

SITE HEALTH AND SAFETY PLAN (HASP)

Office: Houghton, MI
Site Name: U.S. EPA Atlas Powder
Client: U.S. EPA
Work Location: Senter, MI
WO#: 20405.012.001.0567.00 - Labor
20405.016.001.0567.00 – ODCs

SITE HEALTH AND SAFETY PLAN (HASP)

Prepared by: Jennifer Nutini

W.O. Number: 20405.012.001.0567.00

Date: 3/13/09

Project Identification U.S. EPA Atlas Powder

Office: Houghton, MI

Site Name: Atlas Powder

Client: U.S. EPA

Work Location Address: Senter, MI

Site History: The site is a mining era village where explosives were manufactured and transported via rail to various active mines in the Keweenaw area. Some evidence exists that indicates that waste materials and/or explosive materials may have been buried in drums at or near the Site. The manufacturing of explosives ceased in the 1960's and since then many of the work buildings have been demolished or are in ruins.

Scope of Work: Site reconnaissance to locate subject removal targets, and potentially assist with oversight of removal of contaminated media. A site walkthrough will be followed by other site assessment screening activities possibly including the use of equipment to identify possibly contaminated areas. If contaminants are detected, sampling of sediment, soil, surface water, and/or groundwater or building materials may be performed. This HASP will cover all activities performed by WESTON, GRT, USEPA, and the MDEQ personnel on-Site.

☐ Site visit only; site HASP not necessary. List personnel here and sign off below:

Regulatory Status:

Site regulatory status:

CERCLA/SARA **RCRA** **Other Federal Agency**

☒ U.S. EPA

☐ U.S. EPA

☐ DOE

☒ State

☐ State

☐ USACE

☐ NPL Site

NRC

☐ Air Force

☐ OSHA

☐ 10 CFR 20

☐ _____

Hazard Communication (Req'd See Attachment D)

☒ 1910

☒ 1926

☐ State

Safety Officer Manual (Required to be On-Site)

Based on the Hazard Assessment and Regulatory Status, determine the Standard HASP(s) applicable to this project. Indicate below which Standard HASP will be used and append the appropriate pages of this form along with the Standard Plan.

☐ Stack Test

☐ _____

☐ Air Emissions

☐ _____

☐ Asbestos

☐ _____

☐ Industrial Hygiene

☐ _____

☐ _____

☐ _____

Review and Approval Documentation:

Reviewed by:
SO/DSM/CHS

Ted Deecke

Name (Print)

Ted Deecke

Signature

Date:

05/06/2009

Other

Name (Print)

Signature

Date:

Approved by:

Project Manager

Jeff Binkley

Name (Print)

Signature

Date:

Hazard Assessment and Equipment Selection:

In accordance with WESTON's Personal Protective Equipment Program and 29 CFR 1910.132, at the site prior to personnel beginning work, the SHSC and/or the Site Manager have evaluated conditions and verified that the personal protective equipment selection outlined within this HASP is appropriate for the hazards known or expected to exist. (Refer to Safety Officer Manual Section 2, Personal Protection Program, for guidance.)

☒ **FSO**

☒ **Site Manager**

Jeff Binkley

Name

Signature

Date:

☒ **Environmental Compliance Officer**

☒ **Dangerous Goods Shipping Coordinator**

Jeff Binkley

Name

Signature

Date:

Project start date: 5/18/09

This site HASP **must be reissued/reapproved** for any

Amendment date(s)
1.

By:

End date: 5/18/10	activities conducted after:	2.	
	Date: 5/18/10	3.	
		4.	
		5.	

Vehicle Use Assessment and Selection

Driving is one of the most hazardous and frequent activities for WESTON Employees. The most appropriate type vehicle(s) authorized for use on this project is/are:

1. Standard Vehicle
- 2.
- 3.
- 4.

The following Project Team Member's qualifications and experience in driving these types of vehicles was evaluated and found to be acceptable (indicate vehicle type(s) number next to employee name).

1. Jeff Binkley
2. Jed Chrestensen
3. Dan Liebau
4. Kathy Clayton
5. Joe Walczak
6. Amy Keranen
7. Ralph Dollhopf
8. [Peter Lepczyk](#)
9. Pat Hamblin
- 10.

The project site was evaluated and a **Traffic Control Plan** ☐ is required ☒ is not required.

If required, the **Traffic Control Plan** can be found in Attachment H.

TABLE OF CONTENTS

Section	Page
1. PERSONNEL ON SITE INFORMATION	1-1
1.1 WESTON REPRESENTATIVES	1-2
1.2 WESTON SUBCONTRACTORS	1-2
1.3 SITE PERSONNEL AND CERTIFICATION STATUS	1-4
1.3.1 Weston Employee Certification	1-4
1.3.2 Subcontractor's Health and Safety Program Evaluation	1-5
2. HEALTH AND SAFETY EVALUATION	2-1
2.1 HEALTH AND SAFETY EVALUATION	2-2
2.1.1 Task Hazard Assessment	2-2
2.1.2 Chemical Hazards of Concern	2-3
2.1.3 Biological Hazards of Concern	2-5
2.1.4 Radiation Hazards of Concern	2-6
2.1.5 Physical Hazards of Concern	2-7
3. TASK BY TASK ASSESMENT	3-1
3.1 TASK-BY-TASK RISK ASSESSMENT	3-2
3.1.1 Task 1 Description	3-2
3.1.2 Task 2 Description	3-4
3.1.3 Task 3 Description	3-6
3.1.4 Task 4 Description	3-7
3.2 PERSONNEL PROTECTION PLAN	3-8
3.3 DESCRIPTION OF LEVELS OF PROTECTION	3-10
4. MONITORING PROGRAM	4-1
4.1 SITE OR PROJECT HAZARD MONITORING PROGRAM	4-2
4.1.1 Air Monitoring Instruments	4-2
4.1.2 Air Monitoring Instruments Calibration Record	4-4
4.2 SITE AIR MONITORING PROGRAM	4-5
4.3 ACTION LEVELS	4-7
5. HOSPITAL INFORMATION	5-1
5.1 CONTINGENCIES	5-2
5.1.1 Emergency Contacts and Phone Numbers	5-2
5.1.2 Hospital Map	5-3
5.1.3 Response Plans	5-4
6. DECONTAMINATION PLAN	6-1
6.1 GENERAL DECONTAMINATION PLAN	6-2
6.2 LEVEL D DECONTAMINATION PLAN	6-3
6.3 LEVEL C DECONTAMINATION PLAN	6-4
6.4 LEVEL B DECONTAMINATION PLAN	6-5
7. TRAINING AND BRIEFING TOPICS/SIGN OFF SHEET	7-1
7.1 TRAINING AND BRIEFING TOPICS	7-2
7.2 HEALTH AND SAFETY PLAN APPROVAL/SIGNOFF FORM	7-3
SANITATION 29 CFR 1926 Subparts C, D. EM 385-1-1, Section 2	Error!
Bookmark not defined.	

ATTACHMENTS

ATTACHMENT A	Chemical Contaminants Data Sheets
ATTACHMENT B	Material Safety Data Sheets
ATTACHMENT C	Safety Procedures/Field Operating Procedures (FLD Ops)
ATTACHMENT D	Hazard Communication Program
ATTACHMENT E	Air Sampling Data Sheets
ATTACHMENT F	Incident Reporting
ATTACHMENT G	AHA Checklist and Environmental Compliance
ATTACHMENT H	Traffic Control Plan
ATTACHMENT I	Audit Forms
ATTACHMENT J	Environmental Health & Safety Inspection Checklist
ATTACHMENT K	Environmental Protection and Sustainability Program Impact Checklist

1. PERSONNEL ON SITE INFORMATION

1.1 WESTON REPRESENTATIVES

Organization/Branch	Name/Title	Address	Telephone
Weston - HMI	Jeff Binkley/Project Manager Dan Liebau/Project Leader Jed Chrestensen/Project Engineer	600 E. Lakeshore Drive Suite 200 Houghton, MI	906-482-3018/906-362-9474
MDEQ-RRD	Joe Walczak/Investigation Team Leader Amy Keranen	P.O. Box 30426 Lansing, MI 48909	517-335-6010
USEPA	Ralph Dollhopf/On Scene Coordinator Kathy Clayton/On Scene Coordinator Pat Hamblin/ Remedial Project Manager		231-301-0559
GRT	Peter Lepczyk/Field Team Member		231-590-4202

Roles and Responsibilities:

Jeff Binkley will be responsible for client communications and field support. GRT representatives Richard Raetz or Peter Lepczyk will be performing field site assessment activities. Jed Chrestensen and Dan Liebau will be responsible for providing field support, if needed. Joe Walczak will be the team leader for MDEQ personnel. Ralph Dollhopf is the USEPA OSC for this site assessment and Kathy Clayton of USEPA will also be present.

1.2 WESTON SUBCONTRACTORS

Organization/Branch	Name/Title	Address	Telephone
GRT	Name: Richard Raetz Title: Engineer	Street: City: Traverse City State, Zip: MI	231-590-4202
GRT	Name: Peter Lepczyk Title:	Street: City: Traverse City State, Zip: MI	231-590-4202
	Name: Title:	Street: City: State, Zip:	

Roles and Responsibilities: Richard Raetz will mobilize the GRT START equipment and conduct the site assessment with members of WESTON, MDEQ, and US EPA.

SITE-SPECIFIC HEALTH AND SAFETY PERSONNEL

The Site Field Safety Officer (FSO) for activities to be conducted at this site is: Jeff Binkley

The FSO has total responsibility for ensuring that the provisions of this Site HASP are adequate and implemented in the field.

Changing field conditions may require decisions to be made concerning adequate protection programs. Therefore, the personnel assigned as FSOs are experienced and meet the additional training requirements specified by OSHA in 29 CFR 1910.120.

Qualifications:

All listed employees have 40 Hour Hazwoper training, current 8-Hour Hazwoper refresher training, Field Safety Officer 8 Hour training, current medical monitoring clearance, first aid, cpr and blood borne pathogen training.

Designated alternates include: Jed Chrestensen, Dan Liebau

1.3 SITE PERSONNEL AND CERTIFICATION STATUS

1.3.1 Weston Employee Certification

Name: Jeff Binkley Title: Project Manager Task(s): All Certification Level or Description: B-S <input checked="" type="checkbox"/> Medical Current <input checked="" type="checkbox"/> Training Current <input checked="" type="checkbox"/> Fit Test Current (Qual.) <input type="checkbox"/> Fit Test Current (Quant.)	Name: Richard Raetz Title: Task(s): All Certification Level or Description: B-T <input checked="" type="checkbox"/> Medical Current <input checked="" type="checkbox"/> Training Current <input type="checkbox"/> Fit Test Current (Qual.) <input checked="" type="checkbox"/> Fit Test Current (Quant.)
Name: Jed Chrestensen Title: Engineer Task(s): All Certification Level or Description: D-S <input checked="" type="checkbox"/> Medical Current <input checked="" type="checkbox"/> Training Current <input checked="" type="checkbox"/> Fit Test Current (Qual.) <input type="checkbox"/> Fit Test Current (Quant.)	Name: Dan Liebau Title: Project Leader Task(s): All Certification Level or Description: D-S <input checked="" type="checkbox"/> Medical Current <input checked="" type="checkbox"/> Training Current <input checked="" type="checkbox"/> Fit Test Current (Qual.) <input type="checkbox"/> Fit Test Current (Quant.)
Name: Kathy Clayton Title: EPA OSC Task(s): All Certification Level or Description: B-S <input checked="" type="checkbox"/> Medical Current <input checked="" type="checkbox"/> Training Current <input type="checkbox"/> Fit Test Current (Qual.) <input checked="" type="checkbox"/> Fit Test Current (Quant.)	Name: Ralph Dollhopf Title: EPA OSC Task(s): All Certification Level or Description: B-S <input checked="" type="checkbox"/> Medical Current <input checked="" type="checkbox"/> Training Current <input checked="" type="checkbox"/> Fit Test Current (Qual.) <input type="checkbox"/> Fit Test Current (Quant.)
Name: Joe Walczak Title: MDEQ Field Team Lead Task(s): All Certification Level or Description: D-S <input checked="" type="checkbox"/> Medical Current <input checked="" type="checkbox"/> Training Current <input type="checkbox"/> Fit Test Current (Qual.) <input type="checkbox"/> Fit Test Current (Quant.)	Name: Peter Lepczyk Title: Field Team Member Task(s): All Certification Level or Description: B-T <input checked="" type="checkbox"/> Medical Current <input checked="" type="checkbox"/> Training Current <input type="checkbox"/> Fit Test Current (Qual.) <input checked="" type="checkbox"/> Fit Test Current (Quant.)
Name: Title: Task(s): Certification Level or Description: <input type="checkbox"/> Medical Current <input type="checkbox"/> Training Current <input type="checkbox"/> Fit Test Current (Qual.) <input type="checkbox"/> Fit Test Current (Quant.)	Name: Title: Task(s): Certification Level or Description: <input type="checkbox"/> Medical Current <input type="checkbox"/> Training Current <input type="checkbox"/> Fit Test Current (Qual.) <input type="checkbox"/> Fit Test Current (Quant.)
Name: Title: Task(s): Certification Level or Description: <input type="checkbox"/> Medical Current <input type="checkbox"/> Training Current <input type="checkbox"/> Fit Test Current (Qual.) <input type="checkbox"/> Fit Test Current (Quant.)	Name: Title: Task(s): Certification Level or Description: <input type="checkbox"/> Medical Current <input type="checkbox"/> Training Current <input type="checkbox"/> Fit Test Current (Qual.) <input type="checkbox"/> Fit Test Current (Quant.)

TRAINING CURRENT - Training: All personnel, including visitors, entering the exclusion or contamination reduction zones must have certifications of completion of training in accordance with OSHA 29 CFR 1910, 29 CFR 1926, or 29 CFR 1910.120.

FIT TEST CURRENT - Respirator Fit Testing: All persons, including visitors, entering any area requiring the use or potential use of any negative pressure respirator must have had, as a minimum, a qualitative fit test, administered in accordance with OSHA 29 CFR 1910.134 or ANSI, within the last 12 months. If site conditions require the use of a full-face, negative-pressure, air-purifying respirator for protection from asbestos or lead, employees must have had a qualitative fit test, administered according to OSHA 29 CFR 1910.1001 or 1025/1926, within the last 6 months.

MEDICAL CURRENT - Medical Monitoring Requirements: All personnel, including visitors, entering the exclusion or contamination reduction zones must be certified as medically fit to work and to wear a respirator, if appropriate, in accordance with 29 CFR 1910, 29 CFR 1926/1910, or 29 CFR 1910.120.

The Site Field Safety Officer is responsible for verifying all certifications and fit tests.

SITE PERSONNEL AND CERTIFICATION STATUS

1.3.2 Subcontractor's Health and Safety Program Evaluation

Name of Subcontractor: GRT

Address: Traverse City, MI

Activities To Be Conducted by Subcontractor: All Site Assessment Activities

Evaluation Criteria

Medical program meets OSHA/WESTON criteria

☒ Acceptable
☐ Unacceptable

Comments:

Personal protective equipment available

☒ Acceptable
☐ Unacceptable

Comments:

On-site monitoring equipment available, calibrated, and operated properly

☒ Acceptable
☐ Unacceptable

Comments:

Safe working procedures clearly specified

☒ Acceptable
☐ Unacceptable

Comments:

Training meets OSHA/WESTON criteria

☒ Acceptable
☐ Unacceptable

Comments:

Emergency procedures

☐ Acceptable
☐ Unacceptable

Comments:

Decontamination procedures

☒ Acceptable
☐ Unacceptable

Comments:

General health and safety program evaluation

☒ Acceptable
☐ Unacceptable

Comments:

Additional comments:

- ☒ Subcontractor has agreed to and will conform with the WESTON HASP for this project.
- ☐ Subcontractor will work under his own HASP, which has been accepted by project PM.

Evaluation Conducted by: Jennifer Nutini

Date: 4/30/09

Subcontractor

Name:

Title:

Task(s):

Certification Level or Description:

☐ Medical Current ☐ Training Current
☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)

Name:

Title:

Task(s):

Certification Level or Description:

☐ Medical Current ☐ Training Current
☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)

Name:

Title:

Task(s):

Certification Level or Description:

☐ Medical Current ☐ Training Current
☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)

Name:

Title:

Task(s):

Certification Level or Description:

☐ Medical Current ☐ Training Current
☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)

2. HEALTH AND SAFETY EVALUATION

2.1 HEALTH AND SAFETY EVALUATION

2.1.1 Task Hazard Assessment

Background Review: ☒ Complete ☐ Partial If partial why?

Activities Covered Under This Plan:

No.	Task/Subtask	Description	Schedule
1	Non Intrusive Site Assessment Activities	Site reconnaissance for potentially contaminated materials using screening techniques to quantify the extent of contamination.	5/18/09-5/22/09
2	Site Assessment Sampling Activities	Performance of various site assessment activities including collection of soil/groundwater/sediment/building materials samples.	5/18/09-5/22/09
3	Removal Oversight	Documentation of contaminant removal activities.	TBD

Types of Hazards:

Numbers refer to one of the following hazard evaluation forms. Complete hazard evaluation forms for each appropriate hazard class.

Physiochemical 1

- ☐ Flammable
☒ Explosive
☐ Corrosive
☐ Reactive
☐ O₂ Rich
☐ O₂ Deficient

Chemically Toxic 1

- ☒ Inhalation ☒ Carcinogen
☒ Ingestion ☐ Mutagen
☒ Contact ☐ Teratogen
☒ Absorption
☐ OSHA 1910.1000 Substance (Air Contaminants)
☒ OSHA Specific Hazard Substance Standard (Refer to following page for listing)

Radiation 3

- Ionizing:
☐ Internal exposure
☐ External exposure

 Non-ionizing:
☒ UV ☐ IR
☐ RF ☐ MicroW
☐ Laser

Biological 2

- ☐ Etiological Agent
☒ Other (plant, insect, animal)

Physical Hazards 4

- ☐ Construction Activities

Source/Location of Contaminants and Hazardous Substances:

Directly Related to Tasks

- ☐ Air
☐ Other Surface
☒ Groundwater
☒ Soil
☒ Surface Water
☐ Sanitary Wastewater
☐ Process Wastewater
☐ Other _____

Indirectly Related to Tasks — Nearby Process(es) That Could Affect Team Members:

- ☐ Client Facility/WESTON Work Location
☐ Nearby Non-Client Facility
 Describe:
☐ Have activities (task[s]) been coordinated with facility?

HEALTH AND SAFETY EVALUATION

2.1.2 Chemical Hazards of Concern

☐ N/A

Chemical Contaminants of Concern

Provide the data requested for chemical contaminants on HASP Form 25 or attach data sheets from an acceptable source such as NIOSH pocket guide, condensed chemical dictionary, ACGIH TLV booklet, etc. List chemicals and concentrations below and locate data sheets in Attachment B of this HASP.

☐ N/A

Identify hazardous materials used or on-site and attach Material Safety Data Sheets (MSDSs) for all reagent type chemicals, solutions, or other identified materials that in normal use in performing tasks related to this project could produce hazardous substances. Ensure that all subcontractors and other parties working nearby are informed of the presence of these chemicals and the location of the MSDSs. Obtain from subcontractors and other parties, lists of the hazardous materials they use or have on-site and identify location of the MSDSs here. List chemicals and quantities below and locate MSDSs in Attachment B of this HASP.

Chemical Name	Concentration ()	Chemical Name	Quantity
Lead	Unknown	Alconox Detergent	1 Container
Mercury	Unknown	Methanol Preservative	40 ml
Nitrates/Nitrites	Unknown	Hydrochloric Acid Preservative	120 ml
Nitroglycerin	Unknown	Nitric Acid Preservative	500 ml
Ammonia Nitrate	Unknown	Sodium Hydroxide Preservative	250 ml
Sodium Sulfite	Unknown	Sulfuric Acid Preservative	500 ml
Acetone	Unknown		
Asbestos	Unknown		
Aluminum	Unknown		
Arsenic	Unknown		
Mercury fulminate – found in blasting caps, see attached photo	Unknown		
OSHA-SPECIFIC HAZARDOUS SUBSTANCES			

The following substances may require specific medical, training, or monitoring based on concentration or evaluation of risk. See the appropriate citation listed under 29 CFR 1910 or 1926 for additional information.

- | | | | |
|--|--|---|--|
| <input checked="" type="checkbox"/> 1910.1001 Asbestos | <input type="checkbox"/> 1910.1002 Coal tar pitch volatiles | <input type="checkbox"/> 1910.1003 4-Nitrobiphenyl, etc. | <input type="checkbox"/> 1910.1004 alpha-Naphthylamine |
| <input type="checkbox"/> 1910.1005 [Reserved] | <input type="checkbox"/> 1910.1006 Methyl chloromethyl ether | <input type="checkbox"/> 1910.1007 3,3'-Dichlorobenzidine (and its salts) | <input type="checkbox"/> 1910.1008 bis-Chloromethyl ether |
| <input type="checkbox"/> 1910.1009 beta-Naphthylamine | <input type="checkbox"/> 1910.1010 Benzidine | <input type="checkbox"/> 1910.1011 4-Aminodiphenyl | <input type="checkbox"/> 1910.1012 Ethyleneimine |
| <input type="checkbox"/> 1910.1013 beta-Propiolactone | <input type="checkbox"/> 1910.1014 2-Acetylaminofluorene | <input type="checkbox"/> 1910.1015 4-Dimethylaminoazobenzene | <input type="checkbox"/> 1910.1016 N-Nitrosodimethylamine |
| <input type="checkbox"/> 1910.1017 Vinyl chloride | <input type="checkbox"/> 1910.1018 Inorganic arsenic | <input checked="" type="checkbox"/> 1910.1025 Lead (Att. FLD# 46) | <input type="checkbox"/> 1910.1027 Cadmium |
| <input type="checkbox"/> 1910.1028 Benzene | <input type="checkbox"/> 1910.1029 Coke oven emissions | <input type="checkbox"/> 1910.1043 Cotton dust | <input type="checkbox"/> 1910.1044 1,2-Dibromo-3-chloropropane |
| <input type="checkbox"/> 1910.1045 Acrylonitrile | <input type="checkbox"/> 1910.1047 Ethylene oxide | <input type="checkbox"/> 1910.1048 Formaldehyde | <input type="checkbox"/> 1910.1050 Methylenedianiline |
| <input type="checkbox"/> 1910.1051 1,3 Butadiene | <input type="checkbox"/> 1910.1052 Methylene chloride | | |

HEALTH AND SAFETY EVALUATION

2.1.3 Biological Hazards of Concern

☒ **Poisonous Plants (FLD 43)**

Location/Task No(s) All

Source: ☐ Known ☒ Suspect

Route of Exposure: ☒ Inhalation ☐ Ingestion
☒ Contact ☐ Direct Penetration

Team Member(s) Allergic: ☐ Yes ☒ No

Immunization required: ☐ Yes ☐ No

☒ **Insects (FLD 43)**

Location/Task No(s) All

Source: ☐ Known ☐ Suspect

Route of Exposure: ☐ Inhalation ☐ Ingestion
☐ Contact ☒ Direct Penetration

Team Member(s) Allergic: ☐ Yes ☒ No

Immunization required: ☐ Yes ☐ No

☒ **Snakes, Reptiles (FLD 43)**

Location/Task No(s) All

Source: ☐ Known ☒ Suspect

Route of Exposure: ☐ Inhalation ☐ Ingestion
☐ Contact ☐ Direct Penetration

Team Member(s) Allergic: ☐ Yes ☒ No

Immunization required: ☐ Yes ☐ No

☒ **Animals (FLD 43)**

Location/Task No(s) All

Source: ☐ Known ☒ Suspect

Route of Exposure: ☐ Inhalation ☐ Ingestion
☐ Contact ☒ Direct Penetration

Team Member(s) Allergic: ☐ Yes ☒ No

Immunization required: ☐ Yes ☐ No

FLD 43 — WESTON Biohazard Field Operating Procedures: Att. OP ☐

☐ **Sewage**

Location/Task No(s):

Source: ☐ Known ☐ Suspect

Route of Exposure: ☐ Inhalation ☐ Ingestion
☐ Contact ☐ Direct Penetration

Team Member(s) Allergic: ☐ Yes ☐ No

Immunization required: ☐ Yes ☐ No

Tetanus Vaccination within Past 10 yrs: ☐ Yes ☐ No

☐ **Etiologic Agents (List)**

Location/Task No(s):

Source: ☐ Known ☐ Suspect

Route of Exposure: ☐ Inhalation ☐ Ingestion
☐ Contact ☐ Direct Penetration

Team Member(s) Allergic: ☐ Yes ☐ No

Immunization required: ☐ Yes ☐ No

FLD 44 — WESTON Bloodborne Pathogens Exposure Control Plan – First Aid Procedures: Att. OP ☐

FLD 45 — WESTON Bloodborne Pathogens Exposure Control Plan – Working with Infectious Waste: Att. OP ☐

HEALTH AND SAFETY EVALUATION								
2.1.4 Radiation Hazards of Concern								
NONIONIZING RADIATION								
Task No.	Type of Nonionizing Radiation	Source On-Site	TLV/PEL	Wavelength Range	Control Measures	Monitoring Instrument		
1,2,3	Ultraviolet	Solar			Appropriate clothing/sunscreen	None		
	Infrared	N/A						
	Radio Frequency	N/A						
	Microwave	N/A						
	Laser	N/A						
IONIZING RADIATION								
Task No.	Radionuclide	Major Radiations	Radioactive Half-Life (Years)	DAC ($\mu\text{Ci}/\text{mL}$)			Surface Contamination Limit	Monitoring Instrument
				D	W	Y		

HEALTH AND SAFETY EVALUATION

2.1.5 Physical Hazards of Concern

Physical Hazard Condition	Physical Hazard	Attach OP	WESTON OP Titles
Loud noise	Hearing loss/disruption of communication	<input checked="" type="checkbox"/>	Section 7.0 - ECH&S Program Manual Occupational Noise & HC Program
Inclement weather	Rain/humidity/cold/ice/snow/lightning	<input checked="" type="checkbox"/>	FLD02 - Inclement Weather
Steam heat stress	Burns/displaced oxygen/wet working surfaces	<input type="checkbox"/>	FLD03 - Hot Process - Steam
Heat stress	Burns/hot surfaces/low pressure steam	<input type="checkbox"/>	FLD04 - Hot Process - LT3
Ambient heat stress	Heat rash/cramps/exhaustion/heat stroke	<input type="checkbox"/>	FLD05 - Heat Stress Prevention/Monitoring
Cold stress	Hypothermia/frostbite	<input checked="" type="checkbox"/>	FLD06 - Cold Stress
Cold/wet	Trench/paddy/immersion foot/edema	<input checked="" type="checkbox"/>	FLD02 - Wet Feet
Confined spaces	Falls/burns/drowning/engulfment/electrocution	<input type="checkbox"/>	FLD08 - Confined Space Entry
Industrial Trucks	Fork Lift Truck Safety	<input type="checkbox"/>	FLD09 - Powered Industrial Trucks
Improper lifting	Back strain/abdomen/arm/leg muscle/joint injury	<input type="checkbox"/>	FLD10 - Manual Lifting/Handling Heavy Objects
Uneven surfaces	Vehicle accidents/slips/trips/falls	<input checked="" type="checkbox"/>	FLD11 - Rough Terrain
Poor housekeeping	Slips/trips/falls/punctures/cuts/fires	<input type="checkbox"/>	FLD12 - Housekeeping
Structural integrity	Crushing/overhead hazards/compromised floors	<input type="checkbox"/>	FLD13 - Structural Integrity
Improper cylinder. handling	Mechanical injury/fire/explosion/suffocation	<input type="checkbox"/>	FLD16 - Pressure Systems - Compressed Gases
Water hazards	Poor visibility/entanglement/drowning/cold stress	<input type="checkbox"/>	FLD17 - Diving
Water hazards	Drowning/heat/cold stress/hypothermia/falls	<input type="checkbox"/>	FLD18 - Operation and Use of Boats
Water hazards	Drowning/frostbite/hypothermia/falls/electrocution	<input checked="" type="checkbox"/>	FLD19 - Working Over Water
Vehicle hazards	Struck by vehicle/collision	<input type="checkbox"/>	FLD20 - Traffic
Explosions	Explosion/fire/thermal burns	<input type="checkbox"/>	FLD21 - Explosives
Moving mechanical parts	Crushing/pinch points/overhead hazards/electrocution	<input type="checkbox"/>	FLD22 - Earth Moving Equipment
Moving mech. parts	Overhead hazards/electrocution	<input type="checkbox"/>	FLD23 - Cranes, Rigging, and Slings
Working at elevation	Overhead hazards/falls/electrocution	<input type="checkbox"/>	FLD24 - Aerial Lifts/Man lifts
Working at elevation	Overhead hazards/falls/electrocution	<input type="checkbox"/>	FLD25 - Working at Elevation
Working at elevation	Overhead hazards/falls/electrocution/slips	<input type="checkbox"/>	FLD26 - Ladders
Working at elevation	Slips/trips/falls/overhead hazards	<input type="checkbox"/>	FLD27 - Scaffolding
Trench cave-in	Crushing/falling/overhead hazards/suffocation	<input checked="" type="checkbox"/>	FLD28 - Excavating/Trenching
Physiochemical	Explosions/fires from oxidizing, flam./corr. material	<input type="checkbox"/>	FLD30 - Hazardous Materials Use/Storage
Physiochemical	Fire and explosion	<input type="checkbox"/>	FLD31 - Fire Prevention/Response Plan Required
Physiochemical	Fire	<input type="checkbox"/>	FLD32 - Fire Extinguishers Required
Structural integrity	Overhead/electrocution/slips/trips/falls/fire	<input type="checkbox"/>	FLD33 - Demolition
Electrical	Electrocution/shock/thermal burns	<input checked="" type="checkbox"/>	FLD34 - Utilities
Electrical	Electrocution/shock/thermal burns	<input type="checkbox"/>	FLD35 - Electrical Safety
Burns/fires	Heat stress/fires/burns	<input type="checkbox"/>	FLD36 - Welding/Cutting/Brazing/Radiography
Impact/thermal	Thermal burns/high pressure impaction/heat stress	<input type="checkbox"/>	FLD37 - Pressure Washers/Sand Blasting
Impaction/electrical	Smashing body parts/pinching/cuts/electrocution	<input checked="" type="checkbox"/>	FLD38 - Hand and Power Tools
Poor visibility	Slips/trips/falls	<input checked="" type="checkbox"/>	FLD39 - Illumination
Fire/explosion	Burns/impaction	<input type="checkbox"/>	FLD40 - Storage Tank Removal/Decommissioning
Communications	Disruption of communications	<input type="checkbox"/>	FLD41 - Std. Hand/Emergency Signals
Energy/release	Unexpected release of energy	<input type="checkbox"/>	FLD42 - Lockout/Tag-out
Biological Hazards	Biological Hazards at site	<input type="checkbox"/>	FLD43 - Biological Hazards
Biological Hazards/BBP	Biological Hazards/BBP at site/First Aid Providers	<input checked="" type="checkbox"/>	FLD44 - Biological Hazards - Bloodborne Pathogens Exposure Control Plan - First Aid Providers
Infectious Waste	Infectious Waste at site/BBP/ at site/Infectious Waste	<input type="checkbox"/>	FLD45 - Biological Hazards - Bloodborne Pathogens Exposure Control Plan - Work With Infectious Waste
Lead Contaminated sites	Lead poisoning	<input checked="" type="checkbox"/>	FLD46 - Control of Exposure to Lead
Puncture/cuts	Cuts/ dismemberment/gouges	<input type="checkbox"/>	FLD47 - Clearing, Grubbing and Logging Operations

2.1.5 Physical Hazards of Concern (Continued)

Physical Hazard Condition	Physical Hazard	Attach OP	WESTON OP Titles
Not applicable	Not applicable	<input checked="" type="checkbox"/>	FLD48 – Federal, State, Local Regulatory Agency Inspections
Not applicable	Exposure to hazardous materials/waste	<input checked="" type="checkbox"/>	FLD49 – Safe Storage of Samples
Cadmium	Exposure Control	<input type="checkbox"/>	FLD50 – Cadmium Exposure Control Plan
Process Safety Procedure	Safety Procedure	<input type="checkbox"/>	FLD51 – Process Safety Procedure
Asbestos	Asbestos Exposure	<input checked="" type="checkbox"/>	FLD52 – Asbestos Exposure Control Plan
Hexavalent Chromium	Exposure Control Plan	<input type="checkbox"/>	FLD53 – Hexavalent Chromium Exposure Control Plan
Benzene	Exposure Control Plan	<input type="checkbox"/>	FLD54 - Benzene Exposure Control Plan
Hydrofluoric acid	Working with HF	<input type="checkbox"/>	FLD55 – Working with Hydrofluoric Acid
Moving drill rig parts	Crushing/pinch points/overhead hazards/electrocution	<input checked="" type="checkbox"/>	FLD56 – Drilling Safety
Vehicles/driving	Accidents,/fatigue/cell phone use	<input checked="" type="checkbox"/>	FLD 57 – Motor Vehicle Safety
Improper material handling	Back injury/crushing from load shifts/equipment/tools	<input type="checkbox"/>	FLD 58 – Drum Handling Operations
COC decontamination	COCs/slip,trip, and falls/waste generation/environmental compliance/PPE	<input checked="" type="checkbox"/>	FLD59 - Decontamination
Drilling hazards	Electrocution/overhead hazards/pinch points	<input type="checkbox"/>	Environmental Remediation Drilling Safety Guideline - 2005
Fatigue	Long work hours	<input type="checkbox"/>	FLD60 – Employee Duty Schedule
Benzene/Gasoline	Benzene exposure	<input type="checkbox"/>	FLD61 – Gasoline Contaminant Exposure

3. TASK BY TASK ASSESMENT

3.1 TASK-BY-TASK RISK ASSESSMENT

3.1.1 Task 1 Description

TASK 1: Non Invasive Site Assessment Activities– Personnel will perform field reconnaissance for containers and/or contaminated materials using screening tools, and document the potential presence and extent of contamination.

