BRC Eastside Common Areas Soil Remediation Project Henderson, Nevada

HEALTH AND SAFETY PLAN

PREPARED FOR

Basic Remediation Company (BRC)

PREPARED BY

ENTACT
3129 Bass Pro Drive
Grapevine, TX 76051
(972) 580-1323

June 05, 2008

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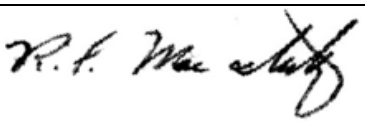
ALL ATTACHMENTS THAT ARE REFERENCED IN THIS HEALTH AND SAFETY PLAN ARE COMPILED AND MAINTAINED UNDER SEPARATE COVER.

HEALTH AND SAFETY PLAN (HASP)

ACKNOWLEDGEMENT AND ACCEPTANCE

ACKNOWLEDGEMENT

Role	Name	Signature and Date
ENTACT Project Coordinator	Erik Gehringer	
ENTACT Project Health and Safety Coordinator	R. F (Rick) MacIntyre, CSP	 06/05/08

ACCEPTANCE

Role	Name	Signature and Date
BRC Project Manager	Ranajit Sahu, Ph.D.	
Weston On-Site Representative	Richard Laubinger	

GENERAL PERMIT TO WORK (PTW)

This HASP was prepared to meet the requirements for short duration projects. Listed below are the conditions as well as the sections that meet the General PTW requirements.

General PTW Requirements:	Reference:
The HASP is tailored to the specific scope of work being performed	Sections 2.3
The scope of work is defined and short in duration	Section 2.3
The HASP requires daily tailgate meetings wherein the planned activities are reviewed in detail with the work crews and all conditions necessary to perform the work safely for that day are considered	Sections 3.7, 4.1, 4.2, and 5.4
The HASP requires project work teams to conduct daily review of foreseeable hazards and consequences and that both are avoided by taking steps to implement appropriate control measures – HASP updated as necessary	Section 1.4 and 5.0
The HASP identifies all parties that should know about the project and those parties are communicated to as appropriate	Section 3.0

It is essential that site personnel be prepared in the event of an emergency. Emergencies can take many forms; illnesses or injuries, chemical exposure, fires, explosions, spills, leaks, releases of harmful contaminants, or sudden changes in the weather. This table must be posted in the worksite trailer or field office.

EMERGENCY CONTACTS	
Emergency Response Agencies	
Fire Department	911 – Emergency
Police Department	911 – Emergency
Ambulance	911 – Emergency
St Rose Dominican Hospitals 102 E Lake Mead Pkwy, Henderson, NV 89015	702-564-5000 Main (702)564-2622 Emergency Room
Concentra Occupational Health Clinic - Henderson 149 N Gibson Rd Henderson, NV 89014	(702) 558-6275
National Response Center	(800) 424-8802
Center for Disease Control	(404) 488-4100
Chemtrec	(800) 424-9300
National Capital Poison Center	(800) 222-1222
U.S. Coast Guard National Response	(800) 424-8802
Underground Service Alert - North	(800) 227-2600
Nevada Power	(877) 213-1053
Project Personnel	
Erik Gehringer ENTACT Project Coordinator	Office: (630) 986-2900 Cell: (561) 707-7088
Don Self ENTACT Corporate Health and Safety Director	Office: (972) 580-1323 Cell: (630) 669-4259
Bob Ainslie ENTACT Project Manager	Cell: (307) 359-1141
Russell Karnes ENTACT Field Project Manager	Cell: (785) 342-3850
Rick MacIntyre, CSP ENTACT Project Health and Safety Coordinator	Office: (972) 580-1323 Cell: (214) 663-3282
Michael Parker, CHST ENTACT Health and Safety Officer	Cell: (to be added)
Joe Curila ENTACT Health and Safety Officer	Cell: (630) 816-5026
Ranajit Sahu, Ph.D. Basic Remediation Company (BRC) Henderson, Nevada	Office: (702) 567-0400

NEAREST EMERGENCY ROOM

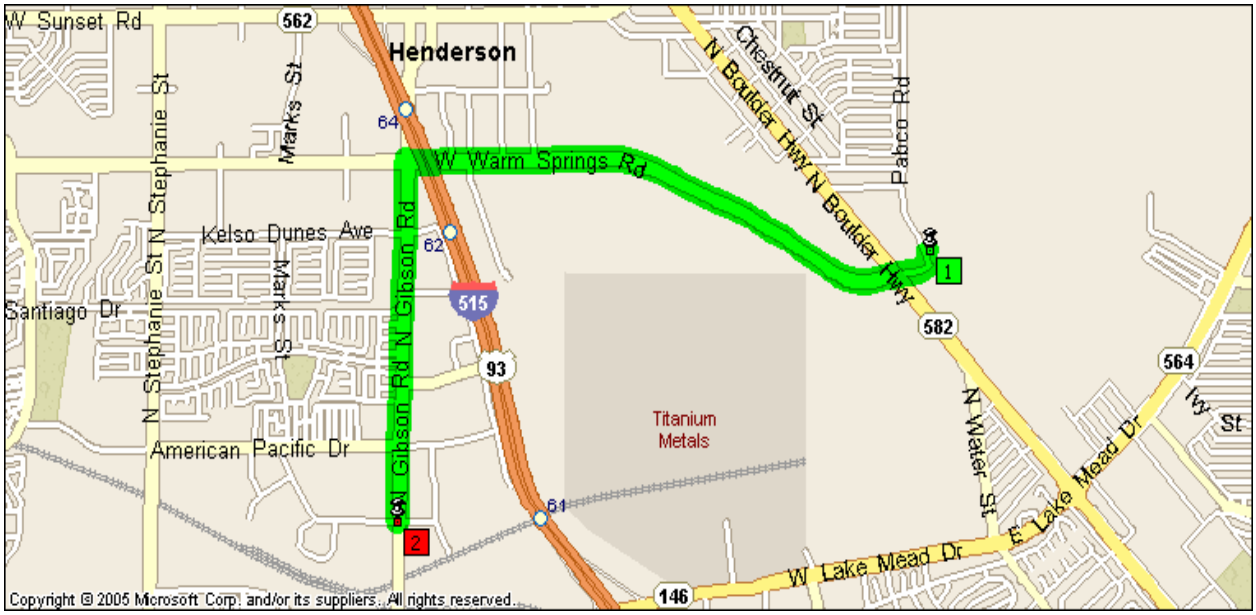
St Rose Dominican Hospitals
102 E Lake Mead Pkwy
Henderson, NV 89015
Emergency Room: (702) 564-2622

Summary: 1.2 miles (2 minutes)

Mile	Instruction	For	Toward
0.0	**Depart 700 block of Pabco Rd, Henderson, NV 89015 toward W Warm Springs Rd**	**0.1 mi**	Warm Springs Rd.
0.1	Turn LEFT (South-East) onto SR-582 [N Boulder Hwy]	1.0 mi	
1.1	Take Local road(s) (RIGHT) onto E Lake Mead Dr	0.1 mi	
1.2	**Arrive 102 E Lake Mead Dr, Henderson, NV 89015**		

OCCUPATIONAL HEALTH CLINIC

Concentra - Henderson
149 N Gibson Rd
Henderson, NV 89014
Main: (702) 558-6275



Summary: 3.5 miles (6 minutes)

Mile	Instruction	For	Toward
0.0	**Depart 700 block of Pabco Rd, Henderson, NV 89015 on Local road(s) (West)**	**32 yds**	Warm Springs Rd.
0.1	Turn LEFT (South) onto Pabco Rd	142 yds	
0.1	Road name changes to W Warm Springs Rd	2.1 mi	
2.2	Turn LEFT (South) onto N Gibson Rd	1.3 mi	
3.5	**Arrive 149 N Gibson Rd, Henderson, NV 89014**		

HASP-AT-A-GLANCE – MOBILIZATION/SITE PREPARATION/UTILITY LOCATION AND MARKING

ACKNOWLEDGEMENTS

See table of emergency contacts for telephone numbers.

Responsibility:	Signature:	Date:
ENTACT Health and Safety Officer		
ENTACT Field Project Manager		

This summary sheet is provided as a quick reference for select activities at the BRC Eastside Common Areas remediation site. Not every task listed in the scope of work will have a HASP-At-A-Glance (HAAG) the remainder of this HASP provides general health and safety procedures that must be adhered to while conducting any work at the project site. Procedures for updating or amending this HASP are outlined in Section 1.4.

PROJECT ACTIVITIES – MOBILIZATION/SITE PREPARATION/UTILITY LOCATION AND MARKING

ENTACT will contact the Nevada Underground Service Alert - North to obtain a utility mark-out of the Site, located at 700 Pabco Road, Henderson, Nevada.

The Nevada Underground Service Alert - North will be contacted prior to beginning intrusive activities. Identified underground utilities will be clearly marked and color coded. ENTACT will coordinate with the appropriate utilities to remove or reroute utilities as necessary. Caution and awareness of underground and overhead utilities and other identified obstructions that remain in place will be emphasized in daily health and safety meetings. Prior to intrusive activities, ENTACT will also identify and document the locations of all existing structures that require protection within the work zone, above and below ground utility lines, monitoring wells, and any other features identified by Basic Remediation Company (BRC).

ENTACT will protect and support all identified site features. All work must also be completed without negatively impacting the surrounding communities. If coordination is necessary with adjacent property owners, ENTACT will work with Weston and BRC to make the proper arrangements with the property owners. All outside communication will be directed through Weston and BRC.

Site preparation includes installation of erosion and sediment controls, establishment of on-site staging areas for accommodation of required needs, mobilizing associates, heavy equipment, small tools, and generators to the work area. Site preparation includes utilizing public, and if necessary private utility locate services, establishing temporary trailers and associated utilities, and setting up a fuel delivery cell. Site preparation also includes:

- Necessary temporary utilities (power, water and telephone service not already established);

- Site support facilities (office trailers, parking, etc.);
- Site security;
- Installation of erosion and sediment controls (E&SC)
- Equipment and material staging areas;
- Personnel decontamination and hygiene facilities;
- Chain link fencing around office trailers and parking areas;
- Equipment decontamination facilities;
- Temporary fencing and/or barrier tape around the work zones;
- Access control to the site, truck route and construction areas; and
- Communications (radios).

Constituents of Concern

The following constituents of concern (COC) are present at the site:

- Nuisance dust (particulates not otherwise regulated)
- Arsenic and associated metal salts
- Chromium and associated metal salts
- Chlorinated hydrocarbons (dichlorobenzene, trichlorobenzene, chloroform)
- Benzene
- PCBs
- Organic pesticides (Aldrin, α BHC, β BHC)

Sections 5.0 and 8.0 describe the health hazards and ENTACT's suggested air monitoring requirements, respectively, of the COC at the site. Exposure to the COC is limited during this task.

Hazard Analysis

Mobilization/Site preparation activities could be affected by the following physical hazards:

- Pinch points/sharp objects
- Noise
- Vehicle traffic
- Slip, trips, falls
- Heavy lifting
- Fires
- Weather, including cold stress while mobilizing
- Heat stress and lightning
- Underground and overhead utilities
- Uneven terrain

Mobilization/Site preparation activities could be affected by the following biological hazards:

- Insect bites and stings (ticks) Lyme disease or Rocky Mountain Spotted Fever

- Poisonous plants
- Reptiles, such as snakes

Minimum Protective Clothing and Equipment Requirements

Level D personal protective equipment (PPE) is anticipated for this task and is defined below.

Level D PPE	
Protective Gear	**Type**
Respiratory protection	Not required
Chemical protective clothing [1]	Not required
Hand protection: inner gloves	Not required
Hand protection: outer gloves	Cotton or leather work gloves
Foot protection: inner boots	Steel-toe, leather work boots
Foot protection: outer boots	None
Head protection	Standard hard hat
Eye protection	Standard safety glasses with side shield or goggles
Splash protection [2]	Standard face shield
Other protective clothing	High visibility, reflective vest, such as an orange traffic type vest
Hearing protection	Ear plugs or muffs with NRR of at least 25
[1] Associates may wear Tyvek or similar coveralls as protection from ticks and insects. [2] Splash protection will be worn during high-pressure cleaning.	

Additional information on PPE and respiratory protection is provided in Sections 7.0 and Attachment M.

Engineering and Administrative Controls

All activities will be conducted in accordance with provisions outlined in Section 5.0. All field personnel will notify the site ENTACT Health and Safety Officer (HSO) and ENTACT Field Project Manager (FPM) when reporting for and leaving work by signing in at the on-site trailer or field office.

Fire extinguishers must be available in the trailer or field office and each vehicle or piece of equipment. Fire extinguishers of proper size, type, and placement for the protection of the

incipient phase of fire will be utilized.

Dust suppression will be accomplished using water trucks to keep dust levels low.

Air Monitoring

Real-time dust monitoring of the work area is to be completed in accordance with Section 8 of this HASP and in accordance with current OSHA standards for worker protection. Dust suppression methods will be used to control nuisance dust with the goal of dust suppression being the avoidance of any visible dust. Section 8 provides specific ENTACT requirements for project air monitoring.

HASP-AT-A-GLANCE – CLEARING & GRUBBING OF VEGETATION

ACKNOWLEDGEMENTS

See table of emergency contacts for telephone numbers.

Responsibility:	Signature:	Date:
ENTACT Health and Safety Officer		
ENTACT Field Project Manager		

This summary sheet is provided as a quick reference for select activities at the BRC Eastside Common Areas remediation site. Not every task listed in the scope of work will have a HASP-At-A-Glance (HAAG) the remainder of this HASP provides general health and safety procedures that must be adhered to while conducting any work at the project site. Procedures for updating or amending this HASP are outlined in Section 1.4.

PROJECT ACTIVITIES

This activity includes the cutting of brush, grass and small trees within the intended work areas on the site. Activities may require the use of hand tools (chainsaw, weed eater etc.) and equipment (tractor mower, brush hog etc.) to facilitate clearing of vegetation. In addition, miscellaneous trash and debris will be collected and stockpiled for onsite disposal. Trash and debris collection may require physical labor and/or use of equipment (skid steer, excavator, etc.).

Constituents of Concern

The following constituent of concern (COC) is present at the site:

- Arsenic and associated metal salts
- Chromium and associated metal salts
- Nuisance dust (particulates not otherwise regulated)
- Chlorinated hydrocarbons (dichlorobenzene, trichlorobenzene, chloroform)
- Benzene
- PCBs
- Organic pesticides (Aldrin, α BHC, β BHC)

Sections 5.0 and 8.0 describe additional health hazards and air monitoring requirements, respectively, of the COC at the site. Exposure to the COC is limited during this task.

Hazard Analysis

Clearing and grubbing activities could be affected by the following physical hazards:

- Exposure to nuisance dust
- Pinch points/sharp objects
- Rotating equipment
- Noise
- Vehicle traffic
- Slip, trips, falls
- Heavy lifting (ergonomics)
- Fires
- Weather, including heat or cold stress
- Earthquake
- Underground and overhead utilities
- Uneven terrain
- Hand injuries

Clearing and grubbing activities could be affected by the following biological hazards:

- Insect bites and stings (ticks) Lyme disease or Rocky Mountain Spotted Fever
- Poisonous plants
- Reptiles, such as snakes

Minimum Protective Clothing and Equipment Requirements

Level D personal protective equipment (PPE) is anticipated for this task and is defined below.

Level D PPE	
Protective Gear	**Type**
Respiratory protection	None
Chemical protective clothing [1]	None
Hand protection: inner gloves	None
Hand protection: outer gloves	Cotton or leather work gloves
Foot protection: inner boots	Steel-toe, leather work boots
Foot protection: outer boots	None
Head protection	Standard hard hat
Eye protection	Standard safety glasses with side shield or goggles
Face protection	Standard face shield for flying objects (for workers not in enclosed cabs)
Other protective clothing	High visibility, reflective vest, such as an orange traffic type vest

Level D PPE	
Protective Gear	**Type**
Hearing protection	Ear plugs or muffs with NRR of at least 25
[1] Associates may wear Tyvek or similar coveralls as protection from ticks and insects.	

Additional information on PPE and respiratory protection is provided in Sections 7.0 and Attachment L.

Engineering and Administrative Controls

All activities will be conducted in accordance with provisions outlined in Section 5.0. All field personnel will notify the site ENTACT Health and Safety Officer (HSO) and ENTACT Field Project Manager (FPM) when reporting for and leaving work by signing in at the on-site trailer.

Fire extinguishers must be available in the trailer and each vehicle or piece of equipment.

Dust suppression will be accomplished using water trucks to keep dust levels low.

Air Monitoring

Real-Time dust monitoring of the work area is to be completed in accordance with Section 8. Dust suppression methods will be used to control nuisance dust with the goal of dust suppression being the avoidance of any visible dust. Section 8 provides additional information on air monitoring.

HASP-AT –A –GLANCE – ESTABLISHING WORK ZONES & DECONTAMINATION AREAS

ACKNOWLEDGEMENTS

See table of emergency contacts for telephone numbers.

Responsibility:	Signature:	Date:
ENTACT Health and Safety Officer		
ENTACT Field Project Manager		

This summary sheet is provided as a quick reference for select activities at the BRC Eastside Common Areas remediation site. Not every task listed in the scope of work will have a HASP-At-A-Glance (HAAG) the remainder of this HASP provides general health and safety procedures that must be adhered to while conducting any work at the project site. Procedures for updating or amending this HASP are outlined in Section 1.4.

PROJECT ACTIVITIES – ESTABLISHING WORK ZONES

In an effort to control portions of the site during various field activities, ENTACT will utilize steel T-posts and/or rebar posts and red barricade tape or similar visual warning method to delineate the respective work areas as "Exclusion Zones (EZ's). ENTACT will control personnel and equipment access into/out of the EZ by way of a designated "Contamination Reduction Zone" (CRZ) at the entrance/exit points. Decontamination of personnel and equipment will occur within the CRZ. The resulting decontamination liquids and sediments will applied to excavated soils and sludge destined for deposition within the CAMU.

The following work zones will be established, clearly delineated with orange construction fencing, barricade tape or other means which limit access and provide a visual cue and identified with proper signage.

Support Zone

The support zone (SZ) will be located in an approved area and will contain areas for field personnel and visitors to conduct activities and to park vehicles outside the work areas. ENTACT will mobilize an office trailer to accommodate ENTACT field personnel and a storage container for miscellaneous tools and equipment.

Exclusion Zone

The exclusion zones (EZs) will encompass areas where workers may be exposed to contaminants of concern or dangers associated with the use of heavy equipment. The EZs will be clearly marked and protected from unauthorized entry. No one will enter the EZs without appropriate personal protective equipment (PPE), proper safety training, and familiarity with the HASP. The size and locations of the EZs will be adjusted as work in

an area progresses and as dictated by field monitoring

Contamination Reduction Zone

The contamination reduction zone (CRZ) will serve as a buffer between the EZ and the SZ, and will house the personnel decontamination area. The personnel decontamination area will provide facilities to don and doff PPE as workers enter and exit the EZ. The personnel decontamination area will be equipped with water, soap, boot wash, and containers for spent PPE. Rinse waters generated in the personnel decontamination area will be collected and managed with the Site waste streams.

Equipment Decontamination Area

Equipment, tools and transport trucks, as necessary, will be decontaminated at a temporary decontamination (decon) station to be constructed by ENTACT at a location or locations adjacent to the EZ. Equipment and transport vehicles will be cleaned and decontaminated in the decontamination area by mechanical means (dry decontamination). If a visual inspection by ENTACT personnel indicates residual contamination, additional decontamination may be necessary including the use of high pressure, low volume hot water. The decontamination area will be appropriately located, and will consist of a smoothly graded, bermed area large enough to accommodate the largest anticipated piece of construction equipment. The decontamination area will be graded to a sump area to allow decontamination rinse water to be captured and appropriately managed. Residual soil or waste materials generated during decontamination will be collected and managed with the Site waste streams.

Constituents of Concern

The following constituents of concern (COC) are present at the site:

- Nuisance dust (particulates not otherwise regulated)
- Arsenic and associated metal salts
- Chromium and associated metal salts
- Chlorinated hydrocarbons (dichlorobenzene, trichlorobenzene, chloroform)
- Benzene
- PCBs
- Organic pesticides (Aldrin, α BHC, β BHC)

Sections 5.0 and 8.0 describe the health hazards and ENTACT's air monitoring requirements, respectively, of the COC at the site. Exposure to the COC is limited during this task.

Hazard Analysis

Establishing work zones and decontamination activities could be affected by the following physical hazards:

- Pinch points/sharp objects
- Noise
- Vehicle traffic
- Slip, trips, falls
- Heavy lifting
- Fires
- Weather
- Heat stress
- Underground and overhead utilities
- Uneven terrain

Work zone and decontamination activities could be affected by the following biological hazards:

- Insect bites and stings (ticks) Lyme disease or Rocky Mountain Spotted Fever
- Poisonous plants
- Reptiles, such as snakes (rattlesnakes)

Minimum Protective Clothing and Equipment Requirements

Level D personal protective equipment (PPE) is anticipated for this task and is defined in the following table:

Level D PPE	
Protective Gear	**Type**
Respiratory protection	None
Chemical protective clothing[1]	None
Hand protection: inner gloves	None
Hand protection: outer gloves	Cotton or leather work gloves
Foot protection: inner boots	Steel-toe, leather work boots
Foot protection: outer boots	None
Head protection	Standard hard hat
Eye protection	Standard safety glasses with side shield or goggles
Other protective clothing	High visibility, reflective vest, such as an orange traffic type vest
Hearing protection	Ear plugs or muffs with NRR of at least 25

Level D PPE	
Protective Gear	**Type**
[1] Associates may wear Tyvek or similar coveralls as protection from ticks and insects.	

Additional information on PPE and respiratory protection is provided in Sections 7.0 and Attachment M.

Engineering and Administrative Controls

All activities will be conducted in accordance with provisions outlined in Section 5.0. All ENTACT field personnel will notify the site ENTACT Health and Safety Officer (HSO) and ENTACT Field Project Manager (FPM) when reporting for and leaving work by signing in at the on-site trailer or field office.

Fire extinguishers must be available in the trailer or field office and each vehicle or piece of equipment. Fire extinguishers of proper size, type, and placement for the protection of the incipient phase of fire will be utilized.

Dust suppression will be accomplished using water trucks to keep dust levels low.

Air Monitoring

Real-Time dust monitoring of the work area is to be completed in accordance with Section 8 of this HASP and in accordance with current OSHA standards for worker protection. Dust suppression methods will be used to control nuisance dust with the goal of dust suppression being the avoidance of any visible dust

HASP-AT-A-GLANCE – EXCAVATION AND CONDITIONING OF SOILS, SLUDGE & SEDIMENT

ACKNOWLEDGEMENTS

See table of emergency contacts for telephone numbers.

Responsibility:	Signature:	Date:
ENTACT Health and Safety Officer		
ENTACT Field Project Manager		

This summary sheet is provided as a quick reference for select activities at the BRC Eastside Common Areas remediation site. Not every task listed in the scope of work will have a HASP-At-A-Glance (HAAG) the remainder of this HASP provides general health and safety procedures that must be adhered to while conducting any work at the project site. Procedures for updating or amending this HASP are outlined in Section 1.4.

PROJECT ACTIVITIES – EXCAVATION AND CONDITIONING OF SOILS, SLUDGE & SEDIMENT

This task involves the use of heavy equipment and manpower for excavation, decanting, dewatering, evaporation, blending, and discing of impacted material from wet and dry ponds. Equipment will include pumps, excavators, long reach excavators, loaders, articulated off-road dumps, dozers and tractors equipped with discs.

The extremely wet nature of some sediments within the sixteen (16) wet ponds will require a treatment program to effectively reduce the moisture levels to create suitable soils for land filling.

This HAAG does not include slit trench excavation activities.

Constituents of Concern

The following constituent of concern (COC) is present at the site:

- Nuisance dust (particulates not otherwise regulated)
- Arsenic and associated metal salts
- Chromium and associated metal salts
- Chlorinated hydrocarbons (dichlorobenzene, trichlorobenzene, chloroform)
- Benzene
- PCBs
- Organic pesticides (Aldrin, α BHC, β BHC)

Sections 5.0 and 8.0 describe the health hazards and air monitoring requirements, respectively, of the COC at the site. Significant exposure to the COC is possible during this task.

Hazard Analysis

Soils, sludge and sediment excavation activities could be affected by the following physical hazards:

- Exposure to nuisance dust
- Pinch points/sharp objects
- Noise
- Water Hazards
- Moving rolling and unrolling hose
- Vehicle traffic
- Heavy equipment hazards
- Slip, trips, falls
- Heavy lifting (pumps, hoses)
- Fires
- Weather, including heat or cold stress
- Underground and overhead utilities
- Uneven terrain

Soils, sludge and sediment excavation activities could be affected by the following biological hazards:

- Insect bites and stings (ticks) Lyme disease or Rocky Mountain Spotted Fever
- Poisonous plants
- Reptiles, such as snakes (rattlesnakes)

Minimum Protective Clothing and Equipment Requirements

Level D+ personal protective equipment (PPE) is anticipated for this task and is defined below.

Level D+ PPE	
Protective Gear	**Type**
Respiratory protection	None
Chemical protective clothing	Coated Tyvek or Saranex Coveralls
Hand protection: inner gloves	Nitrile gloves
Hand protection: outer gloves	Cotton or leather work gloves
Foot protection: inner boots	Steel-toe, leather work boots
Foot protection: outer boots	Disposable boot covers
Head protection	Standard hard hat
Eye protection	Standard safety glasses with side shield or goggles
Splash protection[1]	Standard face shield
Other protective clothing	High visibility, reflective vest, such as an orange traffic type vest. PFD required for work within 5 feet of ponds containing standing water.
Hearing protection	Ear plugs or muffs with NRR of at least 25
[1] Splash protection must be worn during pump and hose hookup and power/pressure washing.	

Additional information on PPE and respiratory protection is provided in Sections 7.0 and Attachment M.

Engineering and Administrative Controls

All activities will be conducted in accordance with provisions outlined in Section 5.0. All field personnel will notify the site ENTACT Health and Safety Officer (HSO) and ENTACT Field Project Manager (FPM) when reporting for and leaving work.

Fire extinguishers must be available in the trailer and each vehicle or piece of equipment.

Dust suppression will be accomplished using water trucks to keep dust levels low.

Air Monitoring

Real-Time dust monitoring of the work area is to be completed in accordance with Section 8 of this HASP and in accordance with current OSHA standards for worker protection. Dust suppression methods will be used to control nuisance dust with the goal of dust suppression being the avoidance of any visible dust.

In addition, real-time monitoring for VOCs will be accomplished using a photo ionization detector (PID). Frequent surveys will be conducted in and around the work area to measure and document activity specific exposure to VOCs.

Section 8 provides specific ENTACT requirements for project air monitoring, including initial monitoring for metals, PCBs and chlorinated hydrocarbons.

HASP-AT-A-GLANCE – EXCAVATION, SCREENING AND PLACEMENT OF WESTERN DITCH SOILS

ACKNOWLEDGEMENTS

See table of emergency contacts for telephone numbers.

Responsibility:	Signature:	Date:
ENTACT Health and Safety Officer		
ENTACT Field Project Manager		

This summary sheet is provided as a quick reference for select activities at the BRC Eastside Common Areas remediation site. Not every task listed in the scope of work will have a HASP-At-A-Glance (HAAG) the remainder of this HASP provides general health and safety procedures that must be adhered to while conducting any work at the project site. Procedures for updating or amending this HASP are outlined in Section 1.4.

PROJECT ACTIVITIES – EXCAVATION, SCREENING AND PLACEMENT OF WESTERN DITCH SOILS

This task involves the use of heavy equipment and manpower for excavation, screening and placement of material from the western ditch area. Equipment will include excavators, loaders, articulated off-road dumps, dozers and screens.

This HAAG is separate from and does not address slit trench excavation activities.

Constituents of Concern

The following constituent of concern (COC) is present at the site:

- Nuisance dust (particulates not otherwise regulated)
- Arsenic and associated metal salts
- Chromium and associated metal salts
- Chlorinated hydrocarbons (dichlorobenzene, trichlorobenzene, chloroform)
- Benzene
- PCBs
- Organic pesticides (Aldrin, α BHC, β BHC)

Sections 5.0 and 8.0 describe the health hazards and air monitoring requirements, respectively, of the COC at the site. Significant exposure to the COC is possible during this task.

Hazard Analysis

Excavation, screening and placement activities could be affected by the following physical hazards:

- Exposure to nuisance dust
- Pinch points/sharp objects
- Noise
- Manual labor
- Vehicle traffic
- Heavy equipment hazards
- Slip, trips, falls
- Fires
- Weather, including heat or cold stress
- Underground and overhead utilities
- Uneven terrain

Excavation, screening and placement activities could be affected by the following biological hazards:

- Insect bites and stings (ticks) Lyme disease or Rocky Mountain Spotted Fever
- Poisonous plants
- Reptiles, such as snakes (rattlesnakes)

Minimum Protective Clothing and Equipment Requirements

Level C personal protective equipment (PPE) is anticipated for this task and is defined below.

