification System; IARC = International Agency for Research on Cancer; IMO = International Maritime Organization; IATA = International Air Transport Association; MAK = Maximum Concentration Value in the Workplace; NDSL = Non-Domestic Substances List; NFPA = National Fire Protection Association; NOHSC = National Occupational Health & Safety Commission; NTP = National Toxicology Program; STEL = Short-term Exposure Limit; TDG = Transportation of Dangerous Goods; TLV = Threshold Limit Value; TSCA = Toxic Substances Control Act; TWA = Time Weighted Average

Literature References

None

Other Information

Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.

End of Sheet

Safety Data Sheet
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GHS

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1 Identification of the substance/mixture and of the company/undertaking

- **1.1 Product identifier**
- Trade name: **ALCONOX**
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the mixture:** Cleaning material/ Detergent
- **1.3 Details of the supplier of the Safety Data Sheet**
- **Manufacturer/Supplier:**
Alconox, Inc.
30 Glenn St., Suite 309
White Plains, NY 10603
Phone: 914-948-4040
- **Further information obtainable from:** Product Safety Department
- **1.4 Emergency telephone number:**
ChemTel Inc.
(800)255-3924, +1 (813)248-0585



2 Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



GHS05 corrosion

Eye Dam. 1; H318: Causes serious eye damage.



GHS07

Skin Irrit. 2; H315: Causes skin irritation.

- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**



Xi; Irritant

R38-41: Irritating to skin. Risk of serious damage to eyes.

- **Information concerning particular hazards for human and environment:**

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

- **Classification system:**

The classification is according to the latest editions of the EU-lists, and extended by company and literature data.

The classification is in accordance with the latest editions of international substances lists, and is supplemented by information from technical literature and by information provided by the company.

- **2.2 Label elements**

- **Labelling according to Regulation (EC) No 1272/2008**

The product is classified and labelled according to the CLP regulation.

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Trade name: **ALCONOX**

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· **Hazard pictograms**



GHS05

· **Signal word: Danger**

· **Hazard-determining components of labelling:**

sodium dodecylbenzene sulfonate

· **Hazard statements**

H315: Causes skin irritation.

H318: Causes serious eye damage.

· **Precautionary statements**

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P264: Wash thoroughly after handling.

P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310: Immediately call a POISON CENTER or doctor/physician.

P321: Specific treatment (see on this label).

P362: Take off contaminated clothing and wash before reuse.

P332+P313: If skin irritation occurs: Get medical advice/attention.

P302+P352: IF ON SKIN: Wash with plenty of soap and water.

· **Hazard description:**

· **WHMIS-symbols:**

D2B - Toxic material causing other toxic effects



· **NFPA ratings (scale 0 - 4)**



Health = 1

Fire = 0

Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = 1

Fire = 0

Reactivity = 0

· **HMIS Long Term Health Hazard Substances**

None of the ingredients is listed.

· **2.3 Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

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3 Composition/information on ingredients

3.2 Mixtures

· **Description:** Mixture of substances listed below with nonhazardous additions.

· Dangerous components:

CAS: 68081-81-2	sodium dodecylbenzene sulfonate ☒ Xn R22; ☒ Xi R36 ⚠ Acute Tox. 4, H302; Eye Irrit. 2, H319	10-25%
CAS: 497-19-8 EINECS: 207-838-8 Index number: 011-005-00-2	Sodium Carbonate ☒ Xi R36 ⚠ Eye Irrit. 2, H319	2,5-10%
CAS: 7722-88-5 EINECS: 231-767-1	tetrasodium pyrophosphate substance with a Community workplace exposure limit	2,5-10%
CAS: 151-21-3 EINECS: 205-788-1	sodium dodecyl sulphate ☒ Xn R21/22; ☒ Xi R36/38 ⚠ Acute Tox. 4, H302; Acute Tox. 4, H312; Skin Irrit. 2, H315; Eye Irrit. 2, H319	2,5-10%

· **Additional information:** For the wording of the listed risk phrases refer to section 16.

4 First aid measures

4.1 Description of first aid measures

· **After inhalation:** Supply fresh air; consult doctor in case of complaints.

· After skin contact:

Immediately wash with water and soap and rinse thoroughly.

If skin irritation continues, consult a doctor.

· After eye contact:

Remove contact lenses if worn.

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

· After swallowing:

Rinse out mouth and then drink plenty of water.

Do not induce vomiting; call for medical help immediately.

4.2 Most important symptoms and effects, both acute and delayed

No further relevant information available.

4.3 Indication of any immediate medical attention and special treatment needed

No further relevant information available.

5 Firefighting measures

5.1 Extinguishing media

· Suitable extinguishing agents:

CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

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- **5.2 Special hazards arising from the substance or mixture:** No further relevant information available.
- **5.3 Advice for firefighters**
- **Protective equipment:**
Wear self-contained respiratory protective device.
Wear fully protective suit.
- **Additional information:** No further relevant information available.

6 Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Product forms slippery surface when combined with water.
- **6.2 Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **6.3 Methods and material for containment and cleaning up:**
Pick up mechanically.
Clean the affected area carefully; suitable cleaners are:
Warm water
- **6.4 Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **7.1 Precautions for safe handling**
Prevent formation of dust.
Keep receptacles tightly sealed.
- **Information about fire - and explosion protection:** No special measures required.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Protect from humidity and water.
- **7.3 Specific end use(s):** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.

8.1 Control parameters

- **Ingredients with limit values that require monitoring at the workplace:**

7722-88-5 tetrasodium pyrophosphate

REL (USA) 5 mg/m³

TLV (USA) TLV withdrawn

EV (Canada) 5 mg/m³

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- **Additional information:** The lists valid during the making were used as basis.
- **8.2 Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the skin.
Avoid contact with the eyes and skin.
- **Respiratory protection:**
Not required under normal conditions of use.
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.

- **Material of gloves**

Butyl rubber, BR
Nitrile rubber, NBR
Natural rubber, NR
Neoprene gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application.

- **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

- **Eye protection:**



Safety glasses

- **Body protection:** Protective work clothing

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9 Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form:	Powder
Colour:	White
· Odour:	Odourless
· Odour threshold:	Not determined.

· pH-value (10 g/l) at 20 °C:	9,5 (- NA for Powder form)
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· **Change in condition**

Melting point/Melting range:	Not Determined.
Boiling point/Boiling range:	Undetermined.

· Flash point:	Not applicable.
----------------	-----------------

· Flammability (solid, gaseous):	Not determined.
----------------------------------	-----------------

· **Ignition temperature:**

Decomposition temperature:	Not determined.
----------------------------	-----------------

· Self-igniting:	Product is not self-igniting.
------------------	-------------------------------

· Danger of explosion:	Product does not present an explosion hazard.
------------------------	---

· **Explosion limits:**

Lower:	Not determined.
Upper:	Not determined.

· Vapour pressure:	Not applicable.
--------------------	-----------------

· Density at 20 °C:	1,1 g/cm ³
· Relative density	Not determined.
· Vapour density	Not applicable.
· Evaporation rate	Not applicable.

· Solubility in / Miscibility with water:	Soluble.
---	----------

· Partition coefficient (n-octanol/water):	Not determined.
--	-----------------

· **Viscosity:**

Dynamic:	Not applicable.
Kinematic:	Not applicable.

· **Solvent content:**

Organic solvents:	0,0 %
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Solids content:	100 %
-----------------	-------

· 9.2 Other information	No further relevant information available.
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10 Stability and reactivity

- **10.1 Reactivity**
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions**
Reacts with acids.
Reacts with strong alkali.
Reacts with strong oxidizing agents.
- **10.4 Conditions to avoid:** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:**
Carbon monoxide and carbon dioxide
Phosphorus compounds
Sulphur oxides (SO_x)

11 Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **On the skin:** Irritant to skin and mucous membranes.
- **On the eye:** Strong irritant with the danger of severe eye injury.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
Irritant
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

12 Ecological information

- **12.1 Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **12.2 Persistence and degradability:** No further relevant information available.
- **12.3 Bioaccumulative potential:** Not worth-mentioning accumulating in organisms
- **12.4 Mobility in soil:** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water.
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.

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- **vPvB:** Not applicable.
- **12.6 Other adverse effects:** No further relevant information available.

13 Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation**
Smaller quantities can be disposed of with household waste.
Small amounts may be diluted with plenty of water and washed away. Dispose of bigger amounts in accordance with Local Authority requirements.
The surfactant used in this product complies with the biodegradability criteria as laid down in Regulation (EC) No. 648/2004 on detergents. Data to support this assertion are held at the disposal of the competent authorities of the Member States and will be made available to them, at their direct request or at the request of a detergent manufacturer.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

14 Transport information

- | | |
|---|-----------------|
| <ul style="list-style-type: none"> · 14.1 UN-Number · DOT, ADR, IMDG, IATA, ICAO | Not Regulated |
| <ul style="list-style-type: none"> · 14.2 UN proper shipping name · DOT, ADR, IMDG, IATA, ICAO | Not Regulated |
| <ul style="list-style-type: none"> · 14.3 Transport hazard class(es) · DOT, ADR, IMDG, IATA, ICAO · Class | Not Regulated |
| <ul style="list-style-type: none"> · 14.4 Packing group · DOT, ADR, IMDG, IATA, ICAO | Not Regulated |
| <ul style="list-style-type: none"> · 14.5 Environmental hazards: · Marine pollutant: | No |
| <ul style="list-style-type: none"> · 14.6 Special precautions for user | Not applicable. |
| <ul style="list-style-type: none"> · 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code | Not applicable. |
| <ul style="list-style-type: none"> · UN "Model Regulation": | Not Regulated |

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15 Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **United States (USA)**
- **SARA**

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

None of the ingredients is listed.

· **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

· **Proposition 65 (California):**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Carcinogenic Categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

· **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**

None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

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· **Canada**

· **Canadian Domestic Substances List (DSL)**

All ingredients are listed.

· **Canadian Ingredient Disclosure list (limit 0.1%)**

None of the ingredients is listed.

· **Canadian Ingredient Disclosure list (limit 1%)**

497-19-8 Sodium Carbonate

7722-88-5 tetrasodium pyrophosphate

151-21-3 sodium dodecyl sulphate

· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant phrases**

H302: Harmful if swallowed.

H312: Harmful in contact with skin.

H315: Causes skin irritation.

H319: Causes serious eye irritation.

R21/22: Harmful in contact with skin and if swallowed.

R22: Harmful if swallowed.

R36: Irritating to eyes.

R36/38: Irritating to eyes and skin.

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods DOT: US Department of Transportation

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

ACGIH: American Conference of Governmental Industrial Hygienists

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

WHMIS: Workplace Hazardous Materials Information System (Canada)



Safety Data Sheet

Material Name: Gasoline All Grades

SDS No. 9950
US GHS

Synonyms: Hess Conventional (Oxygenated and Non-oxygenated) Gasoline; Reformulated Gasoline (RFG); Reformulated Gasoline Blendstock for Oxygenate Blending (RBOB); Unleaded Motor or Automotive Gasoline

*** Section 1 - Product and Company Identification ***

Manufacturer Information

Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095-0961

Phone: 732-750-6000 Corporate EHS
Emergency # 800-424-9300 CHEMTREC
www.hess.com (Environment, Health, Safety Internet Website)

*** Section 2 - Hazards Identification ***

GHS Classification:

Flammable Liquid - Category 2
Skin Corrosion/Irritation - Category 2
Germ Cell Mutagenicity - Category 1B
Carcinogenicity - Category 1B
Toxic to Reproduction - Category 1A
Specific Target Organ Toxicity (Single Exposure) - Category 3 (respiratory irritation, narcosis)
Specific Target Organ Toxicity (Repeat Exposure) - Category 1 (liver, kidneys, bladder, blood, bone marrow, nervous system)
Aspiration Hazard - Category 1
Hazardous to the Aquatic Environment – Acute Hazard - Category 3

GHS LABEL ELEMENTS

Symbol(s)



Signal Word

DANGER

Hazard Statements

Highly flammable liquid and vapour.
Causes skin irritation.
May cause genetic defects.
May cause cancer.
May damage fertility or the unborn child.
May cause respiratory irritation.
May cause drowsiness or dizziness.
Causes damage to organs (liver, kidneys, bladder, blood, bone marrow, nervous system) through prolonged or repeated exposure.
May be fatal if swallowed and enters airways.
Harmful to aquatic life.

Safety Data Sheet

Material Name: Gasoline All Grades

SDS No. 9950

Precautionary Statements

Prevention

Keep away from heat/sparks/open flames/hot surfaces. No smoking
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Wear protective gloves/protective clothing/eye protection/face protection.
Wash hands and forearms thoroughly after handling.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe mist/vapours/spray.
Use only outdoors or in well-ventilated area.
Do not eat, drink or smoke when using this product.
Avoid release to the environment.

Response

In case of fire: Use water spray, fog, dry chemical fire extinguishers or hand held fire extinguisher.
IF ON SKIN (or hair): Wash with plenty of soap and water. Remove/Take off immediately all contaminated clothing and wash before reuse. If skin irritation occurs, get medical advice/attention.
IF exposed or concerned: Get medical advice/attention.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a poison center or doctor/physician if you feel unwell.
Get medical advice/attention if you feel unwell.
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do not induce vomiting.

Storage

Store in a well-ventilated place.
Keep cool. Keep container tightly closed.
Store locked up.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 3 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
86290-81-5	Gasoline, motor fuel	100
108-88-3	Toluene	1-25
106-97-8	Butane	<10
1330-20-7	Xylenes (o-, m-, p- isomers)	1-15
95-63-6	Benzene, 1,2,4-trimethyl-	<6
64-17-5	Ethyl alcohol	0-10
100-41-4	Ethylbenzene	<3
71-43-2	Benzene	0.1-4.9

Safety Data Sheet

Material Name: Gasoline All Grades

SDS No. 9950

110-54-3	Hexane	0.5-4
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A complex blend of petroleum-derived normal and branched-chain alkane, cycloalkane, alkene, and aromatic hydrocarbons. May contain antioxidant and multifunctional additives. Non-oxygenated Conventional Gasoline and RBOB do not have oxygenates (Ethanol). Oxygenated Conventional and Reformulated Gasoline will have oxygenates for octane enhancement or as legally required.

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes

In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

First Aid: Skin

Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or with waterless hand cleanser. Obtain medical attention if irritation or redness develops.

First Aid: Ingestion

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Monitor for breathing difficulties. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

First Aid: Inhalation

Remove person to fresh air. If person is not breathing, provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

* * * Section 5 - Fire Fighting Measures * * *

General Fire Hazards

See Section 9 for Flammability Properties.

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. Flowing product may be ignited by self-generated static electricity. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

Hazardous Combustion Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke). Contact with nitric and sulfuric acids will form nitrocresols that can decompose violently.

Extinguishing Media

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO₂, water spray, fire fighting foam, or gaseous extinguishing agent.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

Firefighting foam suitable for polar solvents is recommended for fuel with greater than 10% oxygenate concentration.

Unsuitable Extinguishing Media

None

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Fire Fighting Equipment/Instructions

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment. Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing. Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

* * * Section 6 - Accidental Release Measures * * *

Recovery and Neutralization

Carefully contain and stop the source of the spill, if safe to do so.

Materials and Methods for Clean-Up

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal. Caution, flammable vapors may accumulate in closed containers.

Emergency Measures

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Personal Precautions and Protective Equipment

Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

Environmental Precautions

Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Prevention of Secondary Hazards

None

* * * Section 7 - Handling and Storage * * *

Handling Procedures

USE ONLY AS A MOTOR FUEL.
DO NOT SIPHON BY MOUTH

Handle as a flammable liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

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Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil) is loaded into tanks previously containing low flash point products (such as this product) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents."

Storage Procedures

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

Incompatibilities

Keep away from strong oxidizers.

* * * Section 8 - Exposure Controls / Personal Protection * * *

Component Exposure Limits

Gasoline, motor fuel (86290-81-5)

ACGIH: 300 ppm TWA
500 ppm STEL

Toluene (108-88-3)

ACGIH: 20 ppm TWA
OSHA: 200 ppm TWA; 375 mg/m³ TWA
150 ppm STEL; 560 mg/m³ STEL
NIOSH: 100 ppm TWA; 375 mg/m³ TWA
150 ppm STEL; 560 mg/m³ STEL

Butane (106-97-8)

ACGIH: 1000 ppm TWA (listed under Aliphatic hydrocarbon gases: Alkane C1-4)
OSHA: 800 ppm TWA; 1900 mg/m³ TWA
NIOSH: 800 ppm TWA; 1900 mg/m³ TWA

Xylenes (o-, m-, p- isomers) (1330-20-7)

ACGIH: 100 ppm TWA
150 ppm STEL
OSHA: 100 ppm TWA; 435 mg/m³ TWA
150 ppm STEL; 655 mg/m³ STEL

Benzene, 1,2,4-trimethyl- (95-63-6)

NIOSH: 25 ppm TWA; 125 mg/m³ TWA

Ethyl alcohol (64-17-5)

ACGIH: 1000 ppm STEL
OSHA: 1000 ppm TWA; 1900 mg/m³ TWA
NIOSH: 1000 ppm TWA; 1900 mg/m³ TWA

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Ethylbenzene (100-41-4)

ACGIH: 20 ppm TWA
OSHA: 100 ppm TWA; 435 mg/m³ TWA
125 ppm STEL; 545 mg/m³ STEL
NIOSH: 100 ppm TWA; 435 mg/m³ TWA
125 ppm STEL; 545 mg/m³ STEL

Benzene (71-43-2)

ACGIH: 0.5 ppm TWA
2.5 ppm STEL
Skin - potential significant contribution to overall exposure by the cutaneous route
OSHA: 5 ppm STEL (Cancer hazard, Flammable, See 29 CFR 1910.1028, 15 min); 0.5 ppm Action Level; 1 ppm TWA
NIOSH: 0.1 ppm TWA
1 ppm STEL

Hexane (110-54-3)

ACGIH: 50 ppm TWA
Skin - potential significant contribution to overall exposure by the cutaneous route
OSHA: 500 ppm TWA; 1800 mg/m³ TWA
NIOSH: 50 ppm TWA; 180 mg/m³ TWA

Engineering Measures

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

Personal Protective Equipment: Respiratory

A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

Personal Protective Equipment: Hands

Gloves constructed of nitrile, neoprene, or PVC are recommended.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

Personal Protective Equipment: Skin and Body

Chemical protective clothing such as of E.I. DuPont TyChem®, Saranex® or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

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*** Section 9 - Physical & Chemical Properties ***

Appearance:	Translucent, straw-colored or light yellow	Odor:	Strong, characteristic aromatic hydrocarbon odor. Sweet-ether like
Physical State:	Liquid	pH:	ND
Vapor Pressure:	6.4 - 15 RVP @ 100 °F (38 °C) (275-475 mm Hg @ 68 °F (20 °C))	Vapor Density:	AP 3-4
Boiling Point:	85-437 °F (39-200 °C)	Melting Point:	ND
Solubility (H2O):	Negligible to Slight	Specific Gravity:	0.70-0.78
Evaporation Rate:	10-11	VOC:	ND
Percent Volatile:	100%	Octanol/H2O Coeff.:	ND
Flash Point:	-45 °F (-43 °C)	Flash Point Method:	PMCC
Upper Flammability Limit (UFL):	7.6%	Lower Flammability Limit (LFL):	1.4%
Burning Rate:	ND	Auto Ignition:	>530°F (>280°C)

*** Section 10 - Chemical Stability & Reactivity Information ***

Chemical Stability

This is a stable material.