EQUIPMENT REQUIRED/USED

Log Book	Reflective Vest	Camera	First Aid Kit	Colorimetric Kits
Hard Hat	Flashlight	Safety Glasses	BBP Kit	XRF
Hearing Protection	Safety Boots	Rain Gear (as necessary)	FSO Manual	GPS
RAD meter	MultiRae	Lumex	Draeger Tubes	Mini RAM

POTENTIAL HAZARDS/RISKS

Chemical

☒ Hazard Present Risk Level: ☐ H ☐ M ☒ L

What justifies risk level?

There is low risk of chemical exposure to personnel because under this task personnel will not perform handling or sampling of materials, and refrain from contacting containers or contaminated materials/soils. Work will be limited to usage of screening tools and documentation/delineation of potential contaminants. A mini RAM will be used to monitor particulate/dust levels at the site, since many of the contaminants of concern can be found in the form of airborne particulate.

Physical

☒ Hazard Present Risk Level: ☐ H ☐ M ☒ L

What justifies risk level?

The main physical hazards to personnel are slips/trips/falls during reconnaissance and screening activities. Level D PPE will be worn and air will be monitored for explosive gas levels or oxygen depleted atmospheres. If instrument alarms are triggered, the team will withdraw from the affected area. Hard hats will be worn when conducting inspections near and inside site buildings and overhead structures. Unsound structures will not be entered. **If buildings are entered, be aware of any crystallized substances on floors – potentially explosive/shock sensitive materials – DO NOT STEP and EXIT BUILDING.** Personnel will not enter any confined spaces. Personnel will employ the buddy system and will not be onsite alone, work only during daylight hours, and not work in extreme inclement weather. A flashlight may be used during reconnaissance activities in wooded areas if deemed necessary.

Biological

☒ Hazard Present Risk Level: ☐ H ☐ M ☒ L

What justifies risk level?

Reptiles, insects, and plants may be found at the Site. Personnel will remain aware of potential risks and take precautions to avoid them. Stray animals may be present.

RADIOLOGICAL

☒ Hazard Present Risk Level: ☐ H ☐ M ☒ L

What justifies risk level?

The risk of UV radiation in the form of sunlight exists. Personnel will be aware of the risk and take precautions for overexposure.

LEVELS OF PROTECTION/JUSTIFICATION

Site personnel will perform work in this task in level D PPE. PPE should be worn to help avoid contact with potential biological hazards, to prevent exposure to sunlight and/or other related hazards, and to keep the worker clean. Level D has been selected due to chemical hazards found at site and scope of activities. If hazardous atmospheres are encountered, re-assess PPE. Upgrade to level C is necessary (with safety officer approval) if atmosphere contains chemical contaminants in excess of action levels, choosing appropriate air purifying cartridges for the contaminant. If atmosphere is oxygen deficient or nitroglycerin/nitrates/nitrites are detected at > 1 mg/m3, re-assess and upgrade to level B is necessary to continue work (with safety officer approval). If drums or containers are found, work must be reassessed with regard to health and safety prior to continuing work. SEE NOTE BELOW.

SAFETY PROCEDURES REQUIRED AND/OR FIELD OPS UTILIZED

All work will be performed in accordance with the provisions of this HASP, OSHA guidelines, and WESTON Standard Operating Procedures.

**** THIS HASP HAS NOT BEEN APPROVED FOR THE SAMPLING OF ANY DRUMS OR CONTAINERS OR FOR UPGRADES TO LEVEL C OR B., IF ACTION LEVELS ARE MET OR CONTAINERS ARE ENCOUNTERED, HEALTH AND SAFETY MUST BE NOTIFIED, THE SITUATION ASSESSED, AND AN AMENDMENT APPROVED TO CONTINUE WORK****

3.1 TASK-BY-TASK RISK ASSESSMENT

3.1.2 Task 2 Description

TASK 2: Site Assessment Sampling Activities

EQUIPMENT REQUIRED/USED

Log Book	Reflective Vest	Camera	First Aid Kit	Lumex
Hard Hat	Flashlight	Safety Glasses	BBP Kit	Draeger Tubes
Hearing Protection	Safety Boots	Rain Gear (as necessary)	FSO Manual	Colorimetric Kits
Sampling Containers	Sampling Equipment	Nitrile Gloves	MultiRae	GPS
RAD meter	XRF	Personal Flotation Device (PFD)	Mini RAM	

POTENTIAL HAZARDS/RISKS

Chemical

☒ Hazard Present Risk Level: ☐ H ☒ M ☐ L

What justifies risk level?

There is a risk of chemical exposure during site assessment activities where personnel may sample potentially contaminated soils/sediment/groundwater/surface water/building materials. To minimize exposure, personnel will assess the individual sampling activities based on site assessment screening levels to determine the proper PPE to be worn for the sampling activities. A mini RAM will be used to monitor particulate/dust levels at the site, since many of the contaminants of concern can be found in the form of airborne particulate.

Physical

☒ Hazard Present Risk Level: ☐ H ☒ M ☐ L

What justifies risk level?

The main physical risks are slips, trips, and falls during site assessment activities. Level D PPE will be worn and air will be monitored for explosive gas levels or oxygen depleted atmospheres. If instrument alarms are triggered, the team will withdraw from the affected area. If explosives or explosive material byproducts are encountered, personnel will withdraw from the affected area, and re-assess work and the necessity for PPE upgrades. Hard hats will be worn when conducting sampling near and inside site buildings and overhead structures. Personnel will use care when working around equipment (i.e. geoprobe) and vehicles, and wear hearing protection rated for exposure to such equipment. Personnel will not enter any confined spaces. Personnel will wear a PFD when working in or near water. Personnel will employ the buddy system and will not be onsite alone, work only during daylight hours, and not work in extreme inclement weather. There are no plans for excavation of buried drums/sampling of potentially explosive materials.

Biological

☒ Hazard Present Risk Level: ☐ H ☐ M ☒ L

What justifies risk level?

Reptiles, insects, and plants may be found at the Site. WESTON personnel will remain aware of potential risks and take precautions to avoid them. Stray animals may be present.

RADIOLOGICAL

☒ Hazard Present Risk Level: ☐ H ☐ M ☒ L

What justifies risk level?

The risk of UV radiation in the form of sunlight exists. WESTON personnel will be aware of the risk and take precautions for overexposure.

LEVELS OF PROTECTION/JUSTIFICATION

Site personnel will perform work in this task in level D PPE. PPE should be worn to help avoid contact with potential biological hazards, to prevent exposure to sunlight and/or other related hazards, and to keep the worker clean. Level D has been selected due to chemical hazards and the scope of activities. If hazardous atmospheres are encountered, re-assess PPE. Upgrade to level C is necessary (with safety officer approval) if atmosphere contains chemical contaminants in excess of action levels, choosing appropriate air purifying cartridges for the contaminant. If atmosphere is oxygen deficient or nitroglycerin/nitrates/nitrites are detected at > 1 mg/m3, re-assess and upgrade to level B is necessary to continue work (with safety officer approval). If drums or containers are found, work must be reassessed with regard to health and safety prior to continuing work. SEE NOTE BELOW.

SAFETY PROCEDURES REQUIRED AND/OR FIELD OPS UTILIZED

All work will be performed in accordance with the provisions of this HASP, OSHA guidelines, and WESTON Standard Operating Procedures.

**** THIS HASP HAS NOT BEEN APPROVED FOR THE SAMPLING OF ANY DRUMS OR CONTAINERS OR FOR UPGRADES TO LEVEL C OR B. IF ACTION LEVELS ARE MET OR CONTAINERS ARE ENCOUNTERED, HEALTH AND SAFETY MUST BE NOTIFIED, THE SITUATION ASSESSED, AND AN AMENDMENT APPROVED TO CONTINUE WORK****

3.1 TASK-BY-TASK RISK ASSESSMENT				
3.1.3 Task 3 Description				
TASK 3: Removal Oversight				
EQUIPMENT REQUIRED/USED				
Log Book	Reflective Vest	Camera	First Aid Kit	XRF
Hard Hat	Flashlight	Safety Glasses	BBP Kit	Mini RAM
Hearing Protection	Safety Boots	Rain Gear (as necessary)	FSO Manual	
POTENTIAL HAZARDS/RISKS				
Chemical				
<input checked="" type="checkbox"/> Hazard Present Risk Level: <input type="checkbox"/> H <input type="checkbox"/> M <input checked="" type="checkbox"/> L What justifies risk level? There is a low level of chemical risk during removal oversight activities because personnel will remain at a safe distance and perform field documentation only. If confirmation samples are required personnel will don the proper PPE.				
Physical				
<input checked="" type="checkbox"/> Hazard Present Risk Level: <input type="checkbox"/> H <input type="checkbox"/> M <input checked="" type="checkbox"/> L What justifies risk level? There is a low level of physical risk during removal activities since personnel will be conducting field documentation only. Personnel will remain at a safe distance from heavy equipment and wear proper PPE to remain visible to other workers.				
Biological				
<input checked="" type="checkbox"/> Hazard Present Risk Level: <input type="checkbox"/> H <input type="checkbox"/> M <input checked="" type="checkbox"/> L What justifies risk level? Reptiles, insects, and plants may be found at the Site. WESTON personnel will remain aware of potential risks and take precautions to avoid them. Stray animals may be present.				
RADIOLOGICAL				
<input type="checkbox"/> Hazard Present Risk Level: <input type="checkbox"/> H <input type="checkbox"/> M <input checked="" type="checkbox"/> L What justifies risk level? The risk of UV radiation in the form of sunlight exists. WESTON personnel will be aware of the risk and take precautions for overexposure.				
LEVELS OF PROTECTION/JUSTIFICATION				
Site personnel will perform work in this task in level D PPE. PPE should be worn to help avoid contact with potential biological hazards, to prevent exposure to sunlight and/or other related hazards, and to keep the worker clean. Level D has been selected due to previous chemical hazards found at site and WESTON scope of activities. ***If the scope of work changes, the HASP will be revisited and amended to reflect anticipated work activities, or a new HASP will be written for a new TDD.***				
SAFETY PROCEDURES REQUIRED AND/OR FIELD OPS UTILIZED				
All work will be performed in accordance with the provisions of this HASP, OSHA guidelines, and WESTON Standard Operating Procedures.				

3.1 TASK-BY-TASK RISK ASSESSMENT	
3.1.4 Task 4 Description	
TASK __:	
EQUIPMENT REQUIRED/USED	
POTENTIAL HAZARDS/RISKS	
Chemical	
<input type="checkbox"/> Hazard Present What justifies risk level?	Risk Level: <input type="checkbox"/> H <input type="checkbox"/> M <input type="checkbox"/> L
Physical	
<input type="checkbox"/> Hazard Present What justifies risk level?	Risk Level: <input type="checkbox"/> H <input type="checkbox"/> M <input type="checkbox"/> L
Biological	
<input type="checkbox"/> Hazard Present What justifies risk level?	Risk Level: <input type="checkbox"/> H <input type="checkbox"/> M <input type="checkbox"/> L
RADIOLOGICAL	
<input type="checkbox"/> Hazard Present What justifies risk level?	Risk Level: <input type="checkbox"/> H <input type="checkbox"/> M <input type="checkbox"/> L
LEVELS OF PROTECTION/JUSTIFICATION	
SAFETY PROCEDURES REQUIRED AND/OR FIELD OPS UTILIZED	
All work will be performed in accordance with the provisions of this HASP, OSHA guidelines, and WESTON Standard Operating Procedures.	

3.2 PERSONNEL PROTECTION PLAN

Engineering Controls

Describe Engineering Controls used as part of Personnel Protection Plan:

Task(s)

All Wetting dust/suppression of dust will be performed to protect the worker from airborne contaminants.

Administrative Controls

Describe Administrative Controls used as part of Personnel Protection Plan:

Task(s)

All Personnel will attend daily safety briefings prior to the start of work.

Personal Protective Equipment

Action Levels for Changing Levels of Protection. Refer to HASP Form 13, Site Air Monitoring Program—Action Levels. Define Action Levels for up or down grade for each task:

Task(s)

All Appropriate PPE will be worn at all times.

Description of Levels of Protection

Level D	Level D Modified
<p>Task(s): ALL</p> <p><input checked="" type="checkbox"/> Head Hard Hat during excavation activities or when near ruined buildings</p> <p><input checked="" type="checkbox"/> Eye and Face Safety glasses during sampling activities</p> <p><input checked="" type="checkbox"/> Hearing Ear plugs during excavation/drilling activities</p> <p><input type="checkbox"/> Arms and Legs Only</p> <p><input checked="" type="checkbox"/> Appropriate Work Uniform</p> <p><input type="checkbox"/> Hand – Gloves</p> <p><input checked="" type="checkbox"/> Foot - Safety Boots</p> <p><input type="checkbox"/> Fall Protection</p> <p><input checked="" type="checkbox"/> Flotation When in/near water</p> <p><input type="checkbox"/> Other</p>	<p>Task(s):</p> <p><input type="checkbox"/> Head</p> <p><input type="checkbox"/> Eye and Face</p> <p><input type="checkbox"/> Hearing</p> <p><input type="checkbox"/> Arms and Legs Only</p> <p><input type="checkbox"/> Whole Body</p> <p><input type="checkbox"/> Apron</p> <p><input type="checkbox"/> Hand - Gloves</p> <p><input type="checkbox"/> Gloves</p> <p><input type="checkbox"/> Gloves</p> <p><input type="checkbox"/> Foot - Safety Boots</p>

☐ Over Boots

3.3 DESCRIPTION OF LEVELS OF PROTECTION

Level C	Level B
Task(s): 2 – if upgrade is necessary <input checked="" type="checkbox"/> Head For work near/in buildings <input checked="" type="checkbox"/> Eye and Face <input type="checkbox"/> Hearing <input type="checkbox"/> Arms and Legs Only <input checked="" type="checkbox"/> Whole Body <input type="checkbox"/> Apron <input checked="" type="checkbox"/> Hand – Gloves <input type="checkbox"/> Gloves <input type="checkbox"/> Gloves <input checked="" type="checkbox"/> Foot - Safety Boots <input checked="" type="checkbox"/> Outer Boots <input type="checkbox"/> Boots (Other) <input type="checkbox"/> Half Face <input type="checkbox"/> Cart./Canister <input checked="" type="checkbox"/> Full Face <input checked="" type="checkbox"/> Cart./Canister Will depend on Chemical of Concern <input type="checkbox"/> PAPR <input type="checkbox"/> Cart./Canister <input type="checkbox"/> Type C <input type="checkbox"/> Fall Protection <input type="checkbox"/> Flotation <input type="checkbox"/> Other	Task(s): 2 – if upgrade is necessary <input checked="" type="checkbox"/> Head For work near/in buildings <input checked="" type="checkbox"/> Eye and Face <input type="checkbox"/> Hearing <input type="checkbox"/> Arms and Legs Only <input checked="" type="checkbox"/> Whole Body <input type="checkbox"/> Apron <input checked="" type="checkbox"/> Hand - Gloves <input type="checkbox"/> Gloves <input type="checkbox"/> Gloves <input checked="" type="checkbox"/> Foot - Safety Boots <input checked="" type="checkbox"/> Outer Boots <input type="checkbox"/> Boots (Other) <input type="checkbox"/> SAR - Airline <input checked="" type="checkbox"/> SCBA <input type="checkbox"/> Comb. Airline/SCBA <input type="checkbox"/> Cascade System <input type="checkbox"/> Compressor <input type="checkbox"/> Fall Protection <input type="checkbox"/> Flotation <input type="checkbox"/> Other

4. MONITORING PROGRAM

4.1 SITE OR PROJECT HAZARD MONITORING PROGRAM

4.1.1 Air Monitoring Instruments

Instrument Selection and Initial Check Record

Reporting Format: ☒ Field Notebook ☐ Field Data Sheets* ☐ Air Monitoring Log ☐ Trip Report ☐ Other

Instrument	Task No.(s)	Number Required	Number Received	Checked Upon Receipt	Comment	Initials
<input type="checkbox"/> CGI				<input type="checkbox"/>		
<input type="checkbox"/> O ₂				<input type="checkbox"/>		
<input type="checkbox"/> CGI/O ₂				<input type="checkbox"/>		
<input type="checkbox"/> CGI/O ₂ /tox-PPM, H ₂ S, H ₂ S/CO (MultiRae)				<input type="checkbox"/>		
<input checked="" type="checkbox"/> RAD	All			<input type="checkbox"/>		
<input type="checkbox"/> GM (Pancake)				<input type="checkbox"/>		
<input type="checkbox"/> NaI (Micro R)				<input type="checkbox"/>		
<input type="checkbox"/> ZnS (Alpha Scintillator)				<input type="checkbox"/>		
<input type="checkbox"/> Other _____				<input type="checkbox"/>		
<input checked="" type="checkbox"/> PID				<input type="checkbox"/>		
<input type="checkbox"/> HNu 10.2				<input type="checkbox"/>		
<input type="checkbox"/> HNu 11.7				<input type="checkbox"/>		
<input type="checkbox"/> Photovac, TMA				<input type="checkbox"/>		
<input type="checkbox"/> OVM				<input type="checkbox"/>		
<input checked="" type="checkbox"/> Other <u>MultiRAE</u>	All			<input type="checkbox"/>		
<input type="checkbox"/> FID				<input type="checkbox"/>		
<input type="checkbox"/> Fox 128				<input type="checkbox"/>		
<input type="checkbox"/> Heath, AID, Other				<input type="checkbox"/>		
<input checked="" type="checkbox"/> RAM, Mini-RAM, Other _____	All			<input type="checkbox"/>		
<input type="checkbox"/> Monitox				<input type="checkbox"/>		
Specify: _____				<input type="checkbox"/>		
<input type="checkbox"/> Personal Sampling				<input type="checkbox"/>		
Specify: _____				<input type="checkbox"/>		
<input type="checkbox"/> Bio-Aerosol Monitor				<input type="checkbox"/>		
<input type="checkbox"/> Pump - MSA, Dräger, Sensidyne				<input type="checkbox"/>		
<input checked="" type="checkbox"/> Tubes/type: <u>Draeger</u>	All			<input type="checkbox"/>		
<input checked="" type="checkbox"/> Tubes/type: <u>Colorimetric – Nitrate/Nitrite</u>	All			<input type="checkbox"/>		

<input checked="" type="checkbox"/> Other <u>Lumex</u>	All			<input type="checkbox"/>		
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4.1 SITE OR PROJECT HAZARD MONITORING PROGRAM

4.1.2 Air Monitoring Instruments Calibration Record

[illegible]

4.2 SITE AIR MONITORING PROGRAM				
Action Levels				
These Action Levels, if not defined by regulation, are some percent (usually 50%) of the applicable PEL/TLV/REL. That number must also be adjusted to account for instrument response factors.				
	Tasks	Action Level		Action
☒ Explosive atmosphere	All	Ambient Air Concentration	Confined Space Concentration	
		<10% LEL	0 to 1% LEL	Work may continue. Consider toxicity potential.
		10 to 25% LEL	1 to 10% LEL	Work may continue. Increase monitoring frequency.
		>25% LEL	>10% LEL	Work must stop. Ventilate area before returning.
☒ Oxygen	All	Ambient Air Concentration	Confined Space Concentration	
		<19.5% O ₂	<19.5% O ₂	Leave area. Re-enter only with self-contained breathing apparatus.
		19.5% to 25% O ₂	19.5% to 23.5% O ₂	Work may continue. Investigate changes from 21%.
		>25% O ₂	>23.5% O ₂	Work must stop. Ventilate area before returning.
☒ Radiation	All	< 3 times background 3 times background to < 1 mR/hour		Continue work. Radiation above background levels (normally 0.01-0.02 mR/hr) signifies possible radiation source(s) present. Continue investigation with caution. Perform thorough monitoring. Consult with a Health Physicist.
		> 1 mrem/hour		Potential radiation hazard. Evacuate site. Continue investigation only upon the advice of Health Physicist.
☒ Organic gases and vapors	All	>550 units		Stop work
		Any reading on the PID, rule out Benzene using benzene protocol		Follow benzene protocol

<input checked="" type="checkbox"/> Inorganic gases, vapors, and particulates	All	<p>> 0.010 mg/m³ detected with mini RAM or visible dust</p> <p>For Mercury Screening: >25,000 ng/M³</p>	<p>If reading is a result of dust, apply dust suppression or don a respirator with particulate filtering cartridges. If organic vapors or mercury vapors are also present at action levels, and work must continue, upgrade to level B.</p> <p>Level C upgrade, wear Mersorb cartridges. See attached PPE guidance.</p>
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4.3 ACTION LEVELS

(Attach action level calculations)

The organic vapor action level was calculated using Acetone, OSHA PEL = 1000 ppm. Acetone is a component of products previously manufactured at the Site.

Acetone (calculated using a 10.6 V lamp)
Exposure limit 1000 ppm, Weston safety factor of 2 yields 500 ppm
 $500 \text{ ppm} \times \text{CF of } 1.1 = 550 \text{ ppm}$ detection for Acetone

Benzene
Follow Benzene Protocol (0.5 ppm)

5. HOSPITAL INFORMATION

5.1 CONTINGENCIES

5.1.1 Emergency Contacts and Phone Numbers

Agency	Contact	Phone Number
WorkCare WESTON Medical Director WorkCare WESTON Program Administrator	Dr. Peter Greaney Michelle Bui	From 6 am to 4:30 pm Pacific Time call 800-455-6155 dial 0 or extension 175, Michelle Bui to request the on-call clinician.
After-Business Hours Contact (In Case of Emergency Only)		4:31 p.m. – 5:59 a.m. Pacific Time, all day Saturday, Sunday and Holidays call 800-455-6155 Dial 3 to reach the after-hours answering service. Request that the service connect you with the on-call clinician or the on-call clinician will return your call within 30 minutes.
WESTON Corporate Environmental Health & Safety Director	Owen B. Douglass, Jr.	610.701.3065 610.506.5392 (cell)
WESTON Medical Programs Manager	Carol Tarka	760.603.9910
WESTON Health & Safety Division Safety	Ted Deecke	847-337-4147
WESTON Health & Safety Local Safety Officer	Linda Korobka	517-381-5936
Fire Department	911	
Police Department	911	
WESTON FSO Cell Phone	Jeff Binkley	906-362-9474
WESTON PM Cell Phone	Jeff Binkley	906-362-9474
Client Site Phone	Ralph Dolhopf	
Site Telephone	Jeff Binkley	906-362-9474
Nearest Telephone	Jeff Binkley	906-362-9474

Local Medical Emergency Facility(s)

Name of Hospital: **Portage Health – Hancock Campus**

Address: **500 Campus Drive, Hancock, MI**

Phone No.: **906-483-1000**

Name of Contact: Emergency

Phone No.: 911

Type of Service:

- ☐ Physical trauma only
☐ Chemical exposure only
☒ Physical trauma and chemical exposure
☒ Available 24 hours

Route to Hospital:
(See Attached)

Travel time from site:

34 minutes

Distance to hospital:

12 miles

Name/no. of 24-hr ambulance service: 911

Secondary or Specialty Service Provider

Name of Hospital:

Address:

Phone No.:

Name of Contact:

Phone No.:

Type of Service:

- ☐ Physical trauma only
☐ Chemical exposure only
☐ Physical trauma and chemical exposure
☐ Available 24 hours

Route to Hospital (see attached):

Travel time from site:

Distance to hospital:

Name/no. of 24-hr ambulance service:
/

See reporting an incident in Attachment F.

5.1.2 Hospital Map

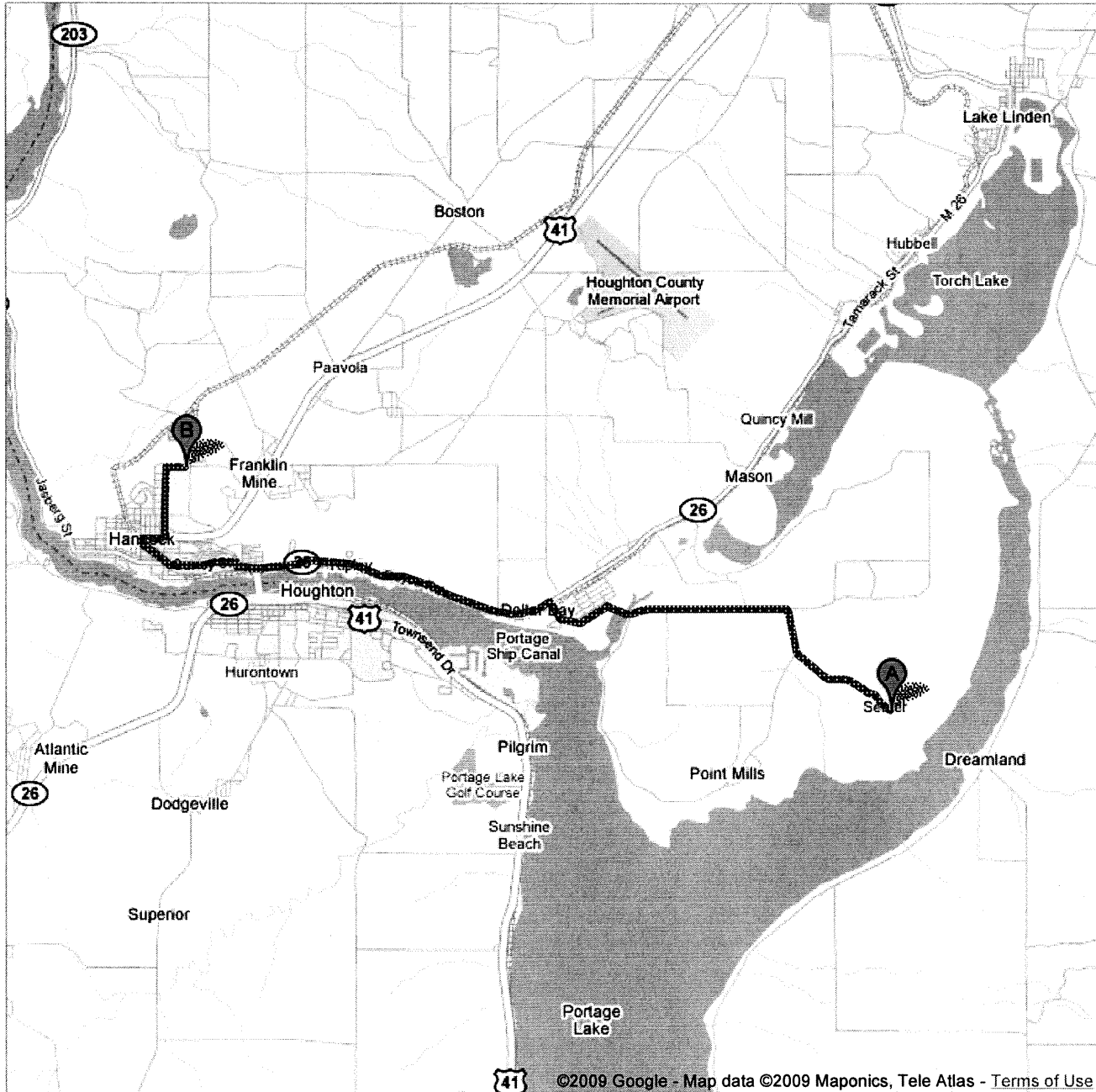
(Attach hospital map and directions)



**Directions to 500 Campus Dr,
Hancock, MI 49930**
10.0 mi – about 27 mins

Save trees. Go green!