Level C PPE	
Protective Gear	**Type**
Respiratory protection	North Half-Face APR w/ OV & P100
Chemical protective clothing	Coated Tyvek or Saranex Coveralls
Hand protection: inner gloves	Nitrile gloves
Hand protection: outer gloves	Cotton or leather work gloves
Foot protection: inner boots	Steel-toe, leather work boots
Foot protection: outer boots	Disposable boot covers
Head protection	Standard hard hat
Eye protection	Standard safety glasses with side shield or goggles
Splash protection[1]	Standard face shield
Other protective clothing	High visibility, reflective vest, such as an orange traffic type vest. PFD required for work within 5 feet of ponds containing standing water.
Hearing protection	Ear plugs or muffs with NRR of at least 25
[1] Splash protection must be worn during pump and hose hookup and power/pressure washing.	

Additional information on PPE and respiratory protection is provided in Sections 7.0 and Attachment M.

Engineering and Administrative Controls

All activities will be conducted in accordance with provisions outlined in Section 5.0. All field personnel will notify the site ENTACT Health and Safety Officer (HSO) and ENTACT Field Project Manager (FPM) when reporting for and leaving work.

Fire extinguishers must be available in the trailer and each vehicle or piece of equipment.

Dust suppression will be accomplished using water trucks to keep dust levels low.

Air Monitoring

Real-Time dust monitoring of the work area is to be completed in accordance with Section 8 of this HASP and in accordance with current OSHA standards for worker protection. Dust suppression methods will be used to control nuisance dust with the goal of dust suppression being the avoidance of any visible dust.

In addition, real-time monitoring for VOCs will be accomplished using a photo ionization detector (PID). Frequent surveys will be conducted in and around the work area to measure and document activity specific exposure to VOCs.

Section 8 provides specific ENTACT requirements for project air monitoring, including initial monitoring for metals, PCBs and chlorinated hydrocarbons.

HASP-AT-A-GLANCE – SLIT TRENCH EXCAVATION AND WASTE HANDLING

ACKNOWLEDGEMENTS

See table of emergency contacts for telephone numbers.

Responsibility:	Signature:	Date:
ENTACT Health and Safety Officer		
ENTACT Field Project Manager		

This summary sheet is provided as a quick reference for select activities at the BRC Eastside Common Areas remediation site. Not every task listed in the scope of work will have a HASP-At-A-Glance (HAAG) the remainder of this HASP provides general health and safety procedures that must be adhered to while conducting any work at the project site. Procedures for updating or amending this HASP are outlined in Section 1.4.

PROJECT ACTIVITIES – SLIT TRENCH EXCAVATION & WASTE HANDLING

This task involves the use of heavy equipment and manpower for excavation, removal of impacted material from the slit trench area and relocation of excavated material into the CAMU. Equipment will include excavators, loader, articulated off-road dumps dozer and compactor.

Impacted soils from within the slit trench area will be excavated and loaded into off-road dump trucks for transportation and internment into the onsite CAMU.

The impacted material with in the slit trench area has significant COC concentrations and will require the use of Level B PPE. Equipment working within the exclusion zone will be equipped with supplied air respirators or self contained breathing apparatus for operator protection.

Constituents of Concern

The following constituent of concern (COC) is present at the site:

- Nuisance dust (particulates not otherwise regulated)
- Arsenic and associated metal salts
- Chromium and associated metal salts
- Chlorinated hydrocarbons (dichlorobenzene, trichlorobenzene, chloroform)
- Benzene
- PCBs
- Organic pesticides (Aldrin, α BHC, β BHC)

Sections 5.0 and 8.0 describe the health hazards and air monitoring requirements, respectively, of the COC at the site. Significant exposure to the COC is possible during this task.

Hazard Analysis

Slit trench excavation and waste handling activities could be affected by the following physical hazards:

- Exposure to nuisance dust
- Pinch points/sharp objects
- Noise
- Moving, rolling and unrolling air lines
- Vehicle traffic
- Heavy equipment hazards
- Slip, trips, falls
- Heavy lifting (air bottles, hoses)
- Fires
- Weather, including heat or cold stress
- Underground and overhead utilities
- Uneven terrain

Slit trench excavation and waste handling activities could be affected by the following biological hazards:

- Insect bites and stings (ticks) Lyme disease or Rocky Mountain Spotted Fever
- Poisonous plants
- Reptiles, such as snakes (rattlesnakes)

Minimum Protective Clothing and Equipment Requirements

Level B personal protective equipment (PPE) is anticipated for this task and is defined below.

Level B PPE	
Protective Gear	**Type**
Respiratory protection	Full-Face SAR w/ Egress Bottle or SCBA
Chemical protective clothing	Coated Tyvek or Saranex Coveralls
Hand protection: inner gloves	Nitrile gloves
Hand protection: outer gloves	Cotton or leather work gloves
Foot protection: inner boots	Steel-toe, leather work boots
Foot protection: outer boots	Disposable boot covers
Head protection	Standard hard hat
Eye protection	Standard safety glasses with side shield or goggles
Splash protection[1]	Standard face shield
Other protective clothing	High visibility, reflective vest, such as an orange traffic type vest
Hearing protection	Ear plugs or muffs with NRR of at least 25
[1] Splash protection must be worn during equipment decontamination and power/pressure washing.	

Additional information on PPE and respiratory protection is provided in Sections 7.0 and Attachment M.

Engineering and Administrative Controls

All activities will be conducted in accordance with provisions outlined in Section 5.0. All field personnel will notify the site ENTACT Health and Safety Officer (HSO) and ENTACT Field Project Manager (FPM) when reporting for and leaving work.

Fire extinguishers must be available in the trailer and each vehicle or piece of equipment.

Dust suppression will be accomplished using water trucks to keep dust levels low.

Air Monitoring

Real-Time dust monitoring of the work area is to be completed in accordance with Section 8 of this HASP and in accordance with current OSHA standards for worker protection. Dust suppression methods will be used to control nuisance dust with the goal of dust suppression being the avoidance of any visible dust.

In addition, real-time monitoring for VOCs will be accomplished using a photo ionization detector (PID). Frequent surveys will be conducted in and around the work area to measure and document activity specific exposure to VOCs.

Section 8 provides specific ENTACT requirements for project air monitoring, including initial and periodic monitoring for metals, PCBs and chlorinated hydrocarbons.

HASP-AT-A-GLANCE – CAMU CONSTRUCTION, MATERIAL PLACEMENT & CAPPING

ACKNOWLEDGEMENTS

See table of emergency contacts for telephone numbers.

Responsibility:	Signature:	Date:
ENTACT Health and Safety Officer		
ENTACT Field Project Manager		

This summary sheet is provided as a quick reference for select activities at the BRC Eastside Common Areas remediation site. Not every task listed in the scope of work will have a HASP-At-A-Glance (HAAG) the remainder of this HASP provides general health and safety procedures that must be adhered to while conducting any work at the project site. Procedures for updating or amending this HASP are outlined in Section 1.4.

PROJECT ACTIVITIES – CAMU CONSTRUCTION, MATERIAL PLACEMENT & CAPPING

This task involves the use of heavy equipment and manpower for excavation and construction of a CAMU, placement of impacted material into the CAMU and completion of an engineered cap. Equipment will include excavators, articulated off-road dumps, dozers and compactors.

In general this task involves the excavation, placement of a liner and soil cover for the CAMU. Impacted materials will be placed into the CAMU and covered in successive lifts followed by capping of the CAMU.

Constituents of Concern

The following constituent of concern (COC) is present at the site:

- Nuisance dust (particulates not otherwise regulated)
- Arsenic and associated metal salts
- Chromium and associated metal salts
- Chlorinated hydrocarbons (dichlorobenzene, trichlorobenzene, chloroform)
- Benzene
- PCBs
- Organic pesticides (Aldrin, α BHC, β BHC)

Sections 5.0 and 8.0 describe the health hazards and air monitoring requirements, respectively, of the COC at the site. The potential for significant exposure to the COC is possible during this

task.

Hazard Analysis

CAMU construction, waste placement and capping activities could be affected by the following physical hazards:

- Exposure to nuisance dust
- Pinch points/hand traps
- Noise
- Moving rolling and unrolling hose
- Vehicle traffic
- Heavy equipment hazards
- Slip, trips, falls
- Heavy lifting (pumps, hoses)
- Fires
- Weather, including heat or cold stress
- Underground and overhead utilities
- Uneven terrain

CAMU construction, waste placement and capping activities could be affected by the following biological hazards:

- Insect bites and stings (ticks) Lyme disease or Rocky Mountain Spotted Fever
- Poisonous plants
- Reptiles, such as snakes (rattlesnakes)

Minimum Protective Clothing and Equipment Requirements

Level C personal protective equipment (PPE) is anticipated for this task and is defined below.

Level C PPE	
Protective Gear	**Type**
Respiratory protection[1]	North Half-Face APR w/ OV & P100
Chemical protective clothing	Disposable Tyvek or similar coveralls
Hand protection: inner gloves[1]	Nitrile gloves
Hand protection: outer gloves	Cotton or leather work gloves
Foot protection: inner boots	Steel-toe, leather work boots
Foot protection: outer boots	Disposable boot covers
Head protection	Standard hard hat
Eye protection	Standard safety glasses with side shield or goggles
Splash protection	None
Other protective clothing	High visibility, reflective vest, such as an orange traffic type vest.
Hearing protection	Ear plugs or muffs with NRR of at least 25
[1] Respiratory protection and inner gloves are required during waste placement activities only	

Additional information on PPE and respiratory protection is provided in Sections 7.0 and Attachment M.

Engineering and Administrative Controls

All activities will be conducted in accordance with provisions outlined in Section 5.0. All field personnel will notify the site ENTACT Health and Safety Officer (HSO) and ENTACT Field Project Manager (FPM) when reporting for and leaving work.

Fire extinguishers must be available in the trailer and each vehicle or piece of equipment.

Dust suppression will be accomplished using water trucks to keep dust levels low.

Air Monitoring

Real-Time dust monitoring of the work area is to be completed in accordance with Section 8 of this HASP and in accordance with current OSHA standards for worker protection. Dust suppression methods will be used to control nuisance dust with the goal of dust suppression being the avoidance of any visible dust.

In addition, real-time monitoring for VOCs will be accomplished using a photo ionization detector (PID). Frequent surveys will be conducted in and around the work area during waste placement to measure and document activity specific exposure to VOCs.

Section 8 provides specific ENTACT requirements for project air monitoring, including initial and periodic monitoring for metals, PCBs and chlorinated hydrocarbons.

HASP-AT-A-GLANCE – DECONTAMINATION & DEMOBILIZATION

ACKNOWLEDGEMENTS

See table of emergency contacts for telephone numbers.

Responsibility:	Signature:	Date:
ENTACT Health and Safety Officer		
ENTACT Field Project Manager		

This summary sheet is provided as a quick reference for select activities at the BRC Eastside Common Areas remediation site. Not every task listed in the scope of work will have a HASP-At-A-Glance (HAAG) the remainder of this HASP provides general health and safety procedures that must be adhered to while conducting any work at the project site. Procedures for updating or amending this HASP are outlined in Section 1.4.

PROJECT ACTIVITIES – DECONTAMINATION & DEMOBILIZATION

Equipment Cleaning: Equipment decontamination and cleaning will consist of dry decontamination to removal visible contamination. If required, high-pressure water and/or steam cleaning supplemented by detergents may be utilized to assist with removal of visible contamination.

Tools Cleaning: Tools and items for which cleaning is difficult or impossible to verify will remain onsite for disposal at an approved disposal facility or placement into the CAMU as appropriate. (Examples of such items are wire, rope, lumber, personal protective equipment and apparel.)

Staging Areas: Cleaning of the staging areas located within the Support Zone will be conducted.

Final Inspection: Prior to removal from site, all cleaned equipment, tools and material will be inspected and accepted by the ENTACT Site Safety Officer.

Constituents of Concern

The following constituent of concern (COC) is present at the site:

- Nuisance dust (particulates not otherwise regulated)
- Arsenic and associated metal salts
- Chromium and associated metal salts
- Chlorinated hydrocarbons (dichlorobenzene, trichlorobenzene, chloroform)
- Benzene
- PCBs
- Organic pesticides (Aldrin, α BHC, β BHC)

Sections 5.0 and 8.0 describe the health hazards and air monitoring requirements, respectively, of the COC at the site. Exposure to the COC is limited during this task.

Hazard Analysis

Decontamination and Demobilization activities could be affected by the following physical hazards:

- Exposure to nuisance dust
- Pinch points/sharp objects
- Exposure to swing radius of equipment
- Noise
- Vehicle traffic
- Slip, trips, falls
- Heavy lifting
- Fires
- Weather, including heat or cold stress
- Underground and overhead utilities
- Uneven terrain
- Wet surfaces

Decontamination and Demobilization activities could be affected by the following biological hazards:

- Insect bites and stings (ticks) Lyme disease or Rocky Mountain Spotted Fever
- Poisonous plants
- Reptiles, such as snakes (rattlesnakes)

Minimum Protective Clothing and Equipment Requirements

Level D personal protective equipment (PPE) is anticipated for this task and is defined below.

Level D PPE	
Protective Gear	**Type**
Respiratory protection	None
Chemical protective clothing	None
Hand protection: inner gloves[1]	Nitrile
Hand protection: outer gloves	Cotton or leather work gloves
Foot protection: inner boots	Steel-toe, leather work boots
Foot protection: outer boots[1]	Disposable boot covers

Level D PPE	
Protective Gear	**Type**
Head protection	Standard hard hat
Eye protection	Standard safety glasses with side shield or goggles
Splash protection[1]	Face shield
Other protective clothing	High visibility, reflective vest, such as an orange traffic type vest
Hearing protection	Ear plugs or muffs with NRR of at least 25
[1] Inner gloves, boot covers and face shield are required during decontamination activities.	

Additional information on PPE and respiratory protection is provided in Sections 7.0 and Attachment M.

Engineering and Administrative Controls

All activities will be conducted in accordance with provisions outlined in Section 5.0. All field personnel will notify the site ENTACT Health and Safety Officer (HSO) and ENTACT Field Project Manager (FPM) when reporting for and leaving work by signing in.

Fire extinguishers must be available in the trailer and each vehicle or piece of equipment.

Dust suppression will be accomplished using water trucks to keep dust levels low.

Air Monitoring

Real-Time dust monitoring of the work area is to be completed in accordance with Section 8 of this HASP and in accordance with current OSHA standards for worker protection. Dust suppression methods will be used to control nuisance dust with the goal of dust suppression being the avoidance of any visible dust.

COMPREHENSIVE HEALTH AND SAFETY PLAN

1.0 PURPOSE AND POLICY

1.1 INTRODUCTION

This document describes the health and safety guidelines developed for the BRC Eastside Common Areas remediation site located in Henderson, Nevada, to protect on-site personnel, visitors, and the public from physical harm and exposure to hazardous materials or wastes. It is ENTACT's policy to provide a safe and healthy workplace for all employees.

The purpose for this site-specific health and safety plan (HASP) is to set forth, in an orderly and logical fashion, appropriate safety procedures to be followed during on-site activities at the site by ENTACT. This HASP cannot include all of the policies and procedures set forth in the ENTACT Behavior Based Safety System; therefore, they are incorporated by reference and available at: http://connected.entact.com/index.php.

All attachments that are referenced in this Health and Safety Plan are compiled and maintained under separate cover.

ENTACT's mission is to provide cost effective and timely environmental solutions, but to do so while maintaining the industry benchmark for health and safety. With this as our goal, this HASP will be implemented at the project site.

ENTACT will provide a thorough site orientation, maintain an on-going Behavior Based Safety (BBS) system and will continually instruct, promote and prepare all associates for their responsibilities. BBS will be utilized to prevent or reduce losses and safety incidents using behavior-based tools and management techniques to achieve a safe work environment with the ultimate goal of zero accidents. BBS tools and management techniques include:

- Job Safety Analysis (JSA)
- Job Safety Review (JTR)
- Job Task Observation (JTO)
- Near-Loss Investigation (NLI) and Loss Investigation (LI)
- Stewardship

"Safety is a state of mind" that must be nurtured and reinforced every day. ENTACT's education and training of associates provides the insight to safety protocol and the understanding that the attitude and behavior of all associates is the key. As part of our safety culture and for continuous reinforcement, ENTACT has established 1.) a project orientation for site specific instruction and awareness, 2.) JSA preparation and reviews prior to and during each site activity, and 3.) daily safety meetings that will be held at the start of each work day and a second discussion at mid-day to highlight and review daily progress which will ensure that all personnel understand site conditions, receive operating procedures, use PPE correctly, and to address health and safety concerns.

The procedures presented herein are intended to serve as guidelines. They are not a substitute

for the sound judgment of on-site personnel.

1.2 REGULATORY FRAMEWORK

All work practices and procedures implemented on site will be designed to minimize associate contact with hazardous materials and to reduce the possibility of physical injury. All work will be performed in accordance with the following:

- Occupational Safety and Health Administration (OSHA) regulations found in Title 29 of the *Code of Federal Regulations* (CFR) 1910 and 1926
- National Institute for Occupational Safety and Health (NIOSH) Publications 85-115
- American Conference of Governmental Industrial Hygienists (ACGIH) Publication *Threshold Limit Values and Biological Exposure Indices*
- US Environmental Protection Agency (EPA) Publication No. PB9285.1-03
- American National Standards Institute (ANSI) guidelines (various)
- Nevada Dept. of Business and Industry, Occupational Safety & Health Enforcement Section Workplace Safety Program

1.3 APPLICATION OF BBS

ENTACT's education and training of associates provides insight to safety protocol and an understanding that the attitude and behavior of all associates is key. As part of our behavior based safety culture, and for continuous reinforcement, ENTACT requires that each project begins with an orientation for site specific instruction and awareness. Also, safety meetings are held at the start of each work day and a second discussion at mid-day to highlight and review daily progress which will ensure that all personnel understand site conditions, receive operating procedures, use PPE correctly, and to address health and safety concerns. BBS is implemented on site as follows (see Attachments T and W):

- JSA – developed for all major work tasks and process, reviewed before the task is done (daily, if applicable,) and updated or revised frequently to address changes in the workplace
- JTR – performed by all associates to briefly assess the risk of each work task prior to work beginning. In addition, associates will perform a self-assessment to determine if they are fit for duty to perform their tasks. If an associate feels he/she is not fit for duty, their supervisor must be notified immediately before work begins.

  I = Illness
  M = Medication
  S = Stress
  A = Attitude
  F = Fatigue
  E = Emotion

- JTO – conducted in the field on a planned and regular basis (see Attachment T)
- NLI/LI – performed as needed to determine root causes and contributing factors of

near loss and loss incidents

1.4 MODIFICATIONS TO THE HASP

The procedures and guidelines contained herein were based upon the best available information at the time of the plan's preparation. Specific requirements will be revised when new information is received or conditions change. Any amendments to this plan will be documented on the form in Attachment A, Site Safety Plan Amendment, and will be approved by the Project Coordinator, Project Health and Safety Coordinator, and client representative. A HASP amendment log will also be maintained in Attachment A.

1.5 STOP WORK AUTHORITY

All on-site personnel are empowered, expected, and have the responsibility to stop their own work and the work of co-workers, and other contractors if any person's safety or the environment are at risk. No repercussions will result from this action.

Site or project conditions that are possible reasons to stop work and to consider modifications to the HASP include:

- Site temperatures outside the range predicted in this HASP (possibly resulting in greater risk of heat or cold stress)
- PPE breakthrough or unexpected degradation
- Unusual odors that can't be identified
- Unexplained, elevated readings on an organic vapor monitor
- Unexpected changes in soil coloration or texture that might indicate undisclosed contamination.

This list is not comprehensive and should be used only as guidance (also refer to Section 6.0 for emergency response procedures).

Whenever "Stop Work Authority" is exercised, the occurrence may be documented or treated as a near loss incident using the NLI report form. The report will be prepared to document significant events and to record the implemented corrective action(s).

If anyone is discouraged from exercising the "Stop Work Authority" or if there are penalties for doing so, then affect individuals should report this action to the ENTACT Health and Safety Director at (972) 580-1323.

1.6 SUBCONTRACTOR COORDINATION

ENTACT recognizes that safety begins with a commitment. Supporting the ENTACT Behavior Based Health and Safety System is as important a responsibility as are all other project concerns. ENTACT places the same emphasis on subcontractors.

Certain activities performed at the site may require the use of subcontractors. ENTACT's Health and Safety Plan will be made available to all subcontractors, which they must adopt and comply

with at a minimum. This plan is applicable to the subcontractors insofar as ENTACT will be directing the work. If subcontractor performs work not addressed in ENTACT's Heath and Safety Plan, the subcontractor will provide ENTACT with a copy of their Health and Safety Plan and JSAs applicable to the job tasks being performed. All subcontractors will participate in ENTACT site safety meetings and will comply with ENTACT's Subcontractor Letter of Acceptance.

Subcontractor personnel working on site will be enrolled in their company's medical monitoring program per OSHA regulations. Subcontractors will supply their own PPE and other safety equipment.

Subcontractors are responsible for the safety and well being of their personnel and the condition and maintenance of their equipment, vehicles and tools.

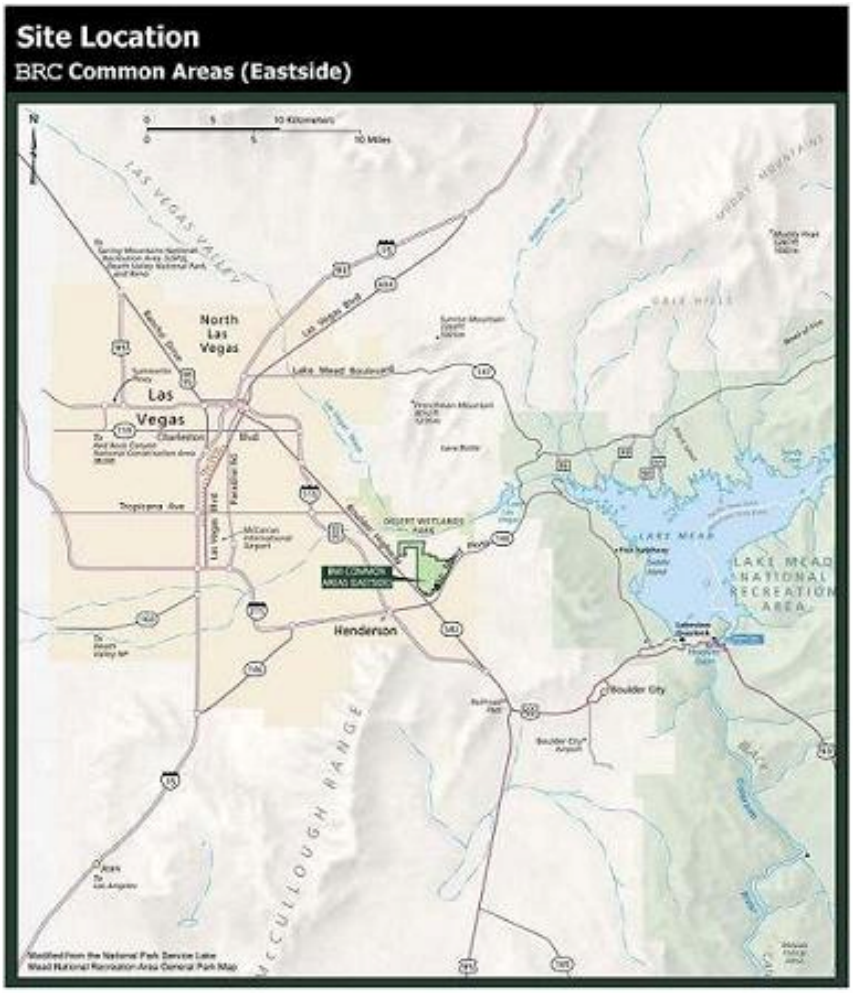
ENTACT will provide basic BBS training and include subcontractors in the site orientation and daily tailgate safety meetings. Subcontractors must take a written test to document understanding of site-specific risks. Subcontractors will comply with ENTACT's Subcontractor Safety Policy.

2.0 SITE DESCRIPTION AND SCOPE OF WORK

This section provides a site description and information about previous site investigations and the scope of work.

2.1 SITE HISTORY AND DESCRIPTION

The project is located near the BMI Industrial Complex just northeast of downtown Henderson, in Clark County, Nevada (approximately 13 miles south of Las Vegas.) The site is bounded by Boulder Highway to the southwest, Lake Mead Parkway to the southeast, the Las Vegas Wash to the north and Pabco Road to the west. The site address is 700 Pabco Road, Henderson, Nevada. To get to the site from Interstate 95/93 going south - Exit Lake Mead Parkway exit 61B. It is approximately 3 miles from the exit to Mohawk Drive. To get to the site from Interstate 95/93 going north - Exit Lake Mead Parkway exit 61. It is approximately 3 miles from the exit to Mohawk Drive.



The property represents a portion of what is known as the BMI (BRC) Common Areas. The BMI Common Areas is comprised of two areas: the Eastside Area where remedial excavation

shall occur (located in the City of Henderson) and the Corrective Action Management Unit (CAMU) where the containment structure for the remedial wastes shall be constructed (located in Clark County).

The BRC Eastside site consists primarily of former wastewater effluent evaporation ponds and associated conveyance ditches that were used from the early 1940s through 1976. The pond cells are constructed in native soils (no liners) and are generally well defined by four to six foot tall soil berms. The ditches are unlined, open surface drainage channels excavated into native soils varying from three feet deep in most areas to 15 feet deep in some areas.

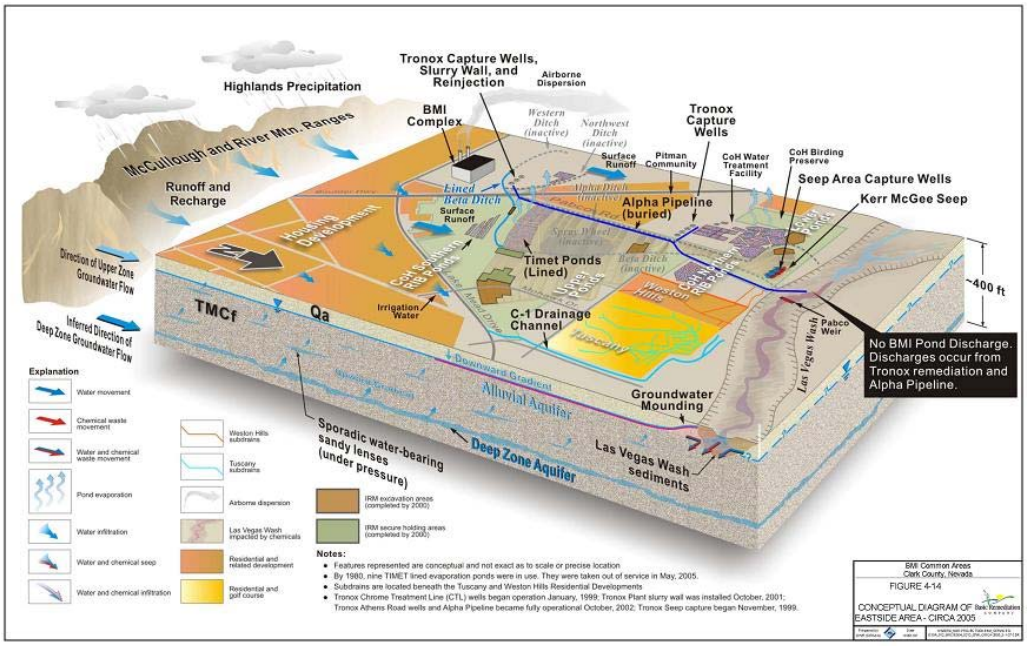
The site has a typical desert climate and is sparsely vegetated with small shrubs throughout most of the site, with the exception of the Lower Ponds, which have increased vegetation. Native soils at the site consist of unconsolidated, poorly sorted, non-plastic, light brown to red silty sands with varying amounts of gravel and cobbles.

The primary source of chemical contamination at the BRC Eastside site is the result of transport and disposal of industrial and sewage effluent in the pond and ditch areas. Reported solid wastes include: asbestos sludge, sodium chlorate filter cake wastes, ammonium perchlorate filter cake wastes, potassium perchlorate process wastes, and sodium dichromate. Reported liquid waste includes: effluent containing organics, caustics, and cell liquor, sulfuric acid, hydrochloric acid, sulfonated metabolites of dichlorodiphenyltrichloroethane (DDT), aqueous boron solution, industrial wastes from cooling and dust control operations, ore processing waste, leach liquor, caustic waste, other process waste effluents (mixed metal chlorides), borax, soda ash, phosphate chemicals, cyanide, rinse and wash water containing small amounts of chloride, and municipal sewage effluent.

The CAMU site (westside), which represents a portion of the greater BMI Complex, is comprised of existing and closed landfills, slit trenches, and vacant land. Besides land disposal, historical manufacturing operations and work management practices in the production areas up-gradient of the landfill, have been known to have significantly impacted groundwater quality in the vicinity of the landfill area.

The following conceptual diagram is provided for historical and descriptive purposes:

2005 Conceptual Diagram – The below 3-D block diagram shows the current conditions of the site, prior to remediation.



2.2 SCOPE OF WORK

The Scope of Work (SOW) will follow the requirements of the Technical Specification, Section 01010. In general, the following tasks will be performed:

- Site Mobilization and Preparation
- Installation of Stormwater Detention Basins and Stormwater Channels
- Clearing and Grubbing
- Liner Installation and Waste Consolidation within the CAMU
- Dewatering of Eastside Ponds
- Mixing of Eastside Wet Sediments and Dry Soils
- Loading, Hauling, Placement, Compacting and Testing of Backfilled Wastes
- Installation of a CAMU Cover System

The extremely wet nature of the sediments within the sixteen (16) wet ponds requires a program to be developed which will effectively reduce the moisture levels to create suitable soils for land filling and therefore meeting the project design criteria. Wet materials will be treated utilizing techniques developed in the FPMP.