Hazardous Reaction Potential

Will not occur.

Conditions to Avoid

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources.

Incompatible Products

Keep away from strong oxidizers.

Hazardous Decomposition Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke). Contact with nitric and sulfuric acids will form nitrocresols that can decompose violently.

*** Section 11 - Toxicological Information ***

Acute Toxicity

A: General Product Information

Harmful if swallowed.

B: Component Analysis - LD50/LC50

Gasoline, motor fuel (86290-81-5)

Inhalation LC50 Rat >5.2 mg/L 4 h; Oral LD50 Rat 14000 mg/kg; Dermal LD50 Rabbit >2000 mg/kg

Toluene (108-88-3)

Inhalation LC50 Rat 12.5 mg/L 4 h; Inhalation LC50 Rat >26700 ppm 1 h; Oral LD50 Rat 636 mg/kg; Dermal LD50 Rabbit 8390 mg/kg; Dermal LD50 Rat 12124 mg/kg

Butane (106-97-8)

Inhalation LC50 Rat 658 mg/L 4 h

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Xylenes (o-, m-, p- isomers) (1330-20-7)

Inhalation LC50 Rat 5000 ppm 4 h; Inhalation LC50 Rat 47635 mg/L 4 h; Oral LD50 Rat 4300 mg/kg; Dermal LD50 Rabbit >1700 mg/kg

Benzene, 1,2,4-trimethyl- (95-63-6)

Inhalation LC50 Rat 18 g/m³ 4 h; Oral LD50 Rat 3400 mg/kg; Dermal LD50 Rabbit >3160 mg/kg

Ethyl alcohol (64-17-5)

Oral LD50 Rat 7060 mg/kg; Inhalation LC50 Rat 124.7 mg/L 4 h

Ethylbenzene (100-41-4)

Inhalation LC50 Rat 17.2 mg/L 4 h; Oral LD50 Rat 3500 mg/kg; Dermal LD50 Rabbit 15354 mg/kg

Benzene (71-43-2)

Inhalation LC50 Rat 13050-14380 ppm 4 h; Oral LD50 Rat 1800 mg/kg

Hexane (110-54-3)

Inhalation LC50 Rat 48000 ppm 4 h; Oral LD50 Rat 25 g/kg; Dermal LD50 Rabbit 3000 mg/kg

Potential Health Effects: Skin Corrosion Property/Stimulativeness

Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are repeatedly exposed.

Potential Health Effects: Eye Critical Damage/ Stimulativeness

Moderate irritant. Contact with liquid or vapor may cause irritation.

Potential Health Effects: Ingestion

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

Potential Health Effects: Inhalation

Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

Respiratory Organs Sensitization/Skin Sensitization

This product is not reported to have any skin sensitization effects.

Generative Cell Mutagenicity

This product may cause genetic defects.

Carcinogenicity

A: General Product Information

May cause cancer.

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IARC has determined that gasoline and gasoline exhaust are possibly carcinogenic in humans. Inhalation exposure to completely vaporized unleaded gasoline caused kidney cancers in male rats and liver tumors in female mice. The U.S. EPA has determined that the male kidney tumors are species-specific and are irrelevant for human health risk assessment. The significance of the tumors seen in female mice is not known. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with effects to the central and peripheral nervous systems, liver, and kidneys. The significance of these animal models to predict similar human response to gasoline is uncertain.

This product contains benzene. Human health studies indicate that prolonged and/or repeated overexposure to benzene may cause damage to the blood-forming system (particularly bone marrow), and serious blood disorders such as aplastic anemia and leukemia. Benzene is listed as a human carcinogen by the NTP, IARC, OSHA and ACGIH.

B: Component Carcinogenicity

Gasoline, motor fuel (86290-81-5)

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans

Toluene (108-88-3)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

IARC: Monograph 71 [1999]; Monograph 47 [1989] (Group 3 (not classifiable))

Xylenes (o-, m-, p- isomers) (1330-20-7)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

IARC: Monograph 71 [1999]; Monograph 47 [1989] (Group 3 (not classifiable))

Ethyl alcohol (64-17-5)

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans

IARC: Monograph 100E [in preparation] (in alcoholic beverages); Monograph 96 [2010] (in alcoholic beverages) (Group 1 (carcinogenic to humans))

Ethylbenzene (100-41-4)

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans

IARC: Monograph 77 [2000] (Group 2B (possibly carcinogenic to humans))

Benzene (71-43-2)

ACGIH: A1 - Confirmed Human Carcinogen

OSHA: 5 ppm STEL (Cancer hazard, Flammable, See 29 CFR 1910.1028, 15 min); 0.5 ppm Action Level; 1 ppm TWA

NIOSH: potential occupational carcinogen

NTP: Known Human Carcinogen (Select Carcinogen)

IARC: Monograph 100F [in preparation]; Supplement 7 [1987]; Monograph 29 [1982] (Group 1 (carcinogenic to humans))

Reproductive Toxicity

This product is suspected of damaging fertility or the unborn child.

Specified Target Organ General Toxicity: Single Exposure

This product may cause drowsiness or dizziness.

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Specified Target Organ General Toxicity: Repeated Exposure

This product causes damage to organs through prolonged or repeated exposure.

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.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

Very toxic to aquatic life with long lasting effects. Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Gasoline, motor fuel (86290-81-5)

Test & Species	Conditions
96 Hr LC50 Alburnus alburnus	119 mg/L [static]
96 Hr LC50 Cyprinodon variegatus	82 mg/L [static]
72 Hr EC50 Pseudokirchneriella subcapitata	56 mg/L
24 Hr EC50 Daphnia magna	170 mg/L

Toluene (108-88-3)

Test & Species	Conditions	
96 Hr LC50 Pimephales promelas	15.22-19.05 mg/L [flow-through]	1 day old
96 Hr LC50 Pimephales promelas	12.6 mg/L [static]	
96 Hr LC50 Oncorhynchus mykiss	5.89-7.81 mg/L [flow-through]	
96 Hr LC50 Oncorhynchus mykiss	14.1-17.16 mg/L [static]	
96 Hr LC50 Oncorhynchus mykiss	5.8 mg/L [semi-static]	
96 Hr LC50 Lepomis macrochirus	11.0-15.0 mg/L [static]	
96 Hr LC50 Oryzias latipes	54 mg/L [static]	
96 Hr LC50 Poecilia reticulata	28.2 mg/L [semi-static]	
96 Hr LC50 Poecilia reticulata	50.87-70.34 mg/L [static]	
96 Hr EC50 Pseudokirchneriella subcapitata	>433 mg/L	
72 Hr EC50 Pseudokirchneriella subcapitata	12.5 mg/L [static]	
48 Hr EC50 Daphnia magna	5.46 - 9.83 mg/L [Static]	
48 Hr EC50 Daphnia magna	11.5 mg/L	

Xylenes (o-, m-, p- isomers) (1330-20-7)

Test & Species	Conditions
96 Hr LC50 Pimephales promelas	13.4 mg/L [flow-through]

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96 Hr LC50 Oncorhynchus mykiss	2.661-4.093 mg/L [static]
96 Hr LC50 Oncorhynchus mykiss	13.5-17.3 mg/L
96 Hr LC50 Lepomis macrochirus	13.1-16.5 mg/L [flow-through]
96 Hr LC50 Lepomis macrochirus	19 mg/L
96 Hr LC50 Lepomis macrochirus	7.711-9.591 mg/L [static]
96 Hr LC50 Pimephales promelas	23.53-29.97 mg/L [static]
96 Hr LC50 Cyprinus carpio	780 mg/L [semi- static]
96 Hr LC50 Cyprinus carpio	>780 mg/L
96 Hr LC50 Poecilia reticulata	30.26-40.75 mg/L [static]
48 Hr EC50 water flea	3.82 mg/L
48 Hr LC50 Gammarus lacustris	0.6 mg/L

Benzene, 1,2,4-trimethyl- (95-63-6)

Test & Species

96 Hr LC50 Pimephales promelas	7.19-8.28 mg/L [flow-through]
48 Hr EC50 Daphnia magna	6.14 mg/L

Conditions

Ethyl alcohol (64-17-5)

Test & Species

96 Hr LC50 Oncorhynchus mykiss	12.0 - 16.0 mL/L [static]
96 Hr LC50 Pimephales promelas	>100 mg/L [static]
96 Hr LC50 Pimephales promelas	13400 - 15100 mg/L [flow-through]
48 Hr LC50 Daphnia magna	9268 - 14221 mg/L
24 Hr EC50 Daphnia magna	10800 mg/L
48 Hr EC50 Daphnia magna	2 mg/L [Static]

Conditions

Ethylbenzene (100-41-4)

Test & Species

96 Hr LC50 Oncorhynchus mykiss	11.0-18.0 mg/L [static]
96 Hr LC50 Oncorhynchus mykiss	4.2 mg/L [semi- static]
96 Hr LC50 Pimephales promelas	7.55-11 mg/L [flow- through]
96 Hr LC50 Lepomis macrochirus	32 mg/L [static]
96 Hr LC50 Pimephales promelas	9.1-15.6 mg/L [static]
96 Hr LC50 Poecilia reticulata	9.6 mg/L [static]
72 Hr EC50 Pseudokirchneriella subcapitata	4.6 mg/L
96 Hr EC50 Pseudokirchneriella subcapitata	>438 mg/L
72 Hr EC50 Pseudokirchneriella subcapitata	2.6 - 11.3 mg/L [static]

Conditions

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96 Hr EC50 Pseudokirchneriella subcapitata	1.7 - 7.6 mg/L [static]
48 Hr EC50 Daphnia magna	1.8 - 2.4 mg/L

Benzene (71-43-2)

Test & Species

Conditions

96 Hr LC50 Pimephales promelas	10.7-14.7 mg/L [flow-through]
96 Hr LC50 Oncorhynchus mykiss	5.3 mg/L [flow-through]
96 Hr LC50 Lepomis macrochirus	22.49 mg/L [static]
96 Hr LC50 Poecilia reticulata	28.6 mg/L [static]
96 Hr LC50 Pimephales promelas	22330-41160 µg/L [static]
96 Hr LC50 Lepomis macrochirus	70000-142000 µg/L [static]
72 Hr EC50 Pseudokirchneriella subcapitata	29 mg/L
48 Hr EC50 Daphnia magna	8.76 - 15.6 mg/L [Static]
48 Hr EC50 Daphnia magna	10 mg/L

Hexane (110-54-3)

Test & Species

Conditions

96 Hr LC50 Pimephales promelas	2.1-2.98 mg/L [flow-through]
24 Hr EC50 Daphnia magna	>1000 mg/L

Persistence/Degradability

No information available.

Bioaccumulation

No information available.

Mobility in Soil

No information available.

* * * Section 13 - Disposal Considerations * * *

Waste Disposal Instructions

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

Disposal of Contaminated Containers or Packaging

Dispose of contents/container in accordance with local/regional/national/international regulations.

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*** Section 14 - Transportation Information ***

Component Marine Pollutants

This material contains one or more of the following chemicals required by US DOT to be identified as marine pollutants.

Component	CAS #	
Gasoline, motor fuel	86290-81-5	DOT regulated marine pollutant

DOT Information

Shipping Name: Gasoline

UN #: 1203 Hazard Class: 3 Packing Group: II

Placard:



*** Section 15 - Regulatory Information ***

Regulatory Information

A: Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Toluene (108-88-3)

SARA 313: 1.0 % de minimis concentration
CERCLA: 1000 lb final RQ; 454 kg final RQ

Xylenes (o-, m-, p- isomers) (1330-20-7)

SARA 313: 1.0 % de minimis concentration
CERCLA: 100 lb final RQ; 45.4 kg final RQ

Benzene, 1,2,4-trimethyl- (95-63-6)

SARA 313: 1.0 % de minimis concentration

Ethylbenzene (100-41-4)

SARA 313: 0.1 % de minimis concentration
CERCLA: 1000 lb final RQ; 454 kg final RQ

Benzene (71-43-2)

SARA 313: 0.1 % de minimis concentration
CERCLA: 10 lb final RQ (received an adjusted RQ of 10 lbs based on potential carcinogenicity in an August 14, 1989 final rule); 4.54 kg final RQ (received an adjusted RQ of 10 lbs based on potential carcinogenicity in an August 14, 1989 final rule)

Safety Data Sheet

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Hexane (110-54-3)

SARA 313: 1.0 % de minimis concentration

CERCLA: 5000 lb final RQ; 2270 kg final RQ

SARA Section 311/312 – Hazard Classes

Acute Health

X

Chronic Health

X

Fire

X

Sudden Release of Pressure

--

Reactive

--

Component Marine Pollutants

This material contains one or more of the following chemicals required by US DOT to be identified as marine pollutants.

Component	CAS #	
Gasoline, motor fuel	86290-81-5	DOT regulated marine pollutant

State Regulations

Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Gasoline, motor fuel	86290-81-5	No	No	No	No	Yes	No
Toluene	108-88-3	Yes	Yes	Yes	Yes	Yes	No
Butane	106-97-8	Yes	Yes	Yes	Yes	Yes	No
Xylenes (o-, m-, p- isomers)	1330-20-7	Yes	Yes	Yes	Yes	Yes	No
Benzene, 1,2,4-trimethyl-	95-63-6	No	Yes	Yes	Yes	Yes	No
Ethyl alcohol	64-17-5	Yes	Yes	Yes	Yes	Yes	No
Ethylbenzene	100-41-4	Yes	Yes	Yes	Yes	Yes	No
Benzene	71-43-2	Yes	Yes	Yes	Yes	Yes	No
Hexane	110-54-3	No	Yes	Yes	Yes	Yes	No

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

WARNING! This product contains a chemical known to the state of California to cause cancer.

WARNING! This product contains a chemical known to the state of California to cause reproductive/developmental effects.

Safety Data Sheet

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Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Toluene	108-88-3	1 %
Butane	106-97-8	1 %
Benzene, 1,2,4-trimethyl-	95-63-6	0.1 %
Ethyl alcohol	64-17-5	0.1 %
Ethylbenzene	100-41-4	0.1 %
Benzene	71-43-2	0.1 %
Hexane	110-54-3	1 %

Additional Regulatory Information

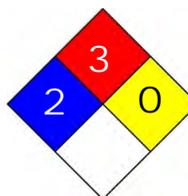
Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
Gasoline, motor fuel	86290-81-5	No	DSL	EINECS
Toluene	108-88-3	Yes	DSL	EINECS
Butane	106-97-8	Yes	DSL	EINECS
Xylenes (o-, m-, p- isomers)	1330-20-7	Yes	DSL	EINECS
Benzene, 1,2,4-trimethyl-	95-63-6	Yes	DSL	EINECS
Ethyl alcohol	64-17-5	Yes	DSL	EINECS
Ethylbenzene	100-41-4	Yes	DSL	EINECS
Benzene	71-43-2	Yes	DSL	EINECS
Hexane	110-54-3	Yes	DSL	EINECS

*** Section 16 - Other Information ***

NFPA® Hazard Rating

Health	2
Fire	3
Reactivity	0



HMIS® Hazard Rating

Health	2	Moderate
Fire	3	Serious
Physical	0	Minimal

*Chronic

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration., NJTSR = New Jersey Trade Secret Registry.

Literature References

None

Safety Data Sheet

Material Name: Gasoline All Grades

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Other Information

Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

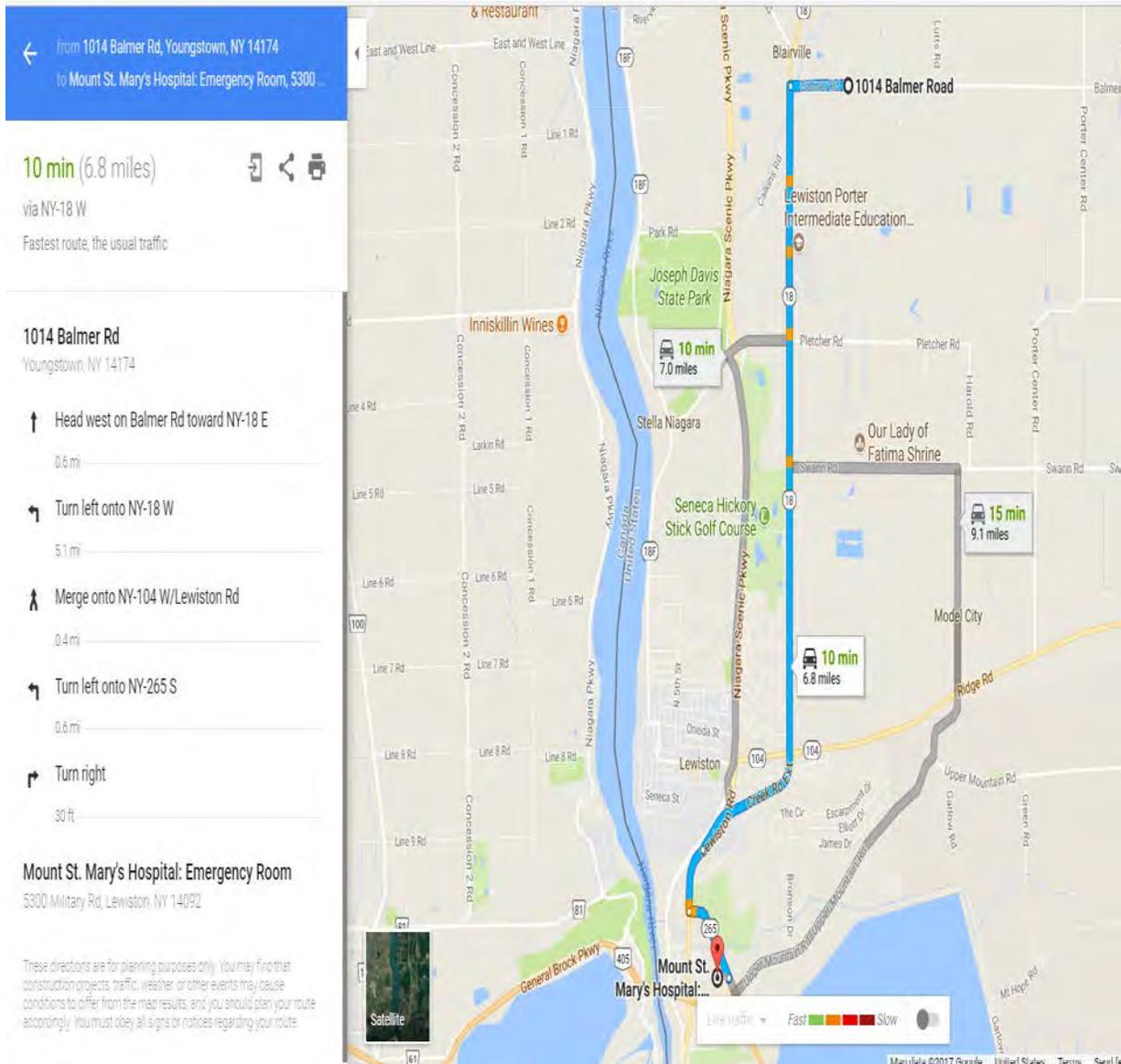
Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.