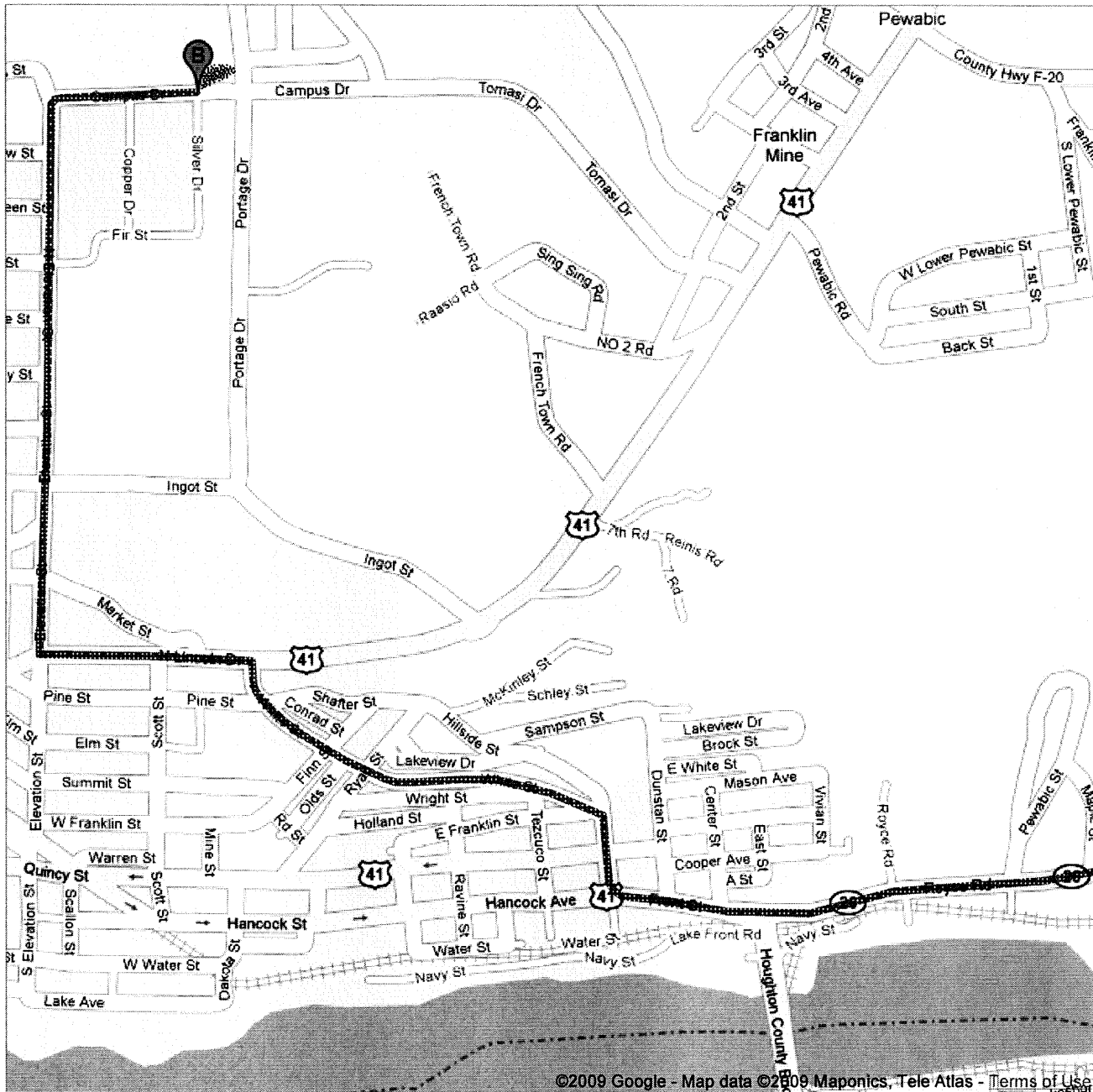
Download Google Maps on your
phone at google.com/gmm



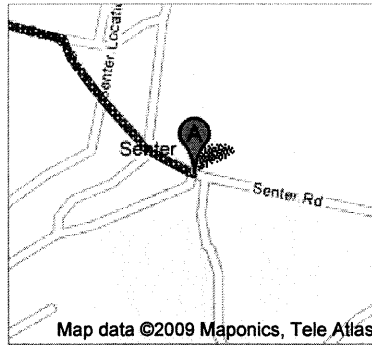


Directions to 500 Campus Dr, Hancock, MI 49930 12.1 mi – about 34 mins

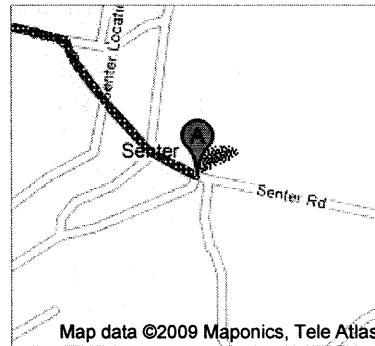
Save trees. Go green!
Download Google Maps on your
phone at google.com/gmm



©2009 Google - Map data ©2009 Maponics, Tele Atlas - Terms of Use



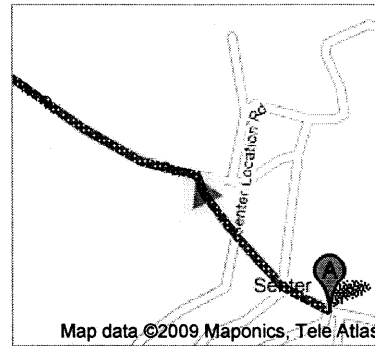
1. Head **northwest** on **Senter Rd** toward **Senter Location Rd**
About 1 min



go 0.2 mi
total 0.2 mi



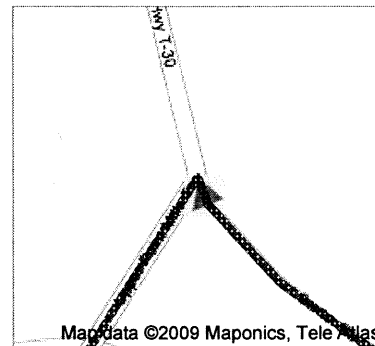
2. Turn **left** to stay on **Senter Rd**
About 3 mins



go 1.0 mi
total 1.2 mi

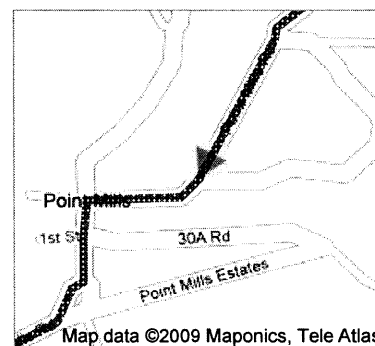


3. Turn **left** at **Upper Point Mills Rd**
About 4 mins



go 1.4 mi
total 2.6 mi

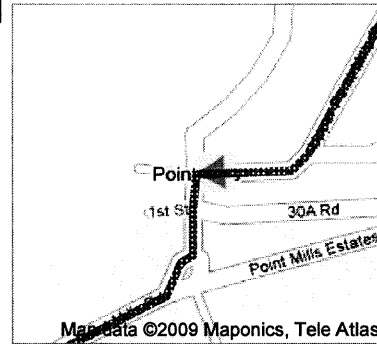
4. Continue on **Lower Point Mills Rd**



go 0.1 mi
total 2.8 mi



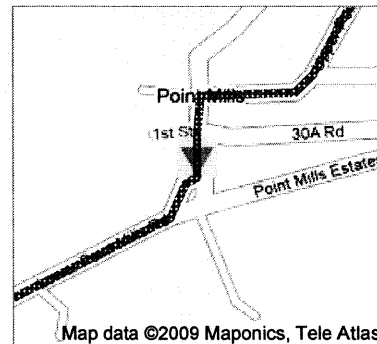
5. Turn **left** at **Center St/Lower Point Mills Rd**



go 0.1 mi
total 2.9 mi



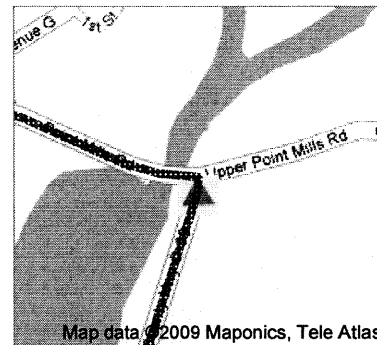
6. Turn **right** at **Lower Point Mills Rd**
About 8 mins



go 3.0 mi
total 5.9 mi

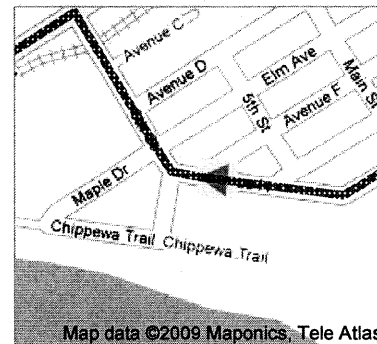


7. Turn **left** at **Avenue H/Point Mills Rd**
Continue to follow Avenue H
About 2 mins



go 0.8 mi
total 6.7 mi

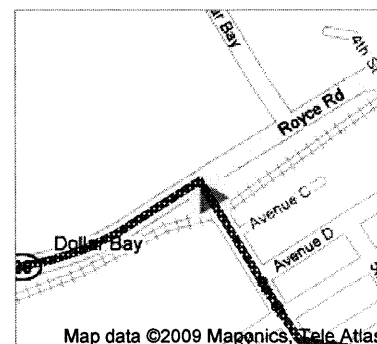
8. Continue on **6th St**
About 1 min



go 0.3 mi
total 6.9 mi



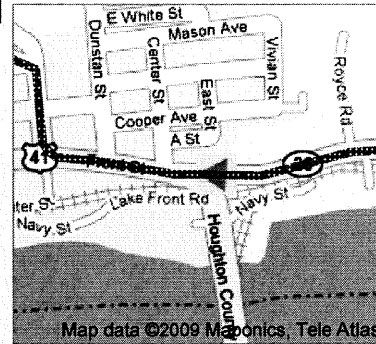
9. Turn **left** at **MI-26/MI-M26/Royce Rd**
Continue to follow MI-26
About 7 mins



go 3.2 mi
total 10.1 mi

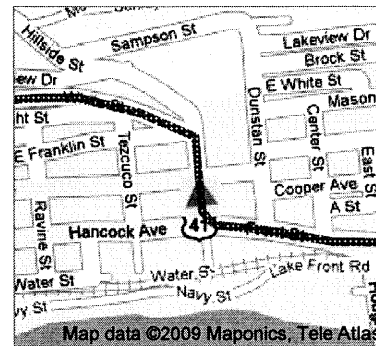


10. Continue straight onto **Front St/MI-26/US-41**
Continue to follow US-41
About 1 min



go 0.2 mi
total 10.4 mi

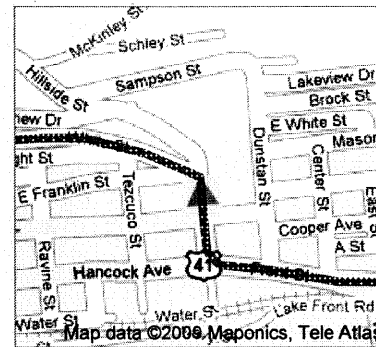
11. Continue on **Reservation St**
About 1 min



go 253 ft
total 10.4 mi



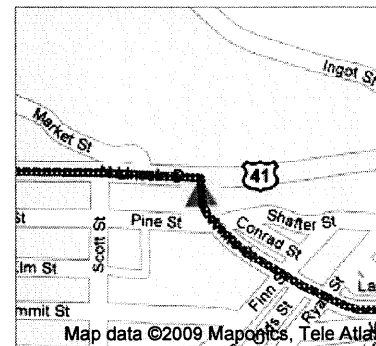
12. Slight **left** at **White St**
About 2 mins



go 0.5 mi
total 10.9 mi



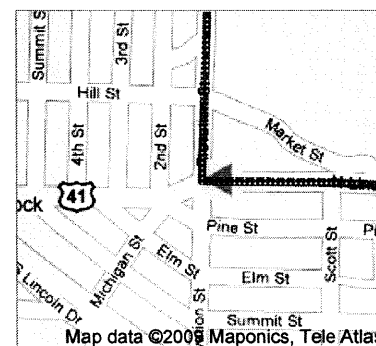
13. Turn **left** at **N Lincoln Dr/US-41**
About 2 mins



go 0.3 mi
total 11.2 mi

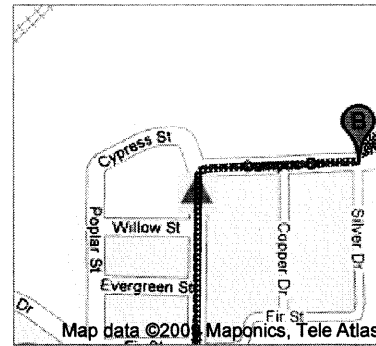


14. Turn **right** at **Elevation St**
About 3 mins



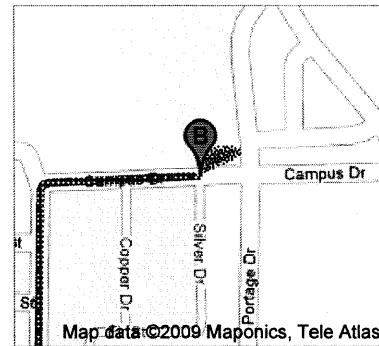
go 0.7 mi
total 11.9 mi

- 15. Turn **right** at **Campus Dr**
Destination will be on the left



go 0.2 mi
total 12.1 mi

📍 500 Campus Dr, Hancock, MI 49930



These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

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These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

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5.1 CONTINGENCIES

5.1.3 Response Plans

Medical - General Provide first aid, if trained; assess and determine need for further medical assistance. Transport or arrange for transport after appropriate decontamination.		First Aid Kit: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Blood Borne Pathogens Kit: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Type Standard 20-man and infection control kit	Location In Vehicle	Special First-Aid Procedures: Cyanides on-site <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, contact LMF. Do they have antidote kit? <input type="checkbox"/> Yes <input type="checkbox"/> No
		Eyewash required <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Type	Location	HF on-site <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, need neutralizing ointment for first-aid kit. Contact LMF.
		Shower required <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Type	Location	
Plan for Response to Spill/Release		Plan for Response to Fire/Explosion		Fire Extinguishers	
In the event of a spill or release, ensure safety, assess situation, and perform containment and control measures, as appropriate.	a. Cleanup per MSDSs if small; or sound alarm, call for assistance, notify Emergency Coordinator b. Evacuate to pre-determined safe place c. Account for personnel d. Determine if team can respond safely e. Mobilize per Site Spill Response Plan	In the event of a fire or explosion, ensure personal safety, assess situation, and perform containment and control measures, as appropriate:	a. Sound alarm and call for assistance, notify Emergency Coordinator b. Evacuate to predetermined safe place c. Account for personnel d. Use fire extinguisher <u>only if safe and trained</u> in its use e. Stand by to inform emergency responders of materials and conditions	Type/Location <u>ABC/Vehicle</u> / / / / / /	
Description of Spill Response Gear _____ _____ _____	Location _____ _____ _____	Description (Other Fire Response Equipment) _____ _____ _____		Location _____ _____ _____	
Plan to Respond to Security Problems					

6. DECONTAMINATION PLAN

6.1 GENERAL DECONTAMINATION PLAN

Personnel Decontamination

Consistent with the levels of protection required, step-by-step procedures for personnel decontamination for each level of protection are attached.

Levels of Protection Required for Decontamination Personnel

The levels of protection required for personnel assisting with decontamination will be:

☐

Level B

☐

Level C

☒

Level D

Modifications include:

Disposition of Decontamination Wastes

Provide a description of waste disposition including identification of storage area, hauler, and final disposal site, if applicable

Decontamination wastes will be properly containerized, stored, and disposed at the end of the site assessment.

Equipment Decontamination

A procedure for decontamination steps required for non-sampling equipment and heavy machinery follows:

Non sampling equipment that requires decontamination will be wiped down. Any disposable sampling equipment will be disposed in regular trash.

Sampling Equipment Decontamination

Sampling equipment will be decontaminated in accordance with the following procedure:

Non disposable sampling equipment will be washed with an Alconox solution.

6.2 LEVEL D DECONTAMINATION PLAN

Check indicated functions or add steps, as necessary:

Function	Description of Process, Solution, and Container
<input checked="" type="checkbox"/> Segregated equipment drop	If any personal equipment is contaminated
<input type="checkbox"/> Boot cover and glove wash	
<input type="checkbox"/> Boot cover and glove rinse	
<input type="checkbox"/> Tape removal - outer glove and boot	
<input checked="" type="checkbox"/> Boot cover removal	
<input checked="" type="checkbox"/> Outer glove removal	
HOTLINE	
<input type="checkbox"/> Suit/safety boot wash	
<input type="checkbox"/> Suit/boot/glove rinse	
<input type="checkbox"/> Safety boot removal	
<input type="checkbox"/> Suit removal	
<input type="checkbox"/> Inner glove wash	
<input type="checkbox"/> Inner glove rinse	
<input type="checkbox"/> Inner glove removal	
<input type="checkbox"/> Inner clothing removal	
CONTAMINATION REDUCTION ZONE (CRZ)/SAFE ZONE BOUNDARY	
<input type="checkbox"/> Field wash	
<input type="checkbox"/> Redress	
Disposal Plan, End of Day: Any personal equipment decontamination materials will be bagged and disposed. All disposable PPE will be bagged and disposed.	
Disposal Plan, End of Week: Any personal equipment decontamination materials will be bagged and disposed. All disposable PPE will be bagged and disposed.	
Disposal Plan, End of Project: Any personal equipment decontamination materials will be bagged and disposed. All disposable PPE will be bagged and disposed.	

HOTLINE

CONTAMINATION REDUCTION ZONE (CRZ)/SAFE ZONE BOUNDARY

Disposal Plan, End of Day:

Any personal equipment decontamination materials will be bagged and disposed. All disposable PPE will be bagged and disposed.

Disposal Plan, End of Week:

Any personal equipment decontamination materials will be bagged and disposed. All disposable PPE will be bagged and disposed.

Disposal Plan, End of Project:

Any personal equipment decontamination materials will be bagged and disposed. All disposable PPE will be bagged and disposed.

6.3 LEVEL C DECONTAMINATION PLAN

****THIS HASP IS NOT APPROVED FOR THE USE OF LEVEL C, CONTACT THE SAFETY OFFICER IF ACTION LEVELS ARE MET****

Check indicated functions or add steps, as necessary:

Function	Description of Process, Solution, and Container
<input checked="" type="checkbox"/> Segregated equipment drop	
<input type="checkbox"/> Boot cover and glove wash	
<input type="checkbox"/> Boot cover and glove rinse	
<input checked="" type="checkbox"/> Tape removal - outer glove and boot	
<input checked="" type="checkbox"/> Boot cover removal	
<input checked="" type="checkbox"/> Outer glove removal	
HOTLINE	
<input type="checkbox"/> Suit/safety boot wash	
<input type="checkbox"/> Suit/boot/glove rinse	
<input type="checkbox"/> Safety boot removal	
<input checked="" type="checkbox"/> Suit removal	
<input type="checkbox"/> Inner glove wash	
<input type="checkbox"/> Inner glove rinse	
<input checked="" type="checkbox"/> Facepiece removal	
<input checked="" type="checkbox"/> Inner glove removal	
<input type="checkbox"/> Inner clothing removal	
CONTAMINATION REDUCTION ZONE (CRZ)/SAFE ZONE BOUNDARY	
<input type="checkbox"/> Field wash	
<input type="checkbox"/> Redress	
Disposal Plan, End of Day: Any personal equipment decontamination materials will be bagged and disposed. All disposable PPE will be bagged and disposed.	
Disposal Plan, End of Week: Any personal equipment decontamination materials will be bagged and disposed. All disposable PPE will be bagged and disposed.	
Disposal Plan, End of Project: Any personal equipment decontamination materials will be bagged and disposed. All disposable PPE will be bagged and disposed.	

6.4 LEVEL B DECONTAMINATION PLAN

**** THIS HASP IS NOT APPROVED FOR THE USE OF LEVEL B, CONTACT THE SAFETY OFFICER IF ACTION LEVELS ARE MET****

Check indicated functions or add steps, as necessary:

Function	Description of Process, Solution, and Container
<input checked="" type="checkbox"/> Segregated equipment drop	
<input type="checkbox"/> Boot cover and glove wash	
<input type="checkbox"/> Boot cover and glove rinse	
<input checked="" type="checkbox"/> Tape removal - outer glove and boot	
<input checked="" type="checkbox"/> Boot cover removal	
<input checked="" type="checkbox"/> Outer glove removal	

HOTLINE

<input type="checkbox"/> Suit/safety boot wash
<input type="checkbox"/> Suit/SCBA/boot/glove rinse
<input type="checkbox"/> Safety boot removal
<input checked="" type="checkbox"/> Remove SCBA backpack without disconnecting
<input checked="" type="checkbox"/> Splash suit removal
<input type="checkbox"/> Inner glove wash
<input type="checkbox"/> Inner glove rinse
<input checked="" type="checkbox"/> SCBA disconnect and facepiece removal
<input checked="" type="checkbox"/> Inner glove removal
<input type="checkbox"/> Inner clothing removal

CONTAMINATION REDUCTION ZONE (CRZ)/SAFE ZONE BOUNDARY

<input type="checkbox"/> Field wash
<input type="checkbox"/> Redress

Disposal Plan, End of Day:

Any personal equipment decontamination materials will be bagged and disposed. All disposable PPE will be bagged and disposed.

Disposal Plan, End of Week:

Any personal equipment decontamination materials will be bagged and disposed. All disposable PPE will be bagged and disposed.

Disposal Plan, End of Project:

Any personal equipment decontamination materials will be bagged and disposed. All disposable PPE will be bagged and disposed.

7. TRAINING AND BRIEFING TOPICS/SIGN OFF SHEET

7.1 TRAINING AND BRIEFING TOPICS

The following items will be covered at the site-specific training meeting, daily or periodically.

<input checked="" type="checkbox"/> Site characterization and analysis, Sec. 3.0, 29 CFR 1910.120 (l)	<input type="checkbox"/> Level A
<input checked="" type="checkbox"/> Physical hazards, HASP Form 07	<input checked="" type="checkbox"/> Level B
<input checked="" type="checkbox"/> Chemical hazards, HASP Form 04	<input checked="" type="checkbox"/> Level C
<input checked="" type="checkbox"/> Animal bites, stings, and poisonous plants	<input checked="" type="checkbox"/> Level D
<input type="checkbox"/> Etiologic (infectious) agents	<input type="checkbox"/> Monitoring, 29 CFR 1910.120 (h)
<input checked="" type="checkbox"/> Site control, 29 CFR 1910.120 (d)	<input checked="" type="checkbox"/> Decontamination, 29 CFR 1910.120 (k)
<input checked="" type="checkbox"/> Engineering controls and work practices, 29 CFR 1910.120 (g)	<input type="checkbox"/> Emergency response, 29 CFR 1910.120 (l)
<input checked="" type="checkbox"/> Heavy machinery	<input type="checkbox"/> Elements of an emergency response, 29 CFR 1910.120 (l)
<input type="checkbox"/> Forklift	<input checked="" type="checkbox"/> Procedures for handling site emergency incidents, 29 CFR 1910.120 (l)
<input type="checkbox"/> Backhoe	<input type="checkbox"/> Off-site emergency response, 29 CFR 1910.120 (l)
<input checked="" type="checkbox"/> Equipment	<input checked="" type="checkbox"/> Handling drums and containers, 29 CFR 1910.120 (j)
<input checked="" type="checkbox"/> Tools	<input checked="" type="checkbox"/> Opening drums and containers
<input type="checkbox"/> Ladder, 29 CFR 1910.27 (d)/29 CFR 1926	<input type="checkbox"/> Electrical material handling equipment
<input type="checkbox"/> Overhead and underground utilities	<input type="checkbox"/> Radioactive waste
<input type="checkbox"/> Scaffolds	<input type="checkbox"/> Shock-sensitive waste
<input type="checkbox"/> Structural integrity	<input type="checkbox"/> Laboratory waste packs
<input type="checkbox"/> Unguarded openings - wall, floor, ceilings	<input checked="" type="checkbox"/> Sampling drums and containers
<input type="checkbox"/> Pressurized air cylinders	<input checked="" type="checkbox"/> Shipping and transport, 49 CFR 172.101, IATA
<input checked="" type="checkbox"/> Personal protective equipment, 29 CFR 1910.120 (g); 29 CFR 1910.134	<input type="checkbox"/> Tank and vault procedures
<input checked="" type="checkbox"/> Respiratory protection, 29 CFR 1910.120 (g); ANSI Z88.2	<input checked="" type="checkbox"/> Illumination, 29 CFR 1910.120 (m)
<input checked="" type="checkbox"/> Working over water FLD-19	<input type="checkbox"/> Sanitation, 29 CFR 1910.120 (n)
<input type="checkbox"/> Boating safety FLD-18	<input type="checkbox"/>
<input checked="" type="checkbox"/> Heat Stress	<input type="checkbox"/>
<input checked="" type="checkbox"/> Proper lifting techniques	<input type="checkbox"/>

7.2 HEALTH AND SAFETY PLAN APPROVAL/SIGNOFF FORM

Site Name: U.S. EPA Atlas Powder

WO#: 20405.012.001.0567.00

Address: Senter, MI

I understand, agree to, and will conform with the information set forth in this Health and Safety Plan (and attachments) and discussed in the personnel health and safety briefing(s).

Name

Signature

Date[illegible]

ATTACHMENT A
CHEMICAL CONTAMINANTS DATA SHEETS



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[CDC Health Topics A-Z](#)

[Search NIOSH](#)

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[NIOSH Topics](#)

[Site Index](#)

[Databases and Information Resources](#)

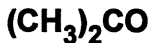
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NIOSH Pocket Guide to Chemical Hazards

[NPG Home](#) | [Introduction](#) | [Synonyms & Trade Names](#) | [Chemical Names](#) | [CAS Numbers](#) | [RTECS Numbers](#) | [Appendices](#) | [Se](#)

Acetone

CAS 67-64-1



RTECS AL315

Synonyms & Trade Names

Dimethyl ketone, Ketone propane, 2-Propanone

DOT ID & Gui
1090 127

Exposure Limits

NIOSH REL: TWA 250 ppm (590 mg/m³)

OSHA PEL†: TWA 1000 ppm (2400 mg/m³)

IDLH 2500 ppm [10%LEL] See: 67641

Conversion 1 ppm = 2.38 mg/m³

Physical Description

Colorless liquid with a fragrant, mint-like odor.

MW: 58.1

BP: 133°F

FRZ: -140°F

Sol: Miscible

VP: 180 mmHg

IP: 9.69 eV

Sp.Gr: 0.79

Fl.P: 0°F

UEL: 12.8%

LEL: 2.5%

Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F.

Incompatibilities & Reactivities

Oxidizers, acids

Measurement Methods

NIOSH 1300, 2555, 3800; OSHA 69

See: [NMAM](#) or [OSHA Methods](#)

Personal Protection & Sanitation (See protection codes)

Skin: Prevent skin contact

Eyes: Prevent eye contact

Wash skin: When contaminated

Remove: When wet (flammable)

Change: No recommendation

First Aid (See procedures)

Eye: Irrigate immediately

Skin: Soap wash immediately

Breathing: Respiratory support

Swallow: Medical attention immediately

Respirator Recommendations NIOSH

Up to 2500 ppm:

(APF = 10) Any chemical cartridge respirator with organic vapor cartridge(s)*

(APF = 25) Any powered, air-purifying respirator with organic vapor cartridge(s)*

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor

(APF = 10) Any supplied-air respirator*

(APF = 50) Any self-contained breathing apparatus with a full facepiece

Emergency or planned entry into unknown concentrations or IDLH conditions:

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor

appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection

Exposure Routes inhalation, ingestion, skin and/or eye contact

Symptoms Irritation eyes, nose, throat; headache, dizziness, central nervous system depression; dermatitis

Target Organs Eyes, skin, respiratory system, central nervous system

See also: [INTRODUCTION](#) See ICSC CARD: [0087](#) See MEDICAL TESTS: [0002](#)

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[NIOSH Topics](#)
[Site Index](#)
[Databases and Information Resources](#)
[NIOSH Products](#)

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[NPG Home](#) | [Introduction](#) | [Synonyms & Trade Names](#) | [Chemical Names](#) | [CAS Numbers](#) | [RTECS Numbers](#) | [Appendices](#) | [Se](#)

Aluminum

CAS 7429-90-5

AI

RTECS BD033

Synonyms & Trade Names

Aluminium, Aluminum metal, Aluminum powder, Elemental aluminum

DOT ID & Gui

1309 170 (powde

1396 138 (powde

9260 169 (molte

Exposure Limits

NIOSH REL: TWA 10 mg/m³ (total) TWA 5 mg/m³ (resp)

OSHA PEL: TWA 15 mg/m³ (total) TWA 5 mg/m³ (resp)

IDLH N.D. See: [IDLH INDEX](#)

Conversion

Physical Description

Silvery-white, malleable, ductile, odorless metal.

MW: 27.0

BP: 4221°F

MLT: 1220°F

Sol: Insoluble

VP: 0 mmHg (approx)

IP: NA

Sp.Gr: 2.70

F.I.P: NA

UEL: NA

LEL: NA

Combustible Solid, finely divided dust is easily ignited; may cause explosions.

Incompatibilities & Reactivities

Strong oxidizers & acids, halogenated hydrocarbons [Note: Corrodes in contact with acids & other metals. Ignition may occur if mixed with halogens, carbon disulfide, or methyl chloride.]

Measurement Methods

NIOSH 7013, 7300, 7301, 7303; OSHA ID121

 See: [NMAM](#) or [OSHA Methods](#)

Personal Protection & Sanitation (See protection codes)

Skin: No recommendation

Eyes: No recommendation

Wash skin: No recommendation

Remove: No recommendation

Change: No recommendation

First Aid (See procedures)

Eye: Irrigate immediately

Breathing: Fresh air

Respirator Recommendations Not available.

[Important additional information about respirator selection](#)

Exposure Routes inhalation, skin and/or eye contact

Symptoms Irritation eyes, skin, respiratory system

Target Organs Eyes, skin, respiratory system

 See also: [INTRODUCTION](#) See ICSC CARD: [0988](#) See MEDICAL TESTS: [0011](#)
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MSDS Number: **A6048** * * * * * *Effective Date: 05/04/07* * * * * * *Supersedes: 07/21/04*

MSDS**Material Safety Data Sheet**

From: Mallinckrodt Baker, Inc.
222 Red School Lane
Phillipsburg, NJ 08865



24 Hour Emergency Telephone: 908-659-2151
CHEMTREC: 1-800-424-9300

National Response in Canada
CANUTEC: 413-496-4666

Outside U.S. and Canada
Chemtrec: 703-527-3887

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

AMMONIUM NITRATE

1. Product Identification

Synonyms: Nitric acid, ammonium salt

CAS No.: 6484-52-2

Molecular Weight: 80.04

Chemical Formula: NH₄NO₃

Product Codes:

J.T. Baker: 0729, 0731, 0829

Mallinckrodt: 3436

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Ammonium Nitrate	6484-52-2	99 - 100%	Yes

3. Hazards Identification

Emergency Overview

DANGER! STRONG OXIDIZER. CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE OR EXPLOSION. MAY BE HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT.

SAF-T-DATA^(tm) Ratings (Provided here for your convenience)

Health Rating: 2 - Moderate
Flammability Rating: 1 - Slight
Reactivity Rating: 3 - Severe (Oxidizer)
Contact Rating: 2 - Moderate
Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES
Storage Color Code: Yellow (Reactive)

Potential Health Effects

Inhalation:

May cause irritation to the respiratory tract; symptoms may include coughing, sore throat, and shortness of breath. At high temperatures, exposure to toxic nitrogen oxides decomposition products can quickly cause acute respiratory problems. Inhalation of large amounts causes systemic acidosis and abnormal hemoglobin.

Ingestion:

Large oral doses of nitrates may cause dizziness, abdominal pain, vomiting, bloody diarrhea, weakness, convulsions, and collapse. Harmful if swallowed. May cause methemoglobinemia resulting in cyanosis.

Skin Contact:

Causes irritation to skin. Symptoms include redness, itching, and pain.

Eye Contact:

Causes irritation, redness, and pain.

Chronic Exposure:

Small repeated oral doses of nitrates may cause weakness, depression, headache, and mental impairment.

Aggravation of Pre-existing Conditions:

No information found.