The excavation and waste handling associated with the Slit Trench Area will be broken out and handled as a separate task from the waste consolidation at the CAMU. The concentration of COC within the Slit Trench Area will require increased levels of protection and special air monitoring.

2.3 SITE MAP


Spring 2007 Aerial Photo
BMI Common Areas (Eastside)
Property Boundary
Basic Remediation
COMPANY

2.4 WASTE MANAGEMENT

ENTACT will minimize the use of chemicals when performing the scope of work for this project. No waste materials will be transported off-site with the possible exception of general site trash which is disposed of in designated trash receptacles.

3.0 PROJECT TEAM ORGANIZATION AND RESPONSIBILITIES

Responsibilities for ENTACT associates are described below using titles familiar to ENTACT staff. The names of key personnel on this project are listed in Table 3.1 and ENTACT's health and safety organization chart is in Figure 3.1.

3.1 ENTACT PROJECT COORDINATOR

The Project Coordinator will report directly to the client and ensure all project members strive for zero accidents and incidents. The responsibilities of the Project Coordinator will be the successful completion of the project, but the number one goal will be a safe and healthy work site with zero accidents.

3.2 ENTACT PROJECT HEALTH AND SAFETY COORDINATOR

The Project Health and Safety Coordinator (PHSC) is responsible for writing, reviewing, and approving the site-specific HASP and implementing ENTACT's Health and Safety Program. The PHSC will serve as the primary contact to review health and safety matters and provide direction to the ENTACT Field Project Manager and On-site Health and Safety Officer(s) as necessary on issues related to health and safety. The PHSC will be responsible for conducting the health and safety orientation meeting prior to the start of field activities, reviewing monthly project safety reports, and conducting health and safety inspections and audits at the site project. The PHSC will also review all BBS reports generated by the project.

3.3 ENTACT PROJECT MANAGER

The ENTACT Project Manager will have the overall responsibility of the construction activities and ensuring compliance with the approved work plan and applicable federal, state, and local regulations. The Project Manager will ensure all operations at the Site are performed in the safest manner possible following the site-specific HASP and promoting ENTACT's safety culture. Specific responsibilities will be to observe, promote, and facilitate a safe environment that will achieve zero accidents and zero incidents.

The ENTACT Project Manager or a designated representative will be responsible for informing all individuals entering the exclusion zone or decontamination zone of the contents of this plan and ensuring that each person understands the hazards of the site and signs the Safety Plan Acknowledgment Form in Attachment B.

3.4 ENTACT FIELD PROJECT MANAGER

The ENTACT Field Project Manager (FPM) will be responsible for directing all site personnel, equipment, subcontractors, and activities to ensure a safe and successful implementation of the remedial action activities. The FPM will have overall responsibility for the health and safety of site personnel. He will ensure adequate resources are provided to carry out established health and safety responsibilities and will enforce the site-specific HASP. He will ensure proper communications is established for emergency response. The FPM will coordinate with the on-site Health and Safety Officer in the planning and implementation of all site activities and ensure site personnel are knowledgeable of site hazards and assists with the development of JSA. The Field Project Manager will designate an alternate representative in his absence and will be identified and communicated to all job site personnel.

3.5 ENTACT HEALTH AND SAFETY OFFICER

The ENTACT HSO will be assigned to this site on a full-time basis with functional responsibility for implementing the site-specific HASP. The ENTACT HSO will conduct site audits. Specific duties include, but are not limited to:

- Assume responsibility for health and safety of ENTACT personnel and promote ENTACT's safety culture
- Supervise decontamination of personnel and equipment
- Ensure air monitoring equipment is calibrated and operational
- Conduct personal air monitoring on all ENTACT personnel as outlined in 29 CFR 1910.120 (h) (4) and site HASP
- Perform respiratory fit tests
- Establish emergency evacuation procedures and conduct emergency drills
- Select personal protective equipment based upon the site-specific HASP, chemical properties, and air sample results
- Verify that all on-site ENTACT personnel have had medical exam and are fit for duty
- Assist with the preparation and review of JSA
- Health and safety training and recognition of hazards
- Utilize and promote "Stop Work Authority"
- Report and investigate all accidents and near losses (NLI/LI)
- Schedule Job Task Observations (JTO)
- Coordinate safety orientation as well as daily safety meetings discussing daily tasks and utilizing JSAs
- Work with the FPM daily regarding safe work activities
- Complete Monthly Safety Report and forward it to ENTACT's Project Health and Safety Coordinator
- Ensure all site personnel (ENTACT field crew and subcontractors) have taken the written test to document understanding of site-specific risks
- Provide positive encouragement and participation in the behavior based safety system
- Communicate health and safety concerns to the FPM and the PHSC
- Work with subcontractors in their compliance with site safety requirements

- Provide accurate documentation and timely communication
- Follow ENTACT's Site Documentation Filing SOP

The HSO and the FPM will work together to promote a safety goal of zero accidents and zero incidents. The alternate HSO will be the Field Project Manager or his designee.

3.6 ENTACT FIELD CREW

Each ENTACT associate (field crew member) is responsible for asking questions and understanding the site-specific HASP as well as the following:

- Report any unsafe or potentially hazardous conditions to the FPM or the HSO
- Comply with rules, regulations, and procedures as set forth in this HASP
- Express safety ideas or concerns in the daily safety meetings
- Perform all tasks safely
- Perform an JTR before performing any task
- Perform JTO under the direction of the HSO
- Utilize "Stop Work Authority" if required
- Take a written test to document understanding of site-specific risks

By signing the Safety Plan Acknowledgment Form (Attachment B), individuals are recognizing the potential hazards present on-site and the policies and procedures required minimizing exposure and/or adverse effects of these hazards.

3.7 SUBCONTRACTORS

Approved subcontractors will be utilized when required.

ENTACT will provide basic BBS training and include subcontractors in the site orientation and daily tailgate safety meetings. Subcontractors must take a written test to document understanding of site-specific risks

3.8 OTHER PERSONNEL

Examples of other personnel that may be on site include representatives of the Federal, State, and county agencies, and ENTACT's client. Any person who observes safety problems should immediately report observations or concerns to appropriate key personnel. Although other personnel typically only make on-site observations, they will be expected to read, abide by, and sign the HASP and receive a site orientation. Should agency personnel refuse to abide by site safety requirements, work will be stopped while these personnel are on site. Every ENTACT associate has the authority and obligation to stop work in order to prevent incidents and injuries.

Table 3.1 Key ENTACT Personnel		
ENTACT Title	**Name**	**Telephone Number**
Principle Contractor	ENTACT 3129 Bass Pro Drive Grapevine, TX 76051	(972) 580-1323
Project Coordinator	Erik Gehringer	Office:(561) 707-7088 Cell: (561) 707-7088
Project Health and Safety Coordinator	Rick MacIntyre	Office: (972) 580-1323 Cell: (214) 663-3282
Project Manager	Bob Ainslie	Cell: (307) 359-1141
Field Project Manager	Russell Karnes	Cell: (785) 342-3850
Health and Safety Officer	Joe Curila	Cell: (630) 816-5026
Health and Safety Officer	Michael Parker	Cell: (to be added)

Figure 3.1
ENTACT Health and Safety Organization Chart

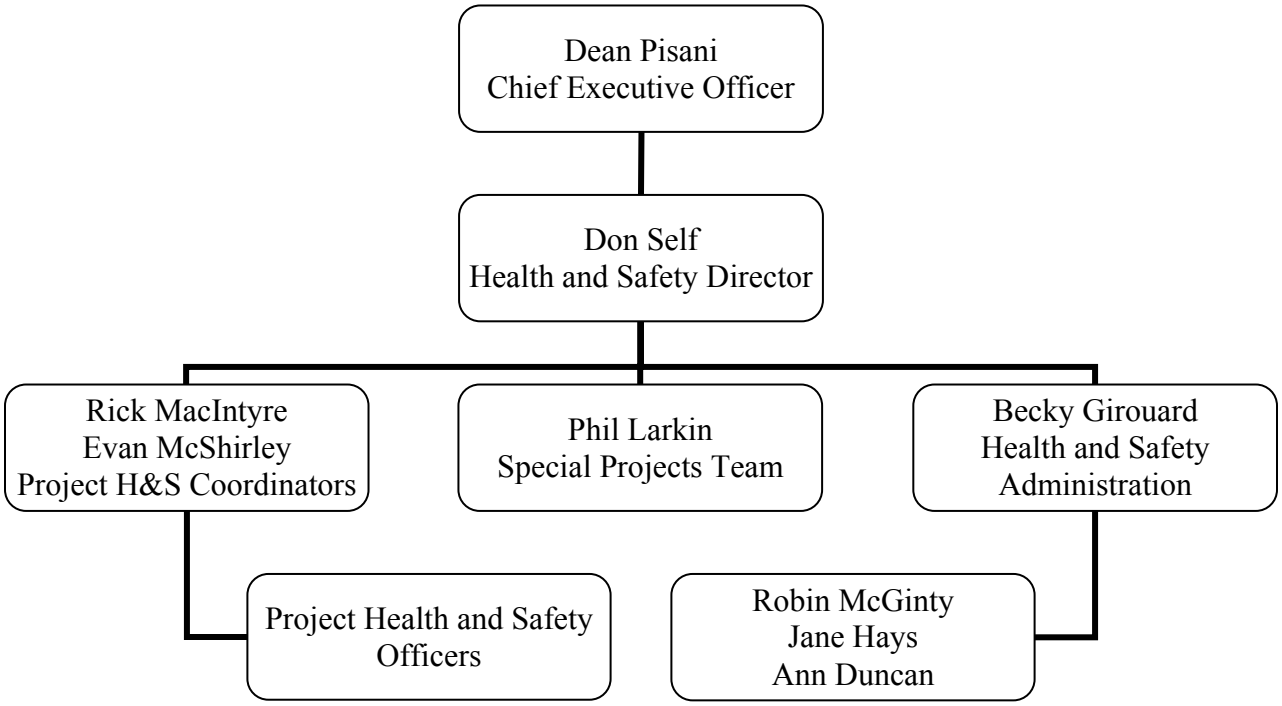
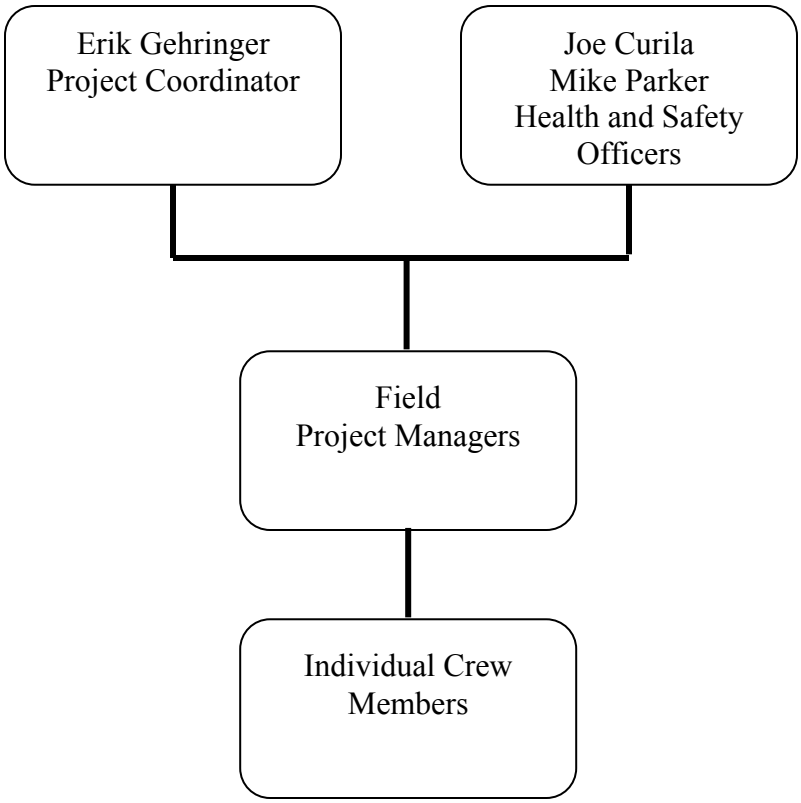


Figure 3.2
BRC Common Areas Health and Safety Hierarchy



4.0 TRAINING AND MEDICAL MONITORING REQUIREMENTS

This section describes the general and site-specific training requirements as well as medical monitoring requirements.

4.1 GENERAL TRAINING

All ENTACT associates are required to attend 40 hours of classroom training in accordance with 29 CFR 1910.120 or 1926.65. All field personnel receive 8 hours of refresher training on an annual basis covering the initial 40 classroom topics beginning within the 12 months of the individual's initial 40-hour class. FPMs are required to have 8 hours of training on safe management of hazardous waste sites, also in compliance with 29 CFR 1910.120. ENTACT personnel receive first aid/CPR training. Site personnel will have completed Behavior Based Safety (BBS) training prior to beginning work. In addition, the following criteria will be met:

- All assigned personnel will receive site-specific training on routes of exposure and adverse health effects associated with the chemicals listed on the table of hazards in Section 5.
- FPM, HSO and Lead operator will have completed Competent Person Excavation Training 29 CFR 1910.650-Subpart P
- Confined Space training if conditions warrant.
- All site assigned personnel will complete BBS training.
- At least one member of each work crew will have training in the use of portable fire extinguishers in accordance with 29 CFR 1910.157 (g).
- Personnel newly assigned to hazardous waste work will receive 3 days of on the job training by an FPM.
- Each person entering the site will sign a statement attesting to the fact that they have read and understand this site-specific HASP. Refer to Attachment B for sign in sheet.
- All subcontractors entering the decontamination zone and exclusion zone will have adequate training satisfying 29 CFR 1910.120 or 1926.65 and other training necessary to their particular task.
- Daily health and safety tailgate meetings will be held each morning prior to work beginning. Specific safety topics will be discussed including prior days' activities. All site discussions will be documented.
- JTR will receive positive support and feedback.
- All associates will follow the General Site Safety Rules (see Attachment C).
- All ENTACT associates are expected to abide by the terms of the Drug and Alcohol Policy (see Attachment D).
- Hazard Communication (Right-to-Know).
- Traffic routes and hazards as identified in JMPs.

4.2 SITE-SPECIFIC TRAINING

All field team members and subcontractors are required to attend a safety briefing held before

field work begins. The safety briefing will cover the contents of this HASP including roles and responsibilities, a review of job hazard analysis, and safe work practices. The site's emergency response and evacuation practices will be reviewed in detail. A tour of the site and work area will also be included in the mobilization briefing.

Specifically, the mobilization safety briefing will include information on the following:

- Equipment checklist.
- An overview of the requirements contained in the Hazardous Communication (HazCom) Standard.
- Hazardous chemicals present at the site.
- The location and availability of the written HazCom Program.
- Physical and health effects of the hazardous chemicals on-site.
- Methods of preventing or eliminating exposure.
- Emergency evacuation procedures and muster point.
- Emergency procedures to follow if exposed.
- How to read labels and review material safety data sheets (MSDS) to obtain information.
- Location of MSDS file and location of chemical list.
- Equipment being used.
- Site layout.
- All required PPE.
- Respirator fit test.
- Locations of fire extinguishers, eye wash stations, and first aid locations.
- Proper decon.
- Requirements for driving company vehicles, documented weekly inspections, and their upkeep.
- Task analysis.
- Air monitoring protocol and location of results.
- Reporting of all incidents including vehicle or equipment damage.
- Daily safety meetings.
- Contractor orientation

Attendance at tailgate safety meetings, which are held each morning and afternoon, is also required. Topics of the tailgate safety meetings will include a discussion of that day's activities and the potential hazards which may be encountered. The ENTACT HSO or designee will lead the meetings and record the topic(s) discussed. All field team members are required to sign-in to document their attendance. Meeting topics will include ENTACT's behavior-based safety system and other pertinent safety information. Discussions may also include information generated by oversight contractor during separate "Plan of the Day" meetings conducted between ENTACT management and Weston oversight teams.

4.3 MEDICAL MONITORING

Pursuant to 29 CFR 1910.120, all ENTACT field personnel are required to have a pre-

employment medical examination and annual update physicals. All associates must pass a pre-established physical including heavy metals blood work before being assigned to the work site. A copy of the medical pass or fail sheet will be kept on file at the site. In addition, a copy of the certificates for training, refreshers, first aid, CPR, respirator fit tests, medical fitness, and other pertinent information will be filed and available on site.

ENTACT field personnel are routinely monitored for blood lead, cadmium, and arsenic levels. Although exposure to these metals is not anticipated at the site, following any accidental or suspected exposure personnel will be scheduled for a special physical examination. The physical examination will focus on the specific contaminants and the associated target organs as well as test for blood lead, cadmium, and arsenic levels for comparison to previously established baselines.

5.0 SITE HAZARD ANALYSIS

Physical, chemical, and biological hazards exist at the work site. While all potential site hazards cannot be identified during HASP development, many can be anticipated. This section discusses the anticipated hazards and offers controls to minimize risk. Task safety assessments are provided at the end of this section.

5.1 CHEMICAL HAZARDS

5.1.1 Chemical Hazards Present At The Site

Although chemical hazards vary by location onsite, the following table provides a listing of chemical hazards present in environmental media (soil, groundwater, sediment) on this site:

Location	Contaminant	Range	Comments
Slit Trench Area	1,2,4-Trichlorobenzene	47 -2107 μg/m^3	Soil Gas PEL= 300,000 μg/m^3
Slit Trench Area	1,2-Dichlorobenzene	2.5 – 10,389 μg/m^3	Soil Gas PEL= 300,000 μg/m^3
Slit Trench Area	1,4-Dichlorobenzene	0.53 – 15,277μ g/m^3	Soil Gas PEL= 450,000 μg/m^3
Slit Trench Area	Benzene	1.2 – 389,607 μg/m^3	Soil Gas PEL= 34,425 μg/m^3
Slit Trench Area	Chloroform	29 – 4,946,996 μg/m^3	Soil Gas PEL= 248,000 μg/m^3
STA/CAMU Site	Arsenic	1.9 – 8.4 mg/kg	Surficial Soil PRG= 1.6 mg/kg
STA/CAMU Site	Chromium	5.4 – 30 mg/kg	Surficial Soil PRG= 450 mg/kg
STA/CAMU Site	Aldrin Organic Pesticide	0.26 – 0.99 mg/kg	Surficial Soil PRG= 0.1 mg/kg
STA/CAMU Site	α BHC Organic Pesticide	0.0019 – 86 mg/kg	Surficial Soil PRG= 0.36 mg/kg
STA/CAMU Site	β BHC Organic Pesticide	0.005 – 9.4 mg/kg	Surficial Soil PRG= 1.3 mg/kg
STA/CAMU Site	PCBs	0.15 – 200 mg/kg	Soil Sample PRG= 0.74 mg/kg
STA/Western Ditch	1,2,4-Trichlorobenzene	140 – 850 mg/kg	Soil Sample PRG= 220 mg/kg
STA	α BHC Organic Pesticide	1.3 – 28 mg/kg	Soil Sample PRG= 0.36 mg/kg
STA/CAMU Site	1,2-Dichlorobenzene	**1.1 – 10,000 mg/kg**	Soil Sample PRG= 600 mg/kg
STA	Dioxins & Furans	5.1 – 570 ppb	Soil Sample > 10 ft PRG= 1 ppb
STA	PCBs	**0.95 – 1200 mg/kg**	Soil Sample >15 ft

Location	Contaminant	Range	Comments
			PRG= 0.74 mg/kg

Contact with the above listed chemicals of concern will be limited during most activities. **Tasks with the highest potential exposure include excavation of soil in the Slit Trench Area and Waste Consolidation in the CAMU.** The exposure limits for site chemical hazards of concern and nuisance dust are listed in Table 5.1 (below).

Table 5.1 Chemical Data

Compound	ACGIH TLV	OSHA PEL	Route of Exposure	Symptoms of Exposure	Target Organs	Physical Data
Aldrin	TWA 0.05 mg/m^3	TWA 0.25 mg/m^3	Inhalation, skin absorption, skin and/or eye contact ingestion	Headache, dizziness, nausea, vomiting, jerking limbs.	CNS, liver, kidneys, skin.	Non-comb solid or dissolved in flammable liquid
Arsenic	TWA 0.01 mg/m^3	TWA 0.01 mg/m^3	Inhalation, skin absorption, skin and/or eye contact ingestion	Ulceration of nasal septum, dermatitis, gastrointestinal disturbances, peripheral neuropathy, respiratory irritation, hyper-pigmentation of skin, [potential occupational carcinogen]	Liver, kidneys, skin, lungs, lymphatic system	Metal: Silver-gray or tin-white, brittle, odorless solid.
Benzene	TWA 0.5 ppm	TWA 1 ppm	Inhalation, skin absorption, skin and/or eye contact ingestion	Eye, skin and nasal irritant. Dizziness, headache, loss of coordination. Leukemia.	Eyes, skin, respiratory system, blood, CNS and bone marrow	Aromatic hydro-carbon, with pleasant odor
α or β BHC (Lindane)	TWA 0.5 mg/m^3	TWA 0.5 mg/m^3	Inhalation, skin absorption, skin and/or eye contact ingestion	Eye, skin, nose, throat irritant. Headache, nausea, cyanosis, convulsions.	Liver, kidneys, eyes, skin and blood	Non-comb solid or dissolved in flammable liquid
Chloroform	TWA 10 ppm	TWA 50 ppm Ceiling	Inhalation, skin absorption, skin and/or eye contact	Eye & skin irritation, dizziness, confusion. Hepatitis.	Liver, kidneys, heart, skin and CNS	Non-Combusti ble liquid

Table 5.1 Chemical Data						
Compound	**ACGIH TLV**	**OSHA PEL**	**Route of Exposure**	**Symptoms of Exposure**	**Target Organs**	**Physical Data**
			ingestion			
1,2 Dichloro benzene	TWA 25 ppm	TWA 50 ppm Ceiling	Inhalation, skin absorption, skin and/or eye contact ingestion	Eye, nose irritation. Liver, kidney damage. Skin blisters.	Eyes, skin, respiratory system, liver, kidneys.	Combusti ble liquid.
1,4 Dichloro benzene	TWA 10 ppm	TWA 75 ppm	Inhalation, skin absorption, skin and/or eye contact ingestion	Eye, skin & nasal membrane irritation. Nausea, headache, vomiting.	Liver, kidneys, respiratory system, skin.	Combusti ble solid.
Chromium	TWA: (as chromium water-soluble Cr (VI) compounds) 0.05 mg/m³ as TWA	TWA 1 mg/m^3 The PEL also applies to insoluble chromium salts.	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin; lung fibrosis	Eyes, skin, respiratory system	Blue-white to steel-gray, lustrous, brittle, hard, odorless solid.
Chloro diphenyls (PCBs)	TWA 0.5 mg/m^3 (54% chlorine)	TWA 0.5 mg/m^3 54%	Inhalation, ingestion, skin and/or eye contact	Eye irritation, chloracne. Liver damage.	Eyes, skin, liver and reproductiv e system.	Oily non-flammable liquid
2,3,7,8 TCDD (Dioxin)	TWA None	TWA None	Inhalation, ingestion, skin and/or eye contact	Eye & skin irritation (chloracne), repro effects.	Eyes, skin, liver, repo system	Colorless to white crystalline solid
Nuisance dust (particulates NOR)	TLV: 10 total/3 resp mg/m^3	PEL:15 total/5 resp mg/m^3	Inhalation	Eye and respiratory irritation	Lungs	Airborne particulate

Abbreviations	
C = ceiling limit, not to be exceeded	LEL = Lower explosive limit
CNS = Central Nervous System	mm = millimeter
CVS = Cardiovascular System	ppm = parts per million
eV = electron volt	Skin = significant route of exposure
FP = Flash point	STEL = Short-term exposure limit (15 minutes)
IP = Ionization Potential	TWA = Time-weighted average (8 hours)
GI = Gastro-intestinal	UEL = Upper explosive limit
	VP = vapor pressure approximately 68° F in mm Hg (mercury)

5.1.2 MSDS and Right-to-Know

ENTACT will communicate the hazards of chemicals to all associates through the Hazard Communication Program as outlined by Title 29 Code of Federal Regulations 1910.1200. The use of chemicals is anticipated to be minimal at the site. A brief list is included below of certain chemicals that may be necessary. Any additional chemicals used will be added to the list and the MSDS will be added to the MSDS folder located at the ENTACT project trailer or administrative offices.

- Gasoline
- Diesel Fuel
- Hydraulic Oil
- Motor Oil

MSDS will be discussed prior to the project beginning at the initial site safety orientation. Site personnel will comply with OSHA Hazard Communication Standards (Right-To-Know) and ENTACT's Hazard Communication Policy. All containers received on site will be inspected by the FPM/HSO who will use the HMIS label according to ENTACT's HazCom program. This will ensure that the containers are properly labeled with hazard warnings in compliance with OSHA Hazard Communication regulations.

OSHA and the EPA have established a chemical safety data bank for quick reference to over 800 chemicals. While this does not replace the need for MSDS it is a quick reference for chemical safety and PEL information.

http://www.osha.gov/web/dep/chemicaldata/#target

5.2 NON-CHEMICAL HAZARDS

This section presents an assessment of the biological, and physical hazards that may be encountered during the tasks specified in this Health and Safety Plan. Physical hazards, such as those associated with excavation, heavy equipment, debris removal, and other construction activities, will likely pose the greatest potential for injury at the site because chemical exposure shouldn't exist. Physical hazards can be caused by the following:

- Underground and overhead utilities
- Heavy equipment
- Trenching and excavation
- Noise
- Weather
- Slip, trip, and fall
- Fire protection
- Debris removal
- Traffic
- High-pressure cleaning
- Water hazards

- Manual lifting
- Hand and power tools
- Cold and heat stress

Injuries that may result from these physical hazards can range from simple slip-trip-fall types of accidents to casualties, including fatalities due to moving or rotating equipment, electrocution, engulfment, or other activities related to construction. Injuries resulting from physical hazards can be avoided through the adoption of safe work practices and associate involvement.

Each of the above mentioned physical hazards are discussed below:

5.2.1 Underground and Overhead Utilities

Before heavy equipment is used, all utilities (electricity, natural gas lines, water lines, sewer lines, etc.) must be identified. The Nevada Underground Service Alert - North (800) 226-2700 will be contacted prior to beginning intrusive and pre-trenching activities. In addition, the Federal Communications Commission (FCC) has approved the use of 811 as a national call-before-you-dig telephone number. Identified underground utilities will be clearly marked and color coded. ENTACT will coordinate with the appropriate utilities to remove or reroute utilities as necessary. Caution and awareness of underground and overhead utilities and other identified obstructions that remain in place will be emphasized in daily health and safety meetings. Each day, before work begins, utility locations will be discussed as they relate to planned activities. Deviation from planned activities must be discussed and approved by the FPM and the HSO.

Table 5.2
Requirements for Equipment Operation
Near Power Lines (29 CFR 1926.550)

ACTIVITY	LINE RATING	MINIMUM CLEARANCE
Equipment Operation	< 50 kV	10 feet
	> 50 kV	10 feet + 0.4 inches per each kV over 50 kV, or 2 times the length of the line insulator (minimum of 10 feet)
In transit with no load and boom lowered	< 50 kV	4 feet
	> 50 kV to 345 kV	10 feet
	345 kV to 750 kV	16 feet

Note: kV = kilovolts

Note: Abandoned utilities slated for removal must be verified as de-energized or out of service prior to attempted removal. See Attachment E – Equipment Safety for working near overhead and underground utilities.

5.2.2 Heavy Equipment

On-site activities that ENTACT will perform require use of heavy equipment. Heavy equipment and its operation can represent a significant safety hazard if proper experience is not combined

with site-required procedures. Trained and experienced personnel will perform operation of heavy equipment. Personal protective equipment (PPE) such as steel-toed shoes, safety glasses or goggles, hearing protection, hard hats, and high visibility vests must be worn whenever such equipment is present. Equipment will have a fire extinguisher on board and a backup alarm. See Attachment E, Equipment Safety, for additional requirements for heavy equipment.

5.2.3 Trenching and Excavation

Any excavation and trenching activities will comply with OSHA 29 CFR 1926.650 Subpart P. Complete description is available in Attachment F, Excavation Safety, provides excavation and trenching requirements that will be followed if site activities or conditions warrant.

5.2.4 Noise

Heavy equipment and other construction activities may produce noise levels above acceptable standards. High noise levels (85 dBA or higher) can contribute to hearing loss as well as interfere with communication between associates. Exposure to noise can be expected when working around equipment and machines such as heavy equipment, shears, generators, compressors, jackhammers, and the like. All personnel will wear hearing-protective devices with a minimum noise reduction rating (NRR) of at least 25 (either earplugs or muffs) if they are within 25 feet of such operating equipment or when noise levels interfere with normal speech. Hand signals will be established by on-site personnel as appropriate to facilitate communications while involved in high-noise activities.