End of Sheet

Emergency Contact Phone Numbers		
Service/Contact	Agency/Position	Telephone No.
Emergency Service	Ambulance, Fire, Police	911
Mount Saint Mary's Hospital 5300 Military Road Lewistown, NY 14092	General Hospital with Emergency Services; Trauma/ Chemical/Burn	(716) 297-4800
Spill Response	CHEMTREC	(800) 424-9300
United States Environmental Protection Agency (USEPA) National Response Center	24-hour hotline	(800) 424-8802
New York State Department of Environmental Conservation	Regulator	(844) 332-3267
Poison Control	Poison Control Center	(800) 962-1253
USEPA Region 2	New York Spill Number	(800) 282-9378

Mount Saint Mary's Hospital, 5300 Military Rd, Lewiston, NY 14092
Phone number: (716) 297-4800

Distance from Evacuation Point to Mount Saint Mary's Hospital = 6.8 miles (10 minutes)



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ATTACHMENT 3
Activity Hazard Analysis

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ACTIVITY HAZARDS ANALYSIS

Overall Risk Assessment Code (RAC)
(Use highest code)

L

Date: 11/2/2017 Project: LOOW OCCP

Activity: Mobilization/Demobilization (and vehicle safety)

Activity Location: Off-site, public roads

Prepared By XXXXXXXXXX

Risk Assessment Code Matrix

E = Extremely High Risk
H = High Risk
M = Moderate Risk
L = Low Risk

		Probability				
		Frequent	Likely	Occasional	Seldom	Unlikely
S e v e r i t y	Catastrophic	E	E	H	H	M
	Critical	E	H	H	M	L
	Marginal	H	M	M	L	L
	Negligible	M	L	L	L	L

Add Identified Hazards

	JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
X	Vehicle Operation	Vehicle related accidents and personnel struck by vehicles/traffic	Vehicle operators will: - comply with all federal, state, and local traffic laws; - drive defensively; - wear seat belts when vehicle is in motion; - use caution when driving through congested areas, or in proximity of personnel and equipment operations; - comply with all client regulations regarding motor vehicle operation; - use spotter for backing up vehicles, where needed. Cell phone use is prohibited while operating vehicles. Drivers will be instructed to not leave keys in an unattended motor vehicle, or to leave the driver's seat while the engine is running. Appropriate vehicle safety inspections and checks will be conducted to ensure that vehicles are in safe operating conditions.	M
X	Vehicle Operation	Low clearances	Know the traveling height (overhead clearance) width, length, width, and overhead limits, making sure these limits are not exceeded with an adequate margin. Be aware that the canopies of service stations and motels may be too low for a high-profile motor vehicle. Watch for low-hanging electrical lines, particularly at the entrances to work sites, restaurants, motels, or other commercial sites. Allow for any overhang when cornering or approaching other motor vehicles or structures.	L
X	Loading/Unloading Vehicles	Physical injury from heavy lifting and pinch points	Workers will be advised on; Proper lifting techniques such as keeping the back straight; Lifting with the legs; Avoid twisting the back; Use mechanical help or assistance from other whenever possible; Break heavy loads down into smaller, lighter loads, if possible; Ensure the path of travel is clear prior to lifting and transporting the load; wear gloves while moving equipment.	L

ACTIVITY HAZARDS ANALYSIS

	JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
X	Loading/Unloading Vehicles	Loading/unloading mobile equipment and/or "large" equipment on a trailer or truck	Use ramps of adequate design that are solid and substantial enough to bear the weight of the equipment with carrier - including tooling. <ul style="list-style-type: none"> • Load and unload on level ground. • Use the assistance of a ground level spotter. • Check the brakes on the vehicle or carrier before approaching loading ramps. • Distribute the weight of the vehicle or carrier, and tools on the trailer so that the center of weight is approximately on the center line of the trailer. Adhere to the trailer manufacturer's weight distribution recommendations. Secure the vehicle/equipment and tools to the hauling vehicle with ties, chains, and/or load binders of adequate capacity prior to unloading.	L
X	Loading/Unloading Vehicles	Slips, trips, and falls Foot impact injuries	The work area will be visually inspected continuously by the workers to mark, move, or barricade hazard areas to prevent mishaps. Work areas will be kept organized; work areas will be well lit (work will only occur during daylight hours). Use of safety toe boots.	L
X	Fueling of Vehicle	Fires during refueling of vehicles	Gasoline will be stored in approved self closing, flammable liquid containers. Fueling will be carried out in areas free of combustible debris/vegetation. Fueling will not be performed in back of a pick-up truck with a bed liner. All engines will be turned off prior to fueling. Containers will be bonded and grounded during transfer of flammable liquids.	L
X	Charging and replacing vehicle batteries	Potential of explosion, electrocution, acid burns from batteries.	When the vehicle battery requires servicing, follow these guidelines: <ul style="list-style-type: none"> • Service in a ventilated area while wearing safety glasses, long sleeves shirts, pants and gloves. • When charging, turn off the power source to the battery prior to connecting or disconnecting charger loads to the battery posts. Loosen cell caps prior to charging to permit the escape of gas. • When removing a battery from a motor vehicle, first disconnect the battery ground clamp. • Secure batteries when transporting to prevent tipping over. • When installing a battery, connect the battery ground clamp last. 	L
X	General Mobilization/Preparation Hazards	Slips, trips, and falls	The work area will be visually inspected continuously to mark, move, or barricade hazard areas to prevent trips and falls. Work areas will be kept organized; work areas will be well lit (work will only occur during daylight hours).	L
X	General Mobilization/Preparation Hazards	Exposure to biological hazards Biological hazards such as stinging and biting insects, poisonous snakes, possible exposure to poison ivy may be present.	Workers will be briefed on the site specific hazards during the initial site orientation. Appropriate first aid measures will be identified for these hazards; Work party members will be advised to avoid contact with these hazards and to check themselves at end of the day for ticks. If tick are discovered on the skin, it must immediately be reported to the SSHO. Site personnel will be encouraged to wear light color clothing with cuffs and openings closed. If workers are allergic to bee/wasp stings, the SSHO should be advised, and an epinephrine injector will be readily available for that individual(s).	L

ACTIVITY HAZARDS ANALYSIS

	JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
X	General Mobilization/Preparation Hazards	Heat/Cold Stress	Workers will be trained and cognizant of heat and cold stress symptoms and associated First Aid procedures; Electrolyte/fluids replacement will be readily available to workers; Work/Rest regimens will be established per ACGIH/NIOSH guidelines; Portable drinking containers will be serviced to ensure sanitary conditions and be clearly marked "Drinking Water"; Drinking water will not be dipped from the container. Where possible, work will be scheduled during cooling periods of the day.	L
X	General Mobilization/Preparation Hazards	Exposure to potential back strains during manual lifting operations	Workers will be advised on; Proper lifting techniques such as keeping the back straight; Lifting with the legs; Avoid twisting the back; Use mechanical help or assistance from others whenever possible; Break heavy loads down into smaller, lighter loads, if possible; Ensure the path of travel is clear prior to lifting and transporting the load.	L

Add Items

	EQUIPMENT	TRAINING	INSPECTION
X	Motor Vehicles	All workers are responsible for ensuring that inspection is completed prior to operation of any vehicle.	All workers will comply with ERT's Motor Vehicle Policy. All workers will receive on-site training upon mobilization to the site to identify specific hazards. All workers will read, understand, and comply with the Site Safety & Health Plan and the Accident Prevention Plan. These measures and actions in this AHA supplement those plans.
X	Hand Tools	In accordance with manufacturers' manuals. Tools should be inspected prior to use. Damaged tools will be discarded and replaced.	Tools will be used properly and for their intended purpose. Proper lifting techniques will be used such as keeping straight back, lifting with legs; personnel will avoid twisting back, will use mechanical equipment, or get help from others.

Involved Personnel:

Acceptance Authority (digital signature): _____

ACTIVITY HAZARDS ANALYSIS

Overall Risk Assessment Code (RAC)
(Use highest code)

L

Date: 11/2/17 Project: LOOW OCCP

Activity: Brush Clearance

Activity Location: OCCP

Prepared By XXXXXXXXXX

Risk Assessment Code Matrix

E = Extremely High Risk
H = High Risk
M = Moderate Risk
L = Low Risk

		Probability				
		Frequent	Likely	Occasional	Seldom	Unlikely
S e v e r i t y	Catastrophic	E	E	H	H	M
	Critical	E	H	H	M	L
	Marginal	H	M	M	L	L
	Negligible	M	L	L	L	L

Add Identified Hazards

	JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
X	Hazards associated with all job steps	Slips, trips, and falls	The work area will be visually inspected continuously by the workers to mark, move, or barricade hazard areas to prevent mishaps. Work areas will be kept organized; work areas will be well lit. Safety toe boots will be worn.	L
X	Hazards associated with all job steps	Heat/Cold Stress	Workers will be trained and cognizant of heat and cold stress symptoms and associated First Aid procedures; Electrolyte/fluids replacement will be readily available to workers; Work/Rest regimens will be established per ACGIH/NIOSH guidelines; Portable drinking containers will be serviced to ensure sanitary conditions and be clearly marked "Drinking Water"; Drinking water will not be dipped from the container. Where possible, work will be scheduled during cooling periods of the day.	L
X	Hazards associated with all job steps	Sun Burn	Workers will be advised in the proper use of sun blocking agents; Avoiding direct exposure to the sun for long periods of time. Recommended that workers wear hats with brim and/or long-sleeve shirts. Use of pop up tents is recommended.	L
X	Hazards associated with all job steps	Fires from refueling gasoline powered equipment	All site activities that have the potential to cause or start a fire (using gasoline powered equipment) will have a properly rated fire extinguisher in close proximity to the activity being performed; Properly rated fire extinguishers will be placed near fuel storage areas, within site vehicles, and the staging area. Flammable liquids will be stored in safety containers; Flammable and combustible liquid containers will not be stored in closed vehicles; Suitable No Smoking, Matches, or Open Flame Signage will be displayed in the area where containers are temporarily stored.	L

ACTIVITY HAZARDS ANALYSIS

	JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
X	Hazards associated with all job steps	Electrical Shock	Extension cords will be properly rated for intended use. Extension cords, power tools, and lighting equipment will be inspected before each use, protected from damage, and kept out of wet areas, unless of an approved submersible type. Flexible cords will be used only in continuous lengths without splice or tape. Patched, oil-soaked, worn, or frayed electric cords or cables will not be used. Receptacles and plugs will be tested for correct operation of the grounding conductor. The frames of portable generators are not required to be grounded and may serve as the grounding electrode for a system supplied by the generator. Elevated parts of machinery, ladders, and antennas will be kept at least 10 ft from overhead electric lines.	L
X	Hazards associated with all job steps	Exposure to inclement weather	Work will cease when severe weather conditions prevail. SSHO will monitor the weather and advise the work force. In the event of lightning and/or thunder, work will stop and the work force will stand down until 30 minutes after the last observed lightning strike and/or thunder clap.	L
X	Hazards associated with all job steps	Physical injury from heavy lifting, and pinch points	Workers will be advised on: Proper lifting techniques such as keeping the back straight; Lifting with the legs; Avoid twisting the back ; Use mechanical help or assistance from others whenever possible Break heavy loads down into smaller, lighter loads, if possible; Ensure the path of travel is clear prior to lifting and transporting the load. Wear gloves while moving equipment.	L
X	Hazards associated with all job steps	Exposure to Biological Hazards Biological hazards such as stinging and biting insects, venomous snakes, possible exposure to poison ivy may be present.	Workers will be briefed on the site specific hazards during the initial site orientation. Appropriate First Aid measures will be identified for these hazards; Work party members will be advised to avoid contact with these hazards and to check themselves at end of the day for ticks. If ticks are discovered on the skin, it must immediately be reported to the SSHO. Workers will be encouraged to wear light color clothing with cuffs and openings closed. If members of the work party are allergic to bee/wasp stings, the SSHO should be advised, and an epinephrine injector should be readily available for that individual(s).	L
X	Hazards associated with all job steps	Working nearby active roadway and/or within parking lots/exposure to vehicular traffic	All personnel will wear high-visibility safety vests at all times.	L
X	Active brush clearance	Hand or fingers caught between objects; lacerations and abrasions	Persons involved in activities that subject the hands to injury (for example cuts, abrasions, punctures, burns, vibration, and forces that restrict blood flow) shall select and use hand protection appropriate for the hazard. Type III, 16-unit, First Aid kits, at a minimum, shall be readily available to all field team members.	L
X	Active brush clearance	Exposure to eye and face hazards from brush clearing operations or survey operations while traversing areas of flora, fauna, and forestation.	Workers will be provided eye and face protection when operations may present a potential hazard; this protection will meet specifications of ANSI/ASSE Z87.1 and bear a legible and permanent Z87 logo to indicate compliance with the standard; side protection shall be used on all eye protection equipment	L
X	Active brush clearance	Exposure to noise during use of chainsaws	Hearing protection will be provided that has a listed NRR rating of 33.	L

ACTIVITY HAZARDS ANALYSIS

	JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
X	Active brush clearance	Injuries from use of hand and power tools	Chain Saws shall have an automatic chain brake or kickback device. The idle speed shall be adjusted so that the chain does not move when the engine is idling. Operators will wear proper PPE. Eye, ear, hand, foot (safety shoes), and leg protection are required, as a minimum. Chain saws and all powered equipment will not be fueled while running. The operator will hold the powered equipment with both hands during all cutting operations. Powered equipment must never be used to cut above the operator's shoulder height. The operator will ensure no personnel are within the active operating area of the equipment during cutting operations. All hand and power tools shall be in good repair and with all required safety devices installed and properly adjusted. Continued periodic inspections shall be made to ensure safer operating condition and proper maintenance. Blades will be kept in sheath and in centralized storage location when not in use (storage location will be communicated to other workers); gloves will be worn when cutting; Be aware of design of specific tool and use only according to manufacturer's instructions; utilize manufacturer's guard to mitigate sharp container edges (tape up edges); inspect all containers prior to handling; dispose of broken sharp material or dull blade as soon as possible; cut away from the body.	L
X	Active brush clearance	Spark from gasoline-fueled power tools in presence of potentially dry brush (fire hazard)	A fire extinguisher will be close by. Fire extinguishers will be located in each field vehicle.	L

Add Items

	EQUIPMENT	TRAINING	INSPECTION
X	Chain saws, clippers, loppers, all powered cutting equipment	Personnel will be made aware of the hazard and will coordinate carefully during handling equipment operations. Equipment will be shut down while refueling.	In accordance with manufacturers' manuals. Equipment will be inspected prior to use, while using, and on completion of task for serviceability and safety. Damaged equipment will be discarded or taken out of service and replaced.

Involved Personnel:

Acceptance Authority (digital signature): _____

ACTIVITY HAZARDS ANALYSIS

Overall Risk Assessment Code (RAC)
(Use highest code)

L

Date: 11/2/2017 Project: LOOW OCCP

Activity: Excavation and Load Out

Activity Location: OCCP

Prepared By: ██████████

Risk Assessment Code Matrix

E = Extremely High Risk
H = High Risk
M = Moderate Risk
L = Low Risk

		Probability				
		Frequent	Likely	Occasional	Seldom	Unlikely
S e v e r i t y	Catastrophic	E	E	H	H	M
	Critical	E	H	H	M	L
	Marginal	H	M	M	L	L
	Negligible	M	L	L	L	L

Add Identified Hazards

JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC

ACTIVITY HAZARDS ANALYSIS

JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
X	Load, Transport, and Disposal of Contaminated Soil	<p>Tipping/Rollover</p> <p>Engage the clutch pedal slowly and smoothly. Be ready to disengage power quickly if the front end begins to come up. Start forward motion slowly and change speed gradually. Use counterweights/outriggers to increase stability. Follow manufacturer's instructions. Avoid backing downhill. Drive around ditches, not across them. Back out when stuck or tow the stuck machine out with another machine. Turn downhill when working across a slope. Drive straight down even the gentlest slope. Do not drive diagonally across it. Do not hitch a load higher than the tractor draw-bar. Do not coast downhill. Before starting down, shift to a lower gear that prevents freewheeling and excessive braking. Try to use the same gear to go down a hill that you would use to pull the load uphill. Set wheels as wide as practical for maximum stability. Avoid depressions and obstacles Turn downhill, not uphill, if stability becomes uncertain on slopes or ramps. Keep loads, implements, or loader buckets close to ground. Keep side-mounted implements on the uphill side. Match speed to conditions and loads. Back up steep slopes or ramps. Lock brake pedals together before high speed travel. Slow down before turning. Use engine for braking when going downhill. Stay away from the edge of ditches and streams. Do not try to cross steep slopes.</p>	L
X	Load, Transport, and Disposal of Contaminated Soil	<p>Cuts/lacerations from handling sharp materials or with sharp edges</p> <p>Utilize mechanical device, if appropriate, to avoid directly handling sharps. Maintain all hand and power tools in a safe condition.</p>	L

ACTIVITY HAZARDS ANALYSIS

	JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
X	Load, Transport, and Disposal of Contaminated Soil	Unqualified Operator Use of faulty equipment Contact with overhead electrical lines Muddy/caked excavator tracks Struck by excavator arm Poor visibility Unqualified personnel on the job site Poor communication between operator and rest of personnel Exposure to noise levels greater than 85 dBA Distracted operator	Use only properly trained and qualified personnel. Operate equipment in strict accordance with manufacturer's requirements and wear seat belts at all times. Perform daily inspections of equipment and take out-of-service any equipment determined to be unsafe or with a deficiency that effects the safe operation of the equipment. Maintain minimum 25 feet clearance between overhead power lines (rated 50 kV or below) and any part of the equipment. Use 3-point contact when accessing/egressing any equipment that requires personnel to climb. Clean tracks to provide safe walking/working surface and avoid walking on tracks whenever possible. Avoid walking on machine tracks whenever possible and clean tracks for safe walking/working surfaces. Isolate equipment swing and turn radius (25 ft). Prohibit equipment operation when there is heavy fog with limited visibility. Restrict entry to the work area to authorized personnel. Utilize a dedicated spotter when necessary. Understand and review the posted hand signals. Wear hearing protection during operation of open-cab equipment for elevated noise levels. Equipment operators may not use a cell/mobile phone while the equipment is operating.	L