4. First Aid Measures

Inhalation:

Remove to fresh air. Get medical attention for any breathing difficulty.

Ingestion:

If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Skin Contact:

Remove any contaminated clothing. Wash skin with soap and water for at least 15 minutes. Get medical attention if irritation develops or persists.

Eye Contact:

Wash thoroughly with running water. Get medical advice if irritation develops.

5. Fire Fighting Measures

Fire:

Not combustible, but substance is a strong oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition. May support combustion in an existing fire.

Explosion:

Contact with oxidizable substances may cause extremely violent combustion. Sealed containers may rupture when heated. Sensitive to mechanical impact.

Fire Extinguishing Media:

Use flooding amounts of water in early stages of fire involving ammonium nitrate. Use any means suitable for extinguishing surrounding fire.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Remove sources of heat and ignition.

Collected waste may be transferred to a closed, preferably metal, container and sent to a RCRA approved waste disposal facility. Alternatively, sweep spill into noncombustible container and dissolve in large amount of water. Add soda ash. Mix and neutralize with 6M-HCl. Neutralized sludge may be sent to an approved waste disposal facility.

7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Protect against physical damage. Store in a dry location separate from combustible, organic or other readily oxidizable materials. Avoid storage on wood floors. Remove and dispose of any spilled dichromates; do not return to original containers. Do not store above 54C (130F) preferably below 30C (86F). Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

None established.

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust

ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved):

For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection:

Wear protective gloves and clean body-covering clothing.

Eye Protection:

Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:

Colorless crystals.

Odor:

Odorless.

Solubility:

118g/100g water @ 0C (32F).

Specific Gravity:

1.73 @ 23C (77F)

pH:

5.4

% Volatiles by volume @ 21C (70F):

0

Boiling Point:

210C (410F) Decomposes.

Melting Point:

170C (338F)

Vapor Density (Air=1):

No information found.

Vapor Pressure (mm Hg):

No information found.

Evaporation Rate (BuAc=1):

No information found.

10. Stability and Reactivity

Stability:

Stable under ordinary conditions of use and storage. Hygroscopic.

Hazardous Decomposition Products:

Emits nitrous oxides when heated to decomposition. Liberates ammonia in reaction with strong alkalis.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

Aluminum, antimony, chromium, copper, iron, lead, magnesium, manganese, nickel, zinc, brass, oil, charcoal, organic material, acetic acid, ammonium chloride, bismuth, cadmium, chlorides, cobalt, phosphorus, potassium and ammonium sulfate, sodium, sodium hypochlorite, sodium perchlorate, sodium-potassium alloy, and sulfure.

Conditions to Avoid:

Heat, flame, ignition sources, dusting and incompatibles. Moisture and combustible materials. Shock sensitive.

11. Toxicological Information

Oral rat LD50: 2217 mg/kg.

-----\Cancer Lists\-----			
Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	

Ammonium Nitrate (6484-52-2)	No	No	None

12. Ecological Information

Environmental Fate:

When released into the soil, this material is expected to leach into groundwater. When released into the soil, this material is not expected to evaporate significantly. When released into water, this material is expected to readily biodegrade.

Environmental Toxicity:

No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Domestic (Land, D.O.T.)

Proper Shipping Name: AMMONIUM NITRATE

Hazard Class: 5.1

UN/NA: UN1942

Packing Group: III

Information reported for product/size: 50KG

International (Water, I.M.O.)

Proper Shipping Name: AMMONIUM NITRATE

Hazard Class: 5.1

UN/NA: UN1942

Packing Group: III

Information reported for product/size: 50KG

15. Regulatory Information

```
-----\Chemical Inventory Status - Part 1\-----
Ingredient                                     TSCA EC Japan Australia
-----
Ammonium Nitrate (6484-52-2)                Yes Yes Yes Yes

-----\Chemical Inventory Status - Part 2\-----
Ingredient                                     --Canada--
                                     Korea DSL NDSL Phil.
-----
Ammonium Nitrate (6484-52-2)                Yes Yes No Yes

-----\Federal, State & International Regulations - Part 1\-----
Ingredient                                     -SARA 302- -SARA 313-
                                     RQ TPQ List Chemical Catg.
-----
Ammonium Nitrate (6484-52-2)                No No No Nitrate compd

-----\Federal, State & International Regulations - Part 2\-----
Ingredient                                     CERCLA -RCRA- -TSCA-
                                     261.33 8 (d)
-----
Ammonium Nitrate (6484-52-2)                No No No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: No Fire: No Pressure: No
Reactivity: Yes (Pure / Solid)
```

Australian Hazchem Code: 1[S]

Poison Schedule: None allocated.

WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: Health: **0** Flammability: **0** Reactivity: **3** Other: **Oxidizer**

Label Hazard Warning:

DANGER! STRONG OXIDIZER. CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE OR EXPLOSION. MAY BE HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT.

Label Precautions:

Keep from contact with clothing and other combustible materials.

Do not store near combustible materials.

Store in a tightly closed container.

Avoid breathing dust.

Avoid contact with eyes, skin and clothing.

Remove and wash contaminated clothing promptly.

Use only with adequate ventilation.

Wash thoroughly after handling.

Store preferably below 30C

Label First Aid:

If inhaled, remove to fresh air. Get medical attention for any breathing difficulty. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. In all cases, get medical attention.

Product Use:

Laboratory Reagent.

Revision Information:

No Changes.

Disclaimer:

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NIOSH Pocket Guide to Chemical Hazards

[NPG Home](#) | [Introduction](#) | [Synonyms & Trade Names](#) | [Chemical Names](#) | [CAS Numbers](#) | [RTECS Numbers](#) | [Appendices](#) | [Se](#)

Arsenic (inorganic compounds, as As)

CAS 7440-38-2

As (metal)

RTECS CG052

Synonyms & Trade Names

Arsenic metal: Arsenia

Other synonyms vary depending upon the specific As compound. [Note: OSHA considers "Inorganic Arsenic" to mean copper acetoarsenite & all inorganic compounds containing arsenic except ARSINE.]

DOT ID & Gu

 1558 152 (metal)
1562 152 (dust)

Exposure Limits

NIOSH REL: Ca C 0.002 mg/m³ [15-minute] [See Appendix A](#)
OSHA PEL: [1910.1018] TWA 0.010 mg/m³
IDLH Ca [5 mg/m³ (as As)] [See: 7440382](#)

Conversion

Physical Description

Metal: Silver-gray or tin-white, brittle, odorless solid.

MW: 74.9

BP: Sublimes

MLT: 1135°F (Sublimes)

Sol: Insoluble

VP: 0 mmHg (approx)

IP: NA

Sp.Gr: 5.73 (met

F.I.P: NA

UEL: NA

LEL: NA

Metal: Noncombustible Solid in bulk form, but a slight explosion hazard in the form of dust when exposed to flame.

Incompatibilities & Reactivities

Strong oxidizers, bromine azide [Note: Hydrogen gas can react with inorganic arsenic to form the highly toxic gas arsine.]

Measurement Methods

NIOSH 7300, 7301, 7303, 7900, 9102; OSHA ID105

 See: [NMAM](#) or [OSHA Methods](#)

Personal Protection & Sanitation (See protection codes)

Skin: Prevent skin contact

Eyes: Prevent eye contact

Wash skin: When contaminated/Daily

Remove: When wet or contaminated

Change: Daily

Provide: Eyewash, Quick drench

First Aid (See procedures)

Eye: Irrigate immediately

Skin: Soap wash immediately

Breathing: Respiratory support

Swallow: Medical attention immediately

Respirator Recommendations (See Appendix E) NIOSH

At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration:

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:

 (APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted acid gas canister N100, R100, or P100 filter. [Click here](#) for information on selection of N, R, or P filters./Any appropriate escape-type, self-contained breathing apparatus

[Important additional information about respirator selection](#)

Exposure Routes inhalation, skin absorption, skin and/or eye contact ingestion

Symptoms Ulceration of nasal septum, dermatitis, gastrointestinal disturbances, peripheral neuropathy, respiratory irritation, hyperpigmentation of skin, [potential occupational carcinogen]

Target Organs Liver, kidneys, skin, lungs, lymphatic system

Cancer Site [lung & lymphatic cancer]

See also: INTRODUCTION See ICSC CARD: 0013 See MEDICAL TESTS: 0017

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[Site Index](#)
[Databases and Information Resources](#)
[NIOSH Products](#)

NIOSH Pocket Guide to Chemical Hazards

[NPG Home](#) | [Introduction](#) | [Synonyms & Trade Names](#) | [Chemical Names](#) | [CAS Numbers](#) | [RTECS Numbers](#) | [Appendices](#) | [Se](#)

Asbestos

CAS 1332-21-4

Hydrated mineral silicates

RTECS C16475

Synonyms & Trade Names

Actinolite, Actinolite asbestos, Amosite (cummingtonite-grunerite), Anthophyllite, Anthophyllite asbestos, Chrysotile, Crocidolite (Riebeckite), Tremolite, Tremolite asbestos

DOT ID & Gui

 2212 171 (blue, I
2590 171 (white)

Exposure Limits

NIOSH REL: Ca [See Appendix A](#) [See Appendix C](#)
OSHA PEL: [1910.1001] [1926.1101] [See Appendix C](#)
IDLH Ca [N.D.] [See: IDLH INDEX](#)

Conversion

Physical Description

White or greenish (chrysotile), blue (crocidolite), or gray-green (amosite) fibrous, odorless solids.

MW: Varies

BP: Decomposes

MLT: 1112°F (Decomposes)

Sol: Insoluble

VP: 0 mmHg (approx)

IP: NA

Sp.Gr.?
F.I.P: NA

UEL: NA

LEL: NA

Noncombustible Solids

Incompatibilities & Reactivities

None reported

Measurement Methods

NIOSH 7400, 7402; OSHA ID160, ID191

 See: [NMAM](#) or [OSHA Methods](#)

Personal Protection & Sanitation [\(See protection codes\)](#)

Skin: Prevent skin contact

Eyes: Prevent eye contact

Wash skin: Daily

Remove: No recommendation

Change: Daily

First Aid [\(See procedures\)](#)

Eye: Irrigate immediately

Breathing: Fresh air

Respirator Recommendations [\(See Appendix E\)](#) NIOSH

At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration:

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:

 (APF = 50) Any air-purifying, full-facepiece respirator with an N100, R100, or P100 filter. [Click here](#) for information on self or P filters./Any appropriate escape-type, self-contained breathing apparatus

[Important additional information about respirator selection](#)

Exposure Routes inhalation, ingestion, skin and/or eye contact

Symptoms Asbestosis (chronic exposure): dyspnea (breathing difficulty), interstitial fibrosis, restricted pulmonary funct

clubbing; irritation eyes; [potential occupational carcinogen]

Target Organs respiratory system, eyes

Cancer Site [lung cancer]

See also: [INTRODUCTION](#) See **MEDICAL TESTS:** [0019](#)

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[Site Index](#)
[Databases and Information Resources](#)
[NIOSH Products](#)

NIOSH Pocket Guide to Chemical Hazards

[NPG Home](#) | [Introduction](#) | [Synonyms & Trade Names](#) | [Chemical Names](#) | [CAS Numbers](#) | [RTECS Numbers](#) | [Appendices](#) | [Se](#)

Lead			CAS 7439-92-1
Pb			RTECS OF752
Synonyms & Trade Names Lead metal, Plumbum			DOT ID & Gui
Exposure Limits		NIOSH REL*: TWA (8-hour) 0.050 mg/m ³ See Appendix C [*Note: The REL also appli compounds (as Pb) -- see Appendix C.] OSHA PEL*: [1910.1025] TWA 0.050 mg/m ³ See Appendix C [*Note: The PEL also ap lead compounds (as Pb) -- see Appendix C.]	
IDLH 100 mg/m ³ (as Pb) See: 7439921		Conversion	
Physical Description A heavy, ductile, soft, gray solid.			
MW: 207.2	BP: 3164°F	MLT: 621°F	Sol: Insoluble
VP: 0 mmHg (approx)	IP: NA		Sp.Gr: 11.34
F.I.P: NA	UEL: NA	LEL: NA	
Noncombustible Solid in bulk form.			
Incompatibilities & Reactivities Strong oxidizers, hydrogen peroxide, acids			
Measurement Methods NIOSH 7082 , 7105 , 7300 , 7301 , 7303 , 7700 , 7701 , 7702 , 9100 , 9102 , 9105 ; OSHA ID121 , ID125G , ID206 See: NMAM or OSHA Methods			
Personal Protection & Sanitation (See protection codes) Skin: Prevent skin contact Eyes: Prevent eye contact Wash skin: Daily Remove: When wet or contaminated Change: Daily		First Aid (See procedures) Eye: Irrigate immediately Skin: Soap flush promptly Breathing: Respiratory support Swallow: Medical attention immediately	

Respirator Recommendations (See Appendix E) NIOSH/OSHA

Up to 0.5 mg/m³:

(APF = 10) Any air-purifying respirator with an N100, R100, or P100 filter (including N100, R100, and P100 filtering facepiece quarter-mask respirators. [Click here](#) for information on selection of N, R, or P filters.

(APF = 10) Any supplied-air respirator

Up to 1.25 mg/m³:

(APF = 25) Any supplied-air respirator operated in a continuous-flow mode

(APF = 25) Any powered, air-purifying respirator with a high-efficiency particulate filter

Up to 2.5 mg/m³:

(APF = 50) Any air-purifying, full-facepiece respirator with an N100, R100, or P100 filter. [Click here](#) for information on sel or P filters.

(APF = 50) Any supplied-air respirator that has a tight-fitting facepiece and is operated in a continuous-flow mode

(APF = 50) Any powered, air-purifying respirator with a tight-fitting facepiece and a high-efficiency particulate filter

(APF = 50) Any self-contained breathing apparatus with a full facepiece

(APF = 50) Any supplied-air respirator with a full facepiece

Up to 50 mg/m³:

(APF = 1000) Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode

Up to 100 mg/m³:

(APF = 2000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive

Emergency or planned entry into unknown concentrations or IDLH conditions:

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:

(APF = 50) Any air-purifying, full-facepiece respirator with an N100, R100, or P100 filter. [Click here](#) for information on self or P filters./Any appropriate escape-type, self-contained breathing apparatus

[Important additional information about respirator selection](#)

Exposure Routes inhalation, ingestion, skin and/or eye contact

Symptoms Lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation, pain, colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy; kidney disease; irritation eyes; hyp

Target Organs Eyes, gastrointestinal tract, central nervous system, kidneys, blood, gingival tissue

See also: [INTRODUCTION](#) See ICSC CARD: [0052](#) See MEDICAL TESTS: [0127](#)

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[Search NIOSH](#)
[NIOSH Home](#)
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[Site Index](#)
[Databases and Information Resources](#)
[NIOSH Products](#)

NIOSH Pocket Guide to Chemical Hazards

[NPG Home](#) | [Introduction](#) | [Synonyms & Trade Names](#) | [Chemical Names](#) | [CAS Numbers](#) | [RTECS Numbers](#) | [Appendices](#) | [Se](#)

Mercury compounds [except (organo) alkyls] (as Hg)

CAS 7439-97-6

Hg (metal)

RTECS OV455

Synonyms & Trade Names

Mercury metal: Colloidal mercury, Metallic mercury, Quicksilver

Synonyms of "other" Hg compounds vary depending upon the specific compound.

DOT ID & Gui
2809 172 (metal)

Exposure Limits

NIOSH REL:

 Hg Vapor: TWA 0.05 mg/m³ [skin]

 Other: C 0.1 mg/m³ [skin]

OSHA PEL†:

 TWA 0.1 mg/m³
IDLH 10 mg/m³ (as Hg) See: 7439976

Conversion

Physical Description

Metal: Silver-white, heavy, odorless liquid. [Note: "Other" Hg compounds include all inorganic & aryl Hg compounds exce alkyls.]

MW: 200.6

BP: 674°F

FRZ: -38°F

Sol: Insoluble

VP: 0.0012 mmHg

IP: ?

Sp.Gr: 13.6 (met

F.I.P: NA

UEL: NA

LEL: NA

Metal: Noncombustible Liquid

Incompatibilities & Reactivities

Acetylene, ammonia, chlorine dioxide, azides, calcium (amalgam formation), sodium carbide, lithium, rubidium, copper

Measurement Methods

NIOSH 6009; OSHA ID140

 See: [NMAM](#) or [OSHA Methods](#)

Personal Protection & Sanitation (See protection codes)

Skin: Prevent skin contact

Eyes: No recommendation

Wash skin: When contaminated

Remove: When wet or contaminated

Change: Daily

First Aid (See procedures)

Eye: Irrigate immediately

Skin: Soap wash promptly

Breathing: Respiratory support

Swallow: Medical attention immediately

Respirator Recommendations

Mercury vapor: NIOSH

Up to 0.5 mg/m³:

(APF = 10) Any chemical cartridge respirator with cartridge(s) providing protection against the compound of concern†

(APF = 10) Any supplied-air respirator

Up to 1.25 mg/m³:

(APF = 25) Any supplied-air respirator operated in a continuous-flow mode

(APF = 25) Any powered, air-purifying respirator with cartridge(s) providing protection against the compound of concern†

Up to 2.5 mg/m³:

(APF = 50) Any chemical cartridge respirator with a full facepiece and cartridge(s) providing protection against the compound of concern†
 (APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted canister providing protection against the compound of concern†
 (APF = 50) Any supplied-air respirator that has a tight-fitting facepiece and is operated in a continuous-flow mode/PAPR†
 (APF = 50) Any self-contained breathing apparatus with a full facepiece
 (APF = 50) Any supplied-air respirator with a full facepiece

Up to 10 mg/m³:

(APF = 1000) Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode

Emergency or planned entry into unknown concentrations or IDLH conditions:

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted canister providing protection against the compound of concern/Any appropriate escape-type, self-contained breathing apparatus

Other mercury compounds: NIOSH/OSHA

Up to 1 mg/m³:

(APF = 10) Any chemical cartridge respirator with cartridge(s) providing protection against the compound of concern†
 (APF = 10) Any supplied-air respirator

Up to 2.5 mg/m³:

(APF = 25) Any supplied-air respirator operated in a continuous-flow mode

(APF = 25) Any powered, air-purifying respirator with cartridge(s) providing protection against the compound of concern†

Up to 5 mg/m³:

(APF = 50) Any chemical cartridge respirator with a full facepiece and cartridge(s) providing protection against the compound of concern†

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted canister providing protection against the compound of concern†

(APF = 50) Any supplied-air respirator that has a tight-fitting facepiece and is operated in a continuous-flow mode/PAPR†

(APF = 50) Any self-contained breathing apparatus with a full facepiece

(APF = 50) Any supplied-air respirator with a full facepiece

Up to 10 mg/m³:

(APF = 1000) Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode

Emergency or planned entry into unknown concentrations or IDLH conditions:

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted canister providing protection against the compound of concern/Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection

Exposure Routes inhalation, skin absorption, ingestion, skin and/or eye contact

Symptoms Irritation eyes, skin; cough, chest pain, dyspnea (breathing difficulty), bronchitis, pneumonitis; tremor, incoordination, headache, lassitude (weakness, exhaustion); stomatitis, salivation; gastrointestinal disturbance, anorexia, weight loss, proteinuria

Target Organs Eyes, skin, respiratory system, central nervous system, kidneys

See also: [INTRODUCTION](#) See ICSC CARD: [0056](#) See MEDICAL TESTS: [0136](#)

Material Safety Data Sheet

Science Stuff, Inc.
1104 Newport Ave
Austin, TX 78753

Phone (512) 837-6020
Chemtrec 800-424-9300
24 Hour Emergency Assistance

Section 1 Identification	
Product Number:	C2168
Product Name:	Nitrate Standard 1,000 ppm
Trade/Chemical Synonyms	
Formula:	N/A
RTECS:	
C.A.S	See Below

Health:				
Flammability	1			
Reactivity	0			
Hazard Rating:				
Least Slight Moderate High Extreme				
0	1	2	3	4
NA = Not Applicable NE = Not Established				

Section 6 Accidental Release Measures	
Absorb spill with inert material. Flush excess down drain.	
Section 7 Handling and Storage	
Store in a cool dry place. This Material is not considered hazardous. Handle using safe laboratory practices.	
Section 8 Exposure Controls & Personal Protection	
Respiratory Protection: None required	
Mechanical:	<input type="checkbox"/> Hand Gloves to prevent skin exposure Protection: as latex or vinyl
Ventilation: Local Exhaust:	<input checked="" type="checkbox"/> Eye Splash Goggles Protection:
Other Protective Equipment: Wear appropriate clothing to prevent skin exposure	

Section 2 Component Mixture			
Sara 313	Component	CAS Number	Exposure Limits:
<input type="checkbox"/>	Water, Deionized ASTM Type II	CAS# 7732-18-5	None Established
<input type="checkbox"/>	Potassium Nitrate	CAS# 7757-79-1	TXDS: orl-rat LD \bullet : 3750 mg/Kg

Section 9 Physical and Chemical Properties			
Melting Point:	~0° C	Specific Gravity	1.0
Boiling Point:	~100° C	Percent Volatile by Volume:	>99.5%
Vapor Pressure:	Information not available	Evaporation Rate:	1
Vapor Density:	Information not available	Evaporation Standard:	Water = 1
Solubility in Water:	Soluble	Auto ignition Temperature:	Not applicable
Appearance and Odor:	clear water white odorless liquid	Lower Flamm. Limit in Air:	Not applicable
Flash Point:	not flammable	Upper Flamm. Limit in Air:	Not applicable

Section 3 Hazard Identification (Also see section 11)	
Generally not hazardous in normal handling, however good laboratory practices should always be used. Avoid long term exposure to skin or by inhalation.	

Section 4 First Aid Measures	
Generally not hazardous in normal handling, however good laboratory practices should always be used. Avoid long term exposure to skin or by inhalation.	
FIRST AID: SKIN: Wash exposed area with soap and water. If irritation persists, seek medical attention.	
EYES: Wash eyes with plenty of water for at least 15 minutes, lifting lids occasionally. Seek Medical Aid. INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen	

Section 10 Stability and Reactivity Information	
Stability: Stable	Conditions to Avoid: None known
Materials to Avoid: Concentrated Acids and Bases, Water reactive materials.	
Hazardous Decomposition Products: None Known	
Hazardous Polymerization: Will Not Occur	

INGESTION: If swallowed, induce vomiting immediately after giving two glasses of water. Never give anything by mouth to an unconscious person.	
Section 5 Fire Fighting Measures	
Fire Extinguisher	Any means suitable for extinguishing surrounding fire
Type:	
Fire/Explosion Hazards:	None Known.
Fire Fighting Procedure:	Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and clothing.

Condition to Avoid:None known
Section 11 Additional Information
Overexposure symptoms. Acute: Essentially non-hazardous. Possible irritation of eyes/stomach. Chronic: None known. Conditions aggravated/Target organs: none known.
DOT Classification: Not Regulated
DOT regulations may change from time to time. Please consult the most recent version of the relevant regulations.
Revision No:0 Date Entered: 9/1/2006 Approved by: WPF

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NIOSH Pocket Guide to Chemical Hazards

[NPG Home](#) | [Introduction](#) | [Synonyms & Trade Names](#) | [Chemical Names](#) | [CAS Numbers](#) | [RTECS Numbers](#) | [Appendices](#) | [Se](#)

Nitroglycerine

CAS 55-63-0



RTECS QX210

Synonyms & Trade Names

Glyceryl trinitrate; NG; 1,2,3-Propanetriol trinitrate; Trinitroglycerine

DOT ID & Gu
1204 127 (< or =
alcohol)
3064 127 (1-5%
alcohol)

Exposure Limits

NIOSH REL: ST 0.1 mg/m³ [skin]

OSHA PEL: C 0.2 ppm (2 mg/m³) [skin]

IDLH 75 mg/m³ See: 55630

Conversion 1 ppm = 9.29 mg/m³

Physical Description

Colorless to pale-yellow, viscous liquid or solid (below 56°F). [Note: An explosive ingredient in dynamite (20-40%) with et dinitrate (80-60%).]

MW: 227.1

BP: Begins to decompose at 122-140°F

FRZ: 56°F

Sol: 0.1%

VP: 0.0003 mmHg

IP: ?

Sp.Gr: 1.60

Fl.P: Explodes

UEL: ?

LEL: ?

Explosive Liquid

Incompatibilities & Reactivities

Heat, ozone, shock, acids [Note: An OSHA Class A Explosive (1910.109).]

Measurement Methods

NIOSH 2507; OSHA 43

See: [NMAM](#) or [OSHA Methods](#)

Personal Protection & Sanitation (See protection codes)

Skin: Prevent skin contact

Eyes: Prevent eye contact

Wash skin: When contaminated

Remove: When wet (flammable)

Change: Daily

Provide: Quick drench

First Aid (See procedures)

Eye: Irrigate immediately

Skin: Soap wash immediately

Breathing: Respiratory support

Swallow: Medical attention immediately

Respirator Recommendations NIOSH

Up to 1 mg/m³:

(APF = 10) Any supplied-air respirator*

Up to 2.5 mg/m³:

(APF = 25) Any supplied-air respirator operated in a continuous-flow mode*

Up to 5 mg/m³:

(APF = 50) Any supplied-air respirator that has a tight-fitting facepiece and is operated in a continuous-flow mode*

(APF = 50) Any self-contained breathing apparatus with a full facepiece

(APF = 50) Any supplied-air respirator with a full facepiece

Up to 75 mg/m³:

(APF = 2000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive **Emergency or planned entry into unknown concentrations or IDLH conditions:**

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor cartridge and an N100, R100, or P100 filter. [Click here for information on selection of N, R, or P filters.](#) Any appropriate escape-type, self-contained breathing apparatus

[Important additional information about respirator selection](#)

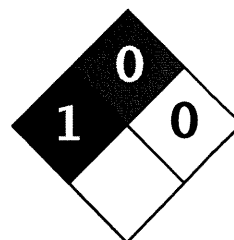
Exposure Routes inhalation, skin absorption, ingestion, skin and/or eye contact

Symptoms Throbbing headache; dizziness; nausea, vomiting, abdominal pain; hypotension; flush; palpitations; methemoglobinemia; delirium, central nervous system depression; angina; skin irritation

Target Organs cardiovascular system, blood, skin, central nervous system

See also: [INTRODUCTION](#) See ICSC CARD: [0186](#) See MEDICAL TESTS: [0100](#)

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Health	2
Fire	0
Reactivity	0
Personal Protection	E

Material Safety Data Sheet

Sodium sulfite MSDS

Section 1: Chemical Product and Company Identification

Product Name: Sodium sulfite

Catalog Codes: SLS2383

CAS#: 7757-83-7

RTECS: WE2150000

TSCA: TSCA 8(b) inventory: Sodium sulfite

CI#: Not available.

Synonym: Sulfurous Acid, Disodium salt

Chemical Name: Sulfurous acid, disodium salt

Chemical Formula: Na₂SO₃

Contact Information:

Sciencelab.com, Inc.

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Sodium sulfite	7757-83-7	100

Toxicological Data on Ingredients: Sodium sulfite: ORAL (LD50): Acute: 820 mg/kg [Mouse.]. 3650 mg/kg [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:

Hazardous in case of ingestion, of inhalation (lung irritant). Slightly hazardous in case of skin contact (irritant), of eye contact (irritant).

Potential Chronic Health Effects:

Slightly hazardous in case of skin contact (sensitizer).

CARCINOGENIC EFFECTS: 3 (Not classifiable for human.) by IARC.

MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast.

TERATOGENIC EFFECTS: Not available.

DEVELOPMENTAL TOXICITY: Not available.

The substance may be toxic to peripheral nervous system, central nervous system (CNS).

Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

<p>Eye Contact: Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.</p> <p>Skin Contact: In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.</p> <p>Serious Skin Contact: Not available.</p> <p>Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.</p> <p>Serious Inhalation: Not available.</p> <p>Ingestion: Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.</p> <p>Serious Ingestion: Not available.</p>

Section 5: Fire and Explosion Data
<p>Flammability of the Product: Non-flammable.</p> <p>Auto-Ignition Temperature: Not applicable.</p> <p>Flash Points: Not applicable.</p> <p>Flammable Limits: Not applicable.</p> <p>Products of Combustion: Not available.</p> <p>Fire Hazards in Presence of Various Substances: Not applicable.</p> <p>Explosion Hazards in Presence of Various Substances: Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.</p> <p>Fire Fighting Media and Instructions: Not applicable.</p> <p>Special Remarks on Fire Hazards: Not available.</p> <p>Special Remarks on Explosion Hazards: Not available.</p>

Section 6: Accidental Release Measures
<p>Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.</p> <p>Large Spill: Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.</p>

Section 7: Handling and Storage

Precautions:

Do not ingest. Do not breathe dust. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, combustible materials, organic materials, acids.

Storage:

Air sensitive.

Moisture sensitive.

Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: Not available.

Section 9: Physical and Chemical Properties

Physical state and appearance:

Solid. (Solid crystalline powder. Powdered solid.
Crystals solid.)

Odor: Sulfurous. Odorless.

Taste: Sulfurous. Saline.

Molecular Weight: 126.04 g/mole

Color: White or Tan to slightly pink

pH (1% soln/water): Not available.

Boiling Point: Not available.

Melting Point: Decomposition temperature: >500°C (932°F)

Critical Temperature: Not available.

Specific Gravity: 2.63 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water.

Solubility:

Soluble in cold water, hot water.

Soluble in glycerol.

Almost insoluble in alcohol.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials, air, moisture, dust generation

Incompatibility with various substances: Reactive with oxidizing agents, combustible materials, organic materials, acids.

Corrosivity:

Corrosive in presence of aluminum, of zinc, of copper.

Slightly corrosive in presence of steel.

Special Remarks on Reactivity:

Air sensitive.

Moisture sensitive. Keep container tightly closed.

When heated to decomposition, it emits toxic fumes of Na₂O and SO_x

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals: Acute oral toxicity (LD₅₀): 820 mg/kg [Mouse.].

Chronic Effects on Humans:

CARCINOGENIC EFFECTS: 3 (Not classifiable for human.) by IARC.

MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast.

May cause damage to the following organs: peripheral nervous system, central nervous system (CNS).

Other Toxic Effects on Humans:

Hazardous in case of ingestion, of inhalation (lung irritant).

Slightly hazardous in case of skin contact (irritant).

Special Remarks on Toxicity to Animals:

Lowest Published Dose:

LDL [Rabbit] - Route: Oral; Dose 2825 mg/kg

Special Remarks on Chronic Effects on Humans: May affect genetic material(mutagenic)

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects:

Acute Potential Health Effects:

Skin: Causes skin irritation.

Eyes: Causes eye irritation and may cause chemical conjunctivitis. Conjunctivitis may be more noted in sensitive individuals.

Inhalation: Causes upper respiratory tract and mucous membrane irritation. May cause hypersensitivity reaction with swelling of the tongue, bronchospasm, bronchoconstriction diaphoresis, flushing, urticaria, hypotension, tachycardia, and anaphylaxis particularly in asthmatic people who are sulfite sensitive.

Ingestion: May cause gastrointestinal tract irritation with abdominal pain, nausea, vomiting and diarrhea. May affect behavior/central nervous system (CNS depression with convulsions, somnolence), respiration (respiration depression), and cardiovascular system (circulatory disturbances, hypotension). It may liberate sulfuric acid which may result in caustic injury. Hypersensitivity reaction with swelling of the tongue bronchospasm, bronchoconstriction diaphoresis, flushing, urticaria, hypotension, tachycardia, and anaphylaxis may occur more frequently with people who are asthmatic.