Action Level (dBA)	Permissible Exposure Level (dBA)	Comments
85	90	When anticipated exposures reach or exceed the action level, engineering and administrative controls will be implemented and hearing protection will be required.

Periodic noise surveys will be made along the work area perimeter to ensure that noise levels do not exceed the established action level. See section 5.2.4 for noise monitoring.

5.2.5 Weather

Adverse weather conditions will be important considerations when planning and conducting site operations. Hot and cold weather may be encountered as well as thunderstorms and lightning. A break trailer equipped with air conditioning and heating will be part of the site setup. Attachment G, Basic Emergency Medical and First Aid address precautions and treatment of heat and cold stress.

Thunderstorms and lightning pose a threat to safety for personnel working outdoors. ENTACT follows the 30 – 30 Rule for lightning safety; at any time when there is less than 30 seconds between a lightning flash and the following thunder work will be suspended and personnel will seek shelter. Work will not resume until 30 minutes after the last lightning strike with an interval

less than 30 seconds. Heat and cold stress are addressed in Attachments H and I.

5.2.6 Slip, Trip, and Fall Hazards

Slip, trip, and fall hazards will exist throughout the site. Protection from slip, trip and fall hazards will be provided through standard safety procedures including good housekeeping. Properly locating equipment and removing debris and taking general precautions during site operations will be standard operating procedures. Associates will be apprized of any potential trip hazards through regularly scheduled health and safety meetings. Whenever possible, trip and fall hazards will be eliminated or clearly identified with yellow "caution" tape. Impalement hazards to associates will be neutralized as soon as they are identified. ENTACT and any subcontractors will be responsible for the use of safety harnesses, lifelines, lanyards, safety nets, etc., for safeguarding their employees when performing elevated work in compliance with 29 CFR 1926.500 Subpart M. Refer to the ENTACT Comprehensive Health and Safety Manual for Fall Protection information.

5.2.7 Fire Prevention

Fire extinguishers will be provided in fuel areas, storage areas, portable buildings and equipment. All extinguishers will be inspected, serviced, and maintained. No burning of materials will take place at the project site. All flammable liquids will be marked and stored in a manner to conform to NFPA and OSHA requirements. A hot work permit will be used when welding or cutting work is performed. Refer to the ENTACT Comprehensive Health and Safety Manual for Portable Fire Extinguishers.

5.2.8 Debris Removal

Debris removal will be accomplished with equipment and manual labor. Proper PPE, daily work requirements, and good housekeeping must be discussed and maintained. Debris removal will be an ongoing process that has many slip, trip, and fall hazards that must be addressed. Nails, metal panels, sharp edges, heavy loads, and biological hazards are some of the hazards associated with this job. Daily work activities will be discussed each day.

5.2.9 Maintenance and Protection of Traffic

Site personnel will maintain reasonable dust-free traffic and dust suppression will occur. All traffic will follow typical construction safety practices. Specific on-site and off-site traffic routes will be established to accommodate construction activities as well as work crews commuting from their local lodging to the work site. Necessary demarcation of routes, speed limits, and hazards will be made as appropriate. All traffic control patterns, signs, tapering of lanes, barricade placement and flagging will strictly follow the MUTCD. Only trained flaggers will be allowed to direct traffic.

ENTACT associates must comply with the ENTACT Driver Safety and Cell Phone Policy which states that associates may not talk on cell phones while the vehicle is in motion, driver and passengers must wear seat belts, no one is allowed to ride in the back of pickup trucks, all cargo must be secured (in cab, on trailer, bed, etc. Additionally, this applies to the use of 2-way radios and other electronic equipment that may cause distraction.

All vehicular traffic routes that could impact worker safety must be identified and changes communicated during the daily safety meeting. OSHA 29 CFR 1926.201 specifies that when signs, signals, or barricades do not provide adequate protection from highway or street traffic then flag persons shall be utilized. Flag persons will wear red or orange garments. Garments worn at night must be reflective. Provisions will be made for pedestrian and traffic control when appropriate as determined by the HSO.

5.2.10 High-Pressure Cleaning

Decontamination activities will mostly involve pressure washing of truck tires. Decontamination using high-pressure water cleaning above 1,000 PSI requires specific procedures and training that must be followed. Pressure below 1,000 PSI does not mean that it cannot cause injury or requires any less attention to basic procedures. Adequate precautions are required at all pressures. The use of high-pressure water can cause severe injuries and extreme caution and strict compliance with operating procedures must be followed.

- Only trained personnel will be allowed to use the equipment.
- No portion of the body will ever be placed in front of the water jet. The jets of water can easily puncture and tear the skin or penetrate deeper causing infection or serious internal damage.
- A job review will be made prior to high-pressure water being used. The review will include a determination of the temperature and pressure required to accomplish the task.
- Manufacturer's recommendations and requirements will be followed.
- PPE will follow guidelines outlined in Section 7, Level D+ requirements and will include metatarsal guards.
- High-pressure cleaning may require partial body or total entry into tanks with a corresponding increase in PPE and other requirements.
- Only essential personnel will be allowed in the work area.

Training will include:

- The cutting action of high-pressure water.
- The need and limitations of PPE.
- Operations of system start-up, shutdown, and potential problems.
- The purpose of all safety devices.
- Proper method of connecting hoses (laying out without kinks) using the proper tools for hook-ups.
- The proper stance for sound footing.
- Associate will show knowledge and skill in the proper application of the equipment.

Refer to the ENTACT Comprehensive Health and Safety Manual for High-Pressure Water procedures.

5.2.11 Manual Lifting

Manual lifting of heavy objects may be required. Failure to follow proper lifting technique can result in back injuries and strains. Associates will use power equipment to lift heavy loads when

ever possible and to evaluate loads before trying to lift them (i.e. they should be able to easily tip the load and then return it to its original position). Carrying heavy loads with a buddy and proper lifting techniques, 1) make sure footing is solid, 2) make back straight with no curving or slouching, 3) center body over feet, 4) grasp the object firmly and as close to your body as possible, 5) lift with legs, and 6) turn with your feet, don't twist, will be stressed. Back injuries are a serious concern as they are the most common workplace injury, often resulting in lost or restricted work time, and long treatment and recovery periods. In addition, hand digging for pipes may present lifting/ergonomic hazards.

5.2.12 Hand and Power Tools

In order to complete the various tasks for the project, personnel will utilize hand and power tools. The use of hand and power tools can present a variety of hazards, including physical harm from being struck by flying objects, being cut or struck by the tool, fire, and electrocution. Work gloves, safety glasses, and hard hats will be worn by the operating personnel at all times when utilizing hand and power tools and GFI-equipped circuits will be used for all power tools. Hand and power tools will be inspected prior to each use and damaged tools will be tagged and placed out of service.

5.2.13 Cold Stress

At certain times of the year, workers may be exposed to the hazards of working in cold environments. Potential hazards in cold environments include frostbite, trench foot or immersion foot, hypothermia as well as slippery surfaces, brittle equipment, poor judgment and unauthorized procedural changes. The procedures to be followed are found in Attachment H, Cold Stress.

5.2.14 Heat Stress

Heat stress is a significant potential hazard, which is greatly exacerbated with the use of PPE in hot environments. The potential hazards of working in hot environments include dehydration, cramps, heat rash, heat exhaustion, and heat stroke. A heat stress prevention program will be implemented when ambient temperatures exceed 70ºF for personnel wearing impermeable clothing. The procedures to be followed are found in Attachment I, Heat Stress.

5.2.15 Steam, Heat, Splashing

Exposure to steam/heat/splashing hazards can occur during steam cleaning activities. Exposure to steam/heat/splashing can result in scalding/burns, eye injury, and puncture wounds. Proper PPE will be worn during all steam cleaning activities including rain gear or Tyvek, hardhat equipped with splashguard, and water resistant gloves and boots.

5.2.16 Water Hazards

Where practicable, diverting and/or removing water from the work area prior to performing other construction activities is generally preferable to having to perform work in a sustained basis on, in, or near water. However, implementing water diversion/removal may itself temporarily expose workers or others to activities that represent a potential danger. Therefore, the relative hazards represented by implementing and maintaining water diversion/removal needs to be assessed and compared to the hazards of completing the planned work without water

diversion/removal before a final decision is made. If the decision is to proceed with water diversion/removal activities that themselves may represent a potential danger of drowning, then the applicable regulatory, design, health and safety, construction, operations and maintenance, and emergency response procedures will be implemented.

Any work within 5 feet of a water body will follow appropriate safety precautions. Personnel flotation devices (PFD) are required and must meet U.S. Coast Guard requirements. The buddy system will be enforced at all times. No one will work alone. In addition to PFDs, life rings with suitable lengths of rope will be made available when working near swiftly moving water or that of depths greater than 3 feet. Work near water is primarily defined as that work which involves a potential danger of drowning. Evaluation as to whether work could represent a danger of drowning and hence the requirements of this guidance are applicable, will be done on a site-specific basis, as deemed appropriate, by the Basic Work Team (BWT) as part of Health and Safety Plan development.

5.2.16.1 Throwing Rings

Type IV Personal Flotation Devices (PFDs) are U.S. Coast Guard approved "ring life buoys" typically referred to as "life rings" or “throwing rings.”

- These devices are required for work near water.
- The interval between rings shall not exceed 200 feet and/or throwing rings must be within 100 feet of work.
- Maintain 90 feet of retrieval line attached to throwing rings.
- These devices or equivalent length rescue throwing bags shall also be used where there are potential entrapment hazards such as bogs, lagoons, quicksands, or deep mud’s.

5.2.16.2 PFD Vests

- Wear Coast Guard approved work vests and inspect work vests before each use.
- Do not use recreational boating PFDs such as ski jackets for work applications.
- PFDs used as work vests may be Type I, II, III, or V PFDs. A Type V PFD, including Type V Hybrid PFDs, is acceptable only if it is U.S. Coast Guard approved and marked for use as a work vest, for commercial use, or for use on commercial vessels.

If the work is defined as work in, on or near water which involves the risk of drowning then the following emergency response considerations apply:

- All personnel working in, on or near water should have appropriate training and be familiar with emergency response procedures and contacts. Continuous oversight and/or the buddy system need to be used when personnel are working in, on or near water.
- When working in, on or near water, the applicable emergency gear identified in Section 7 (i.e., throw rings, PFDs, skiffs) needs to be available on-site at all times.
- Deep water, fast flowing water, cold water and/or presence of thin ice can present additional constraints to emergency response. Divers, or other specialized responders, may need to be alerted and their availability verified prior to proceeding with work in, on or near water under these conditions.

5.2.17 Confined Space

Confined space may be encountered during Site operations such as utility survey, subsurface feature investigations, underground storage tank cleaning and removal. If a confined space is encountered and entry necessary, appropriate safety precautions will be taken in accordance with OSHA 29 CFR 1910.146. Attachment N, Confined Space Entry and Confined Space Permit, provides confined space entry requirements that will be followed when site activities or conditions warrant.

5.2.18 Loose Clothing and Jewelry

Loose clothing, jewelry, or other personal items will not be worn around equipment that could catch or entangle these items. Care must be taken to have an individual's hair pulled back and out of the way of equipment that could catch or entangle the hair. Sufficient space will be maintained around operating machinery to prevent accidental contact that may result from mechanical or human error. Hard-hats must be worn to protect against bumps or falling objects. Safety glasses must be worn y all workers in all areas of the Site except the support zone. Goggles face shields or other forms of eye protection must be worn when necessary to protect against chemicals or other hazards. Steel-toed safety shoes or boots are also required. The shoes must be chemically resistant or protected with appropriately selected boots/coverings where necessary. Unless otherwise specified, normal work clothes must be worn. Long sleeves and gloves are also required whenever necessary to protect against hazardous contact, cuts, abrasions or other possible skin hazards. Daily tailgate safety meetings are conducted to provide information and training necessary to void accidental injury, including assuring that the Site is maintained in such a way that slip, trip nod fall hazards are recognized and eliminated or controlled. Additionally, the use of standard OSHA Level D PPE will be enforced at the Site.

5.3 BIOLOGICAL HAZARDS

Personnel will be cautioned not to disturb insects or animals. Personnel with particular allergies to insect bites and stings will not work in areas where contact is possible unless they notify the HSO of the allergy and carry appropriate allergy intervention kits (EpiPen® etc.) as necessary. First aid kits should include remedies for possible encounters, including equipment for bee or wasp stings and poisonous snakebites. Insect repellents will be available on the site at all times. Personnel with particular allergies to such compounds will be cautioned prior to their application of the chemical makeup.

The following biological hazards may be present at the site. The FPM will instruct the field crew of the applicable biological hazards during the site orientation and periodically throughout the project.

5.3.1 Insect Bites and Stings

Insects could be present at this site making the chance of bites possible. Although they can be painful, they rarely cause death. However, some people have a severe allergic reaction to an insect bite or sting that can result in a life threatening condition which may require rapid intervention. The following is a list of preventive measures:

- Apply insect repellant prior to fieldwork and/or as often as needed throughout the work shift.
- Wear proper protective clothing (work boots, socks, and light colored pants).
- Field personnel that may have insect allergies should provide this information to the HSO or FPM prior to commencing work.

Bee, Wasp, Hornet, and Yellow Jacket Stings

- A bee will leave behind a stinger attached to a venom sac. Try to remove it as quickly as possible. One way is to gently scrape it out with a blunt-edged object, such as a credit card or a dull knife.
- Wash the area carefully with soap and water. Do this two to three times a day until the skin is healed.
- Apply a cold pack, an ice pack wrapped in a cloth, or a cold, wet washcloth for a few minutes.
- Give acetaminophen (Tylenol®) for pain.
- For pain and itching, give an over-the-counter oral antihistamine. You could also apply cortisone containing cream or calamine lotion to the sting area.
- A sting anywhere in the mouth warrants immediate medical attention. That's because stings in the mucous membranes of the mouth can quickly cause severe swelling that may block airways. You should seek medical care if you note a large skin rash, a large area of swelling around the sting site, or if swelling or pain persists for more than 72 hours. You should seek immediate medical care if you notice any of the following signs, which may indicate a serious or even potentially life-threatening allergic reaction:

    - wheezing or difficulty breathing
    - tightness in throat or chest
    - swelling of the lips
    - dizziness or fainting
    - nausea or vomiting

Spider Bites

Most spiders found in the United States are harmless, with the exception of the black widow and the brown recluse (or violin) spider. Both of these are found in warm climates.

- Wash the area carefully with soap and water. Do this two to three times a day until skin is healed.
- Apply cool compresses.
- Give acetaminophen for pain.
- To protect against infection, apply an antibiotic ointment and keep hands washed.
- If you have any reason to suspect a bite from a black widow or brown recluse spider, apply ice to the bite site and head for the emergency room. Symptoms include:
    - a deep blue or purple area around the bite, surrounded by a whitish ring and a large outer red ring

- body rash
- muscle spasms, tightness, and stiffness
- abdominal pain
- headache or fever
- general feeling of sickness
- lack of appetite
- joint pain
- nausea or vomiting

Tick Bites

Check for ticks carefully after you've been in or around a wooded area. Common types of ticks include dog ticks and deer ticks (ticks may be carriers of Lyme disease and Rocky Mountain Spotted Fever). If you find a tick:

- Call a physician. The doctor may want you to save the tick after removal (you can put it in a jar of alcohol to kill it).
- Use tweezers to grasp the tick firmly at its head or mouth, next to your skin.
- Pull firmly and steadily on the tick until it lets go, then swab the bite site with alcohol.
- **Don't** use petroleum jelly or a lit match to kill and remove a tick.

Symptoms of Lyme disease can include a stiff neck, chills, fever, sore throat, headache, fatigue and joint pain. This flu-like illness is out of season, commonly happening between May and October when ticks are most active. A large expanding skin rash usually develops around the area of the bite. More than one rash may occur. The rash may feel hot to the touch and may be painful. Rashes vary in size, shape, and color, but often look like a red ring with a clear center. The outer edges expand in size. It's easy to miss the rash and the connection between the rash and a tick bite. The rash develops from three days to as long as a month after the tick bite. Almost one third of those with Lyme disease never get the rash.

5.3.2 Plants

The potential for contact with poisonous plants exists when performing fieldwork at the site. Poison ivy, sumac, and oak may be present on site. Poison ivy can be found as vines on tree trunks or as upright bushes (poison oak is another name for the bush form of poison ivy). Poison ivy consists of three leaflets with notched edges. Two leaflets form a pair on opposite sides of the stalk, and the third leaflet stands by itself at the tip. Poison ivy is red in the early spring and turns shiny green later in the spring.

Poison sumac can be present in the form of flat-topped shrub or tree. It has fern-like leaves that are velvety dark green on top and pale underneath. The branches of immature trees have a velvety "down." Poison sumac is white and has "hairy" berry clusters.

Contact with poison ivy, sumac or oak may lead to a skin rash, characterized by reddened, itchy, blistering skin that needs first aid treatment. If you believe you have contacted one of these plants, immediately wash skin thoroughly with soap and water, taking care not to touch your face

or other body parts.

The following is a list of preventive measures:

- Know what the plants look like and avoid them.
- Use OTC poison ivy blocker.
- Wear appropriate protective clothing (long sleeves, pants, gloves, etc.)

If you are exposed, according to the FDA, you should quickly (within 10 minutes):

- First, cleanse exposed areas with rubbing alcohol.
- Next, wash the exposed areas with water only (no soap yet, since soap can move the urushiol, which is the oil from the poison ivy that triggers the rash, around your body and actually make the reaction worse).
- Now, take a shower with soap and warm water.
- Lastly, put gloves on and wipe everything you had with you, including shoes, tools, and your clothes, with rubbing alcohol and water.

Scan for potential hazards during your job - When walking to a location keep your eyes moving around looking at what is in the area. High hazards for contact with poison ivy include clearing and grubbing, installing silt fence, working near fence lines and trees.

Learning to identify and then staying away from poison ivy plants is the best way to prevent the misery of a poison ivy rash. Wearing long sleeves, long pants, boots and gloves when an individual knows they are at risk of exposure is a good method of prevention. It is also important to remember to wash all clothing and tools after use to prevent future contact with the poison ivy oils. Poison plant oils can remain active on such items for years after use.

Remove Urushiol with Tecnu Extreme

When used after exposure to poison ivy, washing with Tecnu Extreme will remove the urushiol oil that causes the rash. Removing urushiol oil from your skin can prevent a rash or keep a rash from spreading. The medicated scrub will relieve itching and soothe the burning of a rash.

Poison Ivy Symptoms

Poison ivy oils (called *urushiol*) cause allergic skin reactions in nearly 85% of people exposed to the plant. Symptoms can begin within a few hours after contact, or can arise between 2 to 5 days later. The rash of poison ivy typically occurs between 24 to 48 hours after contact. Each individual may experience symptoms differently; the following are the most frequent symptoms of poison ivy:

- Rash in the form of blisters (sometimes in a line)
- Blisters can eventually break open, ooze, and then dry or crust over

- Swelling in the area of contact
- Red blotches that can be raised or flat
- Intense itching

More intense symptoms that include fever, stomach cramps, nausea, and overall body swelling should be reported to a physician immediately. Sometimes, the symptoms of poison ivy may resemble other dermatological conditions. It may be necessary to visit a doctor for diagnosis.

5.3.3 Snake Bites

There may be poisonous snakes. The majority of work will be performed in equipment, but on occasion associates will be working on the ground. If bitten by a snake, remain calm, keep the affected area below the level of the heart and walk, do not run, to the nearest aid station for assistance. The FPM will immediately transport the victim to the closest medical facility for treatment or send for appropriate medical assistance, whichever is faster. The following precautions should be used when working in areas with snakes:

- Wear appropriate protection equipment (work boots).
- Be alert and aware of surroundings.
- Avoid walking in wooded areas and through bushes, tall grass or brush as much as possible.

The following is a list of preventive measures:

- Be familiar with your surroundings.
- If you see a snake, back away slowly and do not touch it.
- Leave snakes alone. Many people are bitten because they try to kill a snake or get a closer look at it.
- Stay out of tall grass unless you wear thick leather boots or chaps.
- Keep hands and feet out of areas you can't see.
- Be cautious and alert when working around brush and debris.

The American Red Cross recommends the following first aid treatment:

- Wash the bite with soap and water.
- Immobilize the bitten area and keep it lower than the heart.
- Get medical help.

5.3.4 Animals

During the conduct of site operations, wild animals such as stray dogs or cats, raccoons, and mice may be encountered. Workers will use discretion and avoid all contact with wild animals. If these animals present a problem, efforts will be made to remove these animals from the site by contacting a licensed animal control technician.

5.4 HAZARD ANALYSIS AND MITIGATIONS BY TASK

This section assesses the risks of each major project task, as listed in Table 5.3. A Task Safety Assessment has been prepared and is designed to develop awareness of chemical and physical hazards specific to each task. Information in this section should be discussed in prior to the scheduled start of each new task to be performed and during daily tailgate safety meetings. It is the responsibility of each associate to assess their task and analyze potential risk reduction procedures before performing their job by conducting a JTR.

Note: This hazard analysis by task breakdown may note strictly adhere to the order or detail as found in the SOW and is a safety tool rather than a recital of contract documents.

It would be impractical to repeat in complete detail each control measure for each job task. Sources and hazards will be addressed for job tasks with reference made to applicable control measures in the following tables and site-specific plans. Tables 5.4 to 5.14 should be posted at the command post. When the Task Safety Assessment is discussed additional hazards may need to be addressed. In addition to reviewing the Task Safety Assessments, associates and the ENTACT HSO will prepare a JSA for each work process and record the JSA electronically or in field files.

Table 5.3
OVERVIEW OF JOB TASKS/PROCESS SAFETY MANAGEMENT

Table	Job Task	Hazard Rating	PPE Level
5.4	Mobilization and Site Preparation	Low	D
5.5	Installation of Stormwater Detention Basins and Stormwater Channels	Low	D
5.6	Clearing and Grubbing	Low	D
5.7	Establishing Work Zones and Decontamination Stations	Low	D
5.8	CAMU Liner Installation and Waste Consolidation	Low - Med	D+ or C
5.9	Excavation, Screening and Placement of Western Ditch Soils	Low – Med	C
5.10	Slit Trench Excavation and Waste Handling	Medium	B
5.11	Dewatering of Eastside Ponds	Low – Med	D+
5.12	Mixing of Eastside Wet Sediments and Dry Solids	Low – Med	D+
5.13	Loading, Hauling, Placement, Compacting and Testing of Backfilled Waste	Low - Med	D+ or C
5.14	Installation of CAMU Cover System	Low – Med	D+
5.15	Decontamination & Demobilization	Low	D

Table 5.4 MOBILIZATION & SITE PREPARATION		
PPE: Level D		Hazard Rating: Low
Hazard	Sources	Control Measures
Manual Labor	Materials Equipment	Stretching and proper lifting techniques and possible use of mechanical equipment or hand trucks. Working in minimum groups of two.
Slip/Trip/Falls	Various Sources	Housekeeping rules will be established and followed. Pre-existing slip, trip, and fall hazards will be marked, barricaded, or eliminated. Areas will be discussed in safety orientation. Refer to the ENTACT Comprehensive Health and Safety Manual for Fall Protection and Housekeeping.
Hand Injuries	Pinch Points, Hand Traps	Wear appropriate gloves for the task. Think before placing hands into pinch points.
Electrocution	Electrical utilities	Only qualified electrician will be allowed to hook-up circuits. Extension cords will be inspected. GFCI will be used. Verification that electrical services have been disconnected from the exclusion zone or properly marked and identified.
Hot/Cold Temperatures	Weather Conditions	See Section 5.2.5 and Attachments H and I.
Accidental Injury	Mis-communications; General work activities	Site orientation and training. Positive attitude and behavior will show active participation of self-safety analysis by all associates of tasks to be performed.
Biological Hazards	Insects, Snakes, Ticks, Plants	See Section 5.3.
Explosion/Gas/-Asphyxiation	Utilities	Utilities will be disconnected by utility company and tagged. All utilities will be marked and noted on a facility map. Underground utilities must be verified as de-energized/de-pressured prior to work beginning.

Table 5.5 INSTALLATION OF STORMWATER DETENTION BASINS & STORMWATER CHANNELS		
PPE: Level D	Hazard Rating:	Low
Hazard	Sources	Control Measures
Hazardous Atmosphere	Nuisance Dust	Dust suppression.
Slips/Trips/Falls	Various Locations	Identifiable areas will be either eliminated or marked. Discuss in safety meetings. Refer to ENTACT's Comprehensive Health and Safety Manual for Fall Protection and Housekeeping.
Hot/Cold Temperatures	Weather Conditions	See Section 5.2.5.
Biological Hazards	Insects Snakes	See Section 5.3.
Noise	Machinery	Hearing protection with a NRR of at least 25 will be worn.
Accidental Injury	Mis-communications; General work activities	Site orientation and daily tailgate safety meetings. Positive attitude and behavior will show active participation of self-safety analysis by all associates of tasks to be performed.
Heavy Equipment Injury	Machinery	Qualified operators, daily inspection of equipment. A fire extinguisher must be located on all heavy equipment. Utilize 3-point mount and dismount procedures at all times.
Hand Injuries	Pinch Points, cuts, abrasion	Avoid pinch points and hand traps. Utilize proper gloves for the task. Work commentary and stop and lock.

Table 5.6 CLEARING & GRUBBING OF VEGETATION		
PPE: Level D	Hazard Rating:	Low
Hazard	Sources	Control Measures
Hazardous Atmosphere	Nuisance Dust	Dust suppression
Misuse Of Tools	Hand Tools	Tools will be maintained in safe working conditions. All tools shall be secured.
Biological Hazards	Insects, Snakes, Ticks, Plants	See Section 5.3.
Back Strain	Lifting heavy objects	Use proper lifting technique.
Noise	Machinery, mower	Hearing protection with a NRR of at least 25 will be worn.
Manual Labor	Materials Equipment	Stretching and proper lifting techniques and possible use of mechanical equipment or hand trucks. Working in minimum groups of two.
Heavy Equipment Injury	Machinery	Qualified operators, daily inspection of equipment. Utilize 3-point mount and dismount procedures at all times. Establish swing and tip radius.
Hot/Cold Temperatures	Weather Conditions	See Section 5.2.5.
Accidental Injury	Mis-communications; General work activities	Site orientation and training. Positive attitude and behavior will show active participation of self-safety analysis by all associates of tasks to be performed.
Uneven terrain	Slope/grade of excavated hillside	Operators must know and work within limitations of equipment. Follow all safe excavation practices (see Attachment F.)
Hand Injuries	Pinch Points, rotating equipment	Avoid pinch points and hand traps. Utilize proper gloves for the task. Work commentary and stop and lock.

Table 5.7 ESTABLISHING WORK ZONES & DECONTAMINATION AREAS		
PPE: Level D		Hazard Rating: Low
Hazard	Sources	Control Measures
Hazardous Atmosphere	Nuisance Dust, PAH	Dust suppression. Monitoring with PID and PDR.
Misuse Of Tools	Hand Tools	Tools will be maintained in safe working conditions. All tools will be secured.
Biological Hazards	Insects, Snakes, Ticks, Plants	See Section 5.3.
Back Strain	Lifting heavy objects	Use proper lifting technique when handling liner.
Noise	Machinery	Hearing protection with a NRR of 25 will be utilized.
Manual Labor	Materials Equipment	Stretching and proper lifting techniques and possible use of mechanical equipment or hand trucks. Working in minimum groups of two.
Hot/Cold Temperatures	Weather Conditions	See 5.2.5 and Attachments H and I.
Accidental Injury	Mis-communications; General work activities	Site orientation and training. Positive attitude and behavior will show active participation of self-safety analysis by all associates of tasks to be performed.
Uneven terrain	Slope/grade of excavation	Operators must know and work within limitations of equipment. Follow all safe excavation practices (see Attachment F).

Table 5.8 CAMU LINER INSTALLATION AND WASTE CONSOLIDATION		
PPE: Level D+ or C	Hazard Rating:	Low – Medium
Hazard	Sources	Control Measures
Hazardous Atmosphere	Nuisance dust, PCBs, Chlorinated VOC	Dust suppression. Real-Time PID and PDR monitoring. Air sampling in accordance with Section 8.
Hot/Cold Temperatures	Weather Conditions	See Section 5.2.5.
Slips/Trips/Falls	Debris, Mud, uneven terrain	Remove excess material. Identify pre-existing problems. Housekeeping must be maintained. Refer to ENTACT's Comprehensive Health and Safety Manual for Fall Protection and Housekeeping.
Heavy Equipment Injury	Machinery	Qualified operators, daily inspection of equipment. A fire extinguisher must be located on all heavy equipment. Utilize 3-point mount and dismount procedures at all times.
Biological Hazards	Insects, Snakes, Ticks	See Section 5.3.
Manual Labor	Materials Equipment	Stretching and proper lifting techniques and possible use of mechanical equipment or hand trucks. Working in minimum groups of two.
Traffic	Trucks	All drivers will be given site orientation. Specific routes will be established with site speed limits and directional traffic signs.
Utilities	Underground and Overhead Utilities	Confirm with Operations Manager the locations and depth of all utilities.