ACTIVITY HAZARDS ANALYSIS

JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
X	Load, Transport, and Disposal of Contaminated Soil	Struck by equipment/vehicles	L
X	Load, Transport, and Disposal of Contaminated Soil	Fire/explosion/fueling of equipment	L

ACTIVITY HAZARDS ANALYSIS

	JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
X	Load, Transport, and Disposal of Contaminated Soil	Supplies/equipment sliding and falling while loading/unloading mobile equipment	<p>Use ramps of adequate design that are solid and substantial enough to bear the weight of the equipment with carrier - including tooling.</p> <ul style="list-style-type: none"> • Load and unload on level ground. • Use the assistance of a ground level spotter. • Check the brakes on the vehicle or carrier before approaching loading ramps. • Distribute the weight of the vehicle or carrier, and tools on the trailer so that the center of weight is approximately on the center line of the trailer. Adhere to the trailer manufacturer's weight distribution recommendations. <p>Secure the vehicle/equipment and tools to the hauling vehicle with ties, chains, and/or load binders of adequate capacity prior to unloading</p>	L
X	Load, Transport, and Disposal of Contaminated Soil	Muscle strain and pain from lifting objects.	<p>Do not lift beyond your capabilities. Adhere to proper lifting techniques. Consider the following before engaging in a work activity that may cause back injury:</p> <ul style="list-style-type: none"> • Know the weight to be lifted and postural requirements. • Check that the object will remain stable when moved. • Evaluate if a mechanical device should be used to move the object (e.g., hand truck, cart, dolly, pallet jack, etc.). • Determine number of people needed to move object safely. • Consider personnel medical limitations/restrictions. • Consider environmental conditions (e.g., slippery conditions, lighting, etc.). • Plan the lift and the travel path before starting activity. <p>Implement one of the following controls for objects greater than 50 pounds:</p> <ul style="list-style-type: none"> • Engineer the lift out of the task through work planning. • Use a mechanical device. • Use two or more people. 	L
X	Re-grade site via dozer tracking multiple passes	Poor traffic conditions while operating field vehicles and/or transporting supplies and equipment	<p>All equipment will be properly secured during transport. Use ground guide and back-up alarm during backing. Vehicle and equipment operators should look in the direction of travel; look before backing up. Arrange traffic flow to prevent foot traffic from crossing the routes of heavy equipment and moving loads. Ensure the operator acknowledges your presence before walking near equipment in operation. Use of cell phones by the driver/operator is prohibited while the vehicle/equipment is in motion.</p>	L

ACTIVITY HAZARDS ANALYSIS

	JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
X	Re-grade site via dozer tracking multiple passes	Obstacles in path of travel	Look in the direction of travel before moving. Arrange traffic flow to prevent foot traffic from crossing the routes of heavy/hauling equipment and moving loads. Adhere to posted speed limits. Use reflective warning vests when exposed to vehicle traffic. Reroute traffic as necessary to minimize potential for an accident. Utilize dedicated flaggers when necessary at site roadway crossings. Set-up signs, traffic cones and/or barricades to define and protect the project area from the non project-related vehicle traffic.	L

Add Items

	EQUIPMENT	TRAINING	INSPECTION
X	Truck	Proper use, inspection, and care of equipment prior to use	Daily Inspection
X	Excavator and/or Dozer	Proper use, inspection, and care of equipment prior to use	Daily Inspection
X	Semi-tractors with end-dump trailers	Proper use, inspection, and care of equipment prior to use	Daily Inspection

Involved Personnel:

Acceptance Authority (digital signature): _____

ACTIVITY HAZARDS ANALYSIS

Overall Risk Assessment Code (RAC)
(Use highest code)

L

Date: 11/2/2017 Project: LOOW OCCP

Activity: Confirmation Soil Sample Collection

Activity Location: OCCP

Prepared By: ██████████

Risk Assessment Code Matrix

E = Extremely High Risk
H = High Risk
M = Moderate Risk
L = Low Risk

		Probability				
		Frequent	Likely	Occasional	Seldom	Unlikely
S e v e r i t y	Catastrophic	E	E	H	H	M
	Critical	E	H	H	M	L
	Marginal	H	M	M	L	L
	Negligible	M	L	L	L	L

Add Identified Hazards

	JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
X	Confirmation Soil Sampling	Inhalation exposure to lead and TNT-containing dust; accidental ingestion of lead	This task involves handling potentially contaminated materials and chemical preservatives. Level D PPE protection shall be worn, to include nitrile gloves. Level D PPE will be upgraded if (lead) dust monitoring indicates that higher levels of protection are needed. Adhere to the approved site safety and health plan. Site personnel will practice good personal hygiene, washing hands before eating, drinking or smoking. Site personnel will be briefed on recognition factors of chemicals used in the area.	L
X	Confirmation Soil Sampling	Sun burns	Workers will be advised in the proper use of sun blocking agents; Avoiding direct exposure to the sun for long periods of time. Recommended that workers wear hats with brim and/or long-sleeve shirts. Use of pop up tents is recommended.	L
X	Confirmation Soil Sampling	Heat/Cold Stress	Workers will be trained and cognizant of heat and cold stress symptoms and associated first aid procedures; Electrolyte/fluids replacement will be readily available to workers; Work/rest regimens will be established per SSHP; Portable drinking containers shall be serviced to ensure sanitary conditions and be clearly marked "Drinking Water"; Drinking water shall not be dipped from the container. Where possible, work will be scheduled during cooling periods of the day.	L
X	Confirmation Soil Sampling	Slips, trips, and falls	The work area will be visually inspected continuously by the workers to mark, move, or barricade hazard areas to prevent mishaps. Work areas will be kept organized; work areas will be well lit. Safety toe boots will be worn.	L

ACTIVITY HAZARDS ANALYSIS

	JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
X	Confirmation Soil Sampling	Fires from refueling equipment	All site activities that have the potential to cause or start a fire (using gasoline powered equipment) will have a properly rated fire extinguisher in close proximity to the activity being performed; Properly rated fire extinguishers will be placed near fuel storage areas, within site vehicles, and the staging area. Flammable liquids will be stored in safety containers; Flammable and combustible liquid containers will not be stored in closed vehicles; Suitable No Smoking, Matches, or Open Flame Signage will be displayed in the area where containers are temporarily stored.	L
X	Confirmation Soil Sampling	Sanitation	Drinking water, toilets and adequate washing facilities will be made available to all personnel. Proper disposal of waste will be established.	L
X	Confirmation Soil Sampling	Physical injury from heavy lifting, and pinch points	Workers will be advised on: Proper lifting techniques such as keeping the back straight; Lifting with the legs; Avoid twisting the back ; Use mechanical help or assistance from others whenever possible Break heavy loads down into smaller, lighter loads, if possible; Ensure the path of travel is clear prior to lifting and transporting the load. Wear gloves while moving equipment.	L
X	Confirmation Soil Sampling	Exposure to inclement weather	Work will cease when severe weather conditions prevail. SSHO will monitor the weather and advise the work force. In the event of lightning and/or thunder, work will stop and the work force will stand down until 30 minutes after the last observed lightning strike and/or thunder clap.	L
X	Confirmation Soil Sampling	Exposure to vehicular traffic	Workers will be trained and cognizant of managing/avoiding vehicular traffic when conducting operations in close proximity to streets and driveways; Workers conducting operations that may expose them to traffic hazards (i.e. parking lots) will wear high visibility safety vests.	L
X	Confirmation Soil Sampling	Electrical shock	Extension cords will be properly rated for intended use. Extension cords, power tools, and lighting equipment will be inspected before each use, protected from damage, and kept out of wet areas, unless of an approved submersible type. Flexible cords will be used only in continuous lengths without splice or tape. Patched, oil-soaked, worn, or frayed electric cords or cables will not be used. Receptacles and plugs will be tested for correct operation of the grounding conductor. The frames of portable generators are not required to be grounded and may serve as the grounding electrode for a system supplied by the generator. Elevated parts of machinery, ladders, and antennas will be kept at least 10 ft from overhead electric lines.	L

ACTIVITY HAZARDS ANALYSIS

	JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
X	Confirmation Soil Sampling	<p>Exposure to Biological Hazards</p> <p>Biological hazards such as stinging and biting insects, venomous snakes, possible exposure to poison ivy may be present.</p>	<p>Workers will be briefed on the site specific hazards during the initial site orientation. Appropriate First Aid measures will be identified for these hazards; Work party members will be advised to avoid contact with these hazards and to check themselves at end of the day for ticks. If ticks are discovered on the skin, it must immediately be reported to the SSHO. Workers will be encouraged to wear light color clothing with cuffs and openings closed. If members of the work party are allergic to bee/wasp stings, the SSHO should be advised, and an epinephrine injector should be readily available for that individual(s).</p>	L
X	Confirmation Soil Sampling	Working nearby active roadway and/or within parking lots/exposure to vehicular traffic	All personnel will wear high-visibility safety vests at all times.	L

Add Items

	EQUIPMENT	TRAINING	INSPECTION
X	Hand Tools (All Sampling Activities, IDW management)	<p>In accordance with manufacturers' manuals.</p> <p>Tools will be inspected prior to use. Damaged tools will be discarded and replaced.</p>	Tools will be used properly and for their intended purpose.

Involved Personnel:

Acceptance Authority (digital signature): _____

ACTIVITY HAZARDS ANALYSIS

Overall Risk Assessment Code (RAC)
(Use highest code)

L

Date: 11/2/2017 Project: LOOW OCCP

Activity: Decontamination of Sampling Equipment and Personnel

Activity Location: OCCP

Prepared By: ██████████

Risk Assessment Code Matrix

E = Extremely High Risk
H = High Risk
M = Moderate Risk
L = Low Risk

		Probability				
		Frequent	Likely	Occasional	Seldom	Unlikely
S e v e r i t y	Catastrophic	E	E	H	H	M
	Critical	E	H	H	M	L
	Marginal	H	M	M	L	L
	Negligible	M	L	L	L	L

Add Identified Hazards

	JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
X	Decontamination of Equipment	Inhalation exposure to lead and TNT-containing dust; accidental ingestion of lead	This task involves handling potentially contaminated materials and chemical preservatives. Adhere to the approved site safety and health plan. Site personnel will practice good personal hygiene, washing hands before eating.	L
X	Decontamination of Equipment	Heat/Cold Stress	Workers will be trained and cognizant of heat and cold stress symptoms and associated first aid procedures; Electrolyte/fluids replacement will be readily available to workers; Work/rest regimens will be established per SSHP; Portable drinking containers shall be serviced to ensure sanitary conditions and be clearly marked "Drinking Water"; Drinking water shall not be dipped from the container. Where possible, work will be scheduled during cooling periods of the day.	L
X	Decontamination of Equipment	Slips, trips, and falls	The work area will be visually inspected continuously by the workers to mark, move, or barricade hazard areas to prevent mishaps. Work areas will be kept organized; work areas will be well lit. Safety toe boots will be worn.	L
X	Decontamination of Equipment	Fires from refueling equipment	All site activities that have the potential to cause or start a fire (using gasoline powered equipment) will have a properly rated fire extinguisher in close proximity to the activity being performed; Properly rated fire extinguishers will be placed near fuel storage areas, within site vehicles, and the staging area. Flammable liquids will be stored in safety containers; Flammable and combustible liquid containers will not be stored in closed vehicles; Suitable No Smoking, Matches, or Open Flame Signage will be displayed in the area where containers are temporarily stored.	L

ACTIVITY HAZARDS ANALYSIS

	JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
X	Decontamination of Equipment	Sanitation	Drinking water, toilets and adequate washing facilities will be made available to all personnel. Proper disposal of waste will be established.	L
X	Decontamination of Equipment	Physical injury from heavy lifting, and pinch points	Workers will be advised on: Proper lifting techniques such as keeping the back straight; Lifting with the legs; Avoid twisting the back ; Use mechanical help or assistance from others whenever possible Break heavy loads down into smaller, lighter loads, if possible; Ensure the path of travel is clear prior to lifting and transporting the load. Wear gloves while moving equipment.	L
X	Decontamination of Equipment	Exposure to inclement weather	Work will cease when severe weather conditions prevail. SSHO will monitor the weather and advise the work force. In the event of lightning and/or thunder, work will stop and the work force will stand down until 30 minutes after the last observed lightning strike and/or thunder clap.	L
X	Decontamination of Equipment	Exposure to Biological Hazards Biological hazards such as stinging and biting insects, venomous snakes, possible exposure to poison ivy may be present.	Workers will be briefed on the site specific hazards during the initial site orientation. Appropriate First Aid measures will be identified for these hazards; Work party members will be advised to avoid contact with these hazards and to check themselves at end of the day for ticks. If ticks are discovered on the skin, it must immediately be reported to the SSHO. Workers will be encouraged to wear light color clothing with cuffs and openings closed. If members of the work party are allergic to bee/wasp stings, the SSHO should be advised, and an epinephrine injector will be readily available for that individual(s).	L
X	Decontamination of Personnel	Poor personal sanitation/hygiene; contact with soil/mud	Drinking water, toilets and adequate washing facilities with hand/face soap will be made available to all personnel. Hand sanitizer will be made available as well. Proper disposal of waste will be established.	L

Add Items

	EQUIPMENT	TRAINING	INSPECTION
X	Buckets and brushes	Tools will be used properly and for their intended purpose.	Tools will be inspected prior to use. Damaged tools will be discarded and replaced.
X	Cleaning detergents (Alconox)	Site personnel will review the Safety Data Sheet before use.	Ensure the materials are properly labeled.

Involved Personnel:

ACTIVITY HAZARDS ANALYSIS

Acceptance Authority (digital signature):

ACTIVITY HAZARDS ANALYSIS

Overall Risk Assessment Code (RAC)
(Use highest code)

L

Date: 11/2/17 Project: LOOW OCCP

Activity: Wetland Restoration

Activity Location: OCCP

Prepared By: XXXXXXXXXX

Risk Assessment Code Matrix

E = Extremely High Risk
H = High Risk
M = Moderate Risk
L = Low Risk

		Probability				
		Frequent	Likely	Occasional	Seldom	Unlikely
S e v e r i t y	Catastrophic	E	E	H	H	M
	Critical	E	H	H	M	L
	Marginal	H	M	M	L	L
	Negligible	M	L	L	L	L

Add Identified Hazards

	JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
X	Replanting/Reseeding	Sun burn	Workers will be advised in the proper use of sun blocking agents; Avoiding direct exposure to the sun for long periods of time. Recommended that workers wear hats with brim and/or long-sleeve shirts. Use of pop up tents is recommended.	L
X	Replanting/Reseeding	Heat/Cold Stress	Workers will be trained and cognizant of heat and cold stress symptoms and associated First Aid procedures; Electrolyte/fluids replacement will be readily available to workers; Work/Rest regimens will be established per ACGIH/NIOSH guidelines; Portable drinking containers will be serviced to ensure sanitary conditions and be clearly marked "Drinking Water"; Drinking water will not be dipped from the container. Where possible, work will be scheduled during cooling periods of the day.	L
X	Replanting/Reseeding	Slips, trips, and falls	The work area will be visually inspected continuously by the workers to mark, move, or barricade hazard areas to prevent mishaps. Work areas will be kept organized; work areas will be well lit. Safety toe boots will be worn.	L
X	Replanting/Reseeding	Sanitation	Drinking water, toilets and adequate washing facilities will made available to all personnel. Proper disposal of waste will be established.	L
X	Replanting/Reseeding	Physical injury from heavy lifting, and pinch points	Workers will be advised on: Proper lifting techniques such as keeping the back straight; Lifting with the legs; Avoid twisting the back ; Use mechanical help or assistance from others whenever possible Break heavy loads down into smaller, lighter loads, if possible; Ensure the path of travel is clear prior to lifting and transporting the load. Wear gloves while moving equipment.	L

ACTIVITY HAZARDS ANALYSIS

	JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
X	Replanting/Reseeding	Exposure to inclement weather	Work will cease when severe weather conditions prevail. SSHO will monitor the weather and advise the work force. In the event of lightning and/or thunder, work will stop and the work force will stand down until 30 minutes after the last observed lightning strike and/or thunder clap.	L
X	Replanting/Reseeding	Exposure to Biological Hazards Biological hazards such as stinging and biting insects, venomous snakes, possible exposure to poison ivy may be present.	Workers will be briefed on the site specific hazards during the initial site orientation. Appropriate First Aid measures will be identified for these hazards; Work party members will be advised to avoid contact with these hazards and to check themselves at end of the day for ticks. If ticks are discovered on the skin, it must immediately be reported to the SSHO. Workers will be encouraged to wear light color clothing with cuffs and openings closed. If members of the work party are allergic to bee/wasp stings, the SSHO should be advised, and an epinephrine injector should be readily available for that individual(s).	L
X	Replanting/Reseeding	Working nearby active roadway and/or within parking lots/exposure to vehicular traffic	All personnel will wear high-visibility safety vests at all times.	L

Add Items

	EQUIPMENT	TRAINING	INSPECTION
X	Hand Tools (shovels, trowels, other gardening tools)	In accordance with manufacturers' manuals. Tools will be inspected prior to use. Damaged tools will be discarded and replaced.	Tools will be used properly and for their intended purpose.

Involved Personnel:

Acceptance Authority (digital signature): _____

ATTACHMENT 4
ERT Hearing Conservation Program

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HEARING CONSERVATION PROGRAM



Earth Resources Technology, Inc.
6100 Frost Place, Suite A
Laurel, MD 20707

Version 1.0

January 2012



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List of Appendices

Appendix A	Hearing Conservation Training Log
Appendix B	Record of Hearing Protection Needs
Appendix C	29 CFR 1910.95 Occupational Noise Exposure



**ERT Corporate Safety and Health Program
Approvals for:
Hearing Conservation Program**

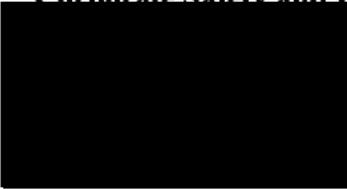
Operations Manager, Environmental Services Approval



01-26-2012

Date

Corporate Safety and Health Manager Approval



01-26-2012

Date

Human Resource Director Approval



01-26-2012

Date



Hearing Conservation Program for Earth Resources Technology, Inc.

1.0 OBJECTIVE

The objective of the ERT, Inc. Hearing Conservation Program is to minimize occupational hearing loss by providing hearing protection, training, and annual hearing tests to all persons working in areas or with equipment that have noise levels equal to or exceeding an eight-hour time-weighted average (TWA) sound limit of 85 dBA (decibels measured on the A scale of a sound level meter). A copy of this program will be maintained by all affected departments. A copy of OSHA's Hearing Conservation Standard, 29 CFR 1910.95, can be obtained from the Corporate Safety and Health Manager (SHM). A copy of the standard will also be posted in areas with affected employees.