Chronic Potential Health Effects:

Skin: Prolonged or repeated skin contact may cause dermal sensitization (contact dermatitis), but this is rare.

Inhalation: Prolonged or repeated inhalation may cause chronic irritation, inflammation, delayed pulmonary edema, and alteration of sense of smell and taste.

Ingestion: Prolonged or repeated ingestion may affect the bone marrow (bone marrow atrophy), and behavior/central/peripheral nervous systems (CNS depression and paralysis).

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information

Federal and State Regulations: TSCA 8(b) inventory: Sodium sulfite

Other Regulations: Not available.

Other Classifications:

WHMIS (Canada): Not controlled under WHMIS (Canada).

DSCL (EEC):

R22- Harmful if swallowed.
R36/37/38- Irritating to eyes,
respiratory system and skin.
S22- Do not breathe dust.
S24/25- Avoid contact with skin and eyes.
S26- In case of contact with eyes, rinse
immediately with plenty of water and seek
medical advice.
S36- Wear suitable protective clothing.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 0

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:

Gloves.

Lab coat.

Dust respirator. Be sure to use an
approved/certified respirator or
equivalent.

Safety glasses.

Section 16: Other Information

References:

-The Sigma-Aldrich Library of Chemical Safety Data, Edition II.

-Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987.

RTECS (Registry of Toxic Effects of Chemicals).

Hazardous Substance Data Bank (HDSB)

Other Special Considerations: Not available.

Created: 10/09/2005 06:36 PM

Last Updated: 11/06/2008 12:00 PM

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ATTACHMENT B
MATERIAL SAFETY DATA SHEETS
(ATTACH MSDSS)

ALCONOX MSDS

Section 1 : MANUFACTURER INFORMATION

Product name: Alconox

Supplier: Same as manufacturer.

Manufacturer: Alconox, Inc.
30 Glenn St.
Suite 309
White Plains, NY 10603.

Manufacturer emergency 800-255-3924.

phone number: 813-248-0585 (outside of the United States).

Manufacturer: Alconox, Inc.
30 Glenn St.
Suite 309
White Plains, NY 10603.

Supplier MSDS date: 2009/04/20

D.O.T. Classification: Not regulated.

Section 2 : HAZARDOUS INGREDIENTS

C.A.S.	CONCENTRATION %	Ingredient Name	T.L.V.	LD/50	LC/50
25155-30-0	10-30	SODIUM DODECYLBENZENESULFONATE	NOT AVAILABLE	438 MG/KG RAT ORAL 1330 MG/KG MOUSE ORAL	NOT AVAILABLE
497-19-8	7-13	SODIUM CARBONATE	NOT AVAILABLE	4090 MG/KG RAT ORAL 6600 MG/KG MOUSE ORAL	2300 MG/M3/2H RAT INHALATION 1200 MG/M3/2H MOUSE INHALATION
7722-88-5	10-30	TETRASODIUM PYROPHOSPHATE	5 MG/M3	4000 MG/KG RAT ORAL 2980 MG/KG MOUSE ORAL	NOT AVAILABLE
7758-29-4	10-30	SODIUM PHOSPHATE	NOT AVAILABLE	3120 MG/KG RAT ORAL 3100 MG/KG MOUSE ORAL >4640 MG/KG RABBIT DERMAL	NOT AVAILABLE

Section 2A : ADDITIONAL INGREDIENT INFORMATION

Note: (supplier).

CAS# 497-19-8: LD50 4020 mg/kg - rat oral.

CAS# 7758-29-4: LD50 3100 mg/kg - rat oral.

Section 3 : PHYSICAL / CHEMICAL CHARACTERISTICS

Physical state: Solid

Appearance & odor: Almost odourless.
White granular powder.

Odor threshold (ppm): Not available.

Vapour pressure (mmHg): Not applicable.

Vapour density (air=1): Not applicable.

By weight: Not available.

Evaporation rate (butyl acetate = 1): Not applicable.

Boiling point (°C): Not applicable.

Freezing point (°C): Not applicable.

pH: (1% aqueous solution).
9.5

Specific gravity @ 20 °C: (water = 1).
0.85 - 1.10

Solubility in water (%): 100 - > 10% w/w

Coefficient of water\oil dist.: Not available.

VOC: None

Section 4 : FIRE AND EXPLOSION HAZARD DATA

Flammability: Not flammable.

Conditions of flammability: Surrounding fire.

Extinguishing media: Carbon dioxide, dry chemical, foam.
Water
Water fog.

Special procedures: Self-contained breathing apparatus required.
Firefighters should wear the usual protective gear.

Auto-ignition temperature: Not available.

Flash point (°C), method: None

Lower flammability limit (% vol): Not applicable.

Upper flammability limit (% vol): Not applicable.

Not available.

Sensitivity to mechanical impact: Not applicable.

Hazardous combustion products: Oxides of carbon (COx).
Hydrocarbons.

Rate of burning: Not available.

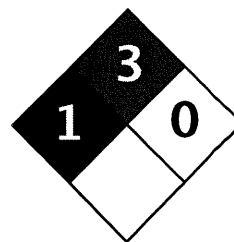
Explosive power: None

Section 5 : REACTIVITY DATA

- Chemical stability:** Stable under normal conditions.
- Conditions of instability:** None known.
- Hazardous polymerization:** Will not occur.
- Incompatible substances:** Strong acids.
Strong oxidizers.
- Hazardous decomposition products:** See hazardous combustion products.

Section 6 : HEALTH HAZARD DATA

- Route of entry:** Skin contact, eye contact, inhalation and ingestion.
- Effects of Acute Exposure**
- Eye contact:** May cause irritation.
- Skin contact:** Prolonged contact may cause irritation.
- Inhalation:** Airborne particles may cause irritation.
- Ingestion:** May cause vomiting and diarrhea.
May cause abdominal pain.
May cause gastric distress.
- Effects of chronic exposure:** Contains an ingredient which may be corrosive.
- LD50 of product, species & route:** > 5000 mg/kg rat oral.
- LC50 of product, species & route:** Not available for mixture, see the ingredients section.
- Exposure limit of material:** Not available for mixture, see the ingredients section.
- Sensitization to product:** Not available.
- Carcinogenic effects:** Not listed as a carcinogen.
- Reproductive effects:** Not available.
- Teratogenicity:** Not available.
- Mutagenicity:** Not available.
- Synergistic materials:** Not available.
- Medical conditions aggravated by exposure:** Not available.
- First Aid**
- Skin contact:** Remove contaminated clothing.
Wash thoroughly with soap and water.
Seek medical attention if irritation persists.
- Eye contact:** Check for and remove contact lenses.
Flush eyes with clear, running water for 15 minutes while holding eyelids open: if irritation persists, consult a physician.
- Inhalation:** Remove victim to fresh air.
Seek medical attention if symptoms persist.
- Ingestion:** Dilute with two glasses of water.
Never give anything by mouth to an unconscious person.
Do not induce vomiting, seek immediate medical attention.



Health	2
Fire	3
Reactivity	0
Personal Protection	H

Material Safety Data Sheet

Methyl alcohol MSDS

Section 1: Chemical Product and Company Identification

Product Name: Methyl alcohol

Catalog Codes: SLM3064, SLM3952

CAS#: 67-56-1

RTECS: PC1400000

TSCA: TSCA 8(b) inventory: Methyl alcohol

CI#: Not applicable.

Synonym: Wood alcohol, Methanol; Methylol; Wood Spirit; Carbinol

Chemical Name: Methanol

Chemical Formula: CH₃OH

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Methyl alcohol	67-56-1	100

Toxicological Data on Ingredients: Methyl alcohol: ORAL (LD50): Acute: 5628 mg/kg [Rat]. DERMAL (LD50): Acute: 15800 mg/kg [Rabbit]. VAPOR (LC50): Acute: 64000 ppm 4 hours [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:

Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator). Severe over-exposure can result in death.

Potential Chronic Health Effects:

Slightly hazardous in case of skin contact (sensitizer).

CARCINOGENIC EFFECTS: Not available.

MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast.

TERATOGENIC EFFECTS: Classified POSSIBLE for human.

DEVELOPMENTAL TOXICITY: Not available.

The substance is toxic to eyes.

The substance may be toxic to blood, kidneys, liver, brain, peripheral nervous system, upper respiratory tract, skin, central nervous system (CNS), optic nerve.

Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Get medical attention.

Skin Contact:

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:

If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 464°C (867.2°F)

Flash Points: CLOSED CUP: 12°C (53.6°F). OPEN CUP: 16°C (60.8°F).

Flammable Limits: LOWER: 6% UPPER: 36.5%

Products of Combustion: These products are carbon oxides (CO, CO₂).

Fire Hazards in Presence of Various Substances:

Highly flammable in presence of open flames and sparks, of heat.
Non-flammable in presence of shocks.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available.
Explosive in presence of open flames and sparks, of heat.

Fire Fighting Media and Instructions:

Flammable liquid, soluble or dispersed in water.
SMALL FIRE: Use DRY chemical powder.

LARGE FIRE: Use alcohol foam, water spray or fog.

Special Remarks on Fire Hazards:

Explosive in the form of vapor when exposed to heat or flame. Vapor may travel considerable distance to source of ignition and flash back. When heated to decomposition, it emits acrid smoke and irritating fumes. CAUTION: MAY BURN WITH NEAR INVISIBLE FLAME

Special Remarks on Explosion Hazards:

Forms an explosive mixture with air due to its low flash point.
Explosive when mixed with Chloroform + sodium methoxide and diethyl zinc. It boils violently and explodes.

Section 6: Accidental Release Measures

Small Spill:

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill:

Flammable liquid. Poisonous liquid.
Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Keep locked up.. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, metals, acids.

Storage:

Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:

Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

TWA: 200 from OSHA (PEL) [United States]
TWA: 200 STEL: 250 (ppm) from ACGIH (TLV) [United States] [1999]
STEL: 250 from NIOSH [United States]

TWA: 200 STEL: 250 (ppm) from NIOSH SKIN
TWA: 200 STEL: 250 (ppm) [Canada]
Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Alcohol like. Pungent when crude.

Taste: Not available.

Molecular Weight: 32.04 g/mole

Color: Colorless.

pH (1% soln/water): Not available.

Boiling Point: 64.5°C (148.1°F)

Melting Point: -97.8°C (-144°F)

Critical Temperature: 240°C (464°F)

Specific Gravity: 0.7915 (Water = 1)

Vapor Pressure: 12.3 kPa (@ 20°C)

Vapor Density: 1.11 (Air = 1)

Volatility: Not available.

Odor Threshold: 100 ppm

Water/Oil Dist. Coeff.: The product is more soluble in water; $\log(\text{oil/water}) = -0.8$

Ionicity (in Water): Non-ionic.

Dispersion Properties: See solubility in water.

Solubility: Easily soluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ignition sources, incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents, metals, acids.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:

Can react vigorously with oxidizers. Violent reaction with alkyl aluminum salts, acetyl bromide, chloroform + sodium methoxide, chromic anhydride, cyanuric chloride, lead perchlorate, phosphorous trioxide, nitric acid. Exothermic reaction with sodium hydroxide + chloroform.

Incompatible with beryllium dihydride, metals (potassium and magnesium), oxidants (barium perchlorate, bromine, sodium hypochlorite, chlorine, hydrogen peroxide), potassium tert-butoxide, carbon tetrachloride, alkali metals,

metals (aluminum, potassium magnesium, zinc), and dichlormethane.
Rapid autocatalytic dissolution of aluminum, magnesium or zinc in 9:1 methanol + carbon tetrachloride - sufficiently vigorous to be rated as potentially hazardous.
May attack some plastics, rubber, and coatings.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:

WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE.

Acute oral toxicity (LD50): 5628 mg/kg [Rat].

Acute dermal toxicity (LD50): 15800 mg/kg [Rabbit].

Acute toxicity of the vapor (LC50): 64000 4 hours [Rat].

Chronic Effects on Humans:

MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast.

TERATOGENIC EFFECTS: Classified POSSIBLE for human.

Causes damage to the following organs: eyes.

May cause damage to the following organs: blood, kidneys, liver, brain, peripheral nervous system, upper respiratory tract, skin, central nervous system (CNS), optic nerve.

Other Toxic Effects on Humans:

Hazardous in case of skin contact (irritant), of ingestion, of inhalation.

Slightly hazardous in case of skin contact (permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:

Passes through the placental barrier.

May affect genetic material.

May cause birth defects and adverse reproductive effects(paternal and maternal effects and fetotoxicity) based on animal studies.

Special Remarks on other Toxic Effects on Humans:

Section 12: Ecological Information

Ecotoxicity: Ecotoxicity in water (LC50): 29400 mg/l 96 hours [Fathead Minnow].

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation:

Methanol in water is rapidly biodegraded and volatilized. Aquatic hydrolysis, oxidation, photolysis, adsorption to sediment, and bioconcentration are not significant fate processes. The half-life of methanol in surfact water ranges from 24 hrs. to 168 hrs.

Based on its vapor pressure, methanol exists almost entirely in the vapor phase in the ambient atmosphere. It is degraded by reaction with photochemically produced hydroxyl radicals and has an estimated half-life of 17.8 days.

Methanol is physically removed from air by rain due to its solubility. Methanol can react with NO₂ in polluted to

form methyl nitrate.
The half-life of methanol in air ranges from 71 hrs. (3 days) to 713 hrs. (29.7 days) based on photooxidation half-life in air.

Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 3: Flammable liquid.

Identification: : Methyl alcohol UNNA: 1230 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:

Connecticut hazardous material survey.: Methyl alcohol
Illinois toxic substances disclosure to employee act: Methyl alcohol
Illinois chemical safety act: Methyl alcohol
New York release reporting list: Methyl alcohol
Rhode Island RTK hazardous substances: Methyl alcohol
Pennsylvania RTK: Methyl alcohol
Minnesota: Methyl alcohol
Massachusetts RTK: Methyl alcohol
Massachusetts spill list: Methyl alcohol
New Jersey: Methyl alcohol
New Jersey spill list: Methyl alcohol
Louisiana spill reporting: Methyl alcohol
California Directors List of Hazardous Substances (8CCR 339): Methyl alcohol
Tennessee Hazardous Right to Know : Methyl alcohol
TSCA 8(b) inventory: Methyl alcohol
SARA 313 toxic chemical notification and release reporting: Methyl alcohol
CERCLA: Hazardous substances.: Methyl alcohol: 5000 lbs. (2268 kg)

Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).
EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):

CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).
CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC).
CLASS D-2A: Material causing other toxic effects (VERY TOXIC).
Class D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):

R11- Highly flammable.
R23/24/25- Toxic by inhalation, in contact with skin and if swallowed.
R39- Danger of very serious irreversible effects. R39/23/24/25- Toxic: danger of very serious

irreversible effects through inhalation,
in contact with skin and if swallowed.
S7- Keep container tightly closed.
S16- Keep away from sources of ignition - No
smoking.
S36/37- Wear suitable protective clothing and
gloves.
S45- In case of accident or if you feel unwell,
seek medical advice immediately (show the
label where possible).

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:

Gloves.
Lab coat.
Vapor respirator. Be sure to use an
approved/certified respirator or
equivalent. Wear appropriate respirator
when ventilation is inadequate.
Splash goggles.

Section 16: Other Information

References:

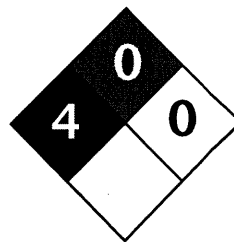
-SAX, N.I. Dangerous Properties of Industrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984.
-Material safety data sheet emitted by: la Commission de la Santé et de la Sécurité du Travail du Québec.
-Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987.
LOLI, HSDB, RTECS, HAZARTEXT, REPROTOX databases

Other Special Considerations: Not available.

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Last Updated: 10/10/2005 08:23 PM

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Health	3
Fire	0
Reactivity	0
Personal Protection	

Material Safety Data Sheet

Nitric acid, 65% MSDS

Section 1: Chemical Product and Company Identification

Product Name: Nitric acid, 65%

Catalog Codes: SLN2161

CAS#: Mixture.

RTECS: Not applicable.

TSCA: TSCA 8(b) inventory: Water; Nitric acid, fuming

CI#: Not applicable.

Synonym: Nitric Acid, 65%

Chemical Name: Not applicable.

Chemical Formula: Not applicable.

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Water	7732-18-5	35
Nitric acid, fuming	7697-37-2	65

Toxicological Data on Ingredients: Nitric acid, fuming: VAPOR (LC50): Acute: 244 ppm 0.5 hours [Rat]. 344 ppm 0.5 hours [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:

Very hazardous in case of skin contact (corrosive, irritant, permeator), of eye contact (irritant, corrosive), of ingestion, . Slightly hazardous in case of inhalation (lung sensitizer). Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Prolonged exposure may result in skin burns and ulcerations. Over-exposure by inhalation may cause respiratory irritation. Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: Not available.

MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Not available.
The substance may be toxic to lungs, mucous membranes, upper respiratory tract, skin, eyes, teeth.
Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

Skin Contact:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. **WARNING:** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: of combustible materials

Explosion Hazards in Presence of Various Substances:
Explosive in presence of reducing materials, of organic materials, of metals, of alkalis.
Non-explosive in presence of open flames and sparks, of shocks.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards:

Flammable in presence of cellulose or other combustible materials.

Phosphine, hydrogen sulfide, selenide all ignite when fuming nitric acid is dripped into gas.

(Nitric Acid, fuming)

Special Remarks on Explosion Hazards:

Reacts explosively with metallic powders, carbides, cyanides, sulfides, alkalies and turpentine.

Can react explosively with many reducing agents.

Arsine, phosphine, tetraborane all oxidized explosively in presence of nitric acid.

Cesium and rubidium acetylides explode in contact with nitric acid.

Explosive reaction with Nitric Acid + Nitrobenzene + water.

Detonation with Nitric Acid + 4-Methylcyclohexane.

(Nitric acid, fuming)

Section 6: Accidental Release Measures

Small Spill:

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of sodium carbonate.

Large Spill:

Corrosive liquid. Oxidizing material. Poisonous liquid.

Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Avoid contact with a combustible material (wood, paper, oil, clothing...). Keep substance damp using water spray. Do not touch spilled material. Use water spray curtain to divert vapor drift. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of sodium carbonate. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Keep locked up.. Keep container dry. Keep away from heat. Keep away from sources of ignition. Keep away from combustible material.. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as reducing agents, combustible materials, organic materials, metals, acids, alkalis, moisture. May corrode metallic surfaces. Store in a metallic or coated fiberboard drum using a strong polyethylene inner package.

Storage:

Keep container tightly closed. Keep container in a cool, well-ventilated area. Separate from acids, alkalies, reducing agents and combustibles. See NFPA 43A, Code for the Storage of Liquid and Solid Oxidizers. Do not store above 23°C (73.4°F).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:

Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be

used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

TWA: 2 STEL: 4 (ppm) from ACGIH (TLV) [United States]

TWA: 2 STEL: 4 from OSHA (PEL) [United States]

Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Acrid. Disagreeable and choking. (Strong.)

Taste: Not available.

Molecular Weight: Not applicable.

Color: Colorless to light yellow.

pH (1% soln/water): Acidic.

Boiling Point: 121°C (249.8°F)

Melting Point: -41.6°C (-42.9°F)

Critical Temperature: Not available.

Specific Gravity: 1.408 (Water = 1)

Vapor Pressure: 6 kPa (@ 20°C)

Vapor Density: 2.5 (Air = 1)

Volatility: Not available.

Odor Threshold: 0.29 ppm

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether.

Solubility:

Easily soluble in cold water, hot water.

Soluble in diethyl ether.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials

Incompatibility with various substances:

Highly reactive with alkalis.

Reactive with reducing agents, combustible materials, organic materials, metals, acids.

Corrosivity:

Extremely corrosive in presence of aluminum, of copper.

Non-corrosive in presence of glass, of stainless steel(304), of stainless steel(316), of brass.

Special Remarks on Reactivity:

A strong oxidizer.

Reacts violently with alcohol, organic material, turpene, charcoal.

Violent reaction with Nitric acid + Acetone and Sulfuric acid.

Nitric Acid will react with water or steam to produce heat and toxic, corrosive and flammable vapors.

(Nitric acid, fuming)

Special Remarks on Corrosivity:

In presence of traces of oxides, it attacks all base metals except aluminum and special chromium steels.

It will attack some forms of plastics, rubber, and coatings.

No corrosive effect on bronze.

No corrosivity data for zinc, and steel

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:

LD50: Not available.

LC50: Not available.

Chronic Effects on Humans:

Contains material which may cause damage to the following organs: lungs, mucous membranes, upper respiratory tract, skin, eyes, teeth.

Other Toxic Effects on Humans:

Extremely hazardous in case of inhalation (lung corrosive).

Very hazardous in case of skin contact (corrosive, irritant, permeator), of eye contact (corrosive), of ingestion, .

Special Remarks on Toxicity to Animals: LDL - Lowest Published Lethal Dose [Human] - Route: Oral; Dose: 430 mg/kg (Nitric acid, fuming)

Special Remarks on Chronic Effects on Humans:

May cause adverse reproductive effects (effects on newborn and fetotoxicity) based on animal data. (Nitric acid, fuming)

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects:

Skin: Severely irritates skin. Causes skin burns and may cause deep and penetrating ulcers of the skin with a characteristic yellow to brownish discoloration. May be fatal if absorbed through skin.

Eyes: Severely irritates eyes. Causes eye burns. May cause irreversible eye injury.

Ingestion: May be fatal if swallowed. Causes serious gastrointestinal tract irritation or burns with nausea, vomiting, severe abdominal pain, and possible "coffee grounds" appearance of the vomitus . May cause perforation of the digestive tract.

Inhalation: May be fatal if inhaled. Vapor is extremely hazardous. Vapor may cause nitrous gas poisoning.

Effects may be delayed. May cause irritation of the mucous membranes and respiratory tract with burning pain in the nose and throat, coughing, sneezing, wheezing, shortness of breath and pulmonary edema. Other symptoms may include nausea, and vomiting.

Chronic Potential Health Effects:

Repeated inhalation may produce changes in pulmonary function and/or chronic bronchitis. It may also affect behavior (headache, dizziness, drowsiness, muscle contraction or spasticity, weakness, loss of coordination, mental confusion), and urinary system (kidney failure, decreased urinary output after several hours of

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Class 8: Corrosive material

Identification: : Nitric acid UNNA: 2031 PG: II

Special Provisions for Transport: Marine Pollutant

Section 15: Other Regulatory Information

Federal and State Regulations:

New York release reporting list: Nitric acid, fuming

Rhode Island RTK hazardous substances: Nitric acid, fuming

Pennsylvania RTK: Nitric acid, fuming

Florida: Nitric acid, fuming

Minnesota: Nitric acid, fuming

Massachusetts RTK: Nitric acid, fuming

New Jersey: Nitric acid, fuming

TSCA 8(b) inventory: Water; Nitric acid, fuming

SARA 302/304/311/312 extremely hazardous substances: Nitric acid, fuming

SARA 313 toxic chemical notification and release reporting: Nitric acid, fuming 65%

CERCLA: Hazardous substances.: Nitric acid, fuming: 1000 lbs. (453.6 kg);

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):

CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC).

CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

CLASS E: Corrosive liquid.

DSCL (EEC):

R8- Contact with combustible material
may cause fire.

R35- Causes severe burns.

S23- Do not breathe gas/fumes/vapour/spray

[***]

S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36- Wear suitable protective clothing.
S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 0

Reactivity: 0

Personal Protection:

National Fire Protection Association (U.S.A.):

Health: 4

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:

Gloves.
Full suit.
Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
Face shield.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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Last Updated: 11/06/2008 12:00 PM

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MSDS Number: **S4034** * * * * * Effective Date: **05/04/07** * * * * * Supersedes: **07/07/04**

MSDS**Material Safety Data Sheet**

From: Mallinckrodt Baker, Inc.
222 Red School Lane
Phillipsburg, NJ 08865



24 Hour Emergency Telephone: 908-659-2151
CHEMTREC: 1-800-424-9300

National Response in Canada
CANUTEC: 613-696-6666

Outside U.S. and Canada
Chemtrec: 703-527-3887

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582-2637) for assistance.

SODIUM HYDROXIDE

1. Product Identification

Synonyms: Caustic soda; lye; sodium hydroxide solid; sodium hydrate

CAS No.: 1310-73-2

Molecular Weight: 40.00

Chemical Formula: NaOH

Product Codes:

J.T. Baker: 1508, 3717, 3718, 3721, 3722, 3723, 3728, 3734, 3736, 5045, 5565

Mallinckrodt: 7001, 7680, 7708, 7712, 7772, 7798

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Sodium Hydroxide	1310-73-2	99 - 100%	Yes

3. Hazards Identification

Emergency Overview

POISON! DANGER! CORROSIVE. MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED. CAUSES BURNS TO ANY AREA OF CONTACT. REACTS WITH WATER, ACIDS AND OTHER MATERIALS.

SAF-T-DATA^(tm) Ratings (Provided here for your convenience)

Health Rating: 4 - Extreme (Poison)

Flammability Rating: 0 - None

Reactivity Rating: 2 - Moderate

Contact Rating: 4 - Extreme (Corrosive)

Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES

Storage Color Code: White Stripe (Store Separately)

Potential Health Effects

Inhalation:

Severe irritant. Effects from inhalation of dust or mist vary from mild irritation to serious damage of the upper respiratory tract, depending on severity of exposure. Symptoms may include sneezing, sore throat or runny nose. Severe pneumonitis may occur.

Ingestion:

Corrosive! Swallowing may cause severe burns of mouth, throat, and stomach. Severe scarring of tissue and death may result. Symptoms may include bleeding, vomiting, diarrhea, fall in blood pressure. Damage may appear days after exposure.

Skin Contact:

Corrosive! Contact with skin can cause irritation or severe burns and scarring with greater exposures.

Eye Contact:

Corrosive! Causes irritation of eyes, and with greater exposures it can cause burns that may result in permanent impairment of vision, even blindness.

Chronic Exposure:

Prolonged contact with dilute solutions or dust has a destructive effect upon tissue.

Aggravation of Pre-existing Conditions:

Persons with pre-existing skin disorders or eye problems or impaired respiratory function may be more susceptible to the effects of the substance.

4. First Aid Measures

Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion:

DO NOT INDUCE VOMITING! Give large quantities of water or milk if available. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Skin Contact:

Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician, immediately. Wash clothing before reuse.

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

Note to Physician:

Perform endoscopy in all cases of suspected sodium hydroxide ingestion. In cases of severe esophageal corrosion, the use of therapeutic doses of steroids should be considered. General supportive measures with continual monitoring of gas exchange, acid-base balance, electrolytes, and fluid intake are also required.

5. Fire Fighting Measures

Fire:

Not considered to be a fire hazard. Hot or molten material can react violently with water.

Can react with certain metals, such as aluminum, to generate flammable hydrogen gas.

Explosion:

Not considered to be an explosion hazard.

Fire Extinguishing Media:

Use any means suitable for extinguishing surrounding fire. Adding water to caustic solution generates large amounts of heat.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Ventilate area of leak or spill. Keep unnecessary and unprotected people away from area of spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Pick up and place in a suitable container for reclamation or disposal, using a method that does not generate dust. Do not flush caustic residues to the sewer. Residues from spills can be diluted with water, neutralized with dilute acid such as acetic, hydrochloric or sulfuric. Absorb neutralized caustic residue on clay, vermiculite or other inert substance and package in a suitable container for disposal.

US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

7. Handling and Storage

Keep in a tightly closed container. Protect from physical damage. Store in a cool, dry, ventilated area away from sources of heat, moisture and incompatibilities. Always add the caustic to water while stirring; never the reverse. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product. Do not store with aluminum or magnesium. Do not mix with acids or organic materials.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

- OSHA Permissible Exposure Limit (PEL):
2 mg/m³ Ceiling
- ACGIH Threshold Limit Value (TLV):
2 mg/m³ Ceiling

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved):

If the exposure limit is exceeded and engineering controls are not feasible, a half facepiece particulate respirator (NIOSH type N95 or better filters) may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece particulate respirator (NIOSH type N100 filters) may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection:

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection:

Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:

White, deliquescent pellets or flakes.

Odor:

Odorless.

Solubility:

111 g/100 g of water.

Specific Gravity:

2.13

pH:
13 - 14 (0.5% soln.)
% Volatiles by volume @ 21C (70F):
0
Boiling Point:
1390C (2534F)
Melting Point:
318C (604F)
Vapor Density (Air=1):
> 1.0
Vapor Pressure (mm Hg):
Negligible.
Evaporation Rate (BuAc=1):
No information found.

10. Stability and Reactivity

Stability:

Stable under ordinary conditions of use and storage. Very hygroscopic. Can slowly pick up moisture from air and react with carbon dioxide from air to form sodium carbonate.

Hazardous Decomposition Products:

Sodium oxide. Decomposition by reaction with certain metals releases flammable and explosive hydrogen gas.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

Sodium hydroxide in contact with acids and organic halogen compounds, especially trichloroethylene, may cause violent reactions. Contact with nitromethane and other similar nitro compounds causes formation of shock-sensitive salts. Contact with metals such as aluminum, magnesium, tin, and zinc cause formation of flammable hydrogen gas. Sodium hydroxide, even in fairly dilute solution, reacts readily with various sugars to produce carbon monoxide. Precautions should be taken including monitoring the tank atmosphere for carbon monoxide to ensure safety of personnel before vessel entry.

Conditions to Avoid:

Moisture, dusting and incompatibles.

11. Toxicological Information

Irritation data: skin, rabbit: 500 mg/24H severe; eye rabbit: 50 ug/24H severe; investigated as a mutagen.

-----\Cancer Lists\-----			
Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	

Sodium Hydroxide (1310-73-2)	No	No	None

12. Ecological Information

Environmental Fate:
No information found.
Environmental Toxicity:
No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Domestic (Land, D.O.T.)

Proper Shipping Name: SODIUM HYDROXIDE, SOLID

Hazard Class: 8
UN/NA: UN1823
Packing Group: II
Information reported for product/size: 300LB

International (Water, I.M.O.)

Proper Shipping Name: SODIUM HYDROXIDE, SOLID
Hazard Class: 8
UN/NA: UN1823
Packing Group: II
Information reported for product/size: 300LB

15. Regulatory Information

-----\Chemical Inventory Status - Part 1\-----									
Ingredient				TSCA	EC	Japan	Australia		
Sodium Hydroxide (1310-73-2)				Yes	Yes	Yes	Yes		
-----\Chemical Inventory Status - Part 2\-----									
Ingredient						--Canada--			
				Korea	DSL	NDSL	Phil.		
Sodium Hydroxide (1310-73-2)				Yes	Yes	No	Yes		
-----\Federal, State & International Regulations - Part 1\-----									
Ingredient				-SARA 302-				-SARA 313-	
				RQ	TPQ	List	Chemical Catg.		
Sodium Hydroxide (1310-73-2)			No	No	No	No	No		
-----\Federal, State & International Regulations - Part 2\-----									
Ingredient						-RCRA-		-TSCA-	
				CERCLA	261.33	8 (d)			
Sodium Hydroxide (1310-73-2)			1000	No	No	No			

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: No Fire: No Pressure: No
Reactivity: Yes (Pure / Solid)

Australian Hazchem Code: 2R**Poison Schedule: S6****WHMIS:**

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: Health: **3** Flammability: **0** Reactivity: **1**

Label Hazard Warning:

POISON! DANGER! CORROSIVE. MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED. CAUSES BURNS TO ANY AREA OF CONTACT. REACTS WITH WATER, ACIDS AND OTHER MATERIALS.