Table 5.9 EXCAVATION, SCREENING & PLACEMENT OF WESTERN DITCH SOILS		
PPE: Level C	Hazard Rating:	Low – Medium
Hazard	Sources	Control Measures
Hazardous Atmosphere	Nuisance dust, PCBs, Chlorinated VOC	Dust suppression. Real-Time PID and PDR monitoring. Air sampling in accordance with Section 8.
Hot/Cold Temperatures	Weather Conditions	See Section 5.2.5.
Slips/Trips/Falls	Debris, Mud, uneven terrain	Remove excess material. Identify pre-existing problems. Housekeeping must be maintained. Refer to ENTACT's Comprehensive Health and Safety Manual for Fall Protection and Housekeeping.
Heavy Equipment Injury	Machinery	Qualified operators, daily inspection of equipment. A fire extinguisher must be located on all heavy equipment. Utilize 3-point mount and dismount procedures at all times.
Biological Hazards	Insects, Snakes, Ticks	See Section 5.3.
Manual Labor	Materials Equipment	Stretching and proper lifting techniques and possible use of mechanical equipment or hand trucks. Working in minimum groups of two.
Traffic	Trucks	All drivers will be given site orientation. Specific routes will be established with site speed limits and directional traffic signs.
Utilities	Underground and Overhead Utilities	Confirm with Operations Manager the locations and depth of all utilities.

Table 5.10 SLIT TRENCH EXCAVATION & WASTE HANDLING		
PPE: Level B	Hazard Rating:	Medium
Hazard	Sources	Control Measures
Hazardous Atmosphere	Nuisance dust, PCBs, Metals, Chlorinated VOC	Dust suppression. Real-Time PID and PDR monitoring. Air sampling in accordance with Section 8.
Hot/Cold Temperatures	Weather Conditions	See Section 5.2.5.
Slips/Trips/Falls	Debris, uneven terrain, air lines/hoses	Remove excess debris. Identify location of air lines/hoses.
Heavy Equipment Injury	Machinery	Qualified operators, daily inspection of equipment. A fire extinguisher must be located on all heavy equipment. Utilize 3-point mount and dismount procedures at all times.
Biological Hazards	Insects, Snakes, Ticks	See Section 5.3.
Excavation Hazards	Excavations, trenches	Benching, sloping and shoring.
Manual Labor	Materials, Breathing air equipment	Stretching and proper lifting techniques and possible use of mechanical equipment or hand trucks. Working in minimum groups of two.
Traffic	Trucks	All drivers will be given site orientation. Specific routes will be established with site speed limits and directional traffic signs.
Utilities	Underground and Overhead Utilities	Confirm with Operations Manager the locations and depth of all utilities.

Table 5.11 DEWATERING OF EASTSIDE PONDS		
PPE: Level D+		Hazard Rating: Low to Med
Hazard	Sources	Control Measures
Hazardous Atmosphere	Nuisance Dust, Metals	Dust suppression. Use of Real-Time PDR to monitor dust.
Heavy equipment	Working within the radius of equipment	Use forms of communication such as hand signals, radios, maintain eye contact.
Misuse Of Tools	Hand Tools	Tools will be maintained in safe working conditions. All tools will be secured.
Biological Hazards	Insects, Snakes, Ticks, Plants	See Section 5.3.
Back Strain	Lifting heavy objects such as pumps, sections of hose	Use proper lifting technique. Use buddy system or mechanical assistance.
Noise	Machinery Trencher	Hearing protection with a NRR of 25 will be utilized.
Water Hazard	Ponds	Utilize PFD if working within 5 feet of ponds containing liquids/water. Buddy system required.
Hot/Cold Temperatures	Weather Conditions	See Section 5.2.5 and Attachments H and I.
Arsenic/Chromium Inhalation, Ingestion or Splash	Handled / Mixed Liquids and Solids	Utilize proper procedures and PPE.
Accidental Injury	Mis-communications; General work activities	Site orientation and training. Positive attitude and behavior will show active participation of self-safety analysis by all associates of tasks to be performed.
Uneven terrain	Slope/grade of work area	Operators must know and work within limitations of equipment. Follow all safe excavation practices (see Attachment F).

Table 5.12 MIXING OF EASTSIDE WET SEDIMENTS & DRY SOLIDS		
PPE: Level D+		Hazard Rating: Low to Med
Hazard	Sources	Control Measures
Hazardous Atmosphere	Nuisance Dust, Metals	Dust suppression. Use of Real-Time PDR to monitor dust.
Heavy equipment	Working within the radius of equipment	Use forms of communication such as hand signals, radios, maintain eye contact.
Misuse Of Tools	Hand Tools	Tools will be maintained in safe working conditions. All tools will be secured.
Biological Hazards	Insects, Snakes, Ticks, Plants	See Section 5.3.
Back Strain	Lifting heavy objects.	Use proper lifting technique. Use buddy system or mechanical assistance.
Noise	Machinery Trencher	Hearing protection with a NRR of 25 will be utilized.
Hot/Cold Temperatures	Weather Conditions	See Section 5.2.5 and Attachments H and I.
Arsenic/Chromium Inhalation, Ingestion or Splash	Handled / Mixed Liquids and Solids	Utilize proper procedures and PPE.
Accidental Injury	Mis-communications; General work activities	Site orientation and training. Positive attitude and behavior will show active participation of self-safety analysis by all associates of tasks to be performed.
Uneven terrain	Slope/grade of work area	Operators must know and work within limitations of equipment. Follow all safe excavation practices (see Attachment F).

Table 5.13 LOADING, HAULING, PLACEMENT, COMPACTING & TESTING OF BACKFILLED WASTE		
PPE: Level D+ or C	Hazard Rating:	Low – Medium
Hazard	Sources	Control Measures
Atmospheric Hazard	Nuisance Dust, Metals, PCBs, Chlorinated VOCs	Dust suppression. Real-Time air monitoring and personal sampling. Level C PPE, if action level exceeded. See Section 8 for air monitoring and action levels.
Biological Hazards	Insects, Snakes, Ticks, Plants	See Section 5.3.
Noise	Machinery	Hearing protection with a NRR of at least 25 will be worn.
Hot/Cold Temperatures	Weather Conditions	See Section 5.2.5.
Slips/Trips/Falls	Various Locations	Identifiable areas will be either eliminated or marked. Watch wear you walk. Discuss in safety meetings.
Heavy Equipment Injury	Machinery	Qualified operators and daily inspection of equipment. Stay out of swing radius. Use 3-point mount/dismount.
Uneven terrain	Slope/grade of excavated hillside	Operators must know and work within limitations of equipment. Follow all safe excavation practices.

Table 5.14 INSTALLATION OF CAMU COVER SYSTEM		
PPE: Level D+		Hazard Rating: Low-Medium
Hazard	Sources	Control Measures
Hazardous Atmosphere	Nuisance dust, Metals	Dust suppression. Real-Time monitoring with PDR.
Hot/Cold Temperatures	Weather Conditions	See Section 5.2.5.
Slips/Trips/Falls	Debris, Mud, slippery surfaces.	Remove excess material. Identify pre-existing problems. Housekeeping must be maintained. Refer to ENTACT's Comprehensive Health and Safety Manual for Fall Protection and Housekeeping.
Heavy Equipment Injury	Machinery	Qualified operators, daily inspection of equipment. A fire extinguisher must be located on all heavy equipment. Utilize 3-point mount and dismount procedures at all times.
Biological Hazards	Insects, Snakes, Ticks	See Section 5.3.
Manual Labor	Materials Equipment	Stretching and proper lifting techniques and possible use of mechanical equipment or hand trucks. Working in minimum groups of two.
Traffic	Trucks	All drivers will be given site orientation. Specific routes will be established with site speed limits and directional traffic signs.
Back Strain	Lifting heavy objects.	Use proper lifting technique. Use buddy system or mechanical assistance.

Table 5.15 DECONTAMINATION & DEMOBILIZE		
PPE: Level D		Hazard Rating: Low
Hazard	Sources	Control Measures
Hazardous Atmosphere		Dust suppression.
Heavy equipment	Dozers,	Use forms of communication such as hand signals, radios, maintain eye contact.
Heavy equipment	Loading equipment onto trailers	Spot vendors for correct placement of trailers when loading equipment.
Contact with utilities	Overhead power lines underground	Utilize spotter for correct positioning of equipment complete utility locate and document.
Biological Hazards	Insects, Snakes, Ticks, Plants	See Section 5.3.
Truck tip over	Uneven terrain, soft spots	Utilize spotter inspect areas for dumping material prior to activity.
Falls from equipment	Excavators dozers rollers	Utilize 3 point stance, clean steps and platforms of mud and grease
Manual Labor	Materials Equipment	Stretching and proper lifting techniques and possible use of mechanical equipment or hand trucks. Working in minimum groups of two.
Hot/Cold Temperatures	Weather Conditions	See Section 5.2.5 and Attachments H and I.
Accidental Injury	Mis-communications; General work activities	Site orientation and training. Positive attitude and behavior will show active participation of self-safety analysis by all associates of tasks to be performed.
Uneven terrain	Slope/grade of excavated hillside	Operators must know and work within limitations of equipment. Follow all safe excavation practices (see Attachment F).

6.0 EMERGENCY RESPONSE PLAN

The FPM and HSO are responsible for discussing site-specific emergency response requirements with on-site safety representatives and then informing ENTACT associates of unique procedures. For example, procedures specific to the BRC Eastside Common Areas Site project may require an associate to be sent to the gate to guide emergency response vehicles (such as an ambulance or fire truck) to the injured worker or fire within the work area. The procedures listed below will be followed in addition to facility-specific requirements.

ENTACT's Emergency Response Plan complies with 29 CFR 1910.120(l). Any person who becomes ill or injured as a result of chemical exposure must be decontaminated to the maximum extent possible. If the injury or illness is minor, full decontamination should be completed and first aid administered prior to transport. If the patient's condition is serious, at least partial decontamination should be completed. First aid should be administered while awaiting an ambulance. All injuries and illnesses should be reported to the ENTACT FPM and designated HSO.

Any person transporting an injured/exposed person to a clinic or hospital for treatment should take with them directions to the hospital and information on the chemical(s) they may have been exposed to. Any vehicle used to transport contaminated personnel will be cleaned or decontaminated as necessary.

6.1 HOSPITAL AND CLINIC

ENTACT will use the Concentra Occupational Health Clinic as needed for hazmat physicals, heavy metals blood testing, drug screens, treatment of minor injuries, etc., that may become necessary on the site. A map to the clinic is located at the front of this health and safety plan.

St. Rose Dominican Hospitals will be used for all medical emergencies. A map to the hospital is located at the front of this HASP. Copies of this map should be posted in the decon area, command post, and break area. The use of an ambulance service to the hospital is available for an emergency by dialing 911. The hospital will be notified of ENTACT's activities and to supply insurance information at the start of job site activities to expedite admission into the trauma center in the event of an emergency situation.

The route to these medical facilities will be driven and verified by the FPM or HSO prior to work beginning. Modifications will be made as needed to the directions to these facilities prior to work beginning. A site plan will be included in the HASP when mobilization of trailers, parking areas and the selection of the primary and secondary meeting points are established.

6.2 COMMUNICATION

A mobile phone stays with the FPM and HSO at all times. A private telephone will not be available at the command post. Emergency signals will be conveyed through an air horn and/or two-way radio. Three (3) short blasts of the air horn signal an emergency.

The HSO will check all areas where ENTACT associates will perform work to ensure that

cellular telephone signals are received. A rough map will be prepared showing where signals are and are not received. The map will be discussed during tailgate safety meetings.

6.3 FIRST AID KITS

First aid kits and fire extinguisher are located on site and in the work vehicles. An eye wash station will be located near the decontamination area but no more than 100 feet from the exclusion zone. Basic first aid procedures are provided in Attachment G.

6.4 INCIDENT REPORTING

All incidents, injuries, and near misses must be reported immediately to the associate's supervisor. Subcontractors will promptly report any incident to the ENTACT Field Project Manager. Work will stop until the situation is addressed and work can safety resume. Incident information will be forwarded to the Project Health and Safety Coordinator and Corporate Health and Safety Director within 24-hours. The client or owner representative will be notified according to their requirements.

A thorough investigation will commence to determine the facts of the incident, root causes, solutions, and verification and validation of solutions. A completed Loss Investigation / Near Loss Investigation report and supplemental information (first report of injury, witness statements, supervisor statement, police report, damaged equipment report, monitoring reports, etc.) must be provided to Corporate Health and Safety within 5 working days of all incidents. If applicable, a Why Tree Incident Investigation will commence following established protocol and final report submitted to the Health and Safety Director within two weeks of the incident. ENTACT's Post Accident Drug and Alcohol testing procedures will be followed. See Attachment K, Incident Reporting.

6.5 FIRE OR EXPLOSION

During site mobilization, the fire department will be notified and briefed about the potential hazards at the site. The ENTACT HSO will be responsible for this notification. In the event of a fire or explosion, the local fire department should be summoned immediately. Upon their arrival, the ENTACT FPM will advise the fire commander of the location, nature, and identification of the hazardous materials on site and that ENTACT has a Spill Control program (see Attachment L.)

In the event of a fire that cannot be controlled with available equipment, the local fire department will be summoned immediately by the FPM or his designee. The FPM will inform the fire department of the situation and any site hazards upon their arrival. If firefighters have to enter the Exclusion Zone, decontamination will be required upon leaving.

In the event of fire or explosion, or if vapor concentrations of explosive vapors or gasses approach or exceed 10 percent of the LEL as indicated by an explosion meter, personnel will evacuate the area immediately.

ENTACT will provide protection from fires in the form of portable fire extinguisher. This

protection will meet or exceed the requirements of NFPA-10-1984.

6.6 EVACUATION

Evacuation routes will be established by work zones and all outside work areas will be provided with designated exit points. Evacuation should be conducted immediately, without regard to equipment under conditions of extreme emergency. Emergency evacuation routes are being discussed and will be presented during site orientation. In addition, an emergency drill will be conducted to ensure personnel understand the alert notification and evacuation procedures.

- Evacuation notification will be three (3) blasts on an air horn, or by verbal communication on radios.
- Keep upwind of smoke, vapors, or spill location.
- Exit through the decontamination corridor if possible.
- If evacuation is not via the decontamination corridor, site personnel should remove contaminated clothing once they are in a location of safety and leave it near the exclusion zone.
- The ENTACT FPM will conduct a head count to ensure all personnel have been evacuated safely.
- In the event of an emergency site evacuation, all personnel should escape from emergency situation, decontaminate to the maximum extent practical, and meet at the pre-determined off-site location.

6.7 EVACUATION RESPONSIBILITIES

As the administrator of the project, the ENTACT FPM has primary responsibility for responding to and correcting emergency situations. ENTACT's representative will:

- Ensure that an evacuation drill is performed at the start of the project and scheduled periodically thereafter.
- Take appropriate measures to protect personnel including:
  - Withdrawal from the exclusion zone
  - Total evacuation and securing of the site
  - Upgrading or downgrading the level of protective clothing and respiratory protection
- Take appropriate measures to protect the public and the environment including:
  - Isolating and securing the site
  - Preventing run-off to surface waters
  - Ending or controlling the emergency to the extent possible
- Ensure that appropriate federal, state, and local agencies are informed, and emergency response plans are coordinated. In the event of a fire or explosion, the local fire department should be summoned immediately. In the event of an air release of toxic materials, the local authorities should be informed in order to assess the need for evacuation. In the event of a spill, sanitary districts and drinking water systems may need to be alerted.
- Ensure that appropriate decon treatment or testing for exposed or injured personnel is

obtained.
- Determine the cause of the incident and make recommendations to prevent the recurrence.
- Ensure that all reports have been prepared.

The FPM must immediately report emergency situations and take appropriate measures to protect site personnel.

6.8 EMERGENCY DECONTAMINATION

Any person who becomes ill or injured must be decontaminated to the maximum extent possible. If the injury or illness is minor, full decontamination should be completed if possible and first aid administered prior to transport. If the patient's condition is serious, at least partial decontamination should be completed if possible. First aid should be administered while awaiting an ambulance. General hygiene activities will be followed if associates are wearing Level D PPE. All injuries and illnesses should be reported to the ENTACT FPM and designated HSO.

6.9 OFF-SITE EMERGENCIES

Site management will comply with local municipal or State Emergency Management procedures in the event of disasters including fire, flood, earthquake, telecommunications failure, wildfire, winter or other natural or technological incidents.

6.10 EMERGENCY DRILLS

Emergency drills will be performed periodically to ensure associates understand what is expected during an emergency, ensure that the nearest exits are known, places of refuge or storm shelters are known, all exit routes and storm shelter areas are accessible, and to ensure associates understand their emergency assignments. The FPM and HSO will coordinate and plan site emergency drills. All site associate will participate. Drills will be documented.

6.11 SPILL RESPONSE

Spill response requirements apply to generated waste from soil and groundwater remediation and field pilot mixing activities which include:

- Hazardous wastes spills
- Oil to water discharges
- Fuel spills

See Attachment L, Spill Control.

6.11.1 Reporting Releases

ENTACT requires the reporting of any spill or release of liquid to the FPM. The PHSC and

HSD will be notified and an Incident Investigation will commence. The client representative will be notified and provided a copy of the investigation. See Emergency Contacts at the front of this document.

7.0 LEVELS OF PERSONAL PROTECTION FOR SITE ACTIVITIES

The materials of concern present at this site have been identified by previous site sampling. The appropriate protective equipment has been selected. Currently nuisance dust, metals, PCBs and chlorinated hydrocarbons are the materials of concern. ENTACT will be consistent with OSHA-defined levels of protection, with the exception of Level D+. This level of protection will be used when dermal protection is desirable, but respiratory protection is not needed. It is anticipated that most tasks will be conducted in Level D+ PPE.

Tables 7.1, 7.2, 7.3 and 7.4 list the components of Level D+ and D PPE needed for the site activities to be conducted by ENTACT personnel. Level A protection is not anticipated for any on-site operations. Additional information regarding PPE is provided in Attachment M, PPE and Respiratory Protection.

When a hazard exists, the ideal work environment would be achieved by the use of engineering controls such that the control utilized would either completely remove all hazards from the work place or fully isolate associates from hazardous conditions. An example of an engineering control is dust suppression accomplished by sprinkling soil with water. Whenever engineering controls can be proven effective and feasible, they will be initiated.

The ENTACT HASP will be the controlling HASP for this project. The ENTACT HSO has authority over all site workers, subcontractors, visitors and other personnel entering the site. Additional information regarding PPE is provided in Attachment M, PPE and Respiratory Protection. ENTACT's Respiratory Protection Program is available under separate cover.

Table 7.1 Level B PPE	
Protective Gear	**Type**
Respiratory protection	Full-Face SAR w/ egress bottle or SCBA
Chemical protective clothing	Disposable Saranex or equivalent
Hand protection: inner gloves	Nitrile
Hand protection: outer gloves	Disposable raised-dot cotton work gloves
Foot protection: inner boots	Steel-toe, leather work boots
Foot protection: outer boots	Disposable boot covers
Head protection	Standard hard hat
Eye protection	Standard safety glasses with side shield or goggles
Splash protection[1]	Standard face shield
Other protective clothing [2]	High visibility, reflective vest, such as an orange traffic type vest Rain gear or Tyvek, hardhat equipped with splashguard, and water resistant gloves and boots
Hearing protection	Ear plugs or muffs with NRR of 25
[1] Splash protection will be worn during pump and hose connection and high-pressure cleaning and decontamination. [1, 2] Associates will wear rain gear or Tyvek, hardhat equipped with splashguard, and water resistant gloves and boots during steam cleaning or power washing activities.	

Table 7.2 Level C PPE	
Protective Gear	**Type**
Respiratory protection	North Half-Face APR w/ OV & P100 cartridges
Chemical protective clothing	Disposable Saranex or equivalent
Hand protection: inner gloves	Nitrile
Hand protection: outer gloves	Disposable raised-dot cotton work gloves
Foot protection: inner boots	Steel-toe, leather work boots
Foot protection: outer boots	Disposable boot covers
Head protection	Standard hard hat
Eye protection	Standard safety glasses with side shield or goggles
Splash protection[1]	Standard face shield
Other protective clothing [2]	High visibility, reflective vest, such as an orange traffic type vest Rain gear or Tyvek, hardhat equipped with splashguard, and water resistant gloves and boots
Hearing protection	Ear plugs or muffs with NRR of 25
[1] Splash protection will be worn during pump and hose connection and high-pressure cleaning and decontamination. [1, 2] Associates will wear rain gear or Tyvek, hardhat equipped with splashguard, and water resistant gloves and boots during steam cleaning or power washing activities.	

Table 7.3 Level D+ PPE	
Protective Gear	**Type**
Respiratory protection	None
Chemical protective clothing	Disposable Saranex or equivalent
Hand protection: inner gloves	Nitrile
Hand protection: outer gloves	Disposable raised-dot cotton work gloves
Foot protection: inner boots	Steel-toe, leather work boots
Foot protection: outer boots	Disposable boot covers
Head protection	Standard hard hat
Eye protection	Standard safety glasses with side shield or goggles
Splash protection[1]	Standard face shield
Other protective clothing [2]	High visibility, reflective vest, such as an orange traffic type vest Rain gear or Tyvek, hardhat equipped with splashguard, and water resistant gloves and boots
Hearing protection	Ear plugs or muffs with NRR of 25
[1] Splash protection will be worn during pump and hose connection and high-pressure cleaning and decontamination. [1, 2] Associates will wear rain gear or Tyvek, hardhat equipped with splashguard, and water resistant gloves and boots during steam cleaning or power washing activities.	

Table 7.4 Level D PPE	
Protective Gear	**Type**
Respiratory protection	None
Chemical protective clothing [1]	None
Hand protection: inner gloves	None
Hand protection: outer gloves	Cotton or leather work gloves
Foot protection: inner boots	Steel-toe, leather work boots
Foot protection: outer boots	None
Head protection	Standard hard hat
Eye protection	Standard safety glasses with side shield or goggles
Other protective clothing [2]	High visibility, reflective vest, such as an orange traffic type vest. PFD required for work within 5 feet of ponds with free standing water. Rain gear or Tyvek, hardhat equipped with splashguard, and water resistant gloves and boots
Hearing protection	Ear plugs or muffs with NRR of at least 25
[1] Associates may wear Tyvek or similar coveralls as protection from ticks and insects or to prevent incidental contact with dusts. [1, 2] Associates will wear rain gear or Tyvek, hardhat equipped with splashguard, and water resistant gloves and boots during steam cleaning or power washing activities.	

PPE will be upgraded:

- If new hazards are found with unknown toxic or physical hazards.
- If hazards exhibit higher toxic or physical hazards that require upgrading of PPE. Air monitoring will be closely monitored.
- If associate requests an upgrade.

If work site conditions dictate the need to upgrade PPE, the FPM or HSO will issue a stop work order and will contact the Project Health and Safety Coordinator to revise or amend this HASP.

8.0 FREQUENCY AND TYPES OF AIR MONITORING

Work zone and area air monitoring for nuisance dust will be conducted utilizing real-time respirable dust monitors (PDR). Additional air monitoring will be conducted based on the known contaminants within the work area.

Dust suppression methods will be used to control nuisance dust with the goal of dust suppression being the avoidance of any visible dust and maintaining time-weighted average concentrations below the action level.

8.1 DUST MONITORING PROCEDURES & ENGINEERING CONTROLS

8.1.1 Monitoring Procedures

Three types of air monitoring will be performed during this project:

- Work area (exclusion zone) air monitoring for the purpose of monitoring and evaluating the site specific occupational health and safety action levels
- Perimeter air monitoring for the purpose of evaluating the potential exposures to the community
- Personal monitoring designed to evaluated and document the exposure of individual workers performing tasks with the highest potential for exposure.

8.1.2 Work Area Monitoring

Initial and periodic real-time monitoring will be conducted within the exclusion zone (work areas) in an effort to evaluate exposure potential. Monitoring will vary depending on work location and contaminants.

Eastside work areas – Monitoring will be limited to real-time dust monitoring with a PDR or similar instrument capable of sampling, displaying and recording dust levels throughout the work period.

CAMU, Slit Trench and Western Ditch work areas – Monitoring will consist of real-time monitoring for dusts, VOCs and explosive atmosphere. For dust monitoring, a PDR or similar instrument capable of sampling, displaying and recording dust levels throughout the work period will be used. For VOCs and explosive atmosphere a Multi RAE 4-gas plus PID or similar instrument will be utilized to evaluate and document exposure potential.

Since available data indicates that organo-chlorine pesticides maybe encountered and no real-time detection method is feasible, collection of several area air samples for pesticide analysis is indicated and will be accomplished during the early excavation phase.

Engineering controls as discussed in Section 7 may be implemented to reduce worker exposure potential in the exclusion zones. The frequency of air monitoring may increase, at the direction of the PHSC.

8.1.3 Area Air Monitoring

As a minimum, the downwind perimeter of the work area will be monitored with a real-time dust monitor and the data will be down-loaded and printed for archiving in the project files.

8.1.4 Personal Monitoring

Eastside work area – Initial and periodic collection of personal samples for metals (arsenic, chromium) will be conducted using calibrated personal air monitors (PAMs) coupled to a filter cassette. Breathing zone samples will be collected and analyzed in accordance with applicable NIOSH or OSHA methods.

CAMU, Slit Trench and Western Ditch area – Initial and periodic collection of personal samples for metals (arsenic, chromium) will be conducted using calibrated personal air monitors (PAMs) coupled to a filter cassette. Breathing zone samples will be collected and analyzed in accordance with applicable NIOSH or OSHA methods.

Passive organic vapor monitoring will be utilized to collect and analyze for chlorinated organic compounds in the breathing zone of workers with the highest potential for exposure. Samples will be collected and analyzed in accordance with applicable NIOSH or OSHA methods.

Initial and periodic collection of samples for PCB analysis will also be conducted, as determined by the PHSC, in accordance with NIOSH and/or OSHA methods. Typically this type sampling involves the use of a PAM and sample train consisting of a filter cassette and back-up tube for trapping particulate and vapor phase PCBs.

8.1.5 Dust Suppression Techniques

Dust emissions are of potential concern during vehicle travel on site roadways, the excavation of dry pond soils, CAMU excavation, and the addition of drying agents. If excessive visible dust is generated from site activities, then water will be used as a dust control measure.

8.2 COMMUNITY AIR MONITORING PLAN

A Community Air Monitoring Plan is not included in our scope of work.

9.0 SITE CONTROL MEASURES

The following section describes how workers will be allowed onto the site and what the various work zones are.

9.1 SITE ACCESS AND SECURITY

ENTACT will control site access during normal working hours in accordance with an approved security plan. All visitors, workers and subcontractors will be required to sign a daily log maintained by ENTACT personnel. The log will include date, name of visitor, company, address and time on and off site. The presence of unauthorized personnel will be immediately communicated to BRC and/or the local police and appropriate actions will be taken as directed. The site will be secured at day's end and gates will be locked during non-working hours. As the project progresses security will be provided by a private security provider on a 24-hour basis.

9.2 WORK ZONES

Site control (as required by 29 CFR 1910.120) is required for the project.

Orange construction fencing, barricade tape or similar material with Construction Area and/or Exclusion Zone warning signs will be used to warn of hazards and limit access to the work area.

The purpose of site control is to minimize potential contamination of associates, protect the public from the site activities, and prevent vandalism. To prevent exposure to unprotected personnel and migration of contamination due to tracking by personnel or equipment, work areas along with PPE requirements will be clearly identified. The areas of designation will be:

- Support zone (clean)
- Decontamination zone (transitional)
- Exclusion Zone (contaminated)

The FPM and the team will properly identify, mark, and enforce all zones of operation.

9.2.1 Support Zone

The support zone will be designated by signs and caution tape. It will be secured against active or passive contamination from the work site. The support zone will consist of those areas adjacent to the exclusion zone where the administrative offices, decontamination trailer, and equipment are staged. Eating and drinking will only be allowed in this area.

The uncontaminated support zone will be the area outside the exclusion and decontamination zones and within the geographic perimeters of the site. This area is used for staging of materials, parking of vehicles, sanitation facilities, and receipt of deliveries. Personnel entering this zone may include delivery personnel, visitors, security guards, etc., who will not necessarily be permitted in the exclusion zone. All personnel arriving in the support zone will upon arrival, report to the command post and sign the site entry/exit log. There will be one controlled entry/exit point from the clean zone to the decontamination zone.

9.2.2 Decontamination Zone

The decontamination (decon) zone will provide a location for removal of contaminated personal protective equipment when personnel leave the exclusion zone during the day and the final decontamination at the end of the day. ENTACT personnel will decontaminate by washing the face, forearms and hands as they exit the decon area and before leaving the site using wet wipes, sanitizing wipes, or other field appropriate personal decon methods.

An on-site decontamination facility (portable decon sinks) will be provided by ENTACT and located within the CRZ adjacent to the EZ. ENTACT will be responsible for providing the appropriate decontamination tools, equipment, solutions, liquids, containers, and supplies along with a concrete pad or other suitable base on which to perform decontamination activities.

All personnel will be decontaminated before leaving the site (leaving the exclusion zone and entering the contamination reduction zone). Decontamination will be required prior to breaks, when picking up tools, equipment, or materials in the support zone, or any other activities where the potential exists for contaminant transfer.

Equipment will be cleaned and decontaminated prior to use on-site and prior to leaving the site. Wheels on any equipment in contact with potentially contaminated soil will be cleaned prior to leaving any work area. Care will be taken to avoid the possibility of contaminating formerly uncontaminated material or areas through the use of contaminated equipment.

Decontamination facilities will be designed to meet all requirements of the approved work plan and all local, state, and federal requirements.