2.0 ASSIGNMENT OF RESPONSIBILITY

2.1 Management

- Use engineering and administrative controls to limit employee exposure.
- Provide adequate hearing protection for employees.
- Post signs and warnings in all high noise areas.
- Conduct noise surveys annually or when new equipment is needed.
- Conduct annual hearing test for affected employees.
- Conduct hearing conservation training for affected new employees.
- Conduct annual hearing conservation training for affected employees.

2.2 Safety and Health Manager

- Provide Hearing Conservation training.
- Schedule annual audiograms

2.3 Site Safety and Health Officer/Competent Person

- Monitor site noise levels.
- Provide signage, as required.
- Maintain a site log of areas where hearing protection is required and post signage in the areas.

2.4 Employees

- Use company-issue approved hearing protection in designated high noise areas.
- Request new hearing protection when needed.
- Exercise proper care of issued hearing protection.



3.0 PROCEDURES

3.1 Noise Monitoring

Monitoring for noise exposure levels will be conducted by the Site Safety and Health Officer (SSHO) or Competent Person at each project site. It is the responsibility of the individual departments to notify the SSHO or SHM when there is a possible need for monitoring. Monitoring will be performed with the use of sound level meters and personal dosimeters and all instrumentation will be calibrated daily. Employees have the right to observe any noise measurements.

Monitoring will also be conducted whenever there is a change in equipment, process or controls that affect the noise levels. This includes the addition or removal of machinery, alteration in building structure, or substitution of new equipment in place of that previously used. The responsible supervisor must inform the SSHO when these types of changes are instituted. The SSHO will inform the SHM, as necessary.

3.2 Employee Training

Affected employees will be required to attend training concerning the proper usage and wearing of hearing protection. The training will be conducted by the SHM, or a designated representative, within a month of hire and annually thereafter.

Training will consist of the following components:

- how noise affects hearing and hearing loss;
- review of the OSHA hearing protection standard;
- explanation of audiometric testing;
- rules and procedures;
- locations within company property where hearing protection is required; and
- how to use and care for hearing protectors.

Training records will be maintained by the SHM on the Environmental Data Server (see Attachment A).

3.3 Hearing Protection

Management, supervisors, and employees shall properly wear the prescribed hearing protection while working or traveling through any area that is designated as a high noise area.

Hearing protection will be provided at no cost to employees who perform tasks designated as having a high noise exposure and replaced as necessary. It is the supervisor's responsibility to require employees to wear hearing protection when noise levels reach or exceed 85 dBA. Those employees will have the opportunity to choose from a variety of different types of hearing protection.

Signage is required in areas that necessitate hearing protection. It is the responsibility of the SSHO to provide signage to the appropriate areas.

Preformed earplugs and earmuffs should be washed periodically and stored in a clean area. Foam inserts should be discarded after each use. Hands should be washed before handling preformed earplugs and foam inserts to prevent contaminants from being placed in the ear.



The SSHO will keep a log of the areas or job tasks designated as requiring hearing protection, as well as the personnel affected by this Hearing Conservation Program (see Attachment B). The information will be forwarded to the SHM.

3.4 Audiograms/Hearing Tests

Employees subject to the Hearing Conservation Program who have time-weighted average (TWA) noise exposures of 85 dBA or greater for an eight (8) hour work shift will be required to have both a baseline and annual audiogram. The audiograms will be provided by the Concentra Medical clinics, or other approved clinic, with no cost to the employee.

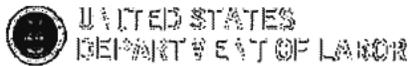
The baseline audiogram will be given to an employee within one (1) month of employment with ERT and before any exposure to high noise levels. Annual audiograms will be performed within one year from the date of the previous audiogram. It is the responsibility of the individual and the SHM to schedule the annual audiogram.

Testing to establish a baseline audiogram shall be preceded by at least 14 hours without exposure to workplace noise. Hearing protectors may be used as a substitute for the requirement that baseline audiograms be preceded by 14 hours without exposure to workplace noise.

If an annual audiogram shows that an employee has suffered a standard threshold shift, the employee will be retested within thirty (30) days of the annual audiogram. A standard threshold shift is a change in hearing threshold relative to the baseline audiogram of an average of 10 dB or more at 2000, 3000, and 4000 Hz in either ear. The comparison is made by either a technician or physician. If the retest confirms the occurrence of a standard threshold shift, the employee will be notified in writing within twenty-one (21) days of the confirmation. Employees who do experience a standard threshold shift will be refitted with hearing protection and provided more training on the effects of noise.



Attachment C
29 CFR 1910.95 Occupational Noise Exposure



OSHA

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Occupational Safety & Health Administration We Can Help

What's New | Offices

Home Workers Regulations Enforcement Data & Statistics Training Publications Newsroom Small Business



Regulations (Standards - 29 CFR) - Table of Contents

o Part Number:	1910
o Part Title:	Occupational Safety and Health Standards
o Subpart:	G
o Subpart Title:	Occupational Health and Environmental Control
o Standard Number:	1910.95
o Title:	Occupational noise exposure.
o Appendix:	A, B, C, D, E, E, G, H, I

1910.95(a)

Protection against the effects of noise exposure shall be provided when the sound levels exceed those shown in Table G-16 when measured on the A scale of a standard sound level meter at slow response. When noise levels are determined by octave band analysis, the equivalent A-weighted sound level may be determined as follows:

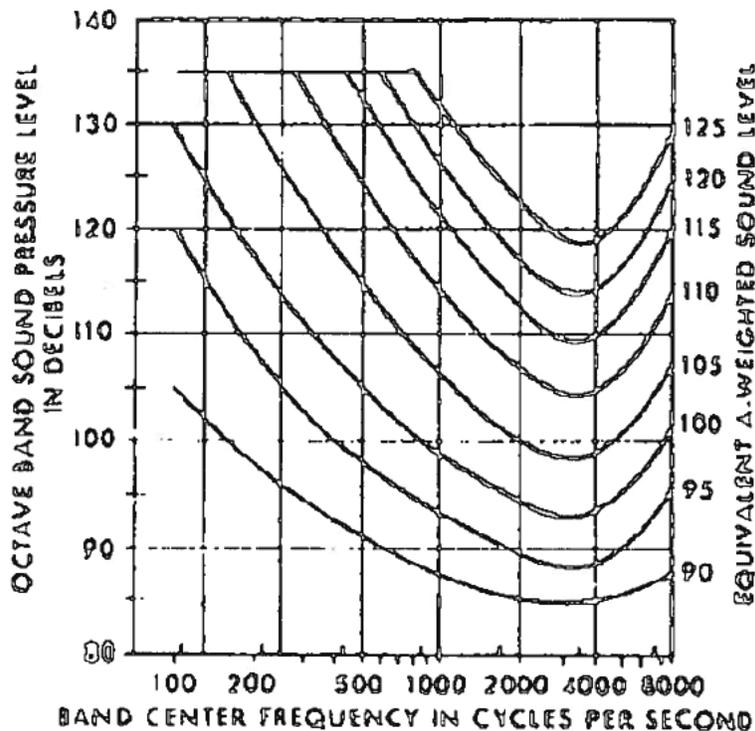


FIGURE G-9

Equivalent sound level contours. Octave band sound pressure levels may be converted to the equivalent A-weighted sound level by plotting them on this graph and noting the A-weighted sound level corresponding to the point of highest penetration into the sound level contours. This equivalent A-weighted sound level, which may differ from the actual A-weighted sound level of the noise, is used to determine exposure limits from Table 1.G-16.

1910.95(b)(1)

When employees are subjected to sound exceeding those listed in Table G-16, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce sound levels within the levels of Table G-16, personal protective equipment shall be provided and used to reduce sound levels within the levels of the table.

1910.95(b)(2)

If the variations in noise level involve maxima at intervals of 1 second or less, it is to be considered continuous.

TABLE G-16 - PERMISSIBLE NOISE EXPOSURES (1)

Duration per day, hours	Sound level dBA slow response
8.....	90
6.....	92
4.....	95
3.....	97
2.....	100
1 1/2	102
1.....	105
1/2	110
1/4 or less.....	115

Footnote(1) When the daily noise exposure is composed of two or more periods of noise exposure of different levels, their combined effect should be considered, rather than the individual effect of each. If the sum of the following fractions: $C(1)/T(1) + C(2)/T(2) + \dots + C(n)/T(n)$ exceeds unity, then, the mixed exposure should be considered to exceed the limit value. Cn indicates the total time of exposure at a specified noise level, and Tn indicates the total time of exposure permitted at that level. Exposure to impulsive or impact noise should not exceed 140 dB peak sound pressure level.

1910.95(c)

"Hearing conservation program."

1910.95(c)(1)

The employer shall administer a continuing, effective hearing conservation program, as described in paragraphs (c) through (o) of this section, whenever employee noise exposures equal or exceed an 8-hour time-weighted average sound level (TWA) of 85 decibels measured on the A scale (slow response) or, equivalently, a dose of fifty percent. For purposes of the hearing conservation program, employee noise exposures shall be computed in accordance with appendix A and Table G-16a, and without regard to any attenuation provided by the use of personal protective equipment.

1910.95(c)(2)

For purposes of paragraphs (c) through (n) of this section, an 8-hour time-weighted average of 85 decibels or a dose of fifty percent shall also be referred to as the action level.

1910.95(d)

"Monitoring."

1910.95(d)(1)

When information indicates that any employee's exposure may equal or exceed an 8-hour time-weighted average of 85 decibels, the employer shall develop and implement a monitoring program.

1910.95(d)(1)(I)

The sampling strategy shall be designed to identify employees for inclusion in the hearing conservation program and to enable the proper selection of hearing protectors.

1910.95(d)(1)(II)

Where circumstances such as high worker mobility, significant variations in sound level, or a significant component of impulse noise make area monitoring generally inappropriate, the employer shall use representative personal sampling to comply with the monitoring requirements of this paragraph unless the employer can show that area sampling produces equivalent results.

1910.95(d)(2)(I)

All continuous, intermittent and impulsive sound levels from 80 decibels to 130 decibels shall be integrated into the noise measurements. ✕

1910.95(d)(2)(II)

Instruments used to measure employee noise exposure shall be calibrated to ensure measurement accuracy. ✕

1910.95(d)(3)

Monitoring shall be repeated whenever a change in production, process, equipment or controls increases noise exposures to the extent that:

1910.95(d)(3)(I)

Additional employees may be exposed at or above the action level; or

1910.95(d)(3)(II)

The attenuation provided by hearing protectors being used by employees may be rendered inadequate to meet the requirements of paragraph (j) of this section.

1910.95(e)

"Employee notification." The employer shall notify each employee exposed at or above an 8-hour time-weighted average of 85 decibels of the results of the monitoring. **A**

1910.95(f)

"Observation of monitoring." The employer shall provide affected employees or their representatives with an opportunity to observe any noise measurements conducted pursuant to this section. **A**

1910.95(g)

✓ "Audiometric testing program."

1910.95(g)(1)

The employer shall establish and maintain an audiometric testing program as provided in this paragraph by making audiometric testing available to all employees whose exposures equal or exceed an 8-hour time-weighted average of 85 decibels.

1910.95(g)(2)

The program shall be provided at no cost to employees.

1910.95(g)(3)

Audiometric tests shall be performed by a licensed or certified audiologist, otolaryngologist, or other physician, or by a technician who is certified by the Council of Accreditation in Occupational Hearing Conservation, or who has satisfactorily demonstrated competence in administering audiometric examinations, obtaining valid audiograms, and properly using, maintaining and checking calibration and proper functioning of the audiometers being used. A technician who operates microprocessor audiometers does not need to be certified. A technician who performs audiometric tests must be responsible to an audiologist, otolaryngologist or physician.

1910.95(g)(4)

All audiograms obtained pursuant to this section shall meet the requirements of Appendix C: "Audiometric Measuring Instruments."

1910.95(g)(5)

✓ "Baseline audiogram."

1910.95(g)(5)(i)

Within 6 months of an employee's first exposure at or above the action level, the employer shall establish a valid baseline audiogram against which subsequent audiograms can be compared.

1910.95(g)(5)(ii)

"Mobile test van exception." Where mobile test vans are used to meet the audiometric testing obligation, the employer shall obtain a valid baseline audiogram within 1 year of an employee's first exposure at or above the action level. Where baseline audiograms are obtained more than 6 months after the employee's first exposure at or above the action level, employees shall wear hearing protectors for any period exceeding six months after first exposure until the baseline audiogram is obtained.

1910.95(g)(5)(iii)

Testing to establish a baseline audiogram shall be preceded by at least 14 hours without exposure to workplace noise. Hearing protectors may be used as a substitute for the requirement that baseline audiograms be preceded by 14 hours without exposure to workplace noise. **A**

1910.95(g)(5)(iv)

The employer shall notify employees of the need to avoid high levels of non-occupational noise exposure during the 14-hour period immediately preceding the audiometric examination. **A**

1910.95(g)(6)

"Annual audiogram." At least annually after obtaining the baseline audiogram, the employer shall obtain a new audiogram for each employee exposed at or above an 8-hour time-weighted average of 85 decibels.

1910.95(g)(7)

"Evaluation of audiogram."

1910.95(g)(7)(i)

Each employee's annual audiogram shall be compared to that employee's baseline audiogram to determine if the audiogram is valid and if a standard threshold shift as defined in paragraph (g)(10) of this section has occurred. This comparison may be

done by a technician.

1910.95(g)(7)(II)

If the annual audiogram shows that an employee has suffered a standard threshold shift, the employer may obtain a retest within 30 days and consider the results of the retest as the annual audiogram.

1910.95(g)(7)(III)

The audiologist, otolaryngologist, or physician shall review problem audiograms and shall determine whether there is a need for further evaluation. The employer shall provide to the person performing this evaluation the following information:

1910.95(g)(7)(III)(A)

A copy of the requirements for hearing conservation as set forth in paragraphs (c) through (n) of this section;

1910.95(g)(7)(III)(B)

The baseline audiogram and most recent audiogram of the employee to be evaluated;

1910.95(g)(7)(III)(C)

Measurements of background sound pressure levels in the audiometric test room as required in Appendix D: Audiometric Test Rooms.

1910.95(g)(7)(III)(D)

Records of audiometer calibrations required by paragraph (h)(5) of this section.

1910.95(g)(8)

"Follow-up procedures."

1910.95(g)(8)(I)

If a comparison of the annual audiogram to the baseline audiogram indicates a standard threshold shift as defined in paragraph (g)(10) of this section has occurred, the employee shall be informed of this fact in writing, within 21 days of the determination.

1910.95(g)(8)(II)

Unless a physician determines that the standard threshold shift is not work related or aggravated by occupational noise exposure, the employer shall ensure that the following steps are taken when a standard threshold shift occurs:

1910.95(g)(8)(II)(A)

Employees not using hearing protectors shall be fitted with hearing protectors, trained in their use and care, and required to use them.

1910.95(g)(8)(II)(B)

Employees already using hearing protectors shall be refitted and retrained in the use of hearing protectors and provided with hearing protectors offering greater attenuation if necessary.

1910.95(g)(8)(II)(C)

The employee shall be referred for a clinical audiological evaluation or an otological examination, as appropriate, if additional testing is necessary or if the employer suspects that a medical pathology of the ear is caused or aggravated by the wearing of hearing protectors.

1910.95(g)(8)(II)(D)

The employee is informed of the need for an otological examination if a medical pathology of the ear that is unrelated to the use of hearing protectors is suspected.

1910.95(g)(8)(III)

If subsequent audiometric testing of an employee whose exposure to noise is less than an 8-hour TWA of 90 decibels indicates that a standard threshold shift is not persistent, the employer:

1910.95(g)(8)(III)(A)

Shall inform the employee of the new audiometric interpretation; and

1910.95(g)(8)(III)(B)

May discontinue the required use of hearing protectors for that employee.

1910.95(g)(9)

"Revised baseline." An annual audiogram may be substituted for the baseline audiogram when, in the judgment of the audiologist, otolaryngologist or physician who is evaluating the audiogram:

1910.95(g)(9)(I)

The standard threshold shift revealed by the audiogram is persistent; or

1910.95(g)(9)(II)

The hearing threshold shown in the annual audiogram indicates significant improvement over the baseline audiogram.

1910.95(g)(10)

"Standard threshold shift."

1910.95(g)(10)(I)

As used in this section, a standard threshold shift is a change in hearing threshold relative to the baseline audiogram of an average of 10 dB or more at 2000, 3000, and 4000 Hz in either ear.

1910.95(g)(10)(II)

In determining whether a standard threshold shift has occurred, allowance may be made for the contribution of aging (presbycusis) to the change in hearing level by correcting the annual audiogram according to the procedure described in Appendix F: "Calculation and Application of Age Correction to Audiograms."

1910.95(h)

"Audiometric test requirements."

1910.95(h)(1)

Audiometric tests shall be pure tone, air conduction, hearing threshold examinations, with test frequencies including as a minimum 500, 1000, 2000, 3000, 4000, and 6000 Hz. Tests at each frequency shall be taken separately for each ear.

1910.95(h)(2)

Audiometric tests shall be conducted with audiometers (including microprocessor audiometers) that meet the specifications of, and are maintained and used in accordance with, American National Standard Specification for Audiometers, S3.6-1969, which is incorporated by reference as specified in Sec. 1910.6.

1910.95(h)(3)

Pulsed-tone and self-recording audiometers, if used, shall meet the requirements specified in Appendix C: "Audiometric Measuring Instruments."

1910.95(h)(4)

Audiometric examinations shall be administered in a room meeting the requirements listed in Appendix D: "Audiometric Test Rooms."

1910.95(h)(5)

"Audiometer calibration."

1910.95(h)(5)(I)

The functional operation of the audiometer shall be checked before each day's use by testing a person with known, stable hearing thresholds, and by listening to the audiometer's output to make sure that the output is free from distorted or unwanted sounds. Deviations of 10 decibels or greater require an acoustic calibration.

1910.95(h)(5)(II)

Audiometer calibration shall be checked acoustically at least annually in accordance with Appendix E: "Acoustic Calibration of Audiometers." Test frequencies below 500 Hz and above 6000 Hz may be omitted from this check. Deviations of 15 decibels or greater require an exhaustive calibration.

1910.95(h)(5)(III)

An exhaustive calibration shall be performed at least every two years in accordance with sections 4.1.2; 4.1.3; 4.1.4.3; 4.2; 4.4.1; 4.4.2; 4.4.3; and 4.5 of the American National Standard Specification for Audiometers, S3.6-1969. Test frequencies below 500 Hz and above 6000 Hz may be omitted from this calibration.

1910.95(i)

"Hearing protectors."

1910.95(i)(1)

Employers shall make hearing protectors available to all employees exposed to an 8-hour time-weighted average of 85 decibels or greater at no cost to the employees. Hearing protectors shall be replaced as necessary.