Label Precautions:

Do not get in eyes, on skin, or on clothing.
Do not breathe dust.
Keep container closed.
Use only with adequate ventilation.
Wash thoroughly after handling.

Label First Aid:

If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen. In all cases get medical attention immediately.

Product Use:

Laboratory Reagent.

Revision Information:

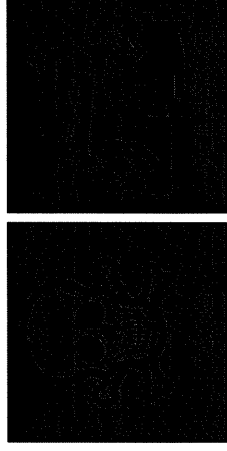
No Changes.

Disclaimer:

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Prepared by: Environmental Health & Safety
Phone Number: (314) 654-1600 (U.S.A.)

Safety data for sulfuric acid (concentrated)



[Click here for data on sulfuric acid in student-friendly format, from the HSci project](#)

[Glossary](#) of terms on this data sheet.

The information on this web page is provided to help you to work safely, but it is intended to be an overview of hazards, not a replacement for a full Material Safety Data Sheet (MSDS). MSDS forms can be downloaded from the web sites of many chemical suppliers.

General

Synonyms: oil of vitriol, mattling acid, vitriol, battery acid, dipping acid, electrolyte acid, vitriol brown oil, sulphuric acid

Molecular formula: H_2SO_4

CAS No: 7664-93-9

EC No: 231-639-5

EC index No: 016-020-00-8

Physical data

Appearance: Colourless oily liquid

Melting point: -2 C

Boiling point: 327 C

Specific gravity: 1.84

Vapour pressure: <0.3 mm Hg at 20 C (vapour density 3.4)

Flash point:

Explosion limits:

Autoignition temperature:

Water solubility: miscible in all proportions

Stability

Stable, but reacts with moisture very exothermically, which may enhance its ability to act as an oxidizing agent. Substances to be avoided include water, most common metals, organic materials, strong reducing agents, combustible materials, bases, oxidising agents. Reacts violently with water - when diluting concentrated acid, carefully and slowly add acid to water, not the reverse. Reaction with many metals is rapid or violent, and generates hydrogen (flammable, explosion hazard).

Toxicology

Extremely corrosive, causes serious burns. Highly toxic. Harmful by inhalation, ingestion and through skin contact. Ingestion may be fatal. Skin contact can lead to extensive and severe burns. Chronic exposure may result in lung damage and possibly cancer.

Toxicity data

(The meaning of any abbreviations which appear in this section is given [here](#).)

IHL-RAT LC50 0.51 mg/l

UNR-MAN LDLO 135 mg kg⁻¹

ORL-RAT LD50 2140 mg kg⁻¹ (25% solution)

IHL-MUS LC50 320 mg m⁻³ / 2h

IHL-GPG LC50 18 mg m⁻³

Risk phrases

(The meaning of any risk phrases which appear in this section is given [here](#).)

R23 R24 R25 R35 R36 R37 R38 R49.

Transport information

(The meaning of any UN hazard codes which appear in this section is given [here](#).)
UN No 1830. IMDG class 8. Packing group II. UK transport category 2.

Personal protection

Safety glasses or face mask; acid-resistant gloves. Suitable ventilation. In the UK use of this material must be assessed under the COSHH regulations.

Safety phrases

(The meaning of any safety phrases which appear in this section is given [here](#).)
S23 S30 S36 S37 S39 S45.

[Return to [Physical & Theoretical Chemistry Lab](#). [Safety home page](#).]

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ATTACHMENT C

SAFETY PROCEDURES/FIELD OPERATING PROCEDURES (FLD OPS)

ATTACHMENT D
HAZARD COMMUNICATION PROGRAM

SITE-SPECIFIC HAZARD COMMUNICATION PROGRAM

Location-Specific Hazard Communication Program/Checklist

To ensure an understanding of and compliance with the Hazard Communication Standard, WESTON will use this checklist/document (or similar document) in conjunction with the WESTON Written Hazard Communication Program as a means of meeting site- or location-specific requirements.

While responsibility for activities within this document reference the WESTON Safety Officer (SO), it is the responsibility of all personnel to effect compliance. Responsibilities under various conditions can be found within the WESTON Written Hazard Communication Program.

To ensure that information about the dangers of all hazardous chemicals used by WESTON are known by all affected employees, the following Hazard Communication Program has been established. All affected personnel will participate in the Hazard Communication Program. This written program, as well as WESTON's Corporate Hazard Communication Program, will be available for review by any employee, employee representative, representative of OSHA, NIOSH, or any affected employer/employee on a multi-employer site.

- ☒ Site or other location name/address: US EPA Atlas Powder
- ☒ Site/Project/Location Manager: Jeff Binkley
- ☒ Site/Location Safety Officer: Jeff Binkley
- ☒ List of chemicals compiled, format: ☒ HASP ☐ Other: _____
- ☒ Location of MSDS files: HASP
- ☒ Training conducted by: Name: Jeff Binkley Date: _____
- ☐ Indicate format of training documentation: ☐ Field Log: ☐ Other: _____
- ☒ Client briefing conducted regarding hazard communication: H&S Briefing with Clients performed.
- ☐ If multi-employer site (client, subcontractor, agency, etc.), indicate name of affected companies: _____
- ☐ Other employer(s) notified of chemicals, labeling, and MSDS information: _____
- ☐ Has WESTON been notified of other employer's or client's hazard communication program(s), as necessary? ☐ Yes ☐ No

List of Hazardous Chemicals

A list of known hazardous chemicals used by WESTON personnel must be prepared and attached to this document or placed in a centrally identified location with the MSDSs. Further information on each chemical may be obtained by reviewing the appropriate MSDS. The list will be arranged to enable cross-reference with the MSDS file and the label on the container. The SO or Location Manager is responsible for ensuring the chemical listing remains up-to-date.

Container Labeling

The WESTON SO will verify that all containers received from the chemical manufacturer, importer, or distributor for use on-site are clearly labeled.

The SO is responsible for ensuring that labels are placed where required and for comparing MSDSs and other information with label information to ensure correctness.

Material Safety Data Sheets (MSDSs)

The SO is responsible for establishing and monitoring WESTON's MSDS program for the location. The SO will ensure that procedures are developed to obtain the necessary MSDSs and will review incoming MSDSs for new or significant health and safety information. He/she will see that any new information is passed on to the affected employees. If an MSDS is not received at the time of initial shipment, the SO will call the manufacturer and have an MSDS delivered for that product in accordance with the requirements of WESTON's Written Hazard Communication Program.

A log for, and copies of, MSDSs for all hazardous chemicals in use will be kept in the MSDS folder at a location known to all site workers. MSDSs will be readily available to all employees during each work shift. If an MSDS is not available, immediately contact the WESTON SO or the designated alternate. When a revised MSDS is received, the SO will immediately replace the old MSDS.

Employee Training and Information

The SO is responsible for the WESTON site-specific personnel training program. The SO will ensure that all program elements specified below are supplied to all affected employees.

At the time of initial assignment for employees to the work site, or whenever a new hazard is introduced into the work area, employees will attend a health and safety meeting or briefing that includes the information indicated below.

- Hazardous chemicals present at the work site.
- Physical and health risks of the hazardous chemicals.
- The signs and symptoms of overexposure.
- Procedures to follow if employees are overexposed to hazardous chemicals.
- Location of the MSDS file and Written Hazard Communication Program.
- How to determine the presence or release of hazardous chemicals in the employee's work area.
- How to read labels and review MSDSs to obtain hazard information.
- Steps WESTON has taken to reduce or prevent exposure to hazardous chemicals.
- How to reduce or prevent exposure to hazardous chemicals through the use of controls procedures, work practices, and personal protective equipment.
- Hazardous, nonroutine tasks to be performed (if any).
- Chemicals within unlabeled piping (if any).

Hazardous Nonroutine Tasks

When employees are required to perform hazardous nonroutine tasks, the affected employee(s) will be given information by the SO about the hazardous chemicals he or she may use during such activity. This information will include specific chemical hazards, protective and safety measures the employee can use, and steps WESTON is using to reduce the hazards. These steps include, but are not limited to, ventilation, respirators, presence of another employee, and emergency procedures.

Chemicals in Unlabeled Pipes

Work activities may be performed by employees in areas where chemicals are transferred through unlabeled pipes. Prior to starting work in these areas, the employee will contact the SO, at which time information as to the chemical(s) in the pipes, potential hazards of the chemicals or the process involved, and the safety precautions that should be taken will be determined and presented.

Multi-Employer Work Sites

It is the responsibility of the SO to provide other employers with information about hazardous chemicals imported by WESTON to which their employees may be exposed, along with suggested safety precautions. It is also the responsibility of the SO and the Site Manager to obtain information about hazardous chemicals used by other employers to which WESTON employees may be exposed. WESTON's chemical listing will be made available to other employers, as requested. MSDSs will be available for viewing, as necessary.

The location, format, and/or procedures for accessing MSDS information must be relayed to affected employees.

ATTACHMENT D
HAZARD COMMUNICATION PROGRAM

ATTACHMENT E
AIR SAMPLING DATA SHEETS

SITE AIR MONITORING PROGRAM

Field Data Sheets

Location:[illegible]**Location:**[illegible]

ATTACHMENT F
INCIDENT REPORTING

NOTIFICATION OF INCIDENT—INITIAL REPORT

The NOI form should be utilized to report ALL incidents. Incidents include: employee accidents, injuries, auto accidents, property damage/loss, information /data breaches, security concerns, subcontractor injuries/accidents/events, *OR other liability situations or circumstances that could give rise to a claim*. The NOI form is intended to be a preliminary summary (**due within 24 hours/one business day**) reporting what is immediately known of an event or situation. After a NOI report is released, and the appropriate resources within the organization are notified, an investigation should be initiated.

For **SECURITY INCIDENTS**, Initial notice and distribution via email limited to William Irwin, Corporate Security Manager, and Susan Hipp-Ludwick, Corporate Risk Manager. If incident is related to information /computer data concerns also include Joe Paquet, IS Technical Director in initial distribution.

SECTION 1: SECURITY INCIDENT SUMMARY (PROCEED TO ITEM #1 BELOW)

☐ THEFT ☐ VANDALISM ☐ THREAT / ASSAULT ☐ COMPUTERS ☐ OTHER

For **SAFETY-RELATED INCIDENTS/ACCIDENTS** involving an employee(s) or subcontractor. Submit written report via email to Susan Hipp-Ludwick and Matthew Dillon in Risk Management, and ... Owen Douglass of Corporate EH&S, the Direct Supervisor of the involved employee(s), the Safety Officer, the Client Service Manager (CSM), and the Division EH&S Manager. Distribution of safety related incidents should also include: Pat McCann, President; Alan Solow, COO; Ray Griffin, Senior VP of HR; the appropriate Division Manager(s), and involved employee if such person is not the person completing the NOI. Others may be added to the distribution as designated by a division, business team, profit center or project management.

OTHER INCIDENTS, including environmental and/or incidents that may give rise to a claim are to be reported in writing, and sent by email to Susan Hipp-Ludwick and Matt Dillon in the Risk Management, and appropriate project team members, profit center, and division/business line management **within 24 hours**. Include Owen Douglass in distribution of environmental incidents.

SECTION I: INCIDENT SUMMARY

☐ INJURY / ILLNESS ☐ AUTO ☐ SUBCONTRACTOR ☐ ENVIRONMENTAL ☐ OTHER
(e.g. property loss;
or circumstance that could give
rise to a claim)

1. DATE / TIME /LOCATION OF INCIDENT (Project, Office, or Other location. Include WO#):
2. EMPLOYEE(S) / INDIVIDUAL(S) INVOLVED or WITNESS TO INCIDENT / EVENT:

JOB TITLE / ROLE: DIV./ PROFIT CENTER / ORG. UNIT
3. DIRECT SUPERVISOR / AND OFFICE MANAGER OR PROJECT MANAGER (Whomever is Appropriate):
4. DIVISION / LOCAL SAFETY OFFICER (if applicable):
5. DESCRIPTION OF INCIDENT / POTENTIAL LIABILITY EXPOSURE/EVENT AND RESULTING INJURY / DAMAGES:
6. WERE AUTHORITIES CONTACTED (police, government)? IF YES, IDENTIFY (i.e., agency name, case number, etc).

SECTION II: INJURY/IES

7. TREATING PHYSICIAN NAME, HOSPITAL, if Applicable:

8. CAN PERSONNEL RETURN TO WORK?

RESTRICTIONS, IF KNOWN :

SECTION III: IF VEHICLE OR EQUIPMENT INVOLVED

9. EQUIPMENT / VEHICLE INFORMATION (Year / Make / Model):

VIN:

OWNED ☐ RENTED ☐ ALLOWANCE ☐ PERSONALLY OWNED VEHICLE ☐

FOR ADDITIONAL INFORMATION, CONTACT (Name and Phone Number):

This is preliminary information, subject to change, and may contain errors. Any errors in this report will be corrected as follow-up investigation is conducted.

Investigative Reports and/or other documentation will often be necessary supplemental information supporting initial NOI report.

Questions can be directed to Susan Hipp-Ludwick at 610.701.3046 or Matt Dillon at 610.701.3667

ATTACHMENT G
AHA CHECKLIST AND ENVIRONMENTAL COMPLIANCE

HAZARD CHECKLIST Site Manager/EHS Officer:						Task Team (name or reference via daily sign-in sheet)			
Date: Location: Address:									
HAZARDS IDENTIFIED (check those applicable)									
	Chemical		Biological		Physical		Aerial lifts		Remote Areas
<input checked="" type="checkbox"/>	Flammable/combustible	<input checked="" type="checkbox"/>	Insects	<input checked="" type="checkbox"/>	Noise	<input type="checkbox"/>	Man. Material Handling	<input checked="" type="checkbox"/>	Materials handling
<input type="checkbox"/>	Corrosive	<input checked="" type="checkbox"/>	Animals	<input checked="" type="checkbox"/>	Heat	<input type="checkbox"/>	Demolition	<input type="checkbox"/>	High Pressure Washers
<input checked="" type="checkbox"/>	Oxidizer	<input checked="" type="checkbox"/>	Plants	<input checked="" type="checkbox"/>	Cold	<input checked="" type="checkbox"/>	Excavation	<input checked="" type="checkbox"/>	Hand and Power Tools
<input type="checkbox"/>	Reactive	<input type="checkbox"/>	Mold/Fungus	<input checked="" type="checkbox"/>	Inclement Weather	<input type="checkbox"/>	Pile Driving	<input checked="" type="checkbox"/>	Low Illumination
<input checked="" type="checkbox"/>	Toxic	<input type="checkbox"/>	Viral/Bacterial	<input type="checkbox"/>	Hot Work	<input type="checkbox"/>	Welding/Cutting/Burn	<input checked="" type="checkbox"/>	Drilling & Boring
<input checked="" type="checkbox"/>	Inhalation	<input type="checkbox"/>	Density Gauges	<input type="checkbox"/>	Confined Spaces	<input type="checkbox"/>	Hot Surfaces	<input checked="" type="checkbox"/>	Striking against/Struck-by
<input checked="" type="checkbox"/>	Eyes/Skin	<input type="checkbox"/>	Radiological	<input type="checkbox"/>	Stored hazardous Energy	<input type="checkbox"/>	Hot Materials	<input checked="" type="checkbox"/>	Caught-in/Caught between
<input type="checkbox"/>	Pesticides	<input type="checkbox"/>	Ultra-Violet	<input type="checkbox"/>	Elevation	<input checked="" type="checkbox"/>	Rough Terrain	<input type="checkbox"/>	Pushing/pulling
<input checked="" type="checkbox"/>	Carcinogen	<input checked="" type="checkbox"/>	Sunlight	<input type="checkbox"/>	Utilities	<input type="checkbox"/>	Compressed Gases	<input checked="" type="checkbox"/>	Falls at same level
<input checked="" type="checkbox"/>	Asbestos	<input type="checkbox"/>	Infrared	<input checked="" type="checkbox"/>	Machinery	<input type="checkbox"/>	Hazardous Mat. Storage	<input type="checkbox"/>	Falls from elevation
<input checked="" type="checkbox"/>	Lead	<input type="checkbox"/>	Lasers	<input checked="" type="checkbox"/>	Mobile equipment	<input type="checkbox"/>	Diving	<input type="checkbox"/>	Repetitive motion
<input type="checkbox"/>	UXO/OE/ CWM	<input checked="" type="checkbox"/>	XRF	<input type="checkbox"/>	Cranes	<input type="checkbox"/>	Operation of Boats	<input type="checkbox"/>	High (>110v) Electricity
<input type="checkbox"/>	Process Safety	<input type="checkbox"/>	Isotopes	<input type="checkbox"/>	Manual Material Handling	<input checked="" type="checkbox"/>	Working Over Water	<input type="checkbox"/>	Slippery surface Ice/Snow
<input type="checkbox"/>	Applying Paint/Coatings	<input type="checkbox"/>		<input type="checkbox"/>	Ladders	<input type="checkbox"/>	Traffic	<input type="checkbox"/>	
<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	Scaffolding	<input type="checkbox"/>	Site Security	<input type="checkbox"/>	
REQUIRED PROTECTION (check those applicable)									
	Engineering Controls		Administrative Control		PPE				Contingency
<input type="checkbox"/>	Guard Rails	<input checked="" type="checkbox"/>	Qualified for task	<input checked="" type="checkbox"/>	Air Supplying Respirator	<input checked="" type="checkbox"/>	Tyvek coveralls	<input checked="" type="checkbox"/>	Emergency Signal Known
<input type="checkbox"/>	Machine Guards	<input checked="" type="checkbox"/>	Trained/Certified	<input checked="" type="checkbox"/>	Air Purifying Respirator	<input type="checkbox"/>	Coated Coveralls	<input type="checkbox"/>	Eye wash/shower Location
<input type="checkbox"/>	Sound Barriers	<input type="checkbox"/>	Hot Work Permit	<input checked="" type="checkbox"/>	SCBA	<input type="checkbox"/>	Welding leathers	<input checked="" type="checkbox"/>	First Aid Kit Location
<input type="checkbox"/>	Enclosure	<input type="checkbox"/>	CSE Permit	<input checked="" type="checkbox"/>	Hard Hat	<input type="checkbox"/>	CWM	<input type="checkbox"/>	Fire Extinguisher Location
<input type="checkbox"/>	Elevation	<input type="checkbox"/>	Lockout/Tag Out	<input checked="" type="checkbox"/>	Ear Plugs	<input checked="" type="checkbox"/>	Safety Shoes/Boots	<input type="checkbox"/>	Spill Kit Location
<input type="checkbox"/>	Isolation	<input type="checkbox"/>	Work Permit	<input type="checkbox"/>	Ear Muffs	<input checked="" type="checkbox"/>	Rubber Boots	<input type="checkbox"/>	Severe weather shelter
<input type="checkbox"/>	GFCI	<input type="checkbox"/>	Dig Safe Permit	<input checked="" type="checkbox"/>	Safety Glasses	<input checked="" type="checkbox"/>	Gloves	<input checked="" type="checkbox"/>	Evacuation Routes
<input type="checkbox"/>	Assured Ground Program	<input checked="" type="checkbox"/>	Contingency Plan	<input type="checkbox"/>	Goggles	<input type="checkbox"/>	Cooling Suits		
<input type="checkbox"/>	Apply Anti-slip/skid Mat	<input type="checkbox"/>	Critical Lift Plans	<input type="checkbox"/>	Chemical Goggles	<input type="checkbox"/>	Ice Vests		
		<input type="checkbox"/>	Equip. Inspection Sheets	<input type="checkbox"/>	Face Shield	<input type="checkbox"/>	Radiant heat Suits		
				<input type="checkbox"/>	Thermal Shield	<input type="checkbox"/>	Fall Arrest		
				<input type="checkbox"/>	Welding Mask	<input checked="" type="checkbox"/>	PFD		
				<input type="checkbox"/>	Cutting Glasses	<input type="checkbox"/>	Electrical insulation		
Any Modification to Tasks (list)					Other tasks or activities that may affect my activity		Reasons for any changes indicated above		

Environmental Compliance Considerations:

<input type="checkbox"/>	Generation of Hazardous Waste*	<input type="checkbox"/>	→Waste Identification & Manifesting - Marking, Placarding, Labeling
<input type="checkbox"/>	Generation of Investigation Derived Waste*	<input type="checkbox"/>	→Training & Licensing for Use of Radioactive Materials/Sources
<input type="checkbox"/>	Treatment, Storage, or Disposal of Hazardous Waste*	<input type="checkbox"/>	→ Containers: dated, labeled, closed, full, stored less than 90 days
<input type="checkbox"/>	Contingency to prevent or contain hazardous materials or oil spills or discharges to drains, body of water, soil*	<input type="checkbox"/>	→ Risk of explosion or catastrophic release due to chemical storage or processing involving reactivity, flammables, solvents or explosives
<input type="checkbox"/>	Disturbing of Asbestos Containing Materials (ACM)*	<input type="checkbox"/>	→Training & Licensing for Asbestos Remediation Activities
<input type="checkbox"/>	Application of Pesticides or Herbicides*	<input type="checkbox"/>	
<input type="checkbox"/>	Work on Above or Under-ground Storage Tanks*	<input type="checkbox"/>	
<input type="checkbox"/>	Transportation, Storage or Disposal of Radioactive Material*	<input type="checkbox"/>	
<input type="checkbox"/>	Activities producing or generating Air Emissions (or fugitive "fence-line" emissions) requiring either monitoring and/or permit*	<input type="checkbox"/>	
<input type="checkbox"/>	Excavations, Drilling, Probing or other activities that could impact underground utilities, pipelines, sewer or treatment systems.	<input type="checkbox"/>	
<input type="checkbox"/>	Shipment of Hazardous Waste off-site*	<input type="checkbox"/>	
<input type="checkbox"/>	Shipment of Samples in accordance with DOT/IATA	<input type="checkbox"/>	

* Indicates need for an environmental compliance plan.

ATTACHMENT H
TRAFFIC CONTROL PLAN

ATTACHMENT I
AUDIT FORMS

ATTACHMENT J
ENVIRONMENTAL HEALTH & SAFETY INSPECTION CHECKLIST

ENVIRONMENTAL HEALTH AND SAFETY INSPECTION CHECKLIST

Project Name: _____

Inspector: _____

Submit to: _____

Date: _____

ENVIRONMENTAL HEALTH AND SAFETY INSPECTION CHECKLIST

THE WESTON SITE APPEARANCE

YES	NO		COMMENT
	X	Is the site secured to prevent inadvertent, unnecessary, or unauthorized access? Are gates closed and locked at any time that the access point is not occupied or visible to site workers?	NA
	X	Are access points posted with signs to indicate client and end-user client name, WESTON's name and logo, names of other contractors and sub-contractors, project name and location, and appropriate safety messages?	NA
	X	Are required postings in place (e.g., Labor Poster, Emergency Phone Numbers, Site Map, etc.)?	NA
	X	Are site trailers tied down per local code and provided with stairs that have a landing platform with guard and stair railings?	NA
	X	Is a Site Safety file system established in the office to maintain records required by applicable safety regulations	NA
X		Is the Health and Safety Plan (HASP) or Accident Prevention Plan (APP) amended as scope of work changes, hazards are discovered or eliminated or if risk change?	
X		Is the Site Safety Plan and the Safety Officers Field Manual on site?	
	X	Is new employee indoctrination provided?	NA
X		Have site Rules been provided, discussed and signed off on by all employees	
X		Incident Reporting procedure explained to all?	
X		Is site management trained in the WESTON (and client as applicable) Incident Reporting system?	
X		Are NOI and Supplemental Report forms and OSHA 300 Log available on site?	
	X	Is Site Management aware of the Case Management and Incident Investigation Procedures?	NA
X		Is there a list of preferred provider medical facilities available?	
X		Has the "Inspection By A Regulatory Agency" procedure been reviewed by all site management?	
	X	Will Competent Persons be required because of activities to be performed, equipment to be used or hazards to be encountered?	NA

POLICIES

YES	NO		COMMENT
X		Each individual employee is aware that he or she responsible for complying with applicable safety requirements, wearing prescribed safety equipment and preventing avoidable accidents.	
X		Do employees understand that they will wear clothing suitable for existing weather and work conditions and the minimum work uniform will include long pants, sleeved work shirts, protective footwear, hard hat, and safety glasses unless otherwise specified via the HASP.	
X		Are employees provided safety and health training to enable them to perform their work safely ? Is all training documented to indicate the date of the session, topics covered, and names of participants?	
X		Safety meetings are conducted daily. The purpose of the meetings are to review past activities, review pertinent tailgate safety topics and establish safe working procedures for anticipated hazards encountered during the day.	
X		Training has been provided to all personnel regarding handling of emergency situations that may arise from the activity or use of equipment on the project.	
X		Employees/contractors are informed and understand that they may not be under the influence of alcohol, narcotics, intoxicants or similar mind-altering substances at any time. Employees found under the influence of or consuming such substances will be immediately removed from the job site.	
	X	Site workers and operators of any equipment or vehicles are able to read and understand the signs, signals and operating instructions of their use.	NA
	X	Have contractors performing work provided copies of relevant documentation (such as medical fit-for-duty, training certificates, fit-tests, etc.) prior to initiation of the project?	NA

ENVIRONMENTAL HEALTH AND SAFETY INSPECTION CHECKLIST

SANITATION 29 CFR 1926 Subparts C, D. EM 385-1-1, Section 2

YES	NO		COMMENT
X		Is an adequate supply of drinking water provided. Is potable/drinking water labeled as such? Are there sufficient drinking cups provided?	
	X	Is there a sufficient number of toilets?	NA
	X	Are washing facilities readily available and appropriate for the cleaning needs?	NA
	X	Are washing facilities kept sanitary with adequate cleansing and drying materials?	NA
	X	Waste is secured so as not to attract rodents, insects or other vermin?	NA
	x	Is an effective housekeeping program established and implemented?	NA

ACCIDENT PREVENTION SIGNS, TAGS, LABELS, SIGNALS, AND PIPING SYSTEM IDENTIFICATION 29 CFR 1926 Subpart G. EM 385-1-1, Section 8

YES	NO		COMMENT
	X	Are signs, tags, and labels provided to give adequate warning and caution of hazards and instruction/directions to workers and the public?	NA
	X	Are all employees informed as to the meaning of the various signs, tags and labels used in the workplace and what special precautions are required?.	NA
	X	Are construction areas posted with legible traffic signs at points of hazard?	NA
	X	Are signs required to be seen at night lighted or reflectorized?	NA
	x	Tags contain a signal word ("danger" or "caution") and a major message to indicate the specific hazardous condition or the instruction to be communicated to the employee. Tags follow requirements as outlined in 29 CFR 1926.200.	NA

MEDICAL SERVICES AND FIRST AID 29 CFR 1926 Subparts C, D. EM 385-1-1, Section 3

YES	NO		COMMENT
X		Is a local medical emergency facility (LMEF) identified in the HASP or APP?	
X		Has the LMEF been visited to verify the directions and establish contacts?	
X		Has site management reviewed WESTON's incident management procedures?	
X		Have clinics and specialists that will help WESTON manage injuries and illnesses been identified?	
X		Is there at least two (2) people certified in First Aid and CPR?	
X		Are first aid kits available at the command post and appropriate remote locations?	
X		Are first Aid Kits and Eyewash/Safety Showers inspected weekly?	
	x	Are 15 minute eyewash/safety showers in place if required.	NA

ENVIRONMENTAL HEALTH AND SAFETY INSPECTION CHECKLIST

FIRE PREVENTION AND PROTECTION 29 CFR 1926 Subpart F. EM 385-1-1, Section 9

YES	NO		COMMENT
		Is an Emergency Response and Contingency Plan in place?	
X		Are emergency phone numbers posted?	In HASP
	x	Are fire extinguishers selected and provided based on the types of materials and potential fire classes in each area.	NA
	X	Are fire extinguishers provided in each administrative and storage trailer, within 50 ft but no closer than 25 ft of any fuel or flammable liquids storage, on welding and cutting equipment, on mechanical equipment?	NA
	X	Are fire extinguishers checked daily and inspected monthly?	NA
	X	Do site personnel know the location of fire extinguishers and how to use them?	NA
	X	Are flammable and combustible liquids stored in approved containers?	NA
	X	Safety cans are used for dispensing flammable or combustible liquids in 5 gallon or less volumes.	NA
	X	Are flammable and combustible liquids stored in flammable storage cabinets or appropriate storage areas?	NA
	X	Are flammable materials separated from oxidizers by at least 20 feet (or 5 foot tall, ½ -hour rated fire wall) when in storage?	NA
	X	Are fuel storage tanks double walled or placed in a lined berm?	NA
	X	Spills are cleaned up immediately and wastes are disposed of properly.	NA
	X	Combustible scrap, debris and waste material (oily rags) are stored in closed metal containers and disposed of promptly.	NA
	X	Vehicle fueling tanks are grounded and bonding between the tank and vehicle being fueled is provided?	NA
	X	LPG is stored, handled and used according to OSHA regulations 29 CFR 1926.	NA
	X	LPG cylinders are not stored indoors.	NA
	X	Is a hot work permit program in place? See WESTON FLD-36	NA
	x	Is smoking limited to specific areas, prohibited in flammable storage areas and are signs posted to this effect?	NA

HAZARDOUS SUBSTANCES, AGENTS AND ENVIRONMENTS 29 CFR 1926 Subparts D, Z. EM 385-1-1, Sections 6, 28

YES	NO		COMMENT
	X	Are operations, materials and equipment evaluated to determine the presence of hazardous contaminants or if hazardous agents could be released in the work environment?	NA
	X	Are MSDS for substances made available at the work-site when any hazardous substance is procured, used, or stored?.	NA
	X	Are all containers and piping containing hazardous substances labeled appropriately?	NA
	X	Is there an inventory of hazardous substances?	NA
X		Is there a site Specific Hazard Communication Program?	
	X	Spill kits appropriate for the hazardous materials present are on site and their location is known to spill responders.	NA
	X	Is disposal of excess hazardous chemicals performed according to WESTON's guidelines and RCRA regulations.	NA
	X	Before initiation of activities where there is an identified asbestos or lead hazard, is there a written plan detailing compliance with OSHA and EPA asbestos or lead abatement requirements? Does the plan comply with state and local authority, and USACE requirements, as applicable?	NA
X		Are personnel trained and provided with protection against hazards from animals, poisonous plants and insects?	