Decontamination facilities will be designed to:

- Isolate contamination;
- Prevent cross-contamination;
- Be substantially watertight;
- Prevent contamination from leaving the site;
- Be large enough to contain run-off and spray water; and
- Have provisions for the collection and removal of accumulated water.

If applicable, all decontamination liquids will be collected and characterized to determine an appropriate disposal method.

Decontamination solids, PPE, and debris will be handled with demolition materials.

All equipment will be free of visual contamination prior to leaving the site. All tires and tracks will be free of soil, grease, oil, slag, or other contaminants.

9.2.3 Exclusion Zone

The exclusion zone will be the areas outside the support zone and decontamination zone. The exclusion zone and the decontamination zone will continually change as work progresses. Entry

to and exit from this zone will be made through the decontamination zone. Appropriate warning signs to identify the exclusion zone will be posted (such as. DANGER - AUTHORIZED PERSONNEL ONLY). Upon exiting the exclusion zone personnel and equipment must be inspected for proper decontamination and decontaminated if necessary.

The exclusion zone will be identified with a yellow barricade tape or fences and signs. While in the exclusion zone personnel will wear the appropriate level of protection, and will refrain from horseplay, use of tobacco products, eating, drinking, and generating open flames.

10.0 DECONTAMINATION PROCEDURES

Although the requirement to establish exclusion zones is only anticipated during the excavation of pond material, treatment, drying and discing phases, personnel and items entering an exclusion zone on the site must be decontaminated upon exit from the exclusion zone. All personnel, including Federal, State, and local officials, must enter and exit the exclusion zone through the decon area. All personnel must be documented on the exclusion zone entry/exit log. Prior to demobilization, contaminated equipment will be decontaminated and inspected by the ENTACT FPM or designate before it is moved into the support zone. Any material that is generated by decontaminated procedures will be stored in a designated area in the exclusion zone until disposal arrangements are made.

10.1 PERSONNEL DECONTAMINATION

Once exclusion zones have been established and remediation activities have begun the ENTACT FPM will be responsible for ensuring that the PPE items and associates have been sufficiently decontaminated through proper training and procedures. Each associate and the FPM are ultimately responsible. These decon steps will be followed as they apply to site specific activities:

Level D and D+ Decontamination

Station 1 Equipment Drop
Deposit equipment used on-site at a staging point within the exclusion zone. These items must be decontaminated or discarded as waste prior to removal from the exclusion zone.

Station 2 Outer Boot and Outer Glove Wash and Rinse
Scrub outer boots, outer gloves with decontamination solution or detergent water. Rinse off using water.

Station 3 Outer Boot and Glove Removal
Remove outer boots or boot covers and gloves. If disposable, deposit in a container with plastic liner. If non-disposable, place in a clean dry place.

Station 4 Protective Clothing Removal (Level D+ only)
Remove disposable coveralls and deposit in a waste container.

Station 5 Inner Glove Removal
Remove inner gloves. Deposit in container for disposal.

Station 6 Field Wash
Thoroughly wash hands, forearms and face with biodegradable soap and water.

Level B or C Decontamination

Station 1 Equipment Drop
Deposit equipment used on-site at a staging point within the exclusion zone . These items must be decontaminated or discarded as waste prior to removal from the exclusion zone.

Station 2 Outer Boot and Outer Glove Wash and Rinse
Scrub outer boots, outer gloves with decontamination solution or detergent water. Rinse off using water.

Station 3 Outer Boot and Glove Removal
Remove outer boots or boot covers and gloves. If disposable, deposit in a container with plastic liner. If non-disposable, place in a clean dry place.

Station 4 Respirator Removal
Remove hard-hat and respirator facepiece and place onto clean surface. APR cartridges will be discarded as appropriate. Wash, rinse and dry or use disinfectant wipe on respirator and place into storage bag.

Station 5 Protective Clothing Removal (Level D+ only)
Remove disposable coveralls and deposit in a waste container.

Station 6 Inner Glove Removal
Remove inner gloves. Deposit in container for disposal.

Station 7 Field Wash
Thoroughly wash hands, forearms and face with biodegradable soap and water.

Eating, drinking or any practice that increases the probability of hand to mouth transfer and/or ingestion of materials is prohibited in any area where the possibility of contamination exists and is permitted only in the designated break area. Personnel will not wear or bring dirty/decontaminated clothing into the clean support area.

10.2 EQUIPMENT DECONTAMINATION

Equipment, vehicles, or tools that have entered the exclusive zone will be decontaminated prior to removal using dry decon methods. Equipment will be decontaminated to meet visual standards.

10.3 DISPOSITION OF DECONTAMINATION WASTES

All equipment used for decontamination will be decontaminated or disposed of with the established waste streams. Established waste streams are those specified in the work plan. Discarded clothing (PPE) will be disposed of along with the waste streams.

10.4 DECONTAMINATION FACILITIES

Decontamination facilities for personnel PPE and equipment will be provided by ENTACT. ENTACT personnel will decontaminate prior to leaving the site and taking breaks (washing hands, forearms, and face with soap and water prior to leaving site). ENTACT personnel will leave the ENTACT operations site in clean street clothing. Contaminated equipment will be placed into assigned containers for disposal or further decontamination. Equipment will be visually inspected and decontaminated using dry decon methods. The following decontamination procedures will be implemented for these categories.

A decontamination area will be constructed for equipment, personnel, PPE, and the storage of PPE utilized by site personnel. All personnel and equipment will be decontaminated prior to leaving the exclusion zone. Typical personnel decontamination stations will be comprised of self-contained portable sinks with soap and water for decontamination and paper towels for drying.

The decontamination of heavy equipment will be carried out using dry decon methods.

All personnel must use the decontamination zone (CRZ) to enter and exit the exclusion zone.

ATTACHMENTS

ATTACHMENT A SITE SAFETY PLAN AMENDMENT

Site Name: BRC Eastside Common Areas Site	Amendment Number: BRC-
Date:	Type of Amendment:
Reason for Amendment:	
Alternate Safeguard Procedures:	
Required Changes in PPE:	
Signatures:	
ENTACT FPM	Date
ENTACT PHSC	Date
Client Representative	Date

ENTACT
Health and Safety Plan Revision (Amendment) Log

Project Name and Number:

Amendment Date	**Amendment Number**	**Brief Description**	**Approval Complete? (FPM, HSO, Client Rep)**
			☐ Yes ☐ No
			☐ Yes ☐ No
			☐ Yes ☐ No
			☐ Yes ☐ No
			☐ Yes ☐ No
			☐ Yes ☐ No
			☐ Yes ☐ No
			☐ Yes ☐ No
			☐ Yes ☐ No
			☐ Yes ☐ No
			☐ Yes ☐ No
			☐ Yes ☐ No
			☐ Yes ☐ No
			☐ Yes ☐ No
			☐ Yes ☐ No

ATTACHMENT B SAFETY PLAN ACKNOWLEDGMENT FORM

I have been informed and understand and will abide by the procedures set forth in the Health and Safety Plan and Amendments for the BRC Eastside Common Areas Site.

Printed Name	Signature	Company	Date

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ATTACHMENT C GENERAL SITE SAFETY RULES

The following guidelines have been implemented and are constantly monitored and reviewed, so as to fully comply with ENTACT's objective of keeping a safe and healthy work environment for all our associates and customers. An "associate" as used in this HASP, is any ENTACT employee.

1. Horseplay, running, or jumping of any obstacles is prohibited.

2. Associates, visitors, and/or subcontractors will observe and comply with all posted signs indicating danger, warning, caution, or unauthorized areas.

3. There will be no unauthorized use or operation of ENTACT or customers equipment.

4. Other unsafe acts, such as jumping from a vehicle or structure or running or throwing objects, are unacceptable.

5. Use or possession of narcotics, intoxicating substances, or guns and ammunition is prohibited.

6. Reporting for work under the influence of narcotics or intoxicating substances is prohibited. NOTE: If on prescription drugs with a "stated" warning, let supervisor know.

7. All associates are authorized to stop any work that they may consider hazardous to Company personnel or equipment or subcontractor personnel.

8. Associates have a responsibility to report for work on time and in condition to work in a safe and efficient manner.

9. The safety and security regulations of our customers must be strictly adhered to. This also applies to government standards and regulations.

10. Associates are required to verbally report any injury or incident to their supervisor, no matter how small it may seem. Failure to do so before leaving work for the day may result in a delay or denial of benefits that the associate may otherwise is entitled to. A written report should follow as soon as possible.

11. Before setting up operations, take a few moments to locate the nearest phone, eye wash, emergency shower (if available,) and fire alarm.

12. Tampering with or by-passing any safety device will not be tolerated.

13. Before setting up your operations, check the surrounding area for potential hazards and

conflicts; overhead cranes, plant traffic, including railroads, associates in area, electrical wires, etc.

14. You should inform your supervisor of any incident or problem which may have occurred during that shift immediately. This would include, but not be limited to, injuries, near misses, faulty or defective equipment, use of fire extinguisher, customer requests or concerns, damage to equipment, vehicular accident, etc.

15. Smoking and the use of open flames are strictly prohibited in areas where flammable liquids, gases, or highly combustible materials are stored, handled, or processed, and also in the decontamination or exclusion zones. Obey "NO SMOKING" signs. Smoke only in designated areas.

16. All posted warning, safety, and security signs and barriers will be observed. Additionally, ENTACT will provide warning signs, barriers, barricades, etc., wherever such protection is needed. Where signs and barricades do not provide adequate protection, particularly along a road way, flagman will be used.

17. ENTACT personnel will not be permitted to use hoists and powered apparatus belonging to customers unless approval is obtained in each instance from the customer and ENTACT representative.

18. ENTACT personnel will not be permitted to carry cameras or take pictures without prior approval from the customer. If progress or finished construction photographs are desired, request for same should be made through the ENTACT representative and/or the customer representative and security.

19. Prior to beginning work, associates will be instructed on emergency procedures to be followed. The supervisor is responsible for notifying the associates of emergency situations and the evacuation. In the event of an evacuation, do not go home or leave the work site until released by your supervisor.

20. Areas covered with polyethylene may become slick especially when disposable booties are worn - extra caution should be taken to secure footing and maintain proper balance during these situations.

21. Working from elevated platforms, scaffolding, and ladders can pose a great danger. Do not overreach, move ladder, scaffold or platform. Avoid shortcuts on scaffolding, ladders, and platforms. All provision of 29 CFR 1926 Subpart L must be complied with when working in or around platform, scaffolding, and ladders.

22. Good housekeeping procedures will be maintained during all project operations. Tools, materials, and equipment are more easily located and placed into service when good housekeeping procedures are followed.

23. Associates are prohibited from the unauthorized removal of any property or Company materials without the special authorization. Associates involved with theft of company property without authorization are subject to immediate termination. Associates involved in theft activities are also liable to the company for full restitution of monies and/or properties taken from ENTACT, and are subject to criminal prosecution by the Company. Theft of Company property, client's property, or personal property belonging to associates will not be tolerated, and violators will be prosecuted.

24. Associates are cautioned that the Company will not be responsible for loss of personal property due to theft. Associates are advised to leave jewelry items, valuables, and personal items in a locked and secured area away from the job site.

25. Associates will wear all required personal safety protective equipment as required by ENTACT, while inside or outside the containment areas or exclusion zones.

26. Associates, visitors, and subcontractors are required to be dressed in the proper work uniforms at all times as per the requirements of the job.

27. Associates will obtain proper authorization prior to leaving the job site.

28. Safety guards, safety plugs, and/or any other electrical safety device will not be bypassed, removed, or compromised in any way.

29. Step ladders, scaffolding, and/or platforms are to be used as designed and instructed by the supervisor. Step ladders are to be used in the fully extended position only.

30. Respiratory equipment will be worn properly in accordance with EPA and OSHA rules.

31. Respiratory equipment will be kept clean and sanitary for reuse. Respirators not in use will be cleaned and stored in sealed protective bags.

32. Respirator cartridges new or used will be kept clean at all times. Cartridges that are spent should be properly discarded to prevent accidental re-use.

33. Optical eye-wear other than industrial safety eye-wear is prohibited from use on the job site.

34. Safety body harness and lanyards are to be worn properly when required.

35. Specific maintenance and service to equipment and/or tools is to be conducted only by skilled maintenance personnel. Equipment used at the site will be inspected daily by a competent person.

36. Intentional violations of associate rights concerning health and physical well being will be

cause for termination. Willfully causing an accident and/or injury to ones self or to a fellow associate will be cause for immediate termination.

37. Hand tools are to be used for the specific purpose of their design. Hand tools, electrical tools, and mechanically operated tools are to be free obstructions.

38. Trash bags marked for asbestos containing materials will not be used for disposal of non-asbestos trash.

39. Waste identification labels will not be applied to any material that does not correspond with label (i.e. hazardous waste labels).

40. All safety equipment and tools are to be inspected for defects routinely by each associate prior to use. Damaged tools or equipment must be reported immediately to a supervisor and taken out of service.

41. All job site personnel must be aware of and know where to locate all fire extinguisher and emergency evacuation routes.

42. Hand tools are not to be left on the floor, scaffolding, ledges, and/or ladders.

43. Extension type ladders should be used with a 1 to 4 ratio - one foot out for every four feet of elevation.

44. Ladder users will face the ladder while ascending and descending. The top and second to top steps are not to be used for standing. Only one person at a time on a ladder. Bracing on the back of the ladder should not be used for climbing. Ladders should be secured to a fixed object when possible.

45. Guardrails and toe boards should always be installed on scaffolding. Associates should be careful to keep all debris bagged and obstacles off the floor. All components such as cross braces, railing, pin connectors, planking, toe boards, or scaffold grade lumber should be available before the unit is assembled.

46. Mobile scaffolding base dimensions should be at least one-half of the height. Scaffolding ten feet high or higher must have rigid guardrails.

47. All electrical equipment used on the job site will have electrical grounding devices with ground fault circuit interrupters. An extension cord without a ground wire plug is never to be used. Damaged electrical cords will be discarded or turned into the office for repair. All electrical cords and boxes are to be considered live until tested otherwise. Never spray water on or near open panels or electrical boxes. All 110v, 15-20 amp circuits must be protected with ground fault circuitry, or an assured grounding program. Electrical tools should be unplugged prior to servicing.

48. ENTACT requires that an electrical lock out program be in effect at all job sites.

49. While preparing to do work around energized equipment such as transformers and/or electrical panel boxes, all aspects of 29 CR 1926 Subpart K must be complied with. Equipment that cannot be de-energized during the abatement will be covered and sealed on three sides only. There must be adequate ventilation to the panels and or boxes, or else there is the possibility and danger of explosion.

MOTOR VEHICLES

1. Any person operating a company vehicle must have a current, valid and appropriate driver's license. In addition, all applicants considered for positions that include driving a company vehicle, will be subject to a Motor Vehicle Record search and evaluation.

2. All company vehicles must be equipped with a first aid kit at all times.

3. All company vehicles must be equipped with a fire extinguisher and flares or reflectors.

4. All company vehicles must be maintained in good mechanical condition. A pre-trip inspection will be performed, and any defects or malfunctions must be reported to the supervisor before the vehicle leaves the yard.

5. The number of persons inside the vehicle will be limited by the number of seat belts available for use.

6. The driver is responsible to see that he/she and each authorized passenger is properly wearing a seat belt while riding in a company vehicle.

7. All rules of the road and all customer regulations concerning vehicles must be obeyed.

8. Use extreme caution when backing a vehicle. If at all possible, use a spotter to guide you or back into the parking space to be able to pull forward when leaving.

9. All vehicles will be maintained in a clean and orderly manner to prevent injuries and fire hazards. This includes the cab as well as the inside and outside of the truck.

10. When your job assignment requires you to drive a company vehicle, you are considered to be a professional driver. Failure to drive courteously and to obey the rules of the road may result in the loss of this privilege and termination of your employment.

11. The use of company vehicles will be restricted to the specific job to which you are assigned. Any unauthorized use will be cause for disciplinary action up to and including discharge.

12. All vehicles must be parked in authorized areas only.

MOTOR VEHICLE ACCIDENT REPORTING AND GENERAL LIABILITY

When an accident occurs, as soon as the preliminary investigation has been completed and the necessary claims handling actions have been taken (medical care for injured, rental cars obtained, etc.), the accident report must be filled out immediately. The vehicle operator and/or equipment operator, and project manager are responsible for generating the accident report and initial investigation of the accident. The operator must immediately notify the supervisor of all equipment or vehicle damage. The accident report should be submitted to the Accounting Department for file distribution. The Accounting Department will be responsible for reporting all auto/general liability claims involving property damage.

In some state, additional forms and paperwork are required by state and local law enforcement agencies. It is the driver's responsibility to obtain these forms and to submit the properly prepared reports on a timely basis to these additional regulatory agencies.

If signs of contamination are encountered that differ from those addressed in this plan, such as visible soil stains or unusual odors, ENTACT associates will stop all work in the area, barricade or otherwise isolate the area, and immediately contact the Field Project Manager or the HSO. Protection of worker health and safety will be the first priority. Continuation of work in the area and the amount of, if any, personal protective equipment will be determined by the HSO. Other precautions to be undertaken to ensure a safe work place on this project where the potential for chemical exposure may exist include:

- No smoking, eating, or drinking in areas where contaminants may be present.
- Avoid the area immediately downwind of any excavation.
- Contact with contaminated materials should be minimized through the knowledge of site conditions and the location of potential contamination based on previous site investigation reports.
- Minimize the creation of dust, through dust suppression such as water application.
- Adequately barricade all work zones to ensure public safety.

ATTACHMENT D DRUG AND ALCOHOL POLICY

INTRODUCTION

It is the purpose of ENTACT to provide a drug and alcohol free work environment and to maintain the highest safety and health standards for our clients and our associates. This policy was designed to eliminate accidents that may result from associate use of controlled substances (defined below) and alcohol. The use of controlled substances and alcohol increase the risk of accidents, jeopardize the safe work environment, and causes harm to an individual's health and personal life. With a goal of "Zero Accidents" we are establishing this policy for all ENTACT associates.

Subcontractors working on client's properties that require controlled substance and alcohol testing and/or random testing will follow and adhere to ENTACT's Drug and Alcohol Policy.

POLICY

ENTACT explicitly prohibits:

- The use, manufacture, purchase, transfer, possession, solicitation for, or sale of controlled substances and/or alcohol (including the use of over-the-counter and prescription medication in a manner inconsistent with their normal and intended use) at any time during working hours, on ENTACT's or customer's premises, while operating ENTACT vehicles or equipment, or otherwise while performing ENTACT business.

- Being under the influence of controlled substances and/or alcohol at anytime during working hours, on ENTACT's or customer's premises, while operating ENTACT vehicles or equipment, or otherwise while performing ENTACT business.

- Being under the influence of over-the-counter and/or prescription medications at any time during working hours, on ENTACT's or customer's premises, while operating ENTACT vehicles or equipment, or otherwise while performing ENTACT business where such use is inconsistent with the proper and intended use of such substances and/or impair the associate's ability to safely perform his or her job duties.

- Testing positive on a required or requested controlled substance or alcohol test.

- Any violation of ENTACT's Drug and Alcohol Policy.

"Controlled substances" specifically include, but are not limited to, narcotics; depressants; stimulants; intoxicants; inhalants; opiates, including heroin; hallucinogens, including marijuana, mescaline, and peyote; cocaine; phenecyclidine (PCP); and prescription drugs, including

amphetamines and barbiturates, and any other illegal controlled substances as defined by applicable federal and state law which are not obtained and used in a manner consistent with their normal and intended use under a prescription lawfully issued to the associate possessing them.

"Premises" is used in the broadest sense and includes, but is not limited to, all land, property, buildings, structures, installations, vehicles, or equipment.

TYPES OF TESTING

Controlled substance or alcohol "test" means any test using blood, urine, breath or other samples to determine the presence of controlled substances or alcohol in the body. ENTACT will require controlled substance and/or alcohol testing under any of the following circumstances:

- NEW HIRE: After offer of employment, but prior to the applicant starting work.

- RANDOM TESTING: All ENTACT associates will be placed in the random controlled substance and alcohol testing pool. Fifty percent of associates that are established in the random controlled substance and alcohol testing pool will be tested within a 12-month period. ENTACT will use an independent third party that will select individuals for random testing. The identities of the individuals selected will be kept strictly confidential until prior to them being asked to be tested.

- REASONABLE CAUSE TESTING: ENTACT may ask an associate to submit to a controlled substance and alcohol test at any time it has a reasonable suspicion that the associate may be under the influence of controlled substances or alcohol, including, but not limited to, the following circumstances: evidence of controlled substances or alcohol on or about the associate's person or in the associate's vicinity; unusual conduct on the associate's part that suggests he or she is under the influence of controlled substances or alcohol (e.g., the appearance, behavior, speech, attitude, mood, and/or breath of an associate); Near Loss and Loss Investigations; or motor vehicle, equipment, or property damage.

- POST-ACCIDENT TESTING: An associate will be asked to submit to a controlled substance and/or alcohol test if he/she is involved in an on-the-job accident, near-miss or incident in which safety precautions are violated or careless acts are performed, or if reasonable suspicion exists that suggest possible use or influence of controlled substances or alcohol. "Involved" means not only the associate who was injured, but also any associate who potentially contributed to the accident or event in any way. Controlled substance and alcohol testing is required for the following circumstances when preliminary evaluation indicates appropriate procedures, precautions, work set-up, or judgment were not employed:

1. Serious incident causing injury to self and/or other person,
2. Equipment or motor vehicle accident, **whether or not there was significant damage to personal or private property,**
3. Significant release, which fouls the environment (air, land, water),
4. Any serious near-miss incident that could have caused injury to persons or the environment.

- REHABILITATION: After an associate has participated in a rehabilitation program.

- LEGAL REQUIREMENT: When testing is required by federal or state law or regulation.

Consent to take or to release information to ENTACT regarding such tests constitutes a condition of continued employment.

CONSEQUENCES

Positive Results

Any ENTACT associate who tests positive will be given an opportunity to discuss the results with a Medical Review Officer (MRO). If the MRO confirms the positive test, the associate will be suspended pending discharge. If associate is discharged they may request to be rehired after a six month period.

Negative Results with Diluted Specimen

Any ENTACT associate with a negative drug screen result that has a *Diluted specimen* noted by the MRO (Medical Review Officer) will be retested immediately with observation.

Negative Results with Fit for Duty Evaluation

Any ENTACT associate with a negative drug screen result that has a recommendation from the MRO for a fit for duty evaluation due to a valid prescription will be asked to provide a statement from the prescribing physician that they have the ability to safely perform their assigned duties while taking the medication as prescribed. This is to be provided prior to starting and continuing in assigned job task.

Outside Employment

If an associate is tested for controlled substances or alcohol outside of the employment context and the results indicate a violation of this policy, the associate may be subject to appropriate disciplinary action, up to and including termination.

Refusal

Refusal to sign this consent form or submit to testing is a violation of this policy. Any associate refusing to submit to testing or the disclosure of test results to ENTACT will face appropriate disciplinary action, up to and including termination of employment. The following behaviors constitute a refusal:

- Refusal to appear for testing.
- Failure to remain at the testing site until the testing process is complete.
- Failure to provide a urine, blood, breath, or other appropriate specimen.
- Failure to allow observation or monitoring if required.
- Refusal to sign the testing form.
- Failure to cooperate in the testing process (i.e., any action which prevents the completion of the test).
- Verified adulterated or substituted test reported by the MRO.
- Failure to provide sufficient quantities of specimen to be tested without a valid medical explanation.
- Failure to undergo a medical examination or evaluation when directed.
- Tampering with, attempting to adulterate, adulteration or substitution of the specimen, or interference with the collection procedure.
- Failure to report to the collection site in the time allotted.
- Leaving the scene of an accident without a valid reason before the tests have been conducted.

Report to Law Enforcement

ENTACT reserves the right to bring a matter involving the use, manufacture, purchase, transfer, possession, solicitation for, or sale of controlled substances to the attention of appropriate law enforcement authorities. Any conviction for criminal conduct involving controlled substances, whether on or off duty, may lead to disciplinary action, up to and including immediate termination.

SEARCHES AND INSPECTIONS

Unless prohibited by law, ENTACT reserves the right at all times on its premises or various project site locations to conduct unannounced searches and inspections of associates, subcontractors, vendors, and other persons, including their effects, lockers, baggage, desks, tool boxes, clothing and vehicles. The sole purpose of such searches and inspections is to ensure compliance with this policy. Any controlled substance or items prohibited by this policy, or any materials that are illegal to posses, will be retained by ENTACT and may be destroyed or turned over to the appropriate law enforcement agency.

FOLLOW-UP AND RETURN TO WORK

Any associate who has been required to or voluntarily undergoes rehabilitation for substance abuse must submit to a controlled substance and/or alcohol test and receive a confirmed negative test result before returning to work. In addition, the associate will be subject to follow-up testing (including participation in the random controlled substance and alcohol testing pool) not to exceed 24 months following the associate's return to work.

Associates that have been on medical leave, been temporarily laid off, or have left the company for more than 3 months (90 days) are required to have a new drug and alcohol test before beginning work.

PRESCRIPTION MEDICATIONS

The associates will, when controlled substances are prescribed by a licensed health care provider, inquire of the health care provider whether the controlled substance prescribed has any side effects, which may impair the associate's ability to safely perform the associate's job duties. If the answer from the health care provider is yes, the associate will obtain a statement from his or her health care provider indicating any work restrictions and their duration. The associate will present that statement to his or her supervisor prior to going on duty. Failure to communicate this information is a violation of this policy.

EMPLOYEE ASSISTANCE PROGRAM

Associates should contact their Human Resources representative to discuss available EA services.

SUBCONTRACTORS

Subcontractors working on client's properties that require controlled substance and alcohol testing and/or random testing will follow and adhere to ENTACT's Drug and Alcohol Policy.

DRUG AND ALCOHOL TESTING CONSENT

I have read and understand ENTACT's Drug and Alcohol Policy. I consent to controlled substance and/or alcohol testing as described in this policy. I understand and acknowledge that any violation of this policy will result in disciplinary action up to and including immediate termination of my employment.

Associate Signature: _____ Date: _____

Associate Printed Name: _____

RETURN THIS SIGNATURE PAGE TO CORPORATE HEALTH AND SAFETY

RETAIN PREVIOUS PAGES FOR YOUR RECORDS

ATTACHMENT E EQUIPMENT SAFETY

The following equipment safety standards are applicable for equipment and vehicles owned or leased by ENTACT and their subcontractors. Safety standards are divided into two categories, heavy equipment and vehicles. Heavy equipment includes rubber-tired and crawler type excavation materials handling equipment, haul trucks, and cranes. Vehicles include pick-ups, passenger vans, and cars.

Heavy equipment and vehicles that will be used on site include the following:

- Excavator
- Dozers
- Haul trucks
- Water trucks
- Pick up trucks
- Skid Steer

HEAVY EQUIPMENT

Parking: All equipment left unattended at night, adjacent to a roadway in normal use, or adjacent to active construction areas will have appropriate lights or reflectors, or barricades with appropriate lights or reflectors, to identify the location of the equipment.

Bulldozer blades, end-loader buckets, dump bodies, and similar equipment: These will either be fully lowered or blocked when being serviced or not in use. All controls will be in a neutral position, with the motors stopped and the brakes set.

Audible Alarms: All equipment will be equipped with a reverse signal alarm. The alarm will be distinguishable from the surrounding noise level, and will be maintained in an operable condition.

Vehicle Cabs: All equipment with operator cabs will be equipped with windshields and power wipers. All cab glass will be safety glass, or equivalent, that does not introduce visible distortion affecting operation. Cracked and broken glass will be replaced.

Seat Belts: Seat belts will be provided in all equipment. Operators will be required to wear seat belts while the equipment is in operation. Seat belts are not required for equipment that is designed for stand-up operation.

Riders: Only equipment operators will be allowed on the equipment when it is in operation. Associates will not be allowed to ride on the equipment.

Working Under Power Lines

Except where electrical distribution and transmission lines have been de-energized and visibly grounded at the point of work or where insulating barriers have been erected to prevent physical contact with the lines, equipment will be operated in accordance with the following:

- Lines rated 50 kV or less - minimum clearance between the lines and any part of the equipment will be 10 feet;
- Lines over 50 kV - minimum clearance between the lines and any part of the equipment will be 10 feet plus 0.4 inch for each 1 kV over 50 kV;
- A person will be designated to observe clearance of the equipment and give timely warning for all operations where it is difficult for the operator to maintain the desired clearance by visual means.
- Electrical lines will be marked-off with caution tape to help visually locate the lines.

Roll-Over Protection Structures (ROPS)

All rubber-tired and crawler type equipment owned or leased by ENTACT and any subcontractors will be equipped with roll-over protective structures which meet the minimum performance standards, as prescribed in 29 CFR1926.1001 and 1926.1002.

VEHICLES

Driver Policy: Only authorized ENTACT drivers will be allowed to drive company vehicles.

Brakes: All vehicles will have a service brake system, an emergency brake system and a parking brake system. These systems may use common components and will be maintained in working order.

Lighting: All vehicles will be equipped with two headlights and two taillights, and will be maintained in working order. All vehicles or combination of vehicles will have brake lights in operable condition.

Seat Belts: Seat Belts meeting DOT regulations will be maintained in all vehicles. ENTACT associates will be required to wear their seat belts when operating or as passengers in company vehicles.