1910.95(i)(2)

Employers shall ensure that hearing protectors are worn:

1910.95(i)(2)(i)

By an employee who is required by paragraph (b)(1) of this section to wear personal protective equipment; and

1910.95(i)(2)(ii)

By any employee who is exposed to an 8-hour time-weighted average of 85 decibels or greater, and who:

1910.95(i)(2)(ii)(A)

Has not yet had a baseline audiogram established pursuant to paragraph (g)(5)(ii); or

1910.95(i)(2)(ii)(B)

Has experienced a standard threshold shift.

1910.95(i)(3)

Employees shall be given the opportunity to select their hearing protectors from a variety of suitable hearing protectors provided by the employer.

1910.95(i)(4)

The employer shall provide training in the use and care of all hearing protectors provided to employees.

1910.95(i)(5)

The employer shall ensure proper initial fitting and supervise the correct use of all hearing protectors.

1910.95(j)

"Hearing protector attenuation."

1910.95(j)(1)

The employer shall evaluate hearing protector attenuation for the specific noise environments in which the protector will be used. The employer shall use one of the evaluation methods described in Appendix B: "Methods for Estimating the Adequacy of Hearing Protection Attenuation."

1910.95(j)(2)

Hearing protectors must attenuate employee exposure at least to an 8-hour time-weighted average of 90 decibels as required by paragraph (b) of this section.

1910.95(j)(3)

For employees who have experienced a standard threshold shift, hearing protectors must attenuate employee exposure to an 8-hour time-weighted average of 85 decibels or below.

1910.95(j)(4)

The adequacy of hearing protector attenuation shall be re-evaluated whenever employee noise exposures increase to the extent that the hearing protectors provided may no longer provide adequate attenuation. The employer shall provide more effective hearing protectors where necessary.

1910.95(k)

"Training program."

1910.95(k)(1)

The employer shall train each employee who is exposed to noise at or above an 8-hour time weighted average of 85 decibels in accordance with the requirements of this section. The employer shall institute a training program and ensure employee participation in the program.

1910.95(k)(2)

The training program shall be repeated annually for each employee included in the hearing conservation program. Information provided in the training program shall be updated to be consistent with changes in protective equipment and work processes.

1910.95(k)(3)

The employer shall ensure that each employee is informed of the following:

1910.95(k)(3)(i)

The effects of noise on hearing;

1910.95(k)(3)(ii)

The purpose of hearing protectors, the advantages, disadvantages, and attenuation of various types, and instructions on selection, fitting, use, and care; and

1910.95(k)(3)(iii)

The purpose of audiometric testing, and an explanation of the test procedures.

1910.95(l)

"Access to information and training materials."

1910.95(l)(1)

The employer shall make available to affected employees or their representatives copies of this standard and shall also post a copy in the workplace.

1910.95(l)(2)

The employer shall provide to affected employees any informational materials pertaining to the standard that are supplied to the employer by the Assistant Secretary.

1910.95(l)(3)

The employer shall provide, upon request, all materials related to the employer's training and education program pertaining to this standard to the Assistant Secretary and the Director.

1910.95(m)

"Recordkeeping" -

1910.95(m)(1)

"Exposure measurements." The employer shall maintain an accurate record of all employee exposure measurements required by paragraph (d) of this section.

1910.95(m)(2)

"Audiometric tests."

1910.95(m)(2)(i)

The employer shall retain all employee audiometric test records obtained pursuant to paragraph (g) of this section:

1910.95(m)(2)(ii)

This record shall include:

1910.95(m)(2)(ii)(A)

Name and job classification of the employee;

1910.95(m)(2)(ii)(B)

Date of the audiogram;

1910.95(m)(2)(ii)(C)

The examiner's name;

1910.95(m)(2)(ii)(D)

Date of the last acoustic or exhaustive calibration of the audiometer; and

1910.95(m)(2)(ii)(E)

Employee's most recent noise exposure assessment.

1910.95(m)(2)(ii)(F)

The employer shall maintain accurate records of the measurements of the background sound pressure levels in audiometric test rooms.

1910.95(m)(3)

"Record retention." The employer shall retain records required in this paragraph (m) for at least the following periods.

1910.95(m)(3)(i)

Noise exposure measurement records shall be retained for two years.

1910.95(m)(3)(ii)

Audiometric test records shall be retained for the duration of the affected employee's employment.

1910.95(m)(4)

"Access to records." All records required by this section shall be provided upon request to employees, former employees, representatives designated by the individual employee, and the Assistant Secretary. The provisions of 29 CFR 1910.1020 (a)-(e) and (g)-

1910.95(m)(4)(i)

apply to access to records under this section.

1910.95(m)(5)

"Transfer of records." If the employer ceases to do business, the employer shall transfer to the successor employer all records required to be maintained by this section, and the successor employer shall retain them for the remainder of the period prescribed in paragraph (m)(3) of this section.

1910.95(n)

"Appendices."

1910.95(n)(1)

Appendices A, B, C, D, and E to this section are incorporated as part of this section and the contents of these appendices are mandatory.

1910.95(n)(2)

Appendices F and G to this section are informational and are not intended to create any additional obligations not otherwise imposed or to detract from any existing obligations.

1910.95(o)

"Exemptions." Paragraphs (c) through (n) of this section shall not apply to employers engaged in oil and gas well drilling and servicing operations.

[39 FR 23502, June 27, 1974, as amended at 46 FR 4161, Jan. 16, 1981; 46 FR 62845, Dec. 29, 1981; 48 FR 9776, Mar. 8, 1983; 48 FR 29687, June 28, 1983; 54 FR 24333, June 7, 1989; 61 FR 5507, Feb. 13, 1996; 61 FR 9227, March 7, 1996; 71 FR 16672, April, 3, 2006; 73 FR 75584, Dec. 12, 2008]

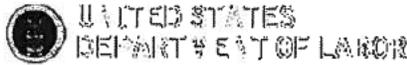
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- o **Part Number:** 1910
- o **Part Title:** Occupational Safety and Health Standards
- o **Subpart:** G
- o **Subpart Title:** Occupational Health and Environmental Control
- o **Standard Number:** 1910.95 App A
- o **Title:** Noise exposure computation

This Appendix is Mandatory

I. Computation of Employee Noise Exposure

(1) Noise dose is computed using Table G-16a as follows:

(i) When the sound level, L, is constant over the entire work shift, the noise dose, D, in percent, is given by: $D=100 C/T$ where C is the total length of the work day, in hours, and T is the reference duration corresponding to the measured sound level, L, as given in Table G-16a or by the formula shown as a footnote to that table.

(ii) When the workshift noise exposure is composed of two or more periods of noise at different levels, the total noise dose over the work day is given by:

$$D = 100 (C(1)/T(1) + C(2)/T(2) + \dots + C(n)/T(n)),$$

where C(n) indicates the total time of exposure at a specific noise level, and T(n) indicates the reference duration for that level as given by Table G-16a.

(2) The eight-hour time-weighted average sound level (TWA), in decibels, may be computed from the dose, in percent, by means of the formula: $TWA = 16.61 \log_{10}(D/100) + 90$. For an eight-hour workshift with the noise level constant over the entire shift, the TWA is equal to the measured sound level.

(3) A table relating dose and TWA is given in Section II.

TABLE G-16A

A-weighted sound level, L (decibel)	Reference duration, T (hour)
80.....	32
81.....	27.9
82.....	24.3
83.....	21.1
84.....	18.4
85.....	16
86.....	13.9
87.....	12.1
88.....	10.6
89.....	9.2
90.....	8
91.....	7.0
92.....	6.1
93.....	5.3
94.....	4.6
95.....	4
96.....	3.5
97.....	3.0
98.....	2.6
99.....	2.3
100.....	2
101.....	1.7
102.....	1.5
103.....	1.3
104.....	1.1
105.....	1
106.....	0.87
107.....	0.76
108.....	0.66
109.....	0.57
110.....	0.5
111.....	0.44

112.....	0.38
113.....	0.33
114.....	0.29
115.....	0.25
116.....	0.22
117.....	0.19
118.....	0.16
119.....	0.14
120.....	0.125
121.....	0.11
122.....	0.095
123.....	0.082
124.....	0.072
125.....	0.063
126.....	0.054
127.....	0.047
128.....	0.041
129.....	0.036
130.....	0.031

In the above table the reference duration, T, is computed by

$$T = \frac{8}{2^{(L-90)/5}}$$

where L is the measured A-weighted sound level.

II. Conversion Between "Dose" and "8-Hour Time-Weighted Average"

Sound Level

Compliance with paragraphs (c)-(r) of this regulation is determined by the amount of exposure to noise in the workplace. The amount of such exposure is usually measured with an audiodosimeter which gives a readout in terms of "dose." In order to better understand the requirements of the amendment, dosimeter readings can be converted to an "8-hour time-weighted average sound level." (TWA).

In order to convert the reading of a dosimeter into TWA, see Table A-1, below. This table applies to dosimeters that are set by the manufacturer to calculate dose or percent exposure according to the relationships in Table G-16a. So, for example, a dose of 91 percent over an eight hour day results in a TWA of 89.3 dB, and, a dose of 50 percent corresponds to a TWA of 85 dB.

If the dose as read on the dosimeter is less than or greater than the values found in Table A-1, the TWA may be calculated by using the formula: TWA = 16.61 log(10) (D/100) + 90 where TWA=8-hour time-weighted average sound level and D = accumulated dose in percent exposure.

TABLE A-1 - CONVERSION FROM "PERCENT NOISE EXPOSURE" OR "DOSE" TO "8-HOUR TIME-WEIGHTED AVERAGE SOUND LEVEL" (TWA)

Dose or percent noise exposure	TWA
10.....	73.4
15.....	76.3
20.....	78.4
25.....	80.0
30.....	81.3
35.....	82.4
40.....	83.4
45.....	84.2
50.....	85.0
55.....	85.7
60.....	86.3
65.....	86.9
70.....	87.4
75.....	87.9
80.....	88.4
81.....	88.5
82.....	88.6
83.....	88.7
84.....	88.7
85.....	88.8
86.....	88.9
87.....	89.0
88.....	89.1
89.....	89.2
90.....	89.2
91.....	89.3
92.....	89.4
93.....	89.5
94.....	89.6
95.....	89.6
96.....	89.7
97.....	89.8
98.....	89.9
99.....	89.9
100.....	90.0
101.....	90.1

102	90.1
103	90.2
104	90.3
105	90.4
106	90.4
107	90.5
108	90.6
109	90.6
110	90.7
111	90.8
112	90.8
113	90.9
114	90.9
115	91.1
116	91.1
117	91.1
118	91.2
119	91.3
120	91.3
125	91.6
130	91.9
135	92.2
140	92.4
145	92.7
150	92.9
155	93.2
160	93.4
165	93.6
170	93.8
175	94.0
180	94.2
185	94.4
190	94.6
195	94.8
200	95.0
210	95.4
220	95.7
230	96.0
240	96.3
250	96.6
260	96.9
270	97.2
280	97.4
290	97.7
300	97.9
310	98.2
320	98.4
330	98.6
340	98.8
350	99.0
360	99.2
370	99.4
380	99.6
390	99.8
400	100.0
410	100.2
420	100.4
430	100.5
440	100.7
450	100.8
460	101.0
470	101.2
480	101.3
490	101.5
500	101.6
510	101.8
520	101.9
530	102.0
540	102.2
550	102.3
560	102.4
570	102.6
580	102.7
590	102.8
600	102.9
610	103.0
620	103.2
630	103.3
640	103.4
650	103.5
660	103.6
670	103.7
680	103.8
690	103.9
700	104.0
710	104.1
720	104.2
730	104.3
740	104.4
750	104.5

760	104.6
770	104.7
780	104.8
790	104.9
800	105.0
810	105.1
820	105.2
830	105.3
840	105.4
850	105.4
860	105.5
870	105.6
880	105.7
890	105.8
900	105.8
910	105.9
920	106.0
930	106.1
940	106.2
950	106.2
960	106.3
970	106.4
980	106.5
990	106.5
999	106.6

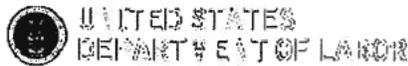
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o Part Title:	Occupational Safety and Health Standards
o Subpart:	G
o Subpart Title:	Occupational Health and Environmental Control
o Standard Number:	1910.95 App B
o Title:	Methods for estimating the adequacy of hearing protector attenuation

This Appendix is Mandatory

For employees who have experienced a significant threshold shift, hearing protector attenuation must be sufficient to reduce employee exposure to a TWA of 85 dB. Employers must select one of the following methods by which to estimate the adequacy of hearing protector attenuation.

The most convenient method is the Noise Reduction Rating (NRR) developed by the Environmental Protection Agency (EPA). According to EPA regulation, the NRR must be shown on the hearing protector package. The NRR is then related to an individual worker's noise environment in order to assess the adequacy of the attenuation of a given hearing protector. This appendix describes four methods of using the NRR to determine whether a particular hearing protector provides adequate protection within a given exposure environment. Selection among the four procedures is dependent upon the employer's noise measuring instruments.

Instead of using the NRR, employers may evaluate the adequacy of hearing protector attenuation by using one of the three methods developed by the National Institute for Occupational Safety and Health (NIOSH), which are described in the "List of Personal Hearing Protectors and Attenuation Data," HEW Publication No. 76-120, 1975, pages 21-37. These methods are known as NIOSH methods No. 1, No. 2 and No. 3. The NRR described below is a simplification of NIOSH method No. 2. The most complex method is NIOSH method No. 1, which is probably the most accurate method since it uses the largest amount of spectral information from the individual employee's noise environment. As in the case of the NRR method described below, if one of the NIOSH methods is used, the selected method must be applied to an individual's noise environment to assess the adequacy of the attenuation. Employers should be careful to take a sufficient number of measurements in order to achieve a representative sample for each time segment.

NOTE: The employer must remember that calculated attenuation values reflect realistic values only to the extent that the protectors are properly fitted and worn.

When using the NRR to assess hearing protector adequacy, one of the following methods must be used:

(i) When using a dosimeter that is capable of C-weighted measurements:

- (A) Obtain the employee's C-weighted dose for the entire workshift, and convert to TWA (see appendix A, II).
- (B) Subtract the NRR from the C-weighted TWA to obtain the estimated A-weighted TWA under the ear protector.

(ii) When using a dosimeter that is not capable of C-weighted measurements, the following method may be used:

- (A) Convert the A-weighted dose to TWA (see appendix A).
- (B) Subtract 7 dB from the NRR.
- (C) Subtract the remainder from the A-weighted TWA to obtain the estimated A-weighted TWA under the ear protector.

(iii) When using a sound level meter set to the A-weighting network:

- (A) Obtain the employee's A-weighted TWA.
- (B) Subtract 7 dB from the NRR, and subtract the remainder from the A-weighted TWA to obtain the estimated A-weighted TWA under the ear protector.

(iv) When using a sound level meter set on the C-weighting network:

- (A) Obtain a representative sample of the C-weighted sound levels in the employee's environment.
- (B) Subtract the NRR from the C-weighted average sound level to obtain the estimated A-weighted TWA under the ear protector.

(v) When using area monitoring procedures and a sound level meter set to the A-weighting network.

- (A) Obtain a representative sound level for the area in question.
- (B) Subtract 7 dB from the NRR and subtract the remainder from the A-weighted sound level for that area.

(vi) When using area monitoring procedures and a sound level meter set to the C-weighting network:

(A) Obtain a representative sound level for the area in question.

(B) Subtract the NRR from the C-weighted sound level for that area.

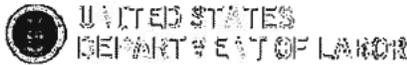
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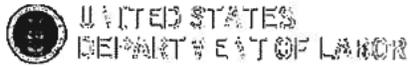
- Part Number: 1910
- Part Title: Occupational Safety and Health Standards
- Subpart: G
- Subpart Title: Occupational Health and Environmental Control
- Standard Number: 1910.95 App C
- Title: Audiometric measuring instruments

This Appendix is Mandatory

- In the event that pulsed-tone audiometers are used, they shall have a tone on-time of at least 200 milliseconds.
- Self-recording audiometers shall comply with the following requirements:
 - (A) The chart upon which the audiogram is traced shall have lines at positions corresponding to all multiples of 10 dB hearing level within the intensity range spanned by the audiometer. The lines shall be equally spaced and shall be separated by at least 1/4 inch. Additional increments are optional. The audiogram pen tracings shall not exceed 2 dB in width.
 - (B) It shall be possible to set the stylus manually at the 10-dB increment lines for calibration purposes.
 - (C) The slewing rate for the audiometer attenuator shall not be more than 6 dB/sec except that an initial slewing rate greater than 6 dB/sec is permitted at the beginning of each new test frequency, but only until the second subject response.
 - (D) The audiometer shall remain at each required test frequency for 30 seconds (+ or - 3 seconds). The audiogram shall be clearly marked at each change of frequency and the actual frequency change of the audiometer shall not deviate from the frequency boundaries marked on the audiogram by more than + or - 3 seconds.
 - (E) It must be possible at each test frequency to place a horizontal line segment parallel to the time axis on the audiogram, such that the audiometric tracing crosses the line segment at least six times at that test frequency. At each test frequency the threshold shall be the average of the midpoints of the tracing excursions.

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- Part Number: 1910
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- Subpart Title: Occupational Health and Environmental Control
- Standard Number: 1910.95 App D
- Title: Audiometric test rooms

This Appendix is Mandatory

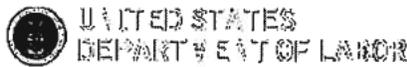
Rooms used for audiometric testing shall not have background sound pressure levels exceeding those in Table D-1 when measured by equipment conforming at least to the Type 2 requirements of American National Standard Specification for Sound Level Meters, S1.4-1971 (R1976), and to the Class II requirements of American National Standard Specification for Octave, Half-Octave, and Third-Octave Band Filter Sets, S1.11-1971 (R1976).

TABLE D-1 - MAXIMUM ALLOWABLE OCTAVE-BAND SOUND PRESSURE LEVELS FOR AUDIOMETRIC TEST ROOMS

Octave-band center frequency (Hz).....	500	1000	2000	4000	8000
Sound pressure level (dB) ...	40	40	47	57	62

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- o Subpart: G
- o Subpart Title: Occupational Health and Environmental Control
- o Standard Number: 1910.95 App E
- o Title: Acoustic calibration of audiometers

This Appendix is Mandatory

Audiometer calibration shall be checked acoustically, at least annually, according to the procedures described in this appendix. The equipment necessary to perform these measurements is a sound level meter, octave-band filter set, and a National Bureau of Standards 9A coupler. In making these measurements, the accuracy of the calibrating equipment shall be sufficient to determine that the audiometer is within the tolerances permitted by American Standard Specification for Audiometers, S3.6-1969.

(1) "Sound Pressure Output Check"

- A. Place the earphone coupler over the microphone of the sound level meter and place the earphone on the coupler.
- B. Set the audiometer's hearing threshold level (HTL) dial to 70 dB.
- C. Measure the sound pressure level of the tones at each test frequency from 500 Hz through 6000 Hz for each earphone.
- D. At each frequency the readout on the sound level meter should correspond to the levels in Table E-1 or Table E-2, as appropriate, for the type of earphone, in the column entitled "sound level meter reading."