ENVIRONMENTAL HEALTH AND SAFETY INSPECTION CHECKLIST

PERSONAL PROTECTIVE AND SAFETY EQUIPMENT, RESPIRATORY AND FALL PROTECTION
29 CFR 1926 Subparts D, E, M. EM 385-1-1, Section 5

YES	NO		COMMENT
X		Do employees understand that the minimum PPE is hard hat, safety glasses with side shields and safety shoes or boots and that long pants and a sleeved shirt are required?	
X		Has the SSHC reviewed the PPE requirements in the HASP against actual site conditions and certified that the PPE is appropriate? (see Field Manual, PPE Program)	
X		PPE is inspected, tested and maintained in serviceable and sanitary condition as recommended by the manufacturer. Is defective or damaged equipment taken out of service and repaired or replaced?	
X		Are workers trained in the use of the PPE required?	
X		Are personnel exposed to vehicular or equipment traffic, including signal persons, spotters or inspectors required to vests or apparel marked with a reflective or high visibility material?	
X		Is there a noise hazard? If yes, hearing protection will be required.	
	X	Is there a splash or splatter hazard? Face shields or goggles will be required.	NA
	X	Will personnel be working in or over water? Personnel Floatation devices will be required.	NA
	X	Is there a welding hazard? Welding helmet and leathers will be required. Is there a cutting torch hazard? Goggles and protective clothing will be required.	NA
	X	Is each person on a walking/working surface with an unprotected side or edge which is 6 feet (1.8 m) or more above a lower level protected from falling by the use of guardrail systems, safety net systems or personal fall arrest systems? See WESTON FLD 25 (Note General Industry standard is four feet).	NA
	X	Guardrail systems are used as primary protection whenever feasible. Guardrail construction meets criteria in 29 CFR 1926.502(b).	NA
	X	Personal fall arrest systems (PFAS) are inspected and appropriate for use.	NA
	X	Ropes and straps (webbing) used in lanyards, lifelines, and strength components of body belts and body harnesses are from synthetic fibers.	NA
	X	Safety nets and safety net installations are constructed, tested and used according to 29 CFR 1926.502.c	NA
	X	Is respirator use required? See WESTON Respiratory Protection Program	NA
	X	Persons using respiratory protection have been successfully medically cleared, trained and fit tested.	NA
	X	Respirators are used according to the manufacturer's instructions, regulatory requirements, selection criteria and health and safety plan provisions.	NA
	X	For Level C operations with organic vapor contamination, is the cartridge change-out schedule documented?	NA
x		Is breathing certified as Grade D, or better, and certification available on-site?	

ENVIRONMENTAL HEALTH AND SAFETY INSPECTION CHECKLIST

MACHINERY AND MECHANIZED EQUIPMENT 29 CFR 1926 Subparts N, O. EM 385-1-1, Sections 16, 17, 18

YES	NO		COMMENT
	X	Are inspections of machinery by a competent person established?	NA
	X	Is equipment inspected daily before its next use?	NA
	X	Equipment inspection reports are reviewed, followed-up on negative findings and records of inspections are maintained?	NA
	X	Machinery or equipment found to be unsafe is taken out of service until the unsafe condition has been corrected.	NA
	X	Is there a preventive maintenance program established?	NA
X		Are operators of equipment qualified and authorized to operate?	
	x	Is all self-propelled construction and industrial equipment equipped with a reverse signal alarm?	NA
X		Are seats or equal protection provided for each person required to ride on equipment. Are seatbelts installed and worn on motor vehicles, as appropriate.	
	X	All equipment with windshields is equipped with powered wipers. If fogging or frosting is possible, operable defogging or defrosting devices are required.	NA
	X	Internal combustion engines are not operated in enclosed areas unless adequate ventilation are made. Air monitoring is conducted to assure safe working conditions.	NA
	X	Is each bulldozer, scraper, dragline, crane, motor grader, front-end loader, mechanical shovel, backhoe, or similar equipment equipped with at least one dry chemical or carbon dioxide fire extinguisher with a minimum rating of 5-B:C?	NA
	X	Will cranes or other lifting devices be used? If so, are the following documents available on site: 1) a copy of the operating manual, 2) load rating chart, 3) log book, 4) a copy of the last annual inspection and 5) the initial on-site inspection?	NA
	X	Do operators have certificates of training to operate the type of crane(s) to be used?	NA
X		Is a signal person provided when the point of operation is not in full view of the vehicle, machine or equipment operator? When manual (hand) signals are used, is only one person designated to give signals to the operator?	
X		Signal persons back one vehicle at a time. While under the control of a signal person, drivers do not back or maneuver until directed. Drivers stop if contact with the signal person is lost.	
	X	Is a critical lift plan prepared by a competent person whenever: a lift is not routine, or a lift exceeds 75% of a crane's capacity, a lift results in the load being out of the operator's line of sight, or a lift involves more than one crane, a man basket is used, or the operator believes there is a need for a critical lift plan.	NA
	X	Fork Lifts (Powered Industrial Trucks) - Will forklifts be used on site?	NA
	X	All fork lifts meet the requirements of design, construction, stability, inspection, testing, maintenance and operation as indicated in ANSI/ASME B56.1 Safety Standards for Low Lift and High Lift Trucks.	NA
	X	Do forklift operators have certificates of training?	NA
	X	Are pile driving operations conducted according to EM 385-1-1, Section 16.L?	NA
X		Is drilling equipment operated, inspected, and maintained as specified in the manufacturer's operating manual? Is a copy of the manual available at the work-site? See also the Drilling Safety Guide in the Safety Officers Field Manual.	
	X	Are flag persons provided when operations or equipment on or near a highway expose workers to traffic hazards? Do flag persons and persons working in proximity to a road wear high visibility vests? Are persons exposed to highway vehicle traffic protected by signs in all directions warning of the presence of the flag persons and the work? Do signs and distances from the work zone conform to federal and local regulations?	NA

ENVIRONMENTAL HEALTH AND SAFETY INSPECTION CHECKLIST

MOTOR VEHICLES 29 CFR 1926 Subpart O. EM 385-1-1, Section 18

YES	NO		COMMENT
X		Motor vehicle operators have a valid permit, license, or certification of ability for the equipment being operated.	
X		Inspection, maintenance and repair is according to manufacturer's requirements by qualified persons.	
X		Vehicles are inspected on a scheduled maintenance program.	
X		Vehicles not in safe operating condition are removed from service until defects are corrected.	
X		Glass in windshields, windows, and doors is safety glass. Any cracked or broken glass is replaced.	
X		Seatbelts are installed and worn.	
X		The number of passengers in passenger-type vehicles does not exceed the number which can be seated.	
X		Trucks used to transport personnel have securely anchored seating, a rear endgate, and a guardrail.	
X		No person is permitted to ride with arms or legs outside of a vehicle body; in a standing position on the body; on running boards; seated on side fenders, cabs, cab shields, rear of the truck or on the load.	
X		ATV operators possess valid state drivers license, have completed an ATV training course prior to operation of the vehicle, and wear appropriate protective equipment such as helmets, boots, and gloves.	

7.3

EXCAVATING AND TRENCHING 29 CFR 1926 Subpart P. EM 385-1-1, Section 25

YES	NO		COMMENT
	X	Has the known or estimated location of utility installations such as sewer, telephone, fuel, electric, water lines, or any other underground installations that may be expected to be encountered during excavation been determined before excavation? Have utility locations been verified by designated state services according to state regulations? Has the client provided clearance where state jurisdiction doesn't apply?	NA
	X	Have overhead utilities in excavation areas been identified and either de-energized, shielded or barricaded so excavating equipment will not come within 10 feet?	NA
	X	Are inspections of the excavation, the adjacent areas, and protective systems made daily and as necessary by a competent person?	NA
	X	Are Protective systems in place as prescribed by the competent person?	NA
	X	Is material removed from excavations managed so it will not overwhelm the protective systems?	NA
	X	Are barriers provided between excavations and walkways?	NA
	X	Are excavations by roadways barricaded to warn vehicles of presence or to prevent them from falling in?	NA
	X	Is there a means of exit from the excavation every 25 feet?	NA
	x	Is air monitoring required? If yes, Is it performed?	NA

CONFINED SPACES 29 CFR 1910 Subpart J. EM 385-1-1, Section 6

YES	NO		COMMENT
	X	Is there a Confined Space Entry Program in place?	NA
	X	Are the confined Spaces identified and labeled?	NA
	X	Will the Confined Spaces be entered?	NA
	x	Is appropriate entry documentation used and on-file?	NA

ENVIRONMENTAL HEALTH AND SAFETY INSPECTION CHECKLIST

ELECTRICAL 29 CFR 1926 Subpart K. EM 385-1-1, Section 11

YES	NO		COMMENT
	X	Are electrical installations made according to the National Electrical Code and applicable local codes?	NA
	X	Qualified electricians make all connections and perform all work within 10 feet of live electric equipment.	NA
	X	Location of underground, overhead, under floor, behind wall electrical lines is known and communicated. Lines are documented by qualified person as de-energized where necessary.	NA
X		Workers understand they must not work near live parts of electric circuits, unless they are qualified as required by OSHA or are protected by de-energizing and grounding the parts, guarding the parts by insulation, or other effective means?	
X		Employees who regularly work on or around energized electrical equipment or lines are instructed in the cardiopulmonary resuscitation (CPR) methods.	
	X	Workers are prohibited from working alone on energized lines or equipment over 600 volts.	NA
	X	Are Ground-fault circuit interrupters (GFCI's) or is ground fault circuit protection provided to protect employees from ground-fault hazards for all 115 – 120 Volt, 15 and 20 amp receptacle outlets which are not a part of the permanent wiring of a building or structure at construction sites?	NA
	X	Circuit breakers are labeled.	NA
	X	Circuit breaker and all cabinets with exposed electric conductors are kept tightly closed.	NA
	X	Unused openings (including conduit knockouts) in electrical enclosures and fittings are closed with appropriate covers, plugs or plates.	NA
	X	Sufficient access and working space is provided and maintained about all electrical equipment to permit ready and safe operations and maintenance.	NA
	X	Motors are located within sight of their controllers or controller disconnecting means are capable of being locked in the pen position or is a separate disconnecting means installed in the circuit within sight of the motor.	NA
	X	Are visual inspections of extension cords and cord-and plug-connected equipment conducted daily? Is equipment found damaged or defective tagged and removed from service, and not used until repaired?	NA
	X	Wet Areas - Is portable lighting used in wet or conductive locations, such as tanks or boilers operated at no more than 12 volts and protected by GFCIs.	NA
	X	Are electrical installations in hazardous areas to NEC?	NA
	X	Metal ladders and tools including tape measures or fabric with metal thread are prohibited where contact with energized electrically parts is possible.	NA
	X	All extension cords are the three-wire type, designed and rated for hard or extra hard usage?	NA
	X	Worn or frayed electrical cords or cables are taken out of service. Fastening with staples, hanging from nails or suspending extension cords by wire is prohibited.	NA
	X	Electric wire/flexible cord passing through work areas is protected from damage such as foot traffic, vehicles, sharp corners, projections and pinching? Flexible cords and cables passing through holes are protected by bushings or fittings?	NA
	X	Before an employee or contractor performs any service or maintenance on a system where the unexpected energizing, start up, or release of kinetic or stored energy could occur and cause injury or damage, the system is to be isolated. Only authorized persons may apply and remove lockouts and tags.	NA
	X	Contractors planning to use hazardous energy control procedures submit their hazardous energy control plan to the WESTON site safety officer or designee before implementing lockout/tagout procedures.	NA
	X	There is a site specific hazardous energy control plan that clearly and specifically outlines the scope, purpose, authorization, rules and techniques to be used for the control of hazardous energy.	NA
	x	Workers possess the knowledge and skills required for the safe application, usage and removal of energy controls.	NA

ENVIRONMENTAL HEALTH AND SAFETY INSPECTION CHECKLIST

WELDING AND CUTTING 29 CFR 1926 Subpart J. EM 385-1-1, Section 10

YES	NO		COMMENT
	X	Prior to performing welding, cutting or any other heat or spark producing activity, an assessment of the area is made by a competent person to identify combustible materials and potential sources of flammable atmospheres.	NA
	X	Welders, cutters and their supervisors are trained in the safe operation of their equipment, safe welding and cutting practices, hot work permit requirements, and fire protection.	NA
	X	Welding and cutting equipment is inspected daily before use. Unsafe equipment is taken out of use, replaced or repaired.	NA
	X	Workers and the public is shielded from welding rays, flashes, sparks, molten metal and slag.	NA
	X	Employees performing welding, cutting or heating are protected by PPE appropriate for the hazards (e.g., respiratory, vision and skin protection).	NA
	X	Compatible fire extinguishing equipment is provided in the immediate vicinity of welding or cutting operations.	NA
	x	Drums, tanks, or other containers and equipment which have contained hazardous materials shall be thoroughly cleaned before welding or cutting. Cleaning shall be performed in accordance with NFPA 327, <u>Cleaning or Safeguarding Small Tanks and Containers</u> , ANSI/AWS F4.1, <u>Recommended Safe Practices for the Preparation for Welding and Cutting of Containers That Have Held Hazardous Substances</u> , and applicable health and safety plan requirements.	NA

HAND AND POWER TOOL SAFETY 29 CFR 1926 Subpart I. EM 385-1-1, Section 13

YES	NO		COMMENT
X		Power tools are from a manufacturer listed by a nationally recognized testing laboratory for the specific application for which they are to be used.	
X		Hand & power tools are inspected, maintained, tested and determined to be in safe operating condition before use.	
X		Tools found to be unsafe are not used, tagged and repaired or destroyed.	
X		Users of tools are trained in safe use.	
X		Electrical tools have cords and plug connections in good repair.	
X		Electrical tools are effectively grounded or approved double insulated.	
	X	Reciprocating, rotating, and moving parts of equipment are guarded if they may be accessed by employees or they otherwise create a hazard.	NA
	X	Safety clips/retainers are installed and maintained on pneumatic impact tool connections.	NA
	X	Chain saws have an automatic chain brake or anti-kickback device.	NA
	X	Pneumatic and hydraulic hoses and fittings are inspected regularly.	NA
	X	Employees who operate powder actuated tools are trained and carry valid operators cards.	NA
	X	Powder activated tools are stored in individual locked containers, when not in use and are not loaded until ready to use.	NA
	X	Powder actuated tools are inspected for obstructions or defects daily before use.	NA
	x	Powder actuated tool operators have appropriate PPE.	NA

ENVIRONMENTAL HEALTH AND SAFETY INSPECTION CHECKLIST

RIGGING 29 CFR 1926 Subpart H. EM 385-1-1, Section 15

YES	NO		COMMENT
	X	Rigging equipment is inspected as specified by the manufacturer, by a qualified person, before use on each shift and as necessary to assure that it is safe.	NA
	X	Defective equipment is removed from service.	NA
	X	Rigging not in use is removed from the work area, properly stored, and maintained in good condition.	NA
	X	Wire rope removed from service for defects is cut up or plainly marked as unfit for use as rigging.	NA
	X	The number of saddle clips used to form eyes in wire rope conforms with Table H-20, are spaced evenly and the saddles are on the live side.	NA
	X	Chain rigging has a tag clearly indicating load limits, is inspected before initial use, then weekly, and is of alloyed metal.	NA
	X	Fiber rope rigging is not used if it is frozen or has been subject to acids or excessive heat.	NA
	X	Slings and their fittings and fastenings are inspected before use on each shift and as needed during use.	NA
	x	Drums, sheaves, and pulleys on rigging hardware are smooth and free of surface defects that can damage rigging.	NA

MATERIAL HANDLING, STORAGE, AND DISPOSAL 29 CFR 1926 Subpart H. EM 385-1-1, Section 14

YES	NO		COMMENT
X		Employees are trained in and use safe lifting techniques.	
	X	Materials are not moved or suspended over workers unless positive precautions have been taken to protect workers.	NA
	X	Conveyors are constructed, inspected, & maintained by qualified persons according to manufacturer's recommendations.	NA
	X	All conveyors are to be equipped with emergency stopping devices.	NA
	X	Hazardous exposed moving machine parts are guarded mechanically, electrically or by location.	NA
	X	Controls are clearly marked and/or labeled to indicate the function controlled.	NA
	X	Taglines are used for suspended loads where the movement may be hazardous to persons.	NA
	X	Material in storage is protected from falling or collapse by effective stacking, blocking, cribbing, etc.	NA
	X	Walkways and aisles are to be kept clear.	NA
	X	Materials are not stored on scaffolds or runways in excess of normal placement or in excess of safe load limits.	NA
	X	Work areas and means of access are maintained safe and orderly.	NA
	X	Tools, materials, extension cords, hoses or debris do not cause tripping or other hazards.	NA
	X	Storage and construction sites are kept free from the accumulation of combustible materials.	NA
x		Waste materials and rubbish are placed in containers or, if appropriate, in piles. Waste materials are disposed of in accord with applicable local, state, or federal requirements.	

ENVIRONMENTAL HEALTH AND SAFETY INSPECTION CHECKLIST

FLOATING PLANT AND MARINE ACTIVITIES 29 CFR 1926 Subpart O. EM 385-1-1 Section 19

YES	NO		COMMENT
	X	Floating plants that are regulated by the USCG have current inspections and certificates.	NA
	X	Before any floating plant is brought to the job site and placed in service it is inspected and determined to be in safe operating condition	NA
	X	Periodic inspections are made such that safe operating conditions are maintained. Strict compliance with EM 385-1-1, Section 19 is expected.	NA
	X	Plans are in place for removing or securing the plant and evacuation of personnel endangered by severe weather and other marine emergencies such as; fire, flooding, man overboard, hazardous materials incidents, etc..	NA
	X	Means of access are properly secured, guarded, and maintained free of slipping and tripping hazards.	NA
	x	Dredging operations follow guidelines as established in EM 385-1-1, Section 19.D.	NA

PRESSURIZED EQUIPMENT AND SYSTEMS 29 CFR 1926 Subparts I, F. EM 385-1-1, Section 20

YES	NO		COMMENT
X		Pressurized equipment and systems are inspected before being placed into service.	
X		Pressurized equipment or systems found to be unsafe are tagged "Out of Service-Do Not Use".	
X		Systems and equipment are operated, inspected and maintained by qualified, designated personnel.	
	X	Safe clearance, lockout/tagout procedures are followed as appropriate during maintenance or repair.	NA
	X	Air hose, pipes, fittings are pressure-rated for the activity. Defective hoses are removed from service.	NA
		Hoses aren't laid over ladders, steps, scaffolds, or walkways in a manner that creates a tripping hazard.	NA
	X	The use of compressed air for personal cleaning is prohibited. The use of compressed air for other cleaning is restricted to less than 30 psig.	NA
	X	Compressed gas cylinders are stored in well-ventilated locations.	NA
	X	Cylinders in storage are separated from flammable or combustible liquids and from easily ignitable materials by at least 40 feet or by a minimum five feet tall, ½ -hour fire resistive partition.	NA
	X	Stored cylinders containing oxidizing gases are separated from fuel gas cylinders by at least 20 feet or by a minimum five feet tall, ½ -hour fire resistive partition.	NA
	X	Cylinder valve caps are in place when cylinders are in storage, in transit, or a regulator is not in place.	NA
	X	Compressed gas cylinders in service are secured in substantial fixed or portable racks or hand trucks.	NA
	X	Oxygen cylinders and fittings are kept away from, and free from oil and grease.	NA
	X	Cylinder Storage areas are posted with the names of the gases in storage and with signs indicating "No Smoking or Open Flame".	NA
	X	Cylinders are to be stored such that mechanical and corrosion damage is avoided. Cylinders are not to be stored in areas required as an egress path.	NA
	x	Cylinders may be stored in the open outdoors, however, they must be protected from the ground to prevent corrosion and must be protected from temperatures that may exceed 125 degrees F.	NA

ENVIRONMENTAL HEALTH AND SAFETY INSPECTION CHECKLIST

WORK PLATFORMS/SCAFFOLDS 29 CFR 1926 Subparts L, M, N. EM 385-1-1 Sections 21, 22

YES	NO		COMMENT
	X	Work platforms are erected, used, inspected, tested, maintained and repaired according to manufacturer's requirements.	NA
	X	Construction, inspection, and disassembly of scaffolds is under the direction of a competent person.	NA
	X	Workers on scaffolding have been trained by a qualified person.	NA
	X	Scaffolds are erected on a firm and level surface and are square and plumb.	NA
	X	Scaffolds are not loaded in excess of rated capacity.	NA
	X	Working levels of work platforms are fully planked or decked.	NA
	X	Planks are in good condition and free from obvious defects.	NA
	X	Fabricated frame scaffolding four times higher than the base width is secured to building/structure according to manufacturer's instruction and/or OSHA requirements.	NA
	X	Working platforms of scaffolding over ten feet in height have guard rails meeting OSHA specifications. Fall protection is suggested at four feet or greater.	NA
	X	Scaffolding/work platforms are accessed by means of a properly secured ladder or equivalent. Built on ladders conform to scaffold ladder requirements. Climbing of braces is not allowed.	NA
	X	Crane supported work platforms are designed and used in accordance with OSHA standards.	NA
	X	Elevating work platforms are operated, inspected and maintained according to the equipment operations manual.	NA
	x	Employees working in aerial lifts remain firmly on the floor of the basket. Employees use fall protection while in an aerial lift basket.	NA

WALKING AND WORKING SURFACES AND STAIRS 29 CFR 1926 Subparts L, M, X. EM 385-1-1, Sections 21, 22, 24

YES	NO		COMMENT
X		Work areas are clean, sanitary, and orderly	
	X	Work surfaces are kept dry or appropriate means are taken to assure the surfaces are slip-resistant	NA
	X	Accumulations of combustible dust are routinely removed.	NA
	X	Aisles and passageways are kept clear and marked as appropriate.	NA
	X	There is safe clearance for walking in aisles where motorized or mechanical handling equipment is operating.	NA
	X	Materials or equipment is stored in such a way that sharp projections will not interfere with the walkway.	NA
	X	Changes of direction or elevation are readily identifiable.	NA
	X	Aisles or walkways that pass near moving or operating machinery, welding operations or similar operations are arranged so employees will not be subjected to potential hazards.	NA
	X	Standard guardrails are provided wherever aisle or walkway surfaces are elevated more than 30 inches above any adjacent floor or the ground and bridges provided where workers must cross over conveyors and similar hazards.	NA
	X	There are standard stair rails or handrails on all stairways having four or more risers or with an elevation of 30 or more inches.	NA
	X	Stairways are at least 22 inches wide. (General Industry Standard)	NA
	X	Stairs angle no more than 50 and no less than 30 degrees, risers are uniform from top to bottom (plus or minus 1/4 inch) and are provided with a surface that renders them slip resistant.	NA
	X	Stairway handrails are not less than 36 inches above the leading edge of stair treads and have at least 3 inches of clearance between the handrails and the wall or surface they are mounted on.	NA
	X	Where doors or gates open directly on a stairway, there is a platform provided so the swing of the door does not reduce the width of the platform to less than 20 inches.	NA
	X	Where stairs or stairways exit directly into any area where vehicles may be operated, there are adequate barriers and warnings provided to prevent employees stepping into the path of traffic.	NA
	X	Signs are posted showing the load capacity of elevated storage areas.	NA
	X	An appropriate means of access and egress is provided for surfaces with 19 or more inches of elevation change.	NA
	x	Material on elevated surfaces is minimized, with that necessary for immediate work requirements piled, stacked or racked in a manner to prevent it from tipping, falling, collapsing, rolling or spreading.	NA

ENVIRONMENTAL HEALTH AND SAFETY INSPECTION CHECKLIST

FLOOR AND WALL HOLES AND OPENINGS 29 CFR 1926 Subpart M. EM 385-1-1, Section 24

YES	NO		COMMENT
	X	Floor and roof openings that persons can walk into or fall through are guarded by a physical barrier or covered.	NA
	X	Holes (defined as equal to or greater than 2 inches in least dimension) where person could trip must be covered/protected.	NA
	X	Unprotected sides and edges on a walking/working surface six feet or more (note four feet in General Industry) are protected by guardrail system, safety net or Personal Fall Arrest System (PFAS).	NA
	X	Unused portions of service pits and pits not actually in use are either covered or protected by guardrails or equivalent.	NA
	x	Coverings for holes or other openings must be constructed of sufficient strength to support any anticipated load, must be secured in place to prevent accidental removal or displacement and must be marked indicating purpose (e.g., stenciled "Hole" or painted contrasting color to surroundings).	NA

ENVIRONMENTAL HEALTH AND SAFETY INSPECTION CHECKLIST

LADDERS

29 CFR 1926 Subpart X. EM 385-1-1, Section 21

YES	NO		COMMENT
	X	Portable ladders are used for their designed purpose only.	NA
	X	Portable ladders are examined for defects prior to, and after use.	NA
	X	Ladders found to be defective are clearly tagged to indicate "DO NOT USE" if repairable, or destroyed immediately if no repair is possible.	NA
	X	Workers are trained in hazards associated with ladder use and how to inspect ladders.	NA
	X	Ladders have secure footing provided by a combination of safety feet, top of ladder tie-offs and mud cills or a person holding the ladder to prevent slipping.	NA
	X	The handrails of a straight ladder used to get from one level to another extend at least 36 inches above the landing.	NA
	X	Ladders conform to construction criteria of ANSI Standards A-14.1 and A-14.2.	NA
	X	Wooden ladders are not painted with an opaque covering such that signs of flaws, cracks or drying are obscured.	NA
	X	Fixed ladders are constructed and used according to OSHA Standards, 29 CFR 1910.27 and ANSI A-14.3.	NA
	X	Rungs, cleats or steps, and side rails that may be used for handholds when climbing, offer adequate gripping surface and are free of splinters, slivers or burrs, and substances that could cause slipping.	NA
	X	Fixed ladders of greater than 24 feet have cages or other approved fall protection devices. (note General Industry is 20 feet).	NA
	x	Where fall protection is provided by ladder safety systems (body belts or harnesses, lanyards and braking devices with safety lines or rails), systems meet the requirements of and are used in accordance with WESTON Fall Protection Standard Practices and are compatible with construction of the ladder system.	NA

DEMOLITION

29 CFR 1926 Subpart T. EM 385-1-1, Section 23

YES	NO		COMMENT
	X	Prior to initiating demolition activities an engineering survey (by a competent person) and a demolition plan (by a competent person) is completed.	NA
	X	All employees engaged in demolition activities are instructed in the demolition plan.	NA
	X	It has been determined through the engineering survey and outlined in the plan, if any hazardous materials, or conditions (e.g., asbestos, lead, utility connections, etc.) exist. Such hazards are controlled or eliminated before demolition is started.	NA
	x	Continued inspections, by a competent person, are conducted to ensure safe employee working conditions.	NA

TREE MAINTENANCE AND REMOVAL

29 CFR 1910 Subpart R. EM 385-1-1, Section 31

YES	NO		COMMENT
	X	Tree maintenance or removal is done under the direction of a qualified person.	NA
	X	Tree work, in the vicinity of charged electric lines, is by trained persons qualified to work with electricity and tree work. Appropriate distances are maintained for all workers who are not qualified.	NA
	X	Equipment is inspected, maintained, repaired and used in accordance with the manufacture's directions.	NA
	X	Prior to felling actions are planned to include clearing of the area to permit safe working conditions and escape.	NA
	X	Employees must be trained in the safe operation of all equipment.	NA
	X	All equipment and machinery is inspected and determined safe prior to use.	NA
	x	Work is performed under requirements of FLD 43.	NA

ENVIRONMENTAL HEALTH AND SAFETY INSPECTION CHECKLIST

BLASTING 29 CFR 1926 Subpart U. EM 385-1-1, Section 29

YES	NO		COMMENT
	X	A blasting safety plan is developed prior to bringing explosives on-site.	NA
	X	The transportation, handling, storage, and use of explosives, blasting agents, and blasting equipment must be directed and supervised by a person with proven experience and ability in blasting operations. Licensing of person is verified.	NA
	x	Blasting operations in or adjacent to cofferdams, piers, underwater structures, buildings, structures, or other facilities must be carefully planned with full consideration to potential vibration and damage.	NA

HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE AND UNDERGROUND STORAGE TANK (UST) ACTIVITIES 29 CFR 1926 Subpart D. EM 385-1-1, Section 28

YES	NO		COMMENT
x		All construction activities performed with known or potential exposure to hazardous waste are conducted in accordance with Hazardous Waste Operations and Emergency Response requirements.	

CONCRETE and MASONRY CONSTRUCTION 29 CFR 1926 Subpart Q. EM 385-1-1, Section 27

YES	NO		COMMENT
	X	Construction loads are not placed on a concrete or masonry structure or portion of a concrete or masonry structure unless the employer determines, based on information from a person who is qualified in structural design, that the structure or portion of the structure is capable of supporting the loads.	NA
	X	Employees are not permitted to work above or in positions exposed to protruding reinforcing steel or other impalement hazards unless provisions have been made to control the hazard.	NA
	X	Sections of concrete conveyances and airlines under pressure are secured with wire rope (or equivalent material) in addition to the regular couplings or connections.	NA
	X	Structural and reinforcing steel for walls, piers, columns, and similar vertical structures is supported and/or guyed to prevent overturning or collapse	NA
	X	All form-work, shoring, and bracing is designed, fabricated, erected, supported, braced, and maintained so it will safely support all vertical and lateral loads that may be applied until the loads can be supported by the structure.	NA
	X	Shoring equipment is inspected prior to erection to determine that it is specified in the shoring design. Any equipment found to be damaged is not used.	NA
	X	Erected shoring equipment is inspected immediately prior to, during, and immediately after the placement of concrete. Any shoring equipment that is found to be damaged, displaced, or weakened is immediately reinforced or re-shored.	NA
	X	Shoring, vertical slip forms and jacks conform with requirements of Section 27.B.08-13 of USACE EM 385-1-1.	NA
	X	Forms and shores (except those on slab or grade and slip forms) are not removed until the individual responsible for forming and/or shoring determines that the concrete has gained sufficient strength to support its weight and all superimposed loads.	NA
	X	Precast concrete members are adequately supported to prevent overturning or collapse until permanent connections are complete	NA
	X	No one is permitted under pre-cast concrete members being lifted or tilted into position except employees required for the erection of those members.	NA
	X	Lift slab operations are planned and designed by a registered engineer or architect.	NA
	X	Hydraulic jacks used in lift slab construction have a safety device that causes the jacks to support the load in any position if the jack malfunctions	NA
	X	No one is permitted under the slab during jacking operations.	NA
	X	A limited access zone is established whenever a masonry wall is being constructed.	NA
	x	Fall protection is provided to masonry workers exposed to falls of 6 feet or more.	NA

ENVIRONMENTAL HEALTH AND SAFETY INSPECTION CHECKLIST

STEEL ERECTION 29 CFR 1926 Subpart R. EM 385-1-1, Section 27

YES	NO		COMMENT
	X	Impact wrenches have a locking device for retaining the socket. Containers shall be provided for storing or carrying rivets, bolts, and drift pins, and secured against accidental displacement when aloft.	NA
	X	Structural and reinforcing steel for walls, piers, columns, and similar vertical structures shall be guyed and supported to prevent collapse	NA
	X	No loading is placed upon steel joists until all bridging is completely and permanently installed.	NA
	X	Workers are provided fall protection whenever they are exposed to falls of 1.8 m (6 ft) or more (EM 385-1-1).	NA
	x	Temporary flooring in skeleton steel erection conforms with Section 27.F of USACE 385-1-1	NA

ROOFING 29 CFR 1926 Subpart M. EM 385-1-1, Sections 21, 22, 24, 27

Yes	No		Comments
	X	In the construction, maintenance, repair, and demolition, of roofs, fall protection systems is provided that will prevent personnel from slipping and falling from the roof and prevent personnel on lower levels from being struck by falling objects	NA
	X	On all roofs greater than 4.8 m (16 ft) in height, a hoisting device, stairways, or progressive platforms are furnished for supplying materials and equipment.	NA
	X	Roofing materials and accessories that could be moved by the wind, including metal roofing panels, that are on the roof and unattached are secured when wind speeds are greater than, or are anticipated to exceed, 10 mph.	NA
	X	Level, guarded platforms are provided at the landing area on the roof.	NA
	X	When their use is permitted, warning line systems comply with USACE Section 27.07 of EM 385-1-1.	NA
	x	Workers involved in roof-edge materials handling or working in a storage area located on a roof with a slope -/ = to four vertical to twelve horizontal and with edges 6 ft or more above lower levels are protected by the use of a guardrail, safety net, or personal fall arrest system along all unprotected roof sides and edges of the area.	NA

ENVIRONMENTAL HEALTH AND SAFETY INSPECTION CHECKLIST

ENVIRONMENTAL COMPLIANCE

Yes	No		Comments
X		Environmental Compliance and Waste Management Plan on file.	
	X	Waste Determination Made.	NA
	X	Manifest and/or Shipping Papers prepared and filed.	NA
	X	Manifest Exception Reports Prepared, as necessary. Procedures to track manifests in place.	NA
	X	State Annual and EPA Biennial Reporting Information Available.	NA
	X	RCRA Personnel Training Records on file.	NA
	X	CAA Permits on file.	NA
	X	CWA Permits on file.	NA
	X	RCRA Permits on file.	NA
	X	State and/or Local Permits on file.	NA
	X	RCRA Inspections conducted and Documentation on file.	NA
	X	Transporter and TSD compliance information on file.	NA
X		Waste Accumulation Areas Managed Properly.	
	X	Wetlands Areas Identified and Protected.	NA
	X	Endangered, Threatened or Special Concern Species or Areas Identified and Protective Methods Determined.	NA
	X	Runon and Runoff Concerns Identified and Managed.	NA
	X	Adjacent Land Areas Protected as Necessary.	NA
x		Non-Hazardous Solid Wastes Managed Properly.	