Riders: ENTACT associates will not ride in the back of pickups or on tailgates or fenders. No riders are allowed in the bed of a pickup.

Loads: Materials and tools will be firmly secured to prevent movement when transported in the same compartment with ENTACT Associates.

Audible Alarms: No associate will use any vehicle having an obstructed view of the rear unless:

- The vehicle has a reverse signal alarm audible above the surrounding noise level

OR

- The vehicle is backed up only when an observer signals that it is safe to do so

COMMERCIAL TRUCKS

All commercial drivers will receive an orientation from the ENTACT HSO on their responsibilities and safety requirements.

Once trucks are loaded, drivers will proceed to the truck decontamination area. After the truck is decontaminated, drivers will cover their loads prior to leaving the site. ENTACT associates will wear an orange vest directing traffic to allow trucks to safely exit the property.

WORKING NEAR UNDERGROUND AND OVERHEAD UTILITIES

ENTACT Project Number and Name:		Date:	
Project Address:			
Phone Number:		Fax Number:	
Emergency Contact: Name:		Phone Number:	

SURVEY

Before beginning any project, you must first survey your work area to find power lines at the job site. (See job site sketch below.)

IDENTIFY

After finding all of the power lines at your site, identify the activities you'll be doing that may put you or your workers at risk. Mark one or more of the following:

- ☐ Cranes (mobile or truck mounted)
- ☐ Drilling rigs
- ☐ Backhoes/Excavators
- ☐ Long-handed tools
- ☐ Other tools/high-reaching equipment
- ☐ Concrete pumper
- ☐ Aerial lifts
- ☐ Dump trucks
- ☐ Ladders
- ☐ Material Handling & Storage
- ☐ Scaffolding
- ☐ Other (specify): _____

ELIMINATE OR CONTROL

Before beginning any project, you must first survey your work area to find power lines at the job site. (See job site sketch. Utility company must be identified and contacted prior to initiating any work within the line location. Voltage of line must be determined by utility company to ensure proper distance is maintained during the operation. Job Safety Analysis must be developed prior to beginning any high hazard work.

After identifying the power line and high-risk activities on our job site, we must determine how to eliminate or control the risk of electrocution (a successful determination is often reached only after consultation with the utility). Mark one or more of the following:

1. Locate and identify all overhead power lines. Determine voltage before construction begins.

2. Have lines moved, insulated, or de-energized. In urban areas, insulating or "rubberizing" power lines is often most practical. Contact the local utility.

3. Use a signaler whenever a backhoe, crane, or similar device is closer than one boom length to a live power line of 750 volts or more.

4. The signaler from established safe distance must warn the operator when any part of the machine or its load approaches the minimum distances allowed in the construction regulation.

5. Jump clear. If an emergency such as fire forces you to leave the equipment, jump clear. If part of your body contacts the ground while another part touches the machine, current will travel through you. In cases of high-voltage contact, jump clear and shuffle away in small steps. With voltage differential across the ground, one foot may be in a higher voltage area than the other. The difference could kill you.

☐ Move the activity
☐ Change the activity
☐ Have the utility de-energize the power line
☐ Have the utility move the power line
☐ Use a protective technology
☐ Boom cage guard
☐ Use barrier protection (insulated sleeves)
☐ Use an observer
☐ Use warning lines with flags
☐ Use non-conductive tools
☐ Insulated link
☐ Proximity device

Always maintain your minimum safe clearance distance from the power line, except when the utility has de-energized and visibly grounded the power line.

Voltages	Distance from Power Line
Less than 50 kV	10 feet
More than 50 kV	10'+(0.4") (# of kV over 50 kV)

WARNING!
It is unlawful to operate any piece of equipment within 10' of energized lines

Jobsite Sketch

(Draw in location of power lines and their proximity to construction site, include such things as proposed excavations, location of heavy equipment, scaffolding, material storage areas, etc.)

Completed by:		Date:	
Approved by:		Date:	

ATTACHMENT F EXCAVATION SAFETY

All excavation activities will conform to the excavation requirements prescribed in 29 CFR 1926.650 through 1926.652 (Subpart P.)

- Contact the utility companies or property owners to locate the exact location of any underground installations in the area. If the utility companies or owners do not respond within 24 hours, or if they cannot establish the exact location of the underground installations, the excavation may proceed with caution. In this situation, ENTACT must provide its associates with detection equipment or other safe and acceptable means to locate underground installations. This could include the use of an airknife or other acceptable tool as identified in the JSA. A spotter will be utilized where underground installations may be present, but have not been positively identified.

- Remove or adequately support objects in the excavation area that could create a hazard to ENTACT associates. These may include rubble, debris and stockpiles.

- Classify the type of soil at the site as either stable rock, Type A, Type B or Type C soil. The soil classification, as defined in Appendix A of Subpart P to 1926.652, must be made based on the results of at least one visual and at least one manual analysis conducted by the Competent Person. See soil classifications in section 15.4.

- If the excavation is less than 20 feet in total depth, select the maximum allowable side slope from Table A and C. If proper sloping cannot be completed, approved bracing or an approved trench box must be used. If the excavation is less than 20 feet in total depth and is in layered soil, refer to Table B and C for the maximum allowable slope of each material layer. If the total depth of excavation exceeds 20 feet or does not allow for proper sloping, protective systems will be designed and approved by a registered professional engineer.

- All ENTACT personnel and subcontractors will have the authority to shut the operations down if they believe the operations are unsafe. The competent person will review the situation and make the decision on how to proceed.

COMPETENT PERSON

As defined in 29 CFR 1926.650, .651, and .652, the Competent Person is the one who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous or dangerous to associates. The Competent Person has the authority to take prompt corrective measures to eliminate such hazards.

The FPM will be the designated Competent Person for the site. The FPM reserves the authority

to duly elect trained and knowledgeable associates to act in the capacity as Competent Person in his absence.

The Competent Person will be responsible for inspecting all open excavations on the site on a daily basis or in the event of changing circumstances such as:

- Water
- Weather
- Traffic or
- Any other site concerns

Inspections will note the integrity of side slopes and sidewalls and insure that only trained and knowledgeable associates are supporting the excavation operations.

Excavation inspections are only required when employee exposure can be reasonably anticipated.

EXCAVATION HAZARDS

Cave-Ins / Slides: A cave in or slide is defined as the separation or loss of soil material from the side of an excavation and its sudden movement into the excavation, either by sliding or falling, in sufficient quantity so that it could entrap, bury or otherwise injure and immobilize a person.

All personnel will be aware of trench safety and will adhere to the following emergency procedures.

- Know exact location of emergency.
- Know number of victims.
- Know trench measurements.
- Know special hazards.
- Keep all life support and de-watering systems operating.
- Clear associates away from excavation.
- Shut down heavy equipment.
- Be prepared to meet and brief rescue personnel.

DO NOT try to dig the victim out with heavy equipment.
DO NOT allow others into the trench.
DO NOT panic.

ENTACT associates in open excavations will be limited to those persons involved in sample retrieval. Only those associates involved in sampling or required to support excavation activities will be allowed into open excavations.

Access and Egress: A stairway, ladder, ramp or other means of safe access and egress will be located in excavations that are 4 feet or more in depth. Locations of such means will require no more than 25 feet of lateral travel for associates.

Falling Loads: No associates will be permitted underneath loads handled by lifting or digging equipment. Associates will be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials.

Water Accumulation: Associates will not work in excavations in which there is accumulated water, or in excavations in which water is accumulating.

Warning System for Mobile Equipment and Personnel: A barricade of orange expanded fencing will be set up around the excavation site along with yellow caution tape at all times.

Ramps: At least one ramp made of soil will be installed in areas that require mechanical equipment to enter excavation site.

Reflective Clothing: When excavation is adjacent to a public road, reflective vests will be worn by personnel.

SOIL CLASSIFICATIONS

Each soil and rock deposit at an excavation site must be classified by the Competent Person as stable rock, Type A, Type B, or Type C soil.

Stable Rock: Refers to the natural solid mineral matter which can be excavated with vertical sides and remain in tact while exposed.

Type A Soil: Is cohesive with an unconfined compressive strength of 1.5 tons per square foot (tsf). Type A soils include clay, silty clay, sandy clay, clay loam, caliche, hardpan and sometimes silty clay loam and sandy clay loam. No soil should be classified as Type A soil if it is fissured, subject to vibration from traffic or similar effects, previously disturbed or part of a sloped, layered system where the side slopes are four horizontal to one vertical or greater.

Type B Soil: Is cohesive soil with an unconfined compressive strength greater than 0.5 tsf but less than 1.5 tsf. Type B soils include granular cohesion less soils like angular gravel, silt, silt loam, sandy loam and sometimes silty clay loam and sandy clay loam; previously disturbed samples that are not Type C soils; fissured soils and soils subject to vibration that would otherwise be classified as Type A; dry rock that is not stable; and material that is part of a sloped layered system where the layers dip an a slope less steep than four horizontal to one vertical.

Type C Soil: Is cohesive soil with an unconfined compressive strength of 0.5 tsf or less. Type C soils include granular soils such as gravel, sand and loamy sand; submerged soil; soils from

which water is freely seeping; submerged rock; submerged rock that is not stable; or material in a sloped, layered system where the layers dip into the excavation at a slope of four horizontal to one vertical or steeper.

MAXIMUM ALLOWABLE SLOPES

Table A defines the maximum allowable slopes.

Table A	
Soil or Rock Type	Maximum Allowable Slopes (H:V) For Excavations Less than 20 Feet Deep
Stable Rock	Vertical (90º)
Type A	3/4 : 1 (53º)
Type B	1:1 (45º)
Type C	1-1/2 : 1 (34º)

SLOPING REQUIREMENTS FOR LAYERED SOILS

Table B defines the sloping requirements for layered soils.

Table B			
Layered Soil Type	Type A Layer	Type B Layer	Type C Layer
B over A	3/4 : 1	1 : 1	
C over A	3/4 : 1		1-1/2 : 1
C over B		1 : 1	1-1/2 : 1
A over B	1 : 1	1 : 1	
A over C	1-1/2 : 1		1-1/2 : 1
B over C		1-1/2 : 1	1-1/2 : 1

SLOPING AND BENCHING

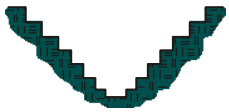
Table C

ENTACT

SLOPING AND BENCHING

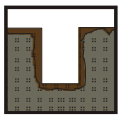
To slope and bench a site means cutting the walls of your excavation back at an angle to its floor. Sloping uses straight cuts. Benching uses a series of one or more steps. Angled cuts for excavations up to 20 feet deep are allowed by OSHA:

Sloping

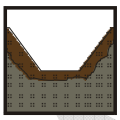


Benching

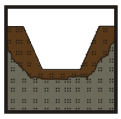
STABLE ROCK
90 degrees



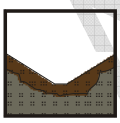
TYPE B
45 degrees



TYPE A
53 degrees



TYPE C
34 degrees



AN EXCEPTION: Excavation is TYPE A SOIL, less than 12 feet in depth and open less than 24 hours, may have a maximum slope or bench of 63 degrees.

DON'T FORGET:
- If the soil condition changes, re-inspect the system. Cut back the angle of slope if needed.
- Evacuate any excavation whose walls show signs of distress.

SOIL STABILITY AS A SAFETY MEASURE

Classifying a soil's stability is an important part of evaluating the site. In general, soil is divided into four classes, from most stable to least stable:

- *Stable Rock*
  Solid mineral matter

- *Type A*
  Cohesive soils, such as clay, silty clay and hardpan.

- *Type B*
  Granular soils, silt, sandy loam, unstable rock, any unstable or fissured Type A soil.

- *Type C*
  Gravel, loamy soil, submerged soil, sandy and any soil that is part of a layered, steeply sloped system.

PROTECTIVE SYSTEMS

The following figures are a graphic summary of the requirements contained in subpart P for excavations 20 feet or less in depth. Protective systems for use in excavations more than 20 feet in depth must be designed by a registered professional engineer in accordance with §1926.652 (b) and (c).

FIGURE 1 – Preliminary Decisions

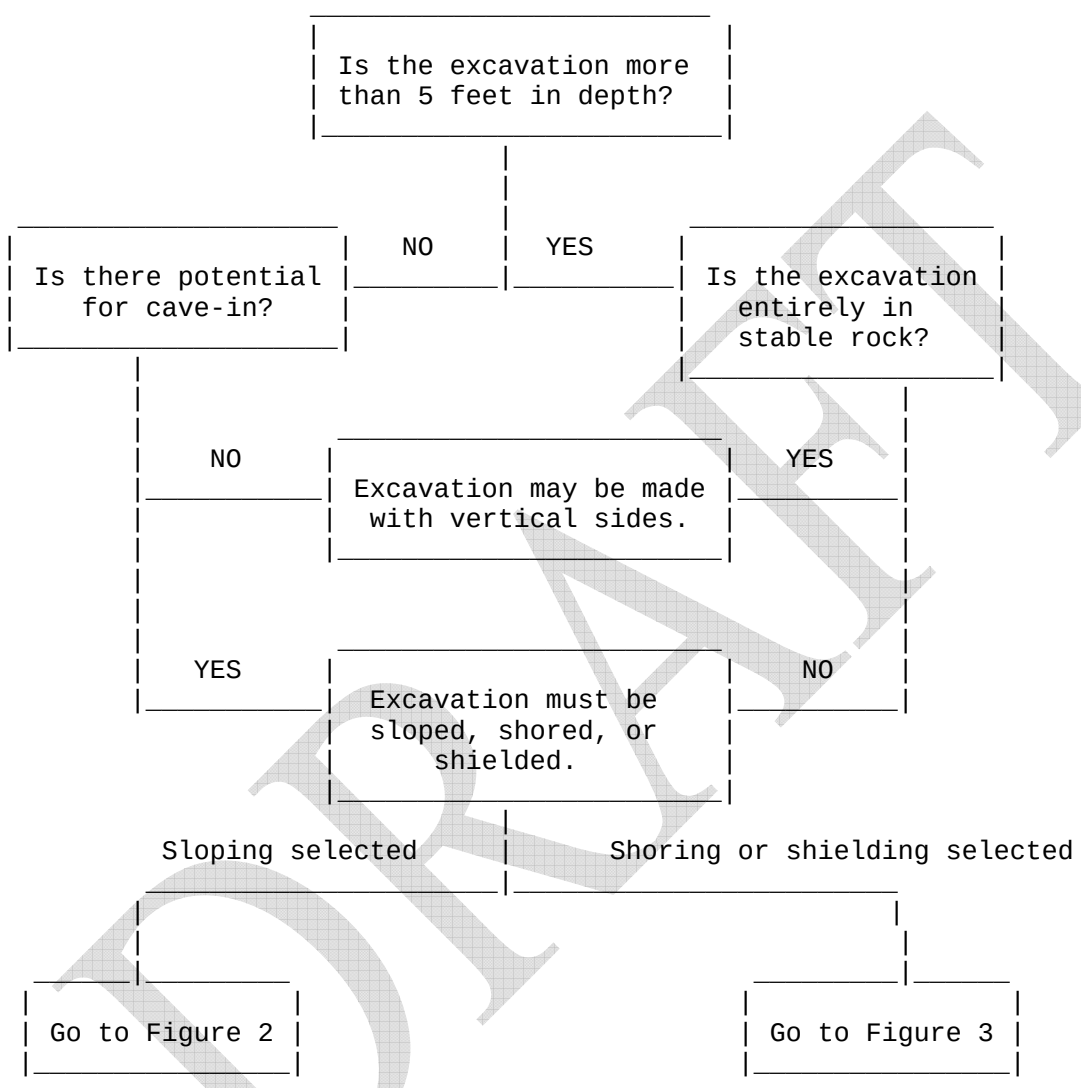


FIGURE 2 – Sloping Options

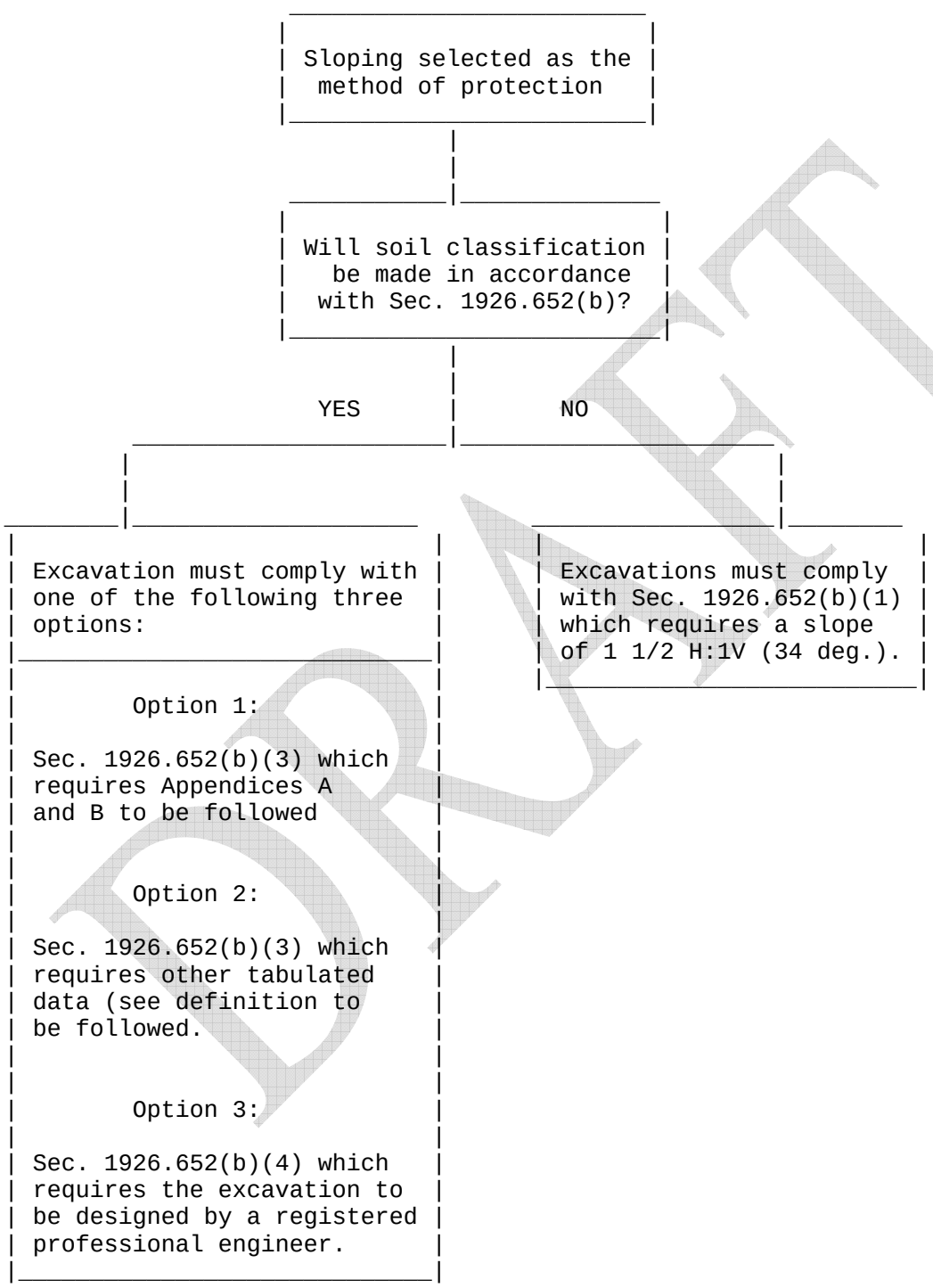
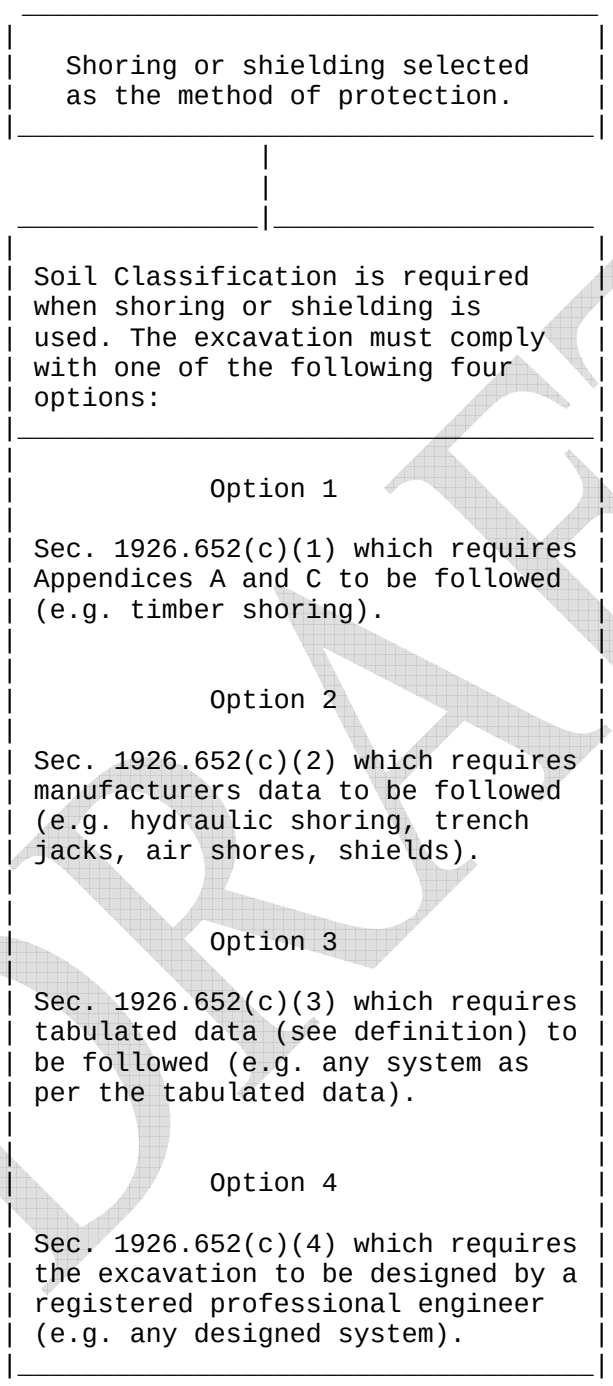


FIGURE 3 – Shoring and Shielding Options



See Tables D-1.1 and D-1.2 for specific spacing requirements for various types of soil

Table D-1.1
Aluminum Hydraulic Shoring
Vertical Shores for **Soil Type A**

Depth of trench (feet)	Hydraulic cylinders				
	Maximum horizontal spacing (feet)	Maximum vertical spacing	Width of trench (feet)		
			Up to 8	Over 8 up to 12	Over 12 up to 15
Over 5 up to 10	8	4	2 inch diameter	2 inch diameter (Note 2)	3 inch diameter
Over 10 up to 15	8				
Over 15 up to 20	7				
Over 20	Note 1				

Table D-1.2
Aluminum Hydraulic Shoring
Vertical Shores for **Soil Type B**

Depth of trench (feet)	Hydraulic cylinders				
	Maximum horizontal spacing (feet)	Maximum vertical spacing	Width of trench (feet)		
			Up to 8	Over 8 up to 12	Over 12 up to 15
Over 5 up to 10	8	4	2 inch diameter	2 inch diameter (Note 2)	3 inch diameter
Over 10 up to 15	6.5				
Over 15 up to 20	5.5				
Over 20	Note 1				

Table D-1.3
Aluminum Hydraulic Shoring
Waler Systems for **Soil Type B**

Depth of trench (feet)	Wales		Hydraulic cylinders						Timber uprights		
			Width of trench (feet)						Max. horiz. spacing (on center)		
			Up to 8		Over 8 up to 12		Over 12 up to 15				
	Vertical Spacing (feet)	Section Modulus (in. ^3)	Horiz. Spacing	Cylinder diameter	Horiz. Spacing	Cylinder diameter	Horiz. Spacing	Cylinder diameter	Solid sheet	2 ft.	3 ft.
Over 5 up to 10	4	3.5	8.0	2 in.	8.0	2 in. Note 2	8.0	3 in.			3 X 12
		7.0	9.0	2 in.	9.0	2 in. Note 2	9.0	3 in.			
		14.0	12.0	3 in.	12.0	3 in.	12.0	3 in.			
Over 10 up to 15	4	3.5	6.0	2 in.	6.0	2 in. Note 2	6.0	3 in.		3 X 12	
		7.0	8.0	3 in.	8.0	3 in.	8.0	3 in.			
		14.0	10.0	3 in.	10.0	3 in.	10.0	3 in.			
Over 15 up to 20	4	3.5	5.5	2 in.	5.5	2 in. Note 2	5.5	3 in.	3 X 12		
		7.0	6.0	3 in.	6.0	3 in.	6.0	3 in.			
		14.0	9.0	3 in.	9.0	3 in.	9.0	3 in.			
Over 20	Note 1										

Table D-1.4
Aluminum Hydraulic Shoring
Waler Systems for **Soil Type C**

Depth of trench (feet)	Wales		Hydraulic cylinders						Timber uprights		
			Width of trench (feet)						Max. horiz. spacing (on center)		
			Up to 8		Over 8 up to 12		Over 12 up to 15				
	Vertical Spacing (feet)	Section Modulus (in. ^3)	Horiz. Spacing	Cylinder diameter	Horiz. Spacing	Cylinder diameter	Horiz. Spacing	Cylinder diameter	Solid sheet	2 ft.	3 ft.
Over 5 up to 10	4	3.5	6.0	2 in.	6.0	2 in. Note 2	6.0	3 in.	3 X 12		
		7.0	6.5	2 in.	6.5	2 in. Note 2	6.5	3 in.			
		14.0	10.0	3 in.	10.0	3 in.	10.0	3 in.			
Over 10 up to 15	4	3.5	4.0	2 in.	4.0	2 in. Note 2	4.0	3 in.	3 X 12		
		7.0	5.5	3 in.	5.5	3 in.	5.5	3 in.			
		14.0	8.0	3 in.	8.0	3 in.	8.0	3 in.			
Over 15 up to 20	4	3.5	3.5	2 in.	3.5	2 in. Note 2	3.5	3 in.	3 X 12		
		7.0	5.0	3 in.	5.0	3 in.	5.0	3 in.			
		14.0	6.0	3 in.	6.0	3 in.	6.0	3 in.			
Over 20	Note 1										

ATTACHMENT G BASIC EMERGENCY MEDICAL AND FIRST AID

In the event of personal injury, a site associate trained in first aid will administer treatment to the injured associate after taking precautions to protect him or herself. If necessary, the injured associate will be transported to the nearest hospital. For all areas, emergency arrangements will be made prior to the commencement of work at the project. An ambulance will be provided if necessary. The Field Project Manager is responsible for the completion of an Accident Report Form.

OSHA Subpart K, Medical Services and First Aid, states that an employer will ensure that medical personnel are readily available for consultation if professional assistance is not in near proximity to the workplace, persons will be adequately trained to render first aid. ENTACT requests that at least one person for every ten associates working is trained in first aid procedures and cardiopulmonary resuscitation (CPR).

ENTACT advises the following procedures in case of an accident; however these recommendations are not a substitution for First Aid Training:

1. Evaluate the situation and take immediate appropriate action. If necessary, remove the victim from a hazardous environment.

2. Rescuers and associates providing medical attention must protect themselves from blood borne pathogens by applying universal precautions learned in CPR and first aid training. Rescuers must avoid direct contact with blood and body fluids by wearing gloves, safety glasses, and masks or face shields. Breathing barriers must be used when performing CPR. If these protective devices are not available, it is better to wait for professional care.

3. Make certain emergency medical support has been notified.

4. Ascertain that the victim is breathing. If not, begin rescue breathing. Make sure the airway is not blocked.

5. Stop bleeding. Follow proper decontamination procedures prior to removing a victim contaminated with hazardous substances. If the victim is not decontaminated, other people and areas could be contaminated.

6. Confirm that help is on the way.

7. Communicate accurate information concerning details of the accident to medical personnel. It is very important that the medical personnel understand what type of chemicals that the victim has been exposed to. The ENTACT office is equipped with specific chemical information and first aid guidelines to assist you and the medical personnel. This information can be accessed and relayed to the hospital or medical personnel within minutes.

Order of Obtaining First Aid

1. If possible, designate another person to go for assistance while you stay with the victim.

2. Notify a physician, make him/her aware of the emergency and follow his/her advice regarding further first aid and transportation of the victim.

3. If it is apparent that the services of an ambulance are necessary, tell the telephone operator it is an emergency and ask him/her to connect you with the local ambulance service. If there is no ambulance service, telephone the nearest city, county, or state police.

4. In the telephone request to the doctor, police, or ambulance, be prepared to give:

    - Phone number calling from
    - Address and directions to the site
    - Describe the accident, number of victims and condition
    - Give your name
    - Do not hang up until emergency personnel end the conversation

5. Stay at the site until the doctor or ambulance arrives.

Condition, Symptoms and Treatment

Breathing Stopped - Breathing stopped completely

1. Check that breathing passages are not blocked.
2. Apply mouth to mouth method of artificial respiration at once.

Shock - Pale skin, body clammy and cold, pulse rapid and weak

1. Keep victim lying down.
2. Maintain normal body heat, but do not allow victim to become overheated.
3. If victim's face is pale, elevate feet slightly.