(2) "Linearity Check"

- A. With the earphone in place, set the frequency to 1000 Hz and the HTL dial on the audiometer to 70 dB.
- B. Measure the sound levels in the coupler at each 10-dB decrement from 70 dB to 10 dB, noting the sound level meter reading at each setting.
- C. For each 10-dB decrement on the audiometer the sound level meter should indicate a corresponding 10 dB decrease.
- D. This measurement may be made electrically with a voltmeter connected to the earphone terminals.

(3) "Tolerances"

When any of the measured sound levels deviate from the levels in Table E-1 or Table E-2 by + or - 3 dB at any test frequency between 500 and 3000 Hz, 4 dB at 4000 Hz, or 5 dB at 6000 Hz, an exhaustive calibration is advised. An exhaustive calibration is required if the deviations are greater than 15 dB or greater at any test frequency.

TABLE E-1 - REFERENCE THRESHOLD LEVELS FOR TELEPHONICS - TDH-39 EARPHONES

Frequency, Hz	Reference threshold level for TDH-39 earphones, dB	Sound level meter reading, dB
500	11.5	81.5
1000	7	77
2000	9	79
3000	10	80
4000	9.5	79.5
6000	15.5	85.5

TABLE E-2 - REFERENCE THRESHOLD LEVELS FOR TELEPHONICS - TDH-49 EARPHONES

Frequency, Hz	Reference threshold level for TDH-49 earphones,	Sound level meter reading,

	dB	dB
500	13.5	83.5
1000	7.5	77.5
2000	11	81.0
3000	9.5	79.5
4000	10.5	80.5
6000	13.5	83.5

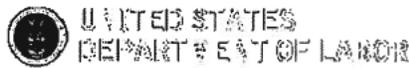
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- Part Number: 1910
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- Subpart: G
- Subpart Title: Occupational Health and Environmental Control
- Standard Number: 1910.95 App F
- Title: Calculations and application of age corrections to audiograms

This Appendix Is Non-Mandatory

In determining whether a standard threshold shift has occurred, allowance may be made for the contribution of aging to the change in hearing level by adjusting the most recent audiogram. If the employer chooses to adjust the audiogram, the employer shall follow the procedure described below. This procedure and the age correction tables were developed by the National Institute for Occupational Safety and Health in the criteria document entitled "Criteria for a Recommended Standard . . . Occupational Exposure to Noise," ((HSM)-11001).

For each audiometric test frequency;

(i) Determine from Tables F-1 or F-2 the age correction values for the employee by:

- (A) Finding the age at which the most recent audiogram was taken and recording the corresponding values of age corrections at 1000 Hz through 6000 Hz;
- (B) Finding the age at which the baseline audiogram was taken and recording the corresponding values of age corrections at 1000 Hz through 6000 Hz.

(ii) Subtract the values found in step (i)(B) from the value found in step (i)(A).

(iii) The differences calculated in step (ii) represented that portion of the change in hearing that may be due to aging.

EXAMPLE: Employee is a 32-year-old male. The audiometric history for his right ear is shown in decibels below.

Employee's age	Audiometric test frequency (Hz)				
	1000	2000	3000	4000	6000
26.....	10	5	5	10	5
*27.....	0	0	0	5	5
28.....	0	0	0	10	5
29.....	5	0	5	15	5
30.....	0	5	10	20	10
31.....	5	10	20	15	15
*32.....	5	10	10	25	20

The audiogram at age 27 is considered the baseline since it shows the best hearing threshold levels. Asterisks have been used to identify the baseline and most recent audiogram. A threshold shift of 20 dB exists at 4000 Hz between the audiograms taken at ages 27 and 32.

(The threshold shift is computed by subtracting the hearing threshold at age 27, which was 5, from the hearing threshold at age 32, which is 25). A retest audiogram has confirmed this shift. The contribution of aging to this change in hearing may be estimated in the following manner:

Go to Table F-1 and find the age correction values (in dB) for 4000 Hz at age 27 and age 32.

	Frequency (Hz)				
	1000	2000	3000	4000	6000
Age 32.....	6	5	7	10	14
Age 27.....	5	4	6	7	11
Difference	1	1	1	3	3

The difference represents the amount of hearing loss that may be attributed to aging in the time period between the baseline audiogram and the most recent audiogram. In this example, the difference at 4000 Hz is 3 dB. This value is subtracted from the hearing level at 4000 Hz, which in the most recent audiogram is 25, yielding 22 after adjustment. Then the hearing threshold in the baseline audiogram at 4000 Hz (5) is subtracted from the adjusted annual audiogram hearing threshold at 4000 Hz (22). Thus the age-corrected threshold shift would be 17 dB

(as opposed to a threshold shift of 20 dB without age correction).

TABLE F-1 - AGE CORRECTION VALUES IN DECIBELS FOR MALES

Years	Audiometric Test Frequency (Hz)				
	1000	2000	3000	4000	6000
20 or younger.....	5	3	4	5	8
21	5	3	4	5	8
22	5	3	4	5	8
23	5	3	4	6	9
24	5	3	5	6	9
25	5	3	5	7	10
26	5	4	5	7	10
27	5	4	6	7	11
28	6	4	6	8	11
29	6	4	6	8	12
30	6	4	6	9	12
31	6	4	7	9	13
32	6	5	7	10	14
33	6	5	7	10	14
34	6	5	8	11	15
35	7	5	8	11	15
36	7	5	9	12	16
37	7	6	9	12	17
38	7	6	9	13	17
39	7	6	10	14	18
40	7	6	10	14	19
41	7	6	10	14	20
42	8	7	11	16	20
43	8	7	12	16	21
44	8	7	12	17	22
45	8	7	13	18	23
46	8	8	13	19	24
47	8	8	14	19	24
48	9	8	14	20	25
49	9	9	15	21	26
50	9	9	16	22	27
51	9	9	16	23	28
52	9	10	17	24	29
53	9	10	18	25	30
54	10	10	18	26	31
55	10	11	19	27	32
56	10	11	20	28	34
57	10	11	21	29	35
58	10	12	22	31	36
59	11	12	22	32	37
60 or older	11	13	23	33	38

TABLE F-2 - AGE CORRECTION VALUES IN DECIBELS FOR FEMALES

Years	Audiometric Test Frequency (Hz)				
	1000	2000	3000	4000	6000
20 or younger.....	7	4	3	3	6
21	7	4	4	3	6
22	7	4	4	4	6
23	7	5	4	4	7
24	7	5	4	4	7
25	8	5	4	4	7
26	8	5	5	4	8
27	8	5	5	5	8
28	8	5	5	5	8
29	8	5	5	5	9
30	8	6	5	5	9
31	8	6	6	5	9
32	9	6	6	6	10
33	9	6	6	6	10
34	9	6	6	6	10
35	9	6	7	7	11
36	9	7	7	7	11
37	9	7	7	7	12
38	10	7	7	7	12
39	10	7	8	8	12
40	10	7	8	8	13
41	10	8	8	8	13
42	10	8	9	9	13
43	11	8	9	9	14
44	11	8	9	9	14
45	11	8	10	10	15
46	11	9	10	10	15
47	11	9	10	11	16
48	12	9	11	11	16

49	12	9	11	11	16
50	12	10	11	12	17
51	12	10	12	12	17
52	12	10	12	13	18
53	13	10	13	13	18
54	13	11	13	14	19
55	13	11	14	14	19
56	13	11	14	15	20
57	13	11	15	15	20
58	14	12	15	16	21
59	14	12	16	16	21
60 or older	14	12	16	17	22

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- o **Part Number:** 1910
- o **Part Title:** Occupational Safety and Health Standards
- o **Subpart:** G
- o **Subpart Title:** Occupational Health and Environmental Control
- o **Standard Number:** 1910.95 App G
- o **Title:** Monitoring noise levels non-mandatory informational appendix

This appendix provides information to help employers comply with the noise monitoring obligations that are part of the hearing conservation amendment.

WHAT IS THE PURPOSE OF NOISE MONITORING?

This revised amendment requires that employees be placed in a hearing conservation program if they are exposed to average noise levels of 85 dB or greater during an 8 hour workday. In order to determine if exposures are at or above this level, it may be necessary to measure or monitor the actual noise levels in the workplace and to estimate the noise exposure or "dose" received by employees during the workday.

WHEN IS IT NECESSARY TO IMPLEMENT A NOISE MONITORING PROGRAM?

It is not necessary for every employer to measure workplace noise. Noise monitoring or measuring must be conducted only when exposures are at or above 85 dB. Factors which suggest that noise exposures in the workplace may be at this level include employee complaints about the loudness of noise, indications that employees are losing their hearing, or noisy conditions which make normal conversation difficult. The employer should also consider any information available regarding noise emitted from specific machines. In addition, actual workplace noise measurements can suggest whether or not a monitoring program should be initiated.

HOW IS NOISE MEASURED?

Basically, there are two different instruments to measure noise exposures: the sound level meter and the dosimeter. A sound level meter is a device that measures the intensity of sound at a given moment. Since sound level meters provide a measure of sound intensity at only one point in time, it is generally necessary to take a number of measurements at different times during the day to estimate noise exposure over a workday. If noise levels fluctuate, the amount of time noise remains at each of the various measured levels must be determined.

To estimate employee noise exposures with a sound level meter it is also generally necessary to take several measurements at different locations within the workplace. After appropriate sound level meter readings are obtained, people sometimes draw "maps" of the sound levels within different areas of the workplace. By using a sound level "map" and information on employee locations throughout the day, estimates of individual exposure levels can be developed. This measurement method is generally referred to as "area" noise monitoring.

A dosimeter is like a sound level meter except that it stores sound level measurements and integrates these measurements over time, providing an average noise exposure reading for a given period of time, such as an 8-hour workday. With a dosimeter, a microphone is attached to the employee's clothing and the exposure measurement is simply read at the end of the desired time period. A reader may be used to read-out the dosimeter's measurements. Since the dosimeter is worn by the employee, it measures noise levels in those locations in which the employee travels. A sound level meter can also be positioned within the immediate vicinity of the exposed worker to obtain an individual exposure estimate. Such procedures are generally referred to as "personal" noise monitoring.

Area monitoring can be used to estimate noise exposure when the noise levels are relatively constant and employees are not mobile. In workplaces where employees move about in different areas or where the noise intensity tends to fluctuate over time, noise exposure is generally more accurately estimated by the personal monitoring approach.

In situations where personal monitoring is appropriate, proper positioning of the microphone is necessary to obtain accurate measurements. With a dosimeter, the microphone is generally located on the shoulder and remains in that position for the entire workday. With a sound level meter, the microphone is stationed near the employee's head, and the instrument is usually held by an individual who follows the employee as he or she moves about.

Manufacturer's instructions, contained in dosimeter and sound level meter operating manuals, should be followed for calibration and maintenance. To ensure accurate results, it is considered good professional practice to calibrate instruments before and after each use.

HOW OFTEN IS IT NECESSARY TO MONITOR NOISE LEVELS?

The amendment requires that when there are significant changes in machinery or production processes that may result in increased noise levels, remonitoring must be conducted to determine whether additional employees need to be included in the hearing conservation program. Many companies choose to remonitor periodically (once every year or two) to ensure that all exposed employees are included in their hearing conservation programs.

WHERE CAN EQUIPMENT AND TECHNICAL ADVICE BE OBTAINED?

Noise monitoring equipment may be either purchased or rented. Sound level meters cost about \$500 to \$1,000, while dosimeters range in price from about \$750 to \$1,500. Smaller companies may find it more economical to rent equipment rather than to purchase it. Names of equipment suppliers may be found in the telephone book (Yellow Pages) under headings such as: "Safety Equipment," "Industrial Hygiene," or "Engineers-Acoustical." In addition to providing information on obtaining noise monitoring equipment, many companies and individuals included under such listings can provide professional advice on how to conduct a valid noise monitoring program. Some audiological testing

firms and industrial hygiene firms also provide noise monitoring services. Universities with audiology, industrial hygiene, or acoustical engineering departments may also provide information or may be able to help employers meet their obligations under this amendment.

Free, on-site assistance may be obtained from OSHA-supported state and private consultation organizations. These safety and health consultative entities generally give priority to the needs of small businesses.

[61 FR 9227, March 7, 1996]

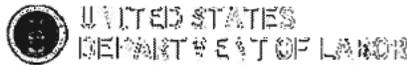
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- o **Part Number:** 1910
- o **Part Title:** Occupational Safety and Health Standards
- o **Subpart:** G
- o **Subpart Title:** Occupational Health and Environmental Control
- o **Standard Number:** 1910.95 App H
- o **Title:** Availability of referenced documents

Paragraphs (c) through (o) of 29 CFR 1910.95 and the accompanying appendices contain provisions which incorporate publications by reference. Generally, the publications provide criteria for instruments to be used in monitoring and audiometric testing. These criteria are intended to be mandatory when so indicated in the applicable paragraphs of 1910.95 and appendices.

It should be noted that OSHA does not require that employers purchase a copy of the referenced publications. Employers, however, may desire to obtain a copy of the referenced publications for their own information.

The designation of the paragraph of the standard in which the referenced publications appear, the titles of the publications, and the availability of the publications are as follows:

Paragraph designation	Referenced publication	Available from --
Appendix B	"List of Personal Hearing Protectors and Attenuation Data," HEW Pub. No. 76-120, 1975. NTIS-PB267461.	National Technical Information Service, Port Royal Road, Springfield, VA 22161.
Appendix D	"Specification for Sound Level Meters," S1.4-1971 (R1976).	American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018.
1910.95(k)(2), Appendix E	"Specifications for Audiometers," S3.6-1969.	American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018.
Appendix D	"Specification for Octave, Half-Octave and Third-Octave Band Filter Sets," S1.11-1971 (R1976).	Back Numbers Department, Dept. STD, American Institute of Physics, 333 E. 45th St., New York, NY 10017; American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018.

The referenced publications (or a microfiche of the publications) are available for review at many universities and public libraries throughout the country. These publications may also be examined at the OSHA Technical Data Center, Room N2439, United States Department of Labor, 200 Constitution Avenue, NW., Washington, DC 20210, (202) 219-7500 or at any OSHA Regional Office (see telephone directories under United States Government - Labor Department).

[61 FR 9227, March 7, 1996]

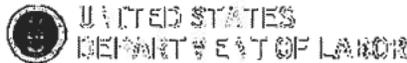
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o Part Number:	1910
o Part Title:	Occupational Safety and Health Standards
o Subpart:	G
o Subpart Title:	Occupational Health and Environmental Control
o Standard Number:	1910.95 App I
o Title:	Definitions

These definitions apply to the following terms as used in paragraphs (c) through (n) of 29 CFR 1910.95.

Action level - An 8-hour time-weighted average of 85 decibels measured on the A-scale, slow response, or equivalently, a dose of fifty percent.

Audiogram - A chart, graph, or table resulting from an audiometric test showing an individual's hearing threshold levels as a function of frequency.

Audiologist - A professional, specializing in the study and rehabilitation of hearing, who is certified by the American Speech-Language-Hearing Association or licensed by a state board of examiners.

Baseline audiogram - The audiogram against which future audiograms are compared.

Criterion sound level - A sound level of 90 decibels.

Decibel (dB) - Unit of measurement of sound level.

Hertz (Hz) - Unit of measurement of frequency, numerically equal to cycles per second.

Medical pathology - A disorder or disease. For purposes of this regulation, a condition or disease affecting the ear, which should be treated by a physician specialist.

Noise dose - The ratio, expressed as a percentage, of (1) the time integral, over a stated time or event, of the 0.6 power of the measured SLOW exponential time-averaged, squared A-weighted sound pressure and (2) the product of the criterion duration (8 hours) and the 0.6 power of the squared sound pressure corresponding to the criterion sound level (90 dB).

Noise dosimeter - An instrument that integrates a function of sound pressure over a period of time in such a manner that it directly indicates a noise dose.

Otolaryngologist - A physician specializing in diagnosis and treatment of disorders of the ear, nose and throat.

Representative exposure - Measurements of an employee's noise dose or 8-hour time-weighted average sound level that the employers deem to be representative of the exposures of other employees in the workplace.

Sound level - Ten times the common logarithm of the ratio of the square of the measured A-weighted sound pressure to the square of the standard reference pressure of 20 micropascals. Unit: decibels (dB). For use with this regulation, SLOW time response, in accordance with ANSI S1.4-1971 (R1976), is required.

Sound level meter - An instrument for the measurement of sound level.

Time-weighted average sound level - That sound level, which if constant over an 8-hour exposure, would result in the same noise dose as is measured.

[39 FR 23502, June 27, 1974, as amended at 46 FR 4161, Jan. 16, 1981; 46 FR 62845, Dec. 29, 1981; 48 FR 9776, Mar. 8, 1983; 48 FR 29687, June 28, 1983; 54 FR 24333, June 7, 1989; 61 FR 5507, Feb. 13, 1996; 61 FR 9227, March 7, 1996]

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ATTACHMENT 5
ERT Respirator Protection Program

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ERT, Inc.
Environmental Services Division



Respiratory Protection Program
(OSHA 1910.134)

Version 2.1

October 2016

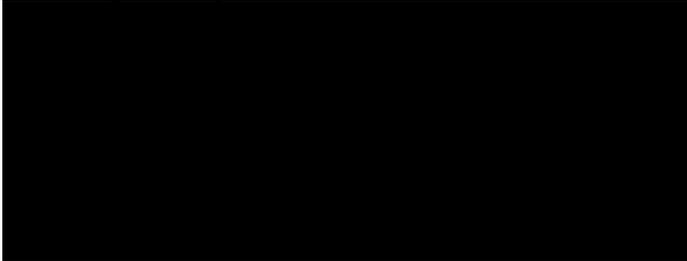
Program Administrators
Michael Barsa
Howard "Yorky" Knowles

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CERTIFICATION

This Respiratory Protection Program (RPP) has been prepared by a Certified Safety Professional (CSP), certified by the Board of Certified Safety Professionals (BCSP).

Prepared by:



ERT Division Safety and Health Manager (SHM)
ERT RPP Administrator

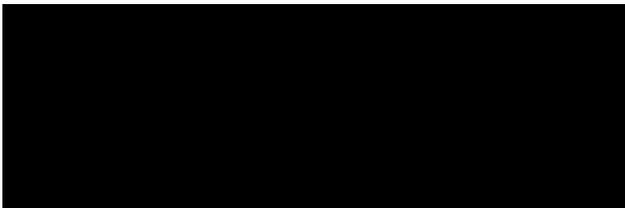
October 25, 2016
Date:

Program Concurrence:



ERT RPP Administrator

October 25, 2016
Date:



ERT Division Manager

October 25, 2016
Date:

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1.0 POLICY

It is the objective of ERT, Inc. (ERT) to protect its employees from exposure to potentially hazardous atmospheres through a comprehensive program of recognition; evaluation; engineering, administrative and work practice controls; and personal protective equipment, including respirators. Hazard elimination and engineering and work practice controls shall be employed to control employee exposure to within allowable exposure limits as practical. Respirators and other personal protective equipment shall be provided to affected employees under this program. ERT is committed to full compliance with applicable federal and state regulations pertaining to employee respiratory protection.