MISCELLANEOUS REGULATORY and POLICY COMPLIANCE

Yes	No		Comments
	X	Personnel Training Records for DOT Materials Handling on file.	NA
x		Noise Control Issues Addressed and Managed.	
X		Site Security Issues Identified and Managed.	
	X	Known Historical, Archeological and Cultural Resources Identified and Managed.	NA
X		WESTON EHS Analysis Checklist In Use.	
X		Safety Observation and Recognition Program in place.	
	X	Weekly EHS Report Card System in place.	NA
	X	Federal, State and Local Required Postings in place.	NA
	X	Site specific Lockout/Tagout Program is in place.	NA
	X	Site-specific Confined Space Program is in place.	NA
	x	Site Safety Officer filing system is in place and up to date.	NA

ATTACHMENT K
ENVIRONMENTAL PROTECTION AND SUSTAINABILITY PROGRAM IMPACT
CHECKLIST

ENVIRONMENTAL PROTECTION AND SUSTAINABILITY PROGRAM IMPACT CHECKLIST

PRE-PROPOSAL and EHS COMPLIANCE PLANNING

1. BACKGROUND

- a. Client name, address, phone number, and Point of Contact:
- b. Name/Identifier of proposal, if applicable:
- c. Prepared by:

2. DESCRIPTION

- a. Description, justification for, and location of Scope of Work in the proposal (i.e. training, activity, construction, regulation, license; include site location map):
- b. Environmental setting and present land use of the proposed site:

3. KNOWN OR POTENTIAL EHS IMPACTS:

Note that this checklist cannot completely anticipate all regulatory requirements, and that use of this checklist outlines only certain Federal criteria of specific interest (it is by no means a complete listing). State and local requirements must be evaluated also.

- The **Project Manager and Project Team** are responsible for evaluating project-specific environmental, health and safety needs that may be beyond those outlined in this checklist.
- Assistance is available through the Division Environmental, Health, and Safety (EHS) Managers and Corporate EHS Department. Early engagement of EHS support is a key to success.
- “**Yes**” responses will require a plan to address a specific issue. “**No**” responses must be based upon specific knowledge. “**Unknown**” responses require appropriate follow-up for confirmation.

3.1 Clean Air Act (CAA)

The basic purpose of the CAA is to control air pollution by instituting point source controls (fixed and/or mobile) and establishing maximum pollutant levels for the ambient air. Permits to construct and/or operate are required for sources that meet regulatory requirements. These sources include, but may not be limited to: major stationary sources, hazardous air pollution sources, and sources subject to new source performance standards.

Yes	No	Unknown	Criteria for Evaluation
General and Miscellaneous			
		x	Will the project release contaminants to the air from a new or existing source of air contaminants?
	x		Does the project have the potential for deterioration of air quality?

Yes	No	Unknown	Criteria for Evaluation
	x		Will there be the introduction of smoke, suspended particles, or noxious gases/vapors (e.g., open burning, open detonation, etc.)?
	x		Will there be real or potential for particulate/dust migration beyond facility/site boundaries?
	x		Will WESTON own or operate a source of air emissions (e.g., air stripper, incinerator, thermal desorption system, soil vapor extraction system, fuel tanks or dispensers, electric generators, turbines) or disturb land?
	x		Will WESTON own or operate an air pollution control device (e.g., scrubber, vapor-phase activated carbon system)?
	x		Is fugitive emissions and/or perimeter air monitoring specified in the scope of work?
x			Has client specified air monitoring methods or real-time monitoring?
Prevention of Significant Deterioration (PSD) Permits (40 CFR 52)			
		x	Is site within an attainment area? (See 40 CFR 81.301-356).
	x		Will the project involve construction or operation of a new major source with the potential to emit more than 100 tons/year for those specific listed emissions sources or 250 tons/year for all other emission sources types or a major modification of an existing major source with pollutant emission increases exceeding Prevention of Significant Deterioration (PSD) rates? (see 40 CFR 52.21(b) and/or CAA Section 169).
Non-Attainment Permits (40 CFR 52)			
		x	Is site within a non-attainment area? (See 40 CFR 81.301-356). If known, indicate which criteria pollutant(s) are not met.
New Source Performance Standards (40 CFR 60)			
	X		Will the project involve the release of contaminants to the air from a new or modified non-exempt source?
NESHAPS Standards for Air Toxics (40 CFR 61, 63) See also TSCA and OSHA			
	X		Will the project involve the demolition or renovation of any structure containing asbestos?
	X		Will the project involve a stationary source or group of stationary sources with the potential to emit 10 or more tons/year of a single HAP, or 25 tpy or more of multiple HAPs?
Accidental Release and Risk Management Planning (40 CFR 68)			
	X		Will the project involve storage and/or use of any chemical listed under 40 CFR 68.115 at or greater than its Threshold Planning Quantity (TPQ)?
Operating Permits (40 CFR 70, 71)			
	X		Will the project involve obtaining any permit as required under the CAA?
Reduction in Use of Ozone Depleting Substances (40 CFR 82)			
	x		Will site tasks involve repair, maintenance or decommissioning of objects containing ozone depleting substances (e.g., air conditioning/heat pump/refrigeration systems)?

State-Specific Requirements

As with many environmental regulations, States may have specific and/or additional regulations and laws associated with air and air quality. Remember to evaluate State and/or Local requirements.

3.2 Clean Water Act

The stated objective of the Act is to restore and maintain the chemical, physical, and biological integrity of the Nation's water by regulating discharges of pollutants into water bodies. Major requirements to plan for include; point source discharges, stormwater discharges, pretreatment prior to sewer system discharge, spill prevention and response, and wetland modification and/or dredge and fill activities.

Yes	No	Unknown	Criteria for Evaluation
General and Miscellaneous			
	X		Will the project location involve fresh water, marine environment, ground water impact or other?
	X		Will the project involve impact to water movement (e.g., construction of dam)?
	X		Will the project involve any change in the quantity and/or quality of ground water?
	X		Is there any potential for spills of hazardous materials/substances/wastes that could subsequently impact water quality (surface or ground)?
	X		Will the project involve any impact to wetlands or floodplains?
	X		Is the project in a well head protection area?
	X		Will there be any injection of waste materials into the ground?
	X		Will unimproved roads or new haul roads be required?
	X		Will the project involve the disruption, displacement or compaction of soil?
	X		Will the project involve a change in topography at the site?
	X		Will the project create an increase in wind or water erosion of soils (either on or off-site)?
NPDES Point Source Discharge Permit (40 CFR 122)			
	X		Will the project involve a point source discharge into surface water?
Stormwater Discharge Permit (40 CFR 122.26)			
	X		Will the project involve an industrial facility with potential for stormwater discharges to surface water or to a storm sewer system?
	X		Will the project involve the disturbance of one or more acres of land?
Pretreatment Requirements (40 CFR 403)			
	X		Will there be a discharge (e.g., process water, groundwater, cooling water) to a sewer authority or public sewer system? (Do not include proper connections from domestic-type sources such as toilets or kitchens).
Discharge of Oil and SPCC Plans (40 CFR 110, 112)			
	X		Will oil or petroleum products be stored at the site/operation?
	x		Will the storage capacity of oil or petroleum products exceed 1320 gallons in above ground storage (include only containers equal to or larger than 55 gallons), or 42000 gallons underground?
Wetlands Modification and/or Dredge and Fill Requirements (40 CFR 230-233)			

Yes	No	Unknown	Criteria for Evaluation
	X		Will the project involve excavation in or the discharge or dredge or fill material into water or wetlands?
	x		Will the project involve site clearing, or dredging or filling on/near water or wetlands?

State Requirements

As with many environmental regulations, States have specific regulations and laws associated with water protection and quality. Remember to evaluate State and/or Local requirements.

3.3 Safe Drinking Water Act (SDWA)

The SDWA regulates the quality of drinking water. Requirements typically relate to providing public drinking water, waste disposal in underground injection wells and establishing criteria for CERCLA remediation.

Yes	No	Unknown	Criteria for Evaluation
Public Water Supplies and Drinking Water Standards (40 CFR 141-143)			
	X		Will WESTON be providing a drinking water supply to the public?
	X		Will the project involve operating a public water supply system that has 15 or more services or serves more than 25 people per day for more than 60 days per year?
Sole-Source Aquifer Protection (40 CFR 149)			
	X		Will the project involve the discharge of contaminants onto or into areas classified as a sole-source aquifer?
Underground Well Injection (40 CFR 144-148)			
	x		Will the project involve the placing of fluids into a bored, drilled, driven or dug well?

State Requirements

In addition to compliance (and/or more restrictive) with above Federal criteria, States are responsible for implementing and enforcing well-head protection standards.

3.4 Resource Conservation and Recovery Act (RCRA)

RCRA provides the classic “cradle-to-grave” concept for waste materials, i.e., management of the waste material from generation to final disposal. RCRA requirements apply to those who generate, transport, store and dispose of wastes. Permits and identification numbers may be required for all categories with limited exceptions.

Yes	No	Unknown	Criteria for Evaluation
Non-Hazardous Solid Wastes (40 CFR 257, 258)			
	x		Will WESTON or the site generate any non-hazardous solid wastes? Weston will not generate any wastes; any wastes will be generated by the U.S. EPA (client)
Universal Wastes (40 CFR 273)			
	x		Will WESTON, or the site generate any universal wastes?

Yes	No	Unknown	Criteria for Evaluation
Hazardous Wastes Generation and Management (40 CFR 260-262)			
	X		Will WESTON generate any hazardous wastes?
		X	Will WESTON be responsible for managing hazardous wastes generated by the client?
	X		Will site activities result in quantities that result in Conditionally Exempt Small Quantity Generator (CESQG), Small Quantity Generator (SQG), or Large Quantity Generator (LQG).
	X		Has on-site accumulation of waste stream (areas, containers or other device) been evaluated?
Hazardous Waste Treatment and Disposal Permit (40 CFR 264-270)			
	X		Will on-site treatment of waste(s) be conducted?
	X		If off-site disposal has TSDF been evaluated and accepted?
	X		Will the project involve clean-up of hazardous waste or hazardous waste constituents from a RCRA-regulated facility?
Hazardous Waste Transportation (40 CFR 263)			
	X		Will WESTON be responsible for preparing hazardous wastes for transportation?
	X		If transporting wastes, has transporter been evaluated and accepted?
	X		Will WESTON sign manifest? If yes, as Generator or as "Agent" for client?
Underground Storage Tanks (USTs) (40 CFR 280)			
	X		Will WESTON activities involve the installation, use, maintenance, spill or release clean-up, or decommissioning of a UST storing petroleum or CERCLA-listed hazardous substance?
Used Oil (40 CFR 279)			
	X		Will site activities involve the generation, storage or transportation of used/waste oil?
Land Disposal Restrictions (40 CFR 268)			
	x		Will the project involve the generation of wastes meeting Land Disposal Restriction (LDR) criteria?

State Requirements

Most States have primacy for both hazardous and non-hazardous solid waste; ensure knowledge of specific state requirements for such waste streams.

3.5 Comprehensive Environmental Response Compensation and Liability Act (CERCLA)

CERCLA provides a mechanism to clean up uncontrolled or abandoned contaminated sites and hold potentially responsible parties accountable for clean-up costs.

Yes	No	Unknown	Criteria for Evaluation
Release Reporting (40 CFR 300, 302)			

Yes	No	Unknown	Criteria for Evaluation
	X		Are any of the chemicals stored or used on site listed as a hazardous substance (40 CFR 302.4)?
	X		Is there a potential for an unpermitted release of a hazardous substance to the environment in excess of its 24-hour Reportable Quantity (RQ)?
Remediation Efforts (40 CFR 300)			
	x		Are site remediation efforts under control of Federal Government?
	X		Are site remediation efforts under control of a State or Local Government?
	X		Are site remediation efforts under Private control?

State Requirements

Many states have enacted Superfund-type programs. Although many are similar to the Federal program, others may have significant differences to include broader ranges of hazardous substances.

3.6 Emergency Planning and Community Right to Know (EPCRA)

EPCRA established a process for developing state and local emergency planning and information programs on hazardous chemicals located at and/or emitted from facilities. Planning requirements apply to any facility that produces, uses or stores threshold quantities or more of any substance on the EPA list of extremely hazardous substances. There are also requirements for facilities that are required to maintain Material Safety Data Sheets (MSDSs) to notify the local fire department of those materials.

Yes	No	Unknown	Criteria for Evaluation
General			
x			Will WESTON or WESTON subcontractor have chemicals on site? Preservatives for sampling.
Emergency Planning Notifications (40 CFR 355)			
	X		Do any of the chemicals used or stored on site meet the definition of a hazardous substance and meet or exceed the threshold planning quantity (TPQ) for that chemical or 500 pounds, whichever is lower? (See 40 CFR Part 355 Appendix A and B). <i>If inventory meets criteria (material and quantity) then reports to LEPC, local Fire Department, and SERC are required. (See 40 CFR 370.21).</i>
Emergency Release Notifications (40 CFR 370)			
	X		Is there the potential for a release of listed substances (see 40 CFR 355, Appendices A and B and 40 CFR 302) that could result in exposure to persons off-site?
Community Right to Know/Hazardous Chemical Inventory Reporting (40 CFR 370)			
	x		At any point in time is any chemical in a quantity at or more than 10,000 pounds that requires an MSDS?

State Requirements

There are specific reporting and documentation requirements under EPCRA for state and local entities.

3.7 Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

The purpose of FIFRA is to protect public health and the environment from the misuse of pesticides by regulating the labeling and registration of pesticides. In addition to data necessary for the registration of pesticides sold there are requirements for the certification of applicators of those pesticides listed as restricted use.

Yes	No	Unknown	Criteria for Evaluation
Labeling and Packaging Requirements (40 CFR 156, 157)			
	X		Does the project involve the use or application of pesticides?
Certification of Applicators (40 CFR 171)			
	x		Is the use of a licensed pesticide applicator required (use of restricted use pesticides)?

3.8 Toxic Substances Control Act (TSCA) see also OSHA requirements

Much of TSCA deals with the manufacture, use and distribution of chemicals in commerce with limited impact to WESTON. There are, however, management requirements (to include remediation and disposal efforts) for specific chemicals (most importantly lead-based paint, PCBs, and asbestos).

Note: A “Yes” will require an appropriate technical approach to address the toxic material and must be included within the project-specific HASP. A “No” will require appropriate documentation from the Client or their designee describing how this determination was reached. An “Unknown” will require follow-up and receipt of documentation prior to proceeding.

WESTON may conduct its own survey and analysis to resolve “No” and “Unknown” responses if necessary.

Yes	No	Unknown	Criteria for Evaluation
Lead-Based Paint (40 CFR 745)			
	x		Has the site been evaluated for the presence of lead or lead-containing materials? This will be assessed.
		x	Will the project involve the removal of lead-contaminated materials?
Polychlorinated Biphenyls (PCBs) (40 CFR 761)			
	x		Has the site been evaluated for the presence of PCBs or PCB-contamination?
	x		Will the project involve the removal or handling of PCBs?
Asbestos (40 CFR 762)			
		x	Does the site or structures contain asbestos containing material (ACM)? This will be assessed.
	x		Will the project involve the disruption or removal of ACM? Any found ACM will be left in place.

3.9 Natural Resources and the Endangered Species Act

The Endangered Species Act (ESA) was passed to designate and protect fish, wildlife and plant species that are endangered or threatened as well as designate critical habitat for those species. Compliance with the ESA is required within the context of this checklist for not only necessary permits (e.g., Stormwater), but, as a means of understanding the potential environmental impact of our work efforts.

Yes	No	Unknown	Criteria for Evaluation
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Yes	No	Unknown	Criteria for Evaluation
General			
		x	Is the project site in an area identified as habitat for endangered, threatened or special interest species? Site assessment only; no invasive work to threaten a species.
	X		Will the project result in a change in the diversity or numbers of any species of plants or animals?
	X		Will the project result in the reduction of numbers or habitat damage to any unique, rare, threatened or endangered species of plants or animals?
	X		Will the project result in the introduction of new species of plant or animal (including microbes, etc.)?
	X		Will the project result in any barrier(s) to the migration or movement of animals?
	X		Will the project result in any significant alteration, deterioration, or destruction of habitat?
	X		Will the project result in the alteration, destruction, or significant impact to any environmentally sensitive areas (e.g., wetlands, floodplains, critical habitat, prime farm land, coastal zones, etc.)?

Note that a location-specific understanding of the ESA is necessary for completion of applications relating to air quality permitting, stormwater permitting and potentially others.

3.10 National Environmental Policy Act

The purpose of the National Environmental Policy Act (NEPA) is to encourage harmony between man and the environment, promote efforts to prevent or eliminate damage and stimulate the health and welfare of man, and to enrich the understanding of the ecological systems and natural resources that are important to the Nation. In context, NEPA requires federal agencies to prepare an environmental impact statement covering proposed actions that could significantly affect the quality of the human environment.

Yes	No	Unknown	Criteria for Evaluation
General			
	x		Is the project a major Federal action, or project, or a project requiring a federal permit, receiving federal funds, or located on federal land? (NEPA)

3.11 Noise (see also OSHA requirements)

The Noise Control Act promotes the policy that the environment is to be free of noise that jeopardizes health or welfare. While there are limited Federal/EPA regulations, there are State and Local regulations/ordinances that are applicable to work tasks.

Yes	No	Unknown	Criteria for Evaluation
General			
	X		Will the project cause an increase in noise levels?
X			Is the project site near sensitive receptor populations (e.g., residences, hospitals, schools, etc.)? There may be residences nearby; not a populated area though.
	X		Will site activities extend beyond typical daylight hours?
	x		Are there local noise ordinances in effect?

Yes	No	Unknown	Criteria for Evaluation
	x		Does the contract (or specifications) identify noise monitoring or other criteria?

3.12 Occupational Safety and Health (specifically 29 CFR 1910 and 1926)

The overall goal of the Occupational Safety and Health Act (OSH Act) is to assure that employees are not adversely affected to hazards that they may be exposed to in the course of employment. All work activities conducted by WESTON must comply with applicable components of the General Industry Standards, the Construction Standards, or the applicable requirements of Client-specific criteria (e.g., the Corps of Engineers).

Yes	No	Unknown	Criteria for Evaluation
General			
X			Will project activities be conducted under OSHA Construction Standards?
X			Will project activities be conducted under OSHA General Industry Standards?
	X		Will project activities be conducted under the requirements of EM 385-1-1 (USACE)?
X			Does the client have any specific occupational/safety requirements for the site work?
x			Will project activities be conducted under other standards?

Based upon site activities, location and tasks follow all applicable criteria outline in WESTON's Safety and Health requirements guidelines.

3.13 Transportation (specifically 49 CFR Parts 171-179, 383, 390-399)

Transportation in the context of this checklist typically relates to the transportation of hazardous chemicals. The Department of Transportation (DOT) has specific regulatory requirements that must be met if WESTON either conducts or oversees the preparation for transport or actual transportation of hazardous chemicals/materials designated by DOT.

Note: *Security Plans are required for transporting hazardous materials in an amount that must be placarded, hazardous materials in a bulk packaging having a capacity equal to or greater than 3,500 gallons for liquids or gases or more than 468 cubic feet for solids, or a select agent or toxin regulated by the Centers for Disease Control and Prevention under 42 CFR Part 73. Contact your local Dangerous Goods Advisor for assistance.*

Yes	No	Unknown	Criteria for Evaluation
General			
	X		Will site activities involve the transportation (or storage incidental to transportation) of hazardous materials?
	X		Will WESTON personnel be transporting hazardous materials (in any amount)?
	X		Will WESTON personnel be operating vehicles meeting the definition of a commercial vehicle?
	X		Will WESTON personnel be operating vehicles transporting a hazardous material in a placarded amount?

3.14 Radiation

Various regulations under the auspices of the Nuclear Regulatory Agency (10 CFR) require specific procedures for the handling, training, storage and maintenance of nuclear materials.

Yes	No	Unknown	Criteria for Evaluation
General (For the following questions indicate whether these tasks are by WESTON, Subcontractor, Client or Vendor.)			
X			Will Radiation sources be used or present? XRF
X			Will the project involve the transportation of radioactive material?
X			Will the project involve the storage of radioactive material?
		X	Will the project involve the disposal of radioactive material?
X			Will the project involve the use or storage of a radioactive source (e.g., troxler gauge, XRF)? DRF
X			Have users been properly trained and certified?
X			Are users operating under a radiation monitoring program?
x			Have rad licenses been transferred and/or the client notified of the presence of rad sources?

Based upon site activities, location and tasks follow all applicable criteria outlined in WESTON's EHS Program.

3.15 Historic/Archaeological

There are numerous Federal, State, Local and Tribal requirements outlining procedures to protect historic and cultural properties. These include those that exist as well as those that are discovered during work activities.

Yes	No	Unknown	Criteria for Evaluation
General			
X			Is the site or project in an area that is of historic or archeological interest?
	X		Will the project result in alteration or destruction of an archeological or historical site, structure, object or building that is on or eligible for inclusion in the National Register of Historic Places?
	x		Will the project involve the excavation, altering, defacing, or removal of archaeological objects or resources or Native Indian graves, cairns, or glyptic records?

Note that a location-specific understanding of historic and archaeological issues is necessary for completion of applications relating to air quality permitting, stormwater permitting and potentially others.

3.16 Miscellaneous

The following items are included based upon information that must be evaluated for certain WESTON work criteria, for certain sites e.g., real-estate transactions, military locations and for specific hazards.

Yes	No	Unknown	Criteria for Evaluation
General			

Yes	No	Unknown	Criteria for Evaluation
X			Have subcontractors been screened by Procurement and an EHS Manager or Safety Officer?
X			Has a Client Services Manager (CSM), Project Manager (PM), or WESTON Officer engaged WESTON's Subcontractors using the Subcontractor Talking points?
X			Has a project Kick-off meeting been planned?
X			Will a Safety Officer or an EHS Manager be involved in the kick-off meeting?
	X		Will the average work day including driving to and from the site exceed 12 hours? If yes, there must be a plan for addressing driving safety and fatigue.
	X		Will project personnel be driving vehicles they are not familiar with? If yes, there must be a plan for addressing driving safety.
	X		Will there be work at elevation (greater than 4 foot difference in elevations between working levels, work from ladders, work from scaffolding, use of aerial lifts, floor openings, wall openings)?
X			Will there be potential for struck by hazards (moving equipment, thrown or falling objects or material)?
	X		Will there be potential for being caught in (conveyors, power-take-off, screens, etc.) or between moving machinery?
	X		Will there be work with or within 10 feet of exposed electrical conductors?
	X		Are there overhead utilities?
		x	Are there underground utilities? If invasive work will be performed, this will be assessed.
	X		Will the project add additional traffic volume or types (material or equipment haul trucks) that may require community approval or plans?
	X		Will there be a traffic control plan for off-site and on-site vehicles?
	X		Is the facility a military facility?
X			Has the potential for UXO/MEC encounter been objectively evaluated?
X			Will there be slip, trip and fall hazards
	X		Will there be repetitive and or heavy lifting?
	X		If demolition work has the demolition plan, engineering survey and required components been addressed?
X			Are there OSHA Specific Standards applicable (asbestos, lead, cadmium, arsenic, hexavalent chromium, benzene, vinyl chloride, methylene chloride, butadiene, formaldehyde, dibromochloropropane)?
X			Will work be performed over or near water or boats?
	X		Will boats be used?
	X		Will Lifting Equipment and rigging be used?
X			Is there a communication Plan for letting neighbors know of WESTON activities that may impact them?

3.17 Real Estate and Tenant Issues

WESTON as an owner or operator assumes liability for actions or activities conducted by ourselves or by others (tenants). We must ensure compliance with Federal, State and Local requirements. The following outline major issues, however, as indicated previously for the EHS Checklist, it is not meant to be comprehensive. Remember, if we have tenants occupying portions of facilities that are under our control, we have an obligation to understand and assure compliance. For the following issues compliance may be by WESTON, by various tenants or a combination, ensure that each tenant is evaluated. Note that various components of the previous EHS Checklist sections may be appropriate.

Yes	No	Unknown	Criteria for Evaluation
Air			
	X		Are boilers or other pressure vessels (e.g., chillers, air receivers) located within our work space or at tenant locations?
	X		Have they been certified and inspected?
	X		Do emission sources (e.g., boilers, chillers, bulk oil storage, etc.) have proper registration (federal, state or local)?
	X		Are tenants responsible for compliance with inspections and permits?
	x		Is WESTON responsible for inspections and permits?
Occupancy and Other Permits			
	X		Do Business Permits/Certificate of Occupancy Requirements: State, County, City/Municipality need to be addressed? If yes, is WESTON responsible? _____ and/or are tenants responsible? _____
	X		Are Fire Code Inspections (e.g., materials storage, electrical, suppression systems) due? Are Corrective Actions due from past inspections? _____ If yes, is WESTON responsible? _____ and/or are tenants responsible? _____
	X		Are local permits and/or registrations for USTs or ASTs available or needed?
RCRA			
	X		Is the facility a Hazardous Waste Generator? If yes, what size? _____ Is WESTON responsible? _____ What is the waste stream? _____
	X		Do tenants generate Hazardous Wastes? If yes, what quantity? _____ What is the waste stream? _____
	X		Are appropriate permits available for waste generation?
	X		Is facility and/or are tenants under litigation or regulatory action for non-compliance with RCRA?
	X		Are USTs or ASTs on site? If yes, what are type, size, contents _____
	X		Have USTs been upgraded for overflow and spill control protection?
Water and Stormwater			
	X		Is a stormwater permit and plan necessary for the site?
	x		Is a NPDES and/or local discharge permit necessary for the site?

Yes	No	Unknown	Criteria for Evaluation
EPCRA			
	X		Do any of the chemicals used or stored on site meet the definition of a hazardous substance and meet or exceed the threshold planning quantity (TPQ) for that chemical or 500 pounds, whichever is lower? (See 40 CFR Part 355 Appendix A and B). <i>If inventory meets criteria (material and quantity) then reports to LEPC, local Fire Department and SERC required. (See 40 CFR 370.21).</i>
	X		Is WESTON responsible for compliance?
	X		Are Tenants responsible for compliance?
SPCC and Oil			
	X		Will oil or petroleum products be stored at the site/operation?
	X		Will the storage capacity of oil or petroleum products exceed 1320 gallons in above ground storage (include only containers equal to or larger than 55 gallons), or 42000 gallons underground?
	X		Is WESTON responsible for compliance?
	X		Are Tenants responsible for compliance?
Compliance			
	X		Is the site under enforcement action for regulatory non-compliance?
	x		Is any Tenant under enforcement action for regulatory non-compliance?

3.18 Explosives

Various regulations under the auspices of the Bureau of Alcohol, Tobacco, Firearms and Explosives (BATFE), 27 CFR Part 55 – Commerce in Explosives and 27 CFR Part 55 the Safe Explosives Act, require specific procedures for the purchase, use, storage, handling and sale of explosives or explosive containing items. Attention to these questions will help to manage our risk when developing projects that may involve explosives or munitions.

Yes	No	Unknown	Criteria for Evaluation
General			
	x		Will the project involve the handling or use of explosives or munitions that are either new or recovered (e.g. dynamite, military munitions, UXO, detonating cord, TNT, etc.)? Although nitroglycerin is a COC, the handling of this potential waste will be limited to sampling.
	X		Will the project involve the storage of explosives?
	X		Will the project involve the transportation of explosives?
	X		Have project personnel been cleared by BATFE as either a Possessor or Responsible Party to handle explosives?
	X		Will the project require a State Licensed Blaster?
	X		Will WESTON's Explosives Users Permit be required to execute the project? If yes, has the UXO Service Line Manager been notified?

3.19 Sustainability

There are a wide range of options for integrating sustainability into the execution of projects, far beyond what can be incorporated into this checklist. The following are a few broad questions which are designed

to stimulate thinking about how sustainable approaches could be utilized throughout project execution. A checklist of credits used in evaluating projects for LEED (Leadership in Energy and Environmental Design) could be used here in addition to the checklist below. Inclusion of an employee who is LEED AP Certified in the development of the work plan could help add other considerations, such as sustainable sites and efficient materials and resources. See the WESTON Sustainability Portal <http://westonportal/sites/sustainability/default.aspx> for further details.

Yes	No	Unknown	Criteria for Evaluation
General			
	X		Are there opportunities to reduce travel-related energy and environmental impacts associated with the project through such techniques as carpooling, use of videoconferencing, telecommuting or utilization of local personnel?
x			Has consideration been given to the potential for beneficial reuse or recycling of materials that will be excavated, removed or discarded during project execution? There are none.
	X		Are there opportunities to utilize alternative or renewable energy on the project, through applications such as photovoltaics (solar) or wind power for remote sensing and/or trailer power, or alternative fuel (e.g. biodiesel) for fleet vehicles or equipment?
	X		Have “green” considerations been integrated into the procurement process for materials and or equipment (e.g. recycled content, energy efficiency, recyclability, minimal packaging)?
	X		Are there opportunities to increase energy or water efficiency in the execution of the project through selection of appropriate equipment or technical approaches?
	X		Are there opportunities to offset some of the environmental impacts of the project through purchase of carbon credits, renewable energy credits or wetlands banking?
	x		Could a Community Partnering/Make-a-Difference event be coordinated or integrated with this project?