2.0 OBJECTIVE

This document presents ERT's Respiratory Protection Program (RPP), which is designed to protect employees from potentially hazardous atmospheres via establishing accepted practices for respirator use, providing guidelines for training and respirator selection, and explaining proper storage/use/care of respirators. This RPP also serves as the framework by which ERT and its employees comply with Occupational Safety and Health Administration (OSHA) respiratory protection requirements as found in 29 CFR 1910.134.

3.0 SCOPE

This RPP applies to all ERT employees who may need to wear a respirator to perform any assigned duty. Examples of chemicals or operations that pose potential respiratory hazards and involve respirator use are:

1. Working at Chemical Warfare Material (CWM) sites where potential exposure and handling of nerve agents and blister agents exists.
2. Sampling and removal of asbestos.
3. Sampling and remediation of other hazardous substances.
4. Encountering particulate matter from grinding, sanding, and cutting of materials.
5. Using aerosols in areas with poor circulation.
6. Work on any hazardous, toxic, and/or radioactive waste site where there exists a potential for exposure to site constituents of concern in concentrations greater than occupational exposure limits.

Employees have the right to voluntarily wear a respirator, even when one is not required. If an employee chooses to exercise this right, ERT will provide the employee with the necessary medical evaluation, training and procedures regarding cleaning, maintenance, and storage elements. Employees who voluntarily wear filtering face pieces (dust masks) are not subject to the medical evaluation, cleaning, storage, and maintenance provisions of this program.

4.0 ASSIGNMENT OF RESPONSIBILITY

4.1 Employer

ERT is responsible for providing respirators to employees when they are necessary for health protection. ERT will provide respirators that are applicable and suitable for the intended purpose at no charge to affected employees. Any expense associated with training, medical evaluations and respiratory protection equipment will be borne by the company.

4.2 Program Administrator

The Program Administrator is responsible for administering the respiratory protection program. Duties of the program administrator include:

- Keeping up with knowledge about respiratory protection and maintaining an awareness of current regulatory requirements and good practices.
- Identifying work areas, processes, or tasks that require workers to wear respirators.
- Evaluating hazards.
- Selecting respiratory protection options.
- Monitoring respirator use to ensure that respirators are used in accordance with their specifications.
- Arranging for and/or conducting training.
- Ensuring proper storage and maintenance of respiratory protection equipment.
- Conducting qualitative fit testing with Bitrex.
- Administering the medical surveillance program.
- Maintaining records required by the program (e.g., clearance statements).
- Evaluating the program.
- Updating the written program, as needed.

4.3 Supervisors

Supervisors are responsible for ensuring that the respiratory protection program is implemented in their particular areas. In addition to being knowledgeable about the program requirements for their own protection, supervisors must also ensure that the program is understood and followed by the employees under their charge. Duties of the supervisor include:

- Ensuring that employees under their supervision (including new hires) receive appropriate training, fit testing, and annual medical evaluation.
- Ensuring the availability of appropriate respirators and accessories.
- Being aware of tasks requiring the use of respiratory protection.
- Enforcing the proper use of respiratory protection when necessary.

- Ensuring that respirators are properly cleaned, maintained, and stored according to this program.
- Ensuring that respirators fit well and do not cause discomfort.
- Screening work sites and operations to identify respiratory hazards.
- Coordinating with the Program Administrator on how to address respiratory hazards or other concerns regarding this program.

4.4 Employees

Each employee is responsible for wearing his or her respirator when and where required and in the manner in which they are trained. Employees must also:

- Use the respirator in accordance with the manufacturer's instructions and the training received.
- Care for and maintain their respirators as instructed, guard them against damage, and store them in a clean, sanitary location.
- Immediately report any defects in the respiratory protection equipment and whenever there is a respirator malfunction, immediately evacuate to a safe area and report malfunction.
- Promptly report to their supervisor any symptoms of illness that may be related to respirator usage or exposure to hazardous atmospheres.
- Report any health concerns related to respirator use or changes in health status to ERT's occupational physician.
- Inform their supervisor or the Program Administrator of any respiratory hazards that they feel are not adequately addressed at work sites and of any other concerns that they have regarding this program.

5.0 PROGRAM

5.1 Hazard Assessment and Respirator Selection

The Program Administrator will select respirators to be used on site, based on the hazards to which workers are exposed and in accordance with the OSHA Respiratory Protection Standard. The Program Administrator will conduct a hazard evaluation for each operation, process, or work area where airborne contaminants may be present in routine operations. A log of identified hazards will be maintained by the Program Administrator (typically, via the process of activity hazard analysis [AHA] completed during the development of project safety plans). The hazard evaluations shall include:

- Identification and development of a list of hazardous substances potentially encountered at the specific ERT work site.
- Review of work processes to determine where potential exposures to hazardous substances may occur. This review shall be conducted by surveying the workplace, reviewing historical records, and talking with employees and supervisors.
- Exposure monitoring to quantify potential hazardous exposures.

The proper type of respirator for the specific hazard involved will be selected in accordance with the manufacturer's instructions, based on the hazard assessment. Selection of the employees and appropriate respiratory protection shall be documented by the Program Administrator.

5.2 Updating the Hazard Evaluation

The Program Administrator must revise and update the hazard evaluation as needed (i.e., any time new work develops that may potentially affect exposure). If an employee feels that respiratory protection is needed during a particular activity, s/he is to contact his/her supervisor or the Program Administrator. The Program Administrator will evaluate the potential hazard, and arrange for additional assessment as necessary. The Program Administrator will then communicate the results of that assessment to the employees. If it is determined that respiratory protection is necessary, all other elements of the respiratory protection program will be in effect for those tasks, and the respiratory program will be updated accordingly.

5.3 Training

The Program Administrator will provide training to respirator users and their supervisors on the contents of the ERT Respiratory Protection Program and their responsibilities under it, and on the OSHA Respiratory Protection Standard. All affected employees and their supervisors will be trained prior to using a respirator at work sites. Supervisors will also be trained prior to supervising employees that must wear respirators.

The training course will cover the following topics:

- The ERT Respiratory Protection Program;
- The OSHA Respiratory Protection Standard (29 CFR 1910.134);
- Respiratory hazards encountered at ERT work sites and their health affects;

- Proper selection and use of respirators;
- Limitations of respirators;
- Respirator donning and user seal (fit) checks;
- Fit testing;
- Emergency procedures;
- Maintenance and storage; and
- Medical signs and symptoms limiting the effective use of respirators.

Employees will be retrained annually or as needed (e.g., if new exposure hazards are encountered and/or if the need to use a different respirator type is warranted). The Program Administrator will document respirator training and the documentation will include the type, model, and size of respirator for which each employee has been trained and fit tested.

5.4 NIOSH Certification

All respirators must be certified by the National Institute for Occupational Safety and Health (NIOSH) and shall be used in accordance with the terms of that certification. Also, all filters, cartridges, and canisters must be labeled with the appropriate NIOSH approval label. The label must not be removed or defaced while the respirator is in use.

5.5 Voluntary Respirator Use

The Program Administrator shall authorize voluntary use of respiratory protective equipment as requested by all other workers on a case-by-case basis, depending on specific workplace conditions and the results of medical evaluations.

The Program Administrator will provide all employees who voluntarily choose to wear the above respirators with a copy of Appendix D of the OSHA Respiratory Protection Standard 1910.134. Employees who choose to wear an air-purifying respirator (APR) must comply with the procedures for medical evaluation, respirator use, cleaning, and maintenance and storage portions of this program.

5.6 Medical Evaluation

Employees who are either required to wear respirators, or who choose to wear an APR voluntarily, must pass a medical exam provided by ERT before being permitted to wear a respirator on the job. Employees are not permitted to wear respirators until a physician has determined that they are medically able to do so. Any employee refusing the medical evaluation will not be allowed to work at sites requiring respirator use.

Licensed physicians through Concentra, Inc. will provide the medical evaluations. Medical evaluation procedures are as follows:

- The medical evaluation will be conducted using the questionnaire provided in Appendix C of the OSHA Respiratory Protection Standard 1910.134. The Program Administrator will provide a copy of this questionnaire to all employees requiring medical evaluations.

- To the extent feasible, ERT will provide assistance to employees who are unable to read the questionnaire. When this is not possible, the employee will be sent directly to the physician for medical evaluation.
- All affected employees will be given a copy of the medical questionnaire to complete, along with a stamped and addressed envelope for mailing the questionnaire to the company physician. Employees will be permitted to complete the questionnaire on company time.
- Follow-up medical exams will be granted to employees as required by the Standard, and/or as deemed necessary by the evaluating physician.
- All employees will be granted the opportunity to speak with the physician about their medical evaluation, if they so request.

The Program Administrator shall provide the evaluating physician with a copy of this Program, a copy of the OSHA Respiratory Protection Standard, the list of potentially encountered hazardous substances by work site, and the following information about each employee requiring evaluation:

- his or her work area or job title;
- proposed respirator type and weight;
- length of time required to wear respirator;
- expected physical work load (light, moderate or heavy);
- potential temperature and humidity extremes; and
- any additional protective clothing required.

Positive pressure air purifying respirators will be provided to employees as required by medical necessity.

After an employee has received clearance to wear his or her respirator, additional medical evaluations will be provided under the following circumstances:

- The employee reports signs and/or symptoms related to their ability to use the respirator, such as shortness of breath, dizziness, chest pains or wheezing.
- The evaluating physician or supervisor informs the Program Administrator that the employee needs to be reevaluated.
- Information found during the implementation of this program, including observations made during the fit testing and program evaluation, indicates a need for reevaluation.
- A change occurs in work conditions that may result in an increased physiological burden on the employee.

All examinations and questionnaires are to remain confidential between the employee and the physician. The Program Administrator will only retain the physician's written recommendations regarding each employee's ability to wear a respirator.

5.7 Fit Testing

Employees who are required to, or who voluntarily, wear respirators will be fit tested:

- prior to being allowed to wear any respirator with a tight-fitting face piece;
- annually; or
- when there are changes in the employee's physical condition that could affect respiratory fit (e.g., obvious change in body weight, facial scarring, etc.).

Employees will be fit tested with the make, model, and size of respirator that they will actually wear. Employees will be provided with several models and sizes of respirators so that they may find an optimal fit. Fit testing of powered air purifying respirators will be conducted in the negative pressure mode.

The Program Administrator will conduct fit tests in accordance with Appendix A of the OSHA Respiratory Protection Standard 1910.134.

5.8 General Respirator Use Procedures

Employees will use their respirators under conditions specified in this program, and in accordance with the training they receive on the use of each particular model. In addition, the respirator shall not be used in a manner for which it is not certified by NIOSH or by its manufacturer.

All employees shall conduct user seal checks each time they wear their respirators. Employees shall use either the positive or negative pressure check (depending on which test works best for them) as specified in the OSHA Respiratory Protection Standard.

5.8.1 Positive Pressure Test

This test is performed by closing off the exhalation valve with your hand. Breathe air into the mask. The face fit is satisfactory if some pressure can be built up inside the mask without any air leaking out between the mask and the face of the wearer.

5.8.2 Negative Pressure Test

This test is performed by closing of the inlet openings of the cartridge with the palm of your hand. Some masks may require that the filter holder be removed to seal off the intake valve. Inhale gently so that a vacuum occurs within the face piece. Hold your breath for ten (10) seconds. If the vacuum remains, and no inward leakage is detected, the respirator is fit properly.

All user seal checks should be performed before entering the suspected hazardous area the following maintenance procedures should also be performed outside of the suspected hazardous area:

- cleaning respirator if it is impeding ability to work;
- changing filters or cartridges;
- replacing parts; or
- inspecting respirator if it stops functioning as intended.

Employees are not permitted to wear tight-fitting respirators if they have any condition, such as facial scars, facial hair, or missing dentures that would prevent a proper seal. Employees are not permitted to wear headphones, jewelry, or other items that may interfere with the seal between the face and the face piece.

Before and after each use of a respirator, an employee or immediate supervisor must make an inspection of tightness or connections and the condition of the face piece, headbands, valves, filter holders and filters. Questionable items must be addressed immediately by the supervisor and/or Program Administrator.

5.9 Air Quality

For supplied-air respirators, only Grade D breathing air shall be used in the cylinders. The Program Administrator will coordinate deliveries of compressed air with the company's vendor and will require the vendor to certify that the air in the cylinders meets the specifications of Grade D breathing air.

5.10 Change Schedules

Respirator cartridges shall be replaced as determined by the Program Administrator, supervisor(s), and manufacturers' recommendations.

5.11 Cleaning

Respirators are to be regularly cleaned and disinfected (e.g. after each use). The following procedure is to be used when cleaning and disinfecting reusable respirators, and is in accordance with Appendix B-2 of the OSHA Respiratory Protection Standard 1910.134.

1. Disassemble respirator, removing any filters, canisters, or cartridges.
2. Wash the face piece and all associated parts (except cartridges and elastic headbands) in an approved cleaner-disinfectant solution in warm water (about 120 degrees Fahrenheit). Do not use organic solvents. Use a hand brush to remove dirt.
3. Rinse completely in clean, warm water.
4. Disinfect all facial contact areas by spraying the respirator with an approved disinfectant.
5. Air dry in a clean area.
6. Reassemble the respirator and replace any defective parts.
7. Insert new filters or cartridges and make sure the seal is tight.
8. Place respirator in a clean, dry plastic bag or other airtight container.

The Program Administrator will ensure an adequate supply of appropriate cleaning and disinfection materials are issued to each respirator user. If supplies are low, employees should notify their supervisor, who will inform the Program Administrator.

5.12 Maintenance

Respirators are to be properly maintained at all times in order to ensure that they function properly and protect employees adequately. Maintenance involves a thorough visual

inspection for cleanliness and defects. Worn or deteriorated parts will be replaced prior to use. No components will be replaced or repairs made beyond those recommended by the manufacturer. Repairs to regulators or alarms of atmosphere-supplying respirators will be conducted by the manufacturer.

All respirators shall be inspected routinely before and after each use. The ERT Respirator Inspection Checklist will be used when inspecting respirators.

Maintenance on respirators must be performed in a designated area that is free of respiratory hazards. Situations when limited, on-site maintenance is permitted include:

- washing face and respirator face piece to prevent any eye or skin irritation;
- replacing the filter, cartridge or canister;
- detection of vapor or gas breakthrough or leakage in the face piece; or
- detection of any other damage to the respirator or its components.

5.13 Storage

After inspection, cleaning, and necessary repairs, respirators shall be stored appropriately to protect against dust, sunlight, heat, extreme cold, excessive moisture, or damaging chemicals.

Respirators must be stored in a clean, dry area, and in accordance with the manufacturer's recommendations. Each employee will clean and inspect their own air-purifying respirator in accordance with the provisions of this program, and will store their respirator in a plastic bag in the designated area. Each employee will have his/her name on the bag and that bag will only be used to store that employee's respirator.

Respirators shall be packed or stored so that the face piece and exhalation valve will rest in a near normal position.

Respirators shall not be placed in places such as lockers or toolboxes unless they are in carrying cartons.

The Program Administrator will store ERT's supply of respirators and respirator components in their original manufacturer's packaging in the Designated Area.

5.14 Respirator Malfunctions and Defects

For any malfunction of a supplied-air respirator (SAR), such as breakthrough, face piece leakage, or improperly working valve, the respirator wearer should inform his/her supervisor that the respirator no longer functions as intended, and go to the designated safe area to maintain the respirator. The supervisor must ensure that the employee either receives the needed parts to repair the respirator or is provided with a new respirator.

All workers wearing supplied air respirators will work with a buddy. The Program Administrator shall develop and inform employees of the procedures to be used when a buddy is required to assist a coworker who experiences a SAR malfunction.

Respirators that are defective or have defective parts shall be taken out of service immediately. If, during an inspection, an employee discovers a defect in a respirator, he/she is to bring the defect to the attention of his/her supervisor. Supervisors will give

all defective respirators to the Program Administrator. The Program Administrator will decide whether to:

- temporarily take the respirator out of service until it can be repaired;
- perform a simple fix on the spot, such as replacing a head strap; or
- dispose of the respirator due to an irreparable problem or defect.

When a respirator is taken out of service for an extended period of time, the respirator will be tagged out of service, and the employee will be given a replacement of a similar make, model, and size. All tagged out respirators will be kept in the Designated Area.

5.15 Program Evaluation

The Program Administrator will conduct periodic evaluations of work site conditions to ensure that the provisions of this program are being implemented. The evaluations will include regular consultations with employees who use respirators and their supervisors and a review of site records. Items to be considered will include:

- comfort;
- ability to breathe without objectionable effort;
- adequate visibility under all conditions
- provisions for wearing prescription glasses;
- ability to perform all tasks without undue interference; and
- confidence in the face piece fit.

Identified problems will be noted in an inspection log and addressed by the Program Administrator. These findings will be reported to (ERT) management, and the report will list plans to correct deficiencies in the respirator program and target dates for the implementation of those corrections.

5.16 Documentation and Recordkeeping

A written copy of this program and the OSHA Respiratory Protection Standard shall be kept in the Program Administrator's office and made available to all employees who wish to review it.

Copies of the following records shall be maintained by the Program Administrator. These records will be updated as needed.

- ERT RPP participant list
- Comprehensive hazard evaluation list
- Completed hazard assessment and respirator selection forms
- Training and fit test records
- Respirator inspection checklists
- Signed RPP certification sheets

- Blank forms

For employees covered under the Respiratory Protection Program, the Program Administrator shall maintain copies of the physician's written recommendation regarding each employee's ability to wear a respirator. The completed medical questionnaires and evaluating physician's documented findings will remain confidential in the employee's medical records at the location of the evaluating physician's practice.

5.17 Emergency Respirator Usage

Although expected to be rare, throughout the course of ERT operations, use of respirators in an emergency situation may be necessary. Situations where emergency respirator use might be necessary could include equipment failure, rupture of containers, and/or failure of control equipment, where an uncontrolled significant release of an airborne contaminant is suspected to have occurred.

Respiratory hazards often occur when personnel are exposed to hazardous substances while trapped by an accident or escaping from the scene of a fire or accident, or when they are exposed to hazardous material spills. An unforeseen chemical reaction may also result in an over exposure to hazardous substances.

Each respiratory device has a limited ability to protect health. During emergency entry, when there is usually neither time nor opportunity to evaluate the degree of exposure, only self-contained breathing apparatus (SCBA) operating in the pressure demand mode should be used. SCBA are approved for use in atmospheres suspected of being immediately dangerous to life and health (IDLH). After the type and degree of breathing hazards are evaluated, other respiratory equipment may be recommended.

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