Bleeding - Blood flowing

1. Apply direct pressure over wound with cloth compress (sterile if possible).
2. If bleeding continues apply pressure at nearest pressure point above the bleeding.

Electrical Shock - Unconsciousness, burns may be present, may convulse

1. Survey the situation carefully. Make certain you are not the second victim.

2. If possible, turn power off.
3. If unable to turn power off move person from contact by moving live wire with a rope or dry board. If the victim remains in contact with the source of the electricity and must be moved use only your feet. By using your hands an electrical current is sent through your entire body including your heart and is far more serious than current through the legs. An electrical current through the lower extremities is rarely fatal.
4. Check breathing. Check pulse. If necessary, begin CPR. Do not stop life saving measures until medical personnel arrive.

Burns

- 1st degree - skin reddened - cover lightly with sterile dressing
- 2nd degree - skin blistered - cover lightly with sterile dressing
- 3rd degree - deep destruction of tissue usually with charring - cover lightly with sterile dressing and consult physician at once. Do not place grease or oil on any burn.

Fractures

- Simple - pain and swelling, and/or deformed part.
- Compound - broken bone plus break in skin and bleeding.

    1. Immobilize fractured part.
    2. Stop bleeding and dress wound.
    3. Splint securely if patient has to be moved.

Spinal Injuries

Injury to the spinal cord should be suspected in any accident involving a fall or injury to the neck or back or when there is loss of sensation or movement. Move the victim only if necessary. Attempt to keep the body aligned and the back and neck straight. Preferably, the victim should not be moved until an ambulance arrives with a special stretcher and trained personnel.

Choking

An air way obstruction should be suspected if there is violent choking, alarmed expression, attempts at inhalation, discoloration in the face, neck, and hands, unconsciousness

1. If the victim can cough, speak or breathe - DO NOT interfere by pounding on the victim's back.
2. If the victim can not respond or speak, approach the victim from behind and place fisted hands below the rib cage and apply firm pressure in quick, sharp, upward blows to force air from the lungs.
3. If unconscious, turn victim's head to one side, apply same pressure outlined in Step 3.

4. Artificial respiration may be necessary for the unconscious victim after the object has been removed from the throat.

Sudden Illness

- Heart Attack - Chest pain, shortness of breath, pale or bluish skin, shock.
- Stroke - Loss of sensation and/or movement on one side of the body, pupils unequal, inability to talk, unconsciousness.
- Convulsion - Rigidity of body muscles lasting from a few seconds to half a minute, bluish discoloration of face and lips.
- Fainting - Unconsciousness

1. Check breathing. Check pulse. Begin CPR, if necessary.
2. Loosen tight clothing.
3. Keep normal body temperature.
4. In the case of convulsions - protect the victim from injury, but do not attempt to place objects in the victim's mouth.
5. Do not attempt to give liquids to an unconscious victim.

Prevention of Heat Stress

1. Proper clothing - Loose fitting, light weight, light colored, and properly ventilated.
2. Hat - To prevent radiant heat exposure to the head and to shield the face from ultraviolet light.
3. Acclimatization - Heat disorders are more likely to occur at times when associates are not acclimated to working in the heat. Most people require one week to adapt to a hot humid environment.
4. Work loads - During hot temperatures, work loads should be adjusted to each associate's acclimatization rate.
5. Body weight - Monitor your daily weight. A pint of water weighs one pound. If you have lost several pounds in one day, try to replace the amount of weight lost.
6. Heart rate and body temperature - While working in the heat your heart rate and body temperature are good measures of body stress.
7. Fluid intake - The most important measure of prevention adequate fluid intake during the work period.

Exposure to Hazardous Chemicals

The environmental industry is faced with the problem of handling mixtures of unknown substances. Speed is of prime importance in the prevention of injury from chemical exposure. It may not be possible to take the time to determine what particular chemical or combination of chemicals are responsible for the exposure. Even once a chemical is known it may require valuable time to refer to specific chemical exposure guidelines. If "worst case" exposure

guidelines are followed then valuable time can be saved. In general, there are four ways that chemicals enter the body: inhalation, skin exposure, eye exposure, and ingestion.

Inhalation

1. Remove from hazardous area to fresh air.
2. If not breathing begin mouth to mouth respiration.
3. Give oxygen.
4. Call emergency services.
5. Identify chemicals.
6. Observation by physician for a 24-hour period depending on specific chemical.

Skin exposure

1. Remove contaminated clothing.
2. Wash under running water for 15 minutes.
3. Call emergency services.
4. Identify chemical
5. Observation by a physician if necessary.

Eye exposure

1. Wash eye for 15 minutes (remove contact lenses first).
2. Call emergency services.
3. Identify chemicals.
4. Evaluation and treatment by physician.

Ingestion

1. Identify chemical ingested.
2. Call poison control center or CHEMTREC 1-800-424-9300.
3. Follow actions given by center.
4. Seek follow-up medical attention if recommended by the center.

Hot Weather

1. Orientation for all associates on heat stress and its related symptoms.
2. Regular break periods with water and Gatorade.
3. Methods to monitor heat stress:
4. Body water loss (BWL) due to sweating should be measured by weighing the associate in the morning and the evening. The clothing worn should be similar at both weighings. BWL should not exceed 1.5% of total body weight. If it does the associate should be instructed to increase his or her daily intake of fluids; or
5. The heart rate (HR) should be measured by the radial pulse for 30 seconds as early as

possible in the resting period. The HR at the beginning of the rest period should not exceed 110 beats per minute. If the HR is higher the next work period should be shortened by 10 minutes while the length of the rest period remains the same.

6. There will be established break periods and breaks on an as needed basis.

If symptoms of heat stress are noted for an associate the associate will be evaluated by measuring the heart rate for 30 seconds.

Signs and Symptoms of Heat Stress

Heat rash may result from continuous exposure to heat or humid air.
Heat cramps are caused by heavy sweating with inadequate electrolyte replacement. Signs and symptoms include;

- Muscle spasms
- Pain in the hands, feet and abdomen
- Heat exhaustion occurs from increased stress on various body organs including inadequate blood circulation due to cardiovascular insufficiency or dehydration. Signs and symptoms include:
- Pale, cool, moist skin
- Heavy sweating
- Dizziness
- Nausea
- Fainting
- Tiredness
- Headache
- Weakness

Heat stroke is the most serious form of heat stress. Temperature regulations fail and the body temperature rises to critical levels. Immediate action must be taken to cool the body before serious injury and death occur. Competent medical help must be obtained. Signs and symptoms are:

- Red, hot, usually dry skin
- Lack of or reduced perspiration
- Nausea
- Dizziness and confusion
- Weak rapid pulse
- Coma or unconsciousness

Cold Weather

- When the air temperature is below 40ºF associates will be reminded of the hazards of cold stress and that proper clothing is required.

- When air temperature is below 36ºF, any time clothing becomes wet it must be replaced immediately.
- Temperatures below 30ºF will require special insulated clothing and fluid replacement with warm, sweet, non-caffeine containing drinks.
- Specific Controls:
  - An area that is heated for breaks and lunch.
  - Areas minimizing air movement to shield wind.
  - Reducing conductive heat transfer.
  - Providing adequate clothing protection.
  - Special cold weather discussions will be held in daily safety meetings when temperatures are expected to be below 36ºF.

See the ENTACT Comprehensive Health and Safety Manual for wind chill chart.

Caring for Poisonous Snake Bites

The following is a summary of current (as of 2005) recognized first aid treatment protocols for bites that occur at field locations where advance medical treatment is not immediately available.

- Try to safely and quickly identify the species of snake if practical. Move victim to safety. Have one person take firm command of the situation. Document the victim's condition and location of the bite and time. Write it down!
- Remove any jewelry or tight fitting clothing. Quickly tie a light restricting band (not a tourniquet) both above and below the bite area a few inches away from the puncture/bite marks.
- Without cutting, apply strong suction, preferably within seconds of the bite directly on the main or deepest puncture/bite marks. This can be accomplished with the mouth or a commercial bite kit suction device. Time is critical here as any venom present will become destructive very quickly!
- Rapidly apply antiseptic cleanser to the entire area and place cold compress (or chemical ice pack) as closely as possible without interfering with suction process.
- Continue strong suction and alternate the location of compress to avoid injury from severe cold.
- Check constriction bands periodically as swelling may occur and loosen as appropriate. A constriction band should not stop the pulse below the band.
- Monitor for symptoms of shock and be prepared to administer appropriate treatment. At any signs of major stress or unusual/unexplained discomfort, check for need to apply other first aid techniques - elevate legs from lying down position, keep warm, immobilize, etc. Do not administer alcohol or cause additional stress to victim. Avoid food or liquid intake.
- Keep victim warm, but do not over heat, and as immobile as practical. Movement to proper treatment facility is more crucial than maintaining immobile status.
- Transport safely at the earliest possible time to competent medical facility. Ideally, all of

the above steps can be administered concurrently with transport phase. Keep victim as comfortable as possible and reassure that survival is not in question. Rapid response reduces damage levels.

- If the snake has been killed, take it along for any identification or testing needs. The primary purpose of this first aid is to slow down or reduce the invasion of the venom, to protect the victim from further side effect trauma and generally to get the victim to advanced treatment as quickly and safely as practical.
- Documenting activities, times and treatment will be useful for the advanced medical providers. Remember to write it down.
- Be confident in what you do and remember, early treatment is the best treatment when a

ATTACHMENT H COLD STRESS

I. COLD STRESS

This policy will equipment associates with the knowledge to recognize symptoms of, treatment for, and prevention of cold stress injuries.

Exposure to the cold can be hazardous, or even life-threatening. Your body's extremities, such as the ears, nose, fingers and toes, lose heat the fastest. Exposed skin may freeze, causing frostnip or frostbite. In extreme conditions or after prolonged exposure to the cold, the body core can also lose heat, resulting in hypothermia.

II. FROSTNIP

Exposure to the cold can result in frostnip. Although it is not severe, it can become serious and turn into frostbite if not treated. Frostnip occurs due to lack of circulation and occurs on unprotected skin. It can be made worse by the whole body being cold, particularly when the inner core temperature has diminished. Symptoms of frostnip include:

- A mild form of frostbite, where only the skin freezes.
- Skin appears yellowish or white, but feels soft to the touch.
- Painful tingling or burning sensation.

What to do:

- Do not rub or massage the area.
- Warm the area gradually -- use body heat (a warm hand), or warm water, avoid direct heat that can burn the skin.
- Once the affected area is warm, do not re-expose it to the cold.

Prevention:

- Staying active, well nourished, suitably clothed and alert to its onset. Eat properly and snack occasionally through the day.
- A medium to high fluid intake is also a useful preventative measure.
- Proper clothing, windproof, insulative and fairly close fitting. Layer clothing is the key to better protection.

- A partner or buddy can play an essential role in prevention - each should often ask how the other feels or if numbness is occurring; observe the color of cheeks, nose and ears where exposed; asking particularly about toes and fingers. The buddy system is an essential ingredient in the overall safety chain.

III. FROSTBITE

Frostbite is both a general and medical term given to areas of local cold injury. It can occur if ambient temperatures are below freezing and usually less than 20ºF. Frostbite occurs most commonly to parts of the body that are distal to large muscle masses and subject to vasoconstriction (earlobes, nose, cheeks, hands). It can occur if frostnip is left unchecked. Three general types of frostbite are:

- Frostbite - Frostbite exists as a whitened area of the skin or an extremity. Slight burning or painful sensations may be present.
- Superficial Frostbite- A cessation of pain and feelings of warmth are indications of superficial frostbite. The skin may be waxy white and firm to the touch.
- Deep Frostbite- Results in tissue damage deeper than the skin. The appearance of the affected area is cold, numb, pale, and firm or hard.

What to do:

- Frostbite can be serious, and can result in amputation. Get medical help.
- Do not rub or massage the area.
- Do not break blisters.
- Do not warm the area until you can ensure it will stay warm.
- Warm the area gradually -- use body heat, or warm water (104ºF to 110ºF), avoid direct heat that can burn the skin. Do not use dry heat.

Prevention:

- Follow prevention steps for frostnip.
- A partner can check for white “dead” and hard areas of skin.

IV. HYPOTHERMIA

Hypothermia is a decrease in the body core temperature below 96ºF. The body temperature is normally maintained by a combination of central (brain and spinal cord) and peripheral (skin and muscle) activity. Interferences with any of these mechanisms can result in hypothermia, even in the absence of what normally is considered a “cold” ambient temperature. Causes and symptoms of hypothermia are:

- Feeling cold over a prolonged period of time can cause a drop in body temperature.
- Shivering, confusion and loss of muscular control can occur.

- Change in behavior.
- Can progress to a life-threatening condition where shivering stops, the person loses consciousness, and cardiac arrest may occur.
- A core temperature of 95ºF is an indication of mild hypothermia and shivering and "goose bumps" are present.

What to do:

- Get medical attention immediately.
- Lay the person down and avoid rough handling, particularly if the person is unconscious.
- Get the person indoors.
- Gently remove wet clothing.
- Warm the person gradually, using any available source of heat.

Prevention:

- Stay active, warm, and dry.
- Warm protective clothing.
- Drink sugary, warm fluids.

Oral temperature recording at the job site will be used to monitor for hypothermia. This will be done at the following times:

At the supervisor's discretion (based on changes in a associate's performance).

- At the associate's request.
- As a screening measure oral temperature will be taken two times per shift when hazardous conditions exist (wind chill less than 20ºF without precipitation, or less than 30EF with precipitation).
- As a screening measure for all associates oral temperature will be taken whenever any associate on the site develops hypothermia.

V. OVERVIEW OF COLD INJURY PREVENTION

Several steps will be taken to prevent cold related injuries including:

- Monitor for hypothermia.
- Educating associates to recognize the symptoms of frostnip, frostbite, and hypothermia.
- Identifying and limiting known risk factors.
- Assuring the availability of an enclosed, heated environment on or adjacent to the site.
- Assuring the availability of dry changes of clothes.
- Assuring a capability for temperature recording at the site.
- Assuring the availability of warm drinks.
- Be aware of the weather forecast.

- Use the buddy system.
- Plan ahead.
- Proper nutrition.
- Dress appropriately.
- Stay dry.
- Keep active.
- Know your limits.

WIND-CHILL CHART

Estimated Wind Speed (mph)	ACTUAL THERMOMETER READING, ºF											
	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
	EQUIVALENT TEMPERATURE ºF											
Calm	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	26	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-21	-33	-46	-58	-70	-83	-95
15	36	22	9	-5	-18	-36	-45	-58	-72	-85	-99	-112
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110	-124
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-20	-35	-49	-67	-82	-98	-113	-129	-145
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-148
Wind speeds greater than 40 mph have little additional effect	LITTLE DANGER FOR PROPERLY CLOTHED PERSON*				INCREASING DANGER			GREAT DANGER				
					DANGER FROM FREEZING OF EXPOSED FLESH**							

To use the chart, find the estimated or actual wind speed in the left-hand column and the actual temperature in the degrees F in the top row. The equivalent temperature is found where these two intersect. For example, with a wind speed of 10 mph and a temperature of -10ºF, the equivalent temperature -33ºF. This lies within the zone of increasing danger of frostbite, and protective measures should be taken. *Normal winter clothing. **Below -20 degrees survival gear ***must*** be worn which includes parka, mask, insulated boots, pants, and gloves.

ATTACHMENT I HEAT STRESS

I. INTRODUCTION

Weather conditions are important considerations when planning and conducting site operations during the hot summer months. This policy discusses the general practices that will be implemented on job sites to prevent heat stress and related injuries.

II. GENERAL PRACTICES

- Orientation for all associates on heat stress and its related symptoms (see ENTACT's Heat Stress Illnesses Policy).
- Regular break periods with water and Gatorade.
- Monitoring for heat stress.
    1. Body water loss (BWL) due to sweating should be measured by weighing the associate in the morning and the evening. The clothing worn should be similar at both weighings. BWL should not exceed 1.5% of total body weight. If it does the worker should be instructed to increase his or her daily intake of fluids; or
    2. The heart rate (HR) should be measured by the radial pulse for 30 seconds as early as possible in the resting period. The HR at the beginning of the rest period should not exceed 110 beats per minute. If the HR is higher the next work period should be shortened by 10 minutes while the length of the rest period remains the same.
- There will be established break periods and breaks on an as needed basis.

Symptoms of heat stress are: cramping; pale or clammy skin; tiredness or weakness; headaches, nausea or dizziness; fainting; high body temperature; hot, red or dry skin; rapid, weak pulse; or unconsciousness. If symptoms of heat stress are noted for an associate, the associate will be evaluated by measuring the heart rate for 30 seconds. If heat stress symptoms persist then appropriate action will be taken immediately (see ENTACT's Heat Stress Illnesses Policy).
HEAT RELATED ILLNESSES

The following is a discussion of illnesses, their symptoms, and treatments, associated with work in hot environments:

A. Heat Stroke

Heat stroke is an acute and dangerous reaction to heat stress caused by a failure of heat regulating mechanisms of the body; the individual's temperature control system that causes sweating stops working correctly. Body temperature rises so high that brain damage and death will result if the person is not cooled quickly.

- *Symptoms* – Red, hot, dry skin, although person may have been sweating earlier; nausea; dizziness, confusion; extremely high body temperature; rapid respiratory and pulse rate; unconsciousness or coma.
- *Treatment* – Cool the victim quickly. If the body temperature is not brought down fast, permanent brain damage or death will result. Soak the victim in cool, but not cold water; sponge the body with cool water or pour water on the body to reduce the temperature to a safe level (102°F). Observe the victim and obtain medical help. Do not give coffee, tea, or alcoholic beverages.

B. Heat Exhaustion

Heat exhaustion is a state of very definite weakness or exhaustion caused by the loss of fluids from the body. The condition is much less dangerous than heat stroke, but it nonetheless must be treated.

- *Symptoms* – Pale, clammy, moist skin; profuse perspiration and extreme weakness. Body temperature is normal, pulse is weak and rapid, breathing is willow. The person may have a headache, may vomit, and may be dizzy.

- *Treatment* – Remove the person to a cool, air conditioned place, loosen clothing, place in a head-low position and provide bed rest. Consult physician, especially in severe cases. The normal thirst mechanism is not sensitive enough to ensure body fluid replacement. Have patient drink 1 to 2 cups of water immediately, and every 20 minutes thereafter until symptoms subside. Total water consumption should be about 1 to 2 gallons per day.

C. Heat Cramps

Heat cramps are caused by perspiration that is not balanced by adequate fluid intake. Heat cramps are often the first sign of a condition that can lead to heat stroke.

- *Symptoms* – Acute painful spasms of voluntary muscles, e.g., abdomen and extremities.
- *Treatment* – Remove victim to a cool area and loosen clothing. Have patient drink 1 to 2 cups of water immediately, and every 20 minutes thereafter until symptoms subside. Total water consumption should be 1 to 2 gallons per day.

D. Heat Rash

Heat rash is caused by continuous exposure to heat and humid air and aggravated chafing clothes. The condition decreases ability to tolerate heat.

- *Symptoms* – Mild red rash, especially in areas of the body that come into contact with protective gear.
- *Treatment* – Decrease amount of time in protective gear and provide powder to help absorb moisture and decrease chafing.

ATTACHMENT J JOB SAFETY ANALYSIS

The following JSAs are provided as guidance and to assist the site Health and Safety Officer and Field Crew (JSA Development Team) with the development of site-specific JSAs. The Development Team will prepare a JSA for work tasks and equipment by applying work experience and skills learned during training.

Job Safety Analysis	
Work Type:	Heavy Equipment Operation: Dozer
Personal Protective Equipment (PPE) needed	
Body Suit – Coveralls	
Hard Hat	
Hearing Protection – plugs	
Orange Safety Vest	
Protective Gloves - cotton dipped or leather	
Respiratory Protection – Half-Face P-100	
Safety Glasses	
Work Boots - leather steel toe	

No	Job Steps	Potential Hazard(s)	Critical Action(s)
1	Conduct JTR.	NLI/LI.	Always conduct an JTR prior to start.
2	Conduct inspection using ENTACT daily inspection check list.	Lack of inspection could cause equipment damage or injury to driver.	Lockout/tag out, make sure ignition key is in your pocket, not in the ignition.
3	Clean/defrost windows and mirrors.	Obstructions in windshield and windows/mirrors could cause injury/equipment damage or even death.	Keep paper towels and window cleaner in equipment at all times. Clean only when equipment is off and parking brake is applied.
4	Entering the equipment.	Slips/falls and pinch points may cause injury or death.	Always use 3 point mount/dismount. Stay clear of pinch points. Utilize approved mounting steps, brackets and handrails. Use required PPE.
5	Configure	Ergonomics/unnecessary	Upon sitting, adjust seat fully to

No	Job Steps	Potential Hazard(s)	Critical Action(s)
	controls and seating.	physical stress. Incapable of reaching controls. Visual blocks.	accommodate reach and comfort zone. Adjust mirrors. Fasten seat belt. Make certain all controls are set in neutral positions.
6	Starting and warming up.	Unanticipated rolling or movement, engine fire, or mechanical/electrical faults.	Review operator's manual if new to this particular machine. Start engine and check controls to ensure all green lights. Allow minimum of two minutes warm up.
7	Moving equipment work area.	Other equipment, personnel, or objects in work area. Uneven terrain.	Conduct JTR. Know the daily task and other people and equipment in the area.
8	Performing tasks.	Other equipment (collision), slopes, ground conditions possible injuries to personnel and equipment, buried obstacles, underground and overhead utilities, and dust. SPOT TRUCKS WHEN DUMPING MAKE SURE THEY ARE LEVEL HAVE COMMUNICATION WITH DRIVER BE AWARE OF OTHER EQUIPMENT IN YOUR WORK AREA NEVER STAND BETWEEN DOZER AND TRUCK WHEN DUMPING	Perform JTR. Know where utilities are located. Be aware of the scope of work to be performed. Know the paths of other equipment or persons entering and leaving your work area. Communicate with supervisors throughout the day with any questions. Stop work immediately and contact a supervisor if you are uncertain of your task, experience equipment failure, or personal injury or near loss. Make visual contact with all site personnel walking in your area of work.
9	Stopping at end of day.	Slips, trips and falls. Fuel splash/spill. Underground movement of equipment, or hydraulic leak.	Park in designated area. Set brake/control locks. Idle two minutes if engine is hot. Lower blade to ground. Turn equipment off, use 3 point dismount. Be sure that you are in a well ventilated area. Grease moving parts.

Job Safety Analysis	
Work Type:	Heavy Equipment Operation: Dump Truck
Personal Protective Equipment (PPE) needed	
Hard Hat	
Level D	
Orange Safety Vest	
Other - Two way radio, fire extinguisher	
Safety Glasses	
Work Boots - Steel toe	

No	Job Steps	Potential Hazard(s)	Critical Action(s)
1	Conduct JTR.	Failing to identify hazardous conditions resulting in losses or near losses	Follow JTR card. Assess the risks. Determine the hazards of performing the task and survey the work area. Consider weather conditions such as recent rainfall that could cause soft ground and could compromise integrity of excavations; wind that could increase lateral loads when dumping; rain and fog that could decrease visibility; wet or icy conditions that could cause slippery conditions. Always consider the worst case scenario. Analyze the hazards determined. Decide a plan of action to eliminate or reduce these hazards. Act to reduce the hazards. Follow through with the plan determined when analyzing.
2	Perform daily equipment inspection.	Equipment malfunction or damage; hydraulic fluid, fuel, oil leaks/spills; loss of steering, loss of brakes, etc.-accidents; decreased visibility; failing to lo/to; fire	Ensure key is not in ignition. Follow ENTACT equipment inspection form. Check all fluids. Ensure fluids are not too low or too full. Walk around truck. Look for damage. Look for leaking fluids. Ensure

No	Job Steps	Potential Hazard(s)	Critical Action(s)
			proper tire pressure. Clean mirrors and windows. Remove any trash or other debris from cab. Ensure back-up alarm and horn is operational. Ensure fire extinguisher is on equipment and functioning. Inspect the fire extinguisher monthly.
3	Establish communication and plan a haul route with operators and other associates involved in the task.	Personnel and/or equipment damage due to inadequate communication; head on collisions with other truck traffic	Establish hand signals and horn signals for communication. Always maintain clear radio communication. NEVER proceed with the task until communication is clearly established. If communications are unclear, stop work until clear communications are reestablished. Ensure that everyone knows the correct haul route. Inform other relevant site personnel of the route you will be using. If route changes through out the day, notify all relevant site personnel.
4	Enter truck and start.	Slips, trips, falls; failing to fasten seatbelt-injuries and death; failing to adjust mirrors and seat; unexpected movement of equipment	Make sure steps are clear of mud, ice and debris. Use 3 point contact for mounting. Make sure seatbelt is securely fastened. Adjust seat and mirrors appropriately. Ensure truck is in neutral and parking brake is engaged. When entering and exiting truck, walk around to ensure that no people or equipment is in blind spot.
5	Drive forward.	Injury/death due to accidents-contact with other equipment or pedestrians; property and/or	Check all mirrors before moving. Be aware of surroundings and blind spots.

No	Job Steps	Potential Hazard(s)	Critical Action(s)
		equipment damage; failing to remain alert and aware of surroundings-repetitive task; complacency	Drive at reasonable amount of speed. Never exceed posted speed limit of 10mph. Reduce speed if conditions such as heavy traffic routes, weather, rough terrain, dust, etc. exist. Be familiar with the route to be used. If route changes throughout the day, notify appropriate personnel. Ensure that routes are free of obstacles such as debris and ruts. NEVER use a route that travels against the flow of haul truck traffic unless the route is coordinated, approved and overseen by Field Project Manager. Be aware that other site sub/contractors use these same roads. Be a defensive driver. Be aware of other site personnel not following safe driving procedures. Obey site traffic rules. Drive with lights on and heed all traffic signs.
6	Drive in reverse.	Injury, death or due to accidents-back off edge of excavation, back into equipment, people or other obstacles; truck turn over-backing onto uneven, badly rutted or extremely soft material; blind spots; poor visibility	Always minimize backing up; plan ahead to ensure first move is forward. NEVER back up if unsure of what is behind the truck. NEVER back up without the aid of a spotter. When using a spotter, NEVER back without knowing his location. Use mirrors and turn body to look out windows to cover all blind spots. Exit cab to check area if unsure of conditions such as soft ground, rebar/other debris. Back at a slow rate. Use 6 wheel drive when needed. Never drive close to an edge or back to an edge that could collapse.

No	Job Steps	Potential Hazard(s)	Critical Action(s)
			Never back when vision is obscured by sunlight, darkness, fog, etc. Never back onto an upward slope, badly rutted or extremely soft ground.
7	Receive load.	Injury, death or equipment damage-contact with other equipment, truck tip; miscommunication; falling debris; unexpected equipment movement	Never allow the truck to be loaded with excavator swinging over cab. Never stand next to a truck or allow others to stand next to a truck being loaded. Set parking brake and park a sufficient distance from the equipment loading the truck. Follow instruction from excavator operator on where to park. Maintain radio communication with operator loading truck and others in the area. Ensure the loading area is level, free of ruts and not too soft. Communicate with the operator loading the truck to ensure that the load is centered. Ensure that the truck is not overloaded. If hauling pipe, ensure the pipe is 10 ft or less.
8	Dump load.	Equipment damage, injury or death-truck tip, excavation collapse; overhead utilities; failing to remain alert, complacency	Ensure the truck is on stable, level surface. Have ruts removed. Inspect area for rebar or other debris that could puncture a tire or otherwise cause dumping to be unsafe. Inspect area for overhead power or other lines and mark. Ensure that no people or equipment is in the tip radius of the truck before dumping. Align the cab with the bed. Place truck in neutral, set parking brake, lift up on the lever that

No	Job Steps	Potential Hazard(s)	Critical Action(s)
			starts the bed up. Once the bed is fully up, place the truck in drive. Disengage parking brake and slowly pull forward until bed is empty. STOP MOVING and lower the bed. ALWAYS watch the bed lower in mirrors. Do not continue forward until the bed is more than 50% down. If route from dumping area poses hazards such as over head power lines, turns, unleveled ground etc., lower bed completely before moving. Drive straight on solid, level ground until bed is completely down. Always remain alert while operating the truck.
9	Complete task and exit truck.	Unexpected movement of truck; slips, trips, falls	Park truck on level ground in a safe area. Engage parking brake. Turn off and remove key. Dismount using 3 point contact.

Job Safety Analysis	
Work Type:	Heavy Equipment Operation: Excavator
Personal Protective Equipment (PPE) needed	
Disposable Tyvek coveralls	
Hard Hat	
Safety Glasses	
Steel Toe Boots	
Orange Safety Vest	

No	Job Steps	Potential Hazard(s)	Critical Action(s)
1	Conduct JTR.	Failing to identify hazardous conditions resulting in losses and near losses.	Follow JTR card. Assess the risks. Determine the hazards of performing the task and survey the work area. Consider weather conditions such as recent rainfall that could cause soft ground and could compromise integrity of excavations; rain and fog that could decrease visibility; wet or icy conditions that could cause slippery conditions. Always consider the worst case scenario. Analyze the hazards determined. Decide a plan of action to eliminate or reduce these hazards. Act to reduce the hazards. Follow through with the plan determined.
2	Conduct inspection of equipment using Entact inspection check list.	Lack of inspection could cause equipment damage or injury to driver	Lock/out tag out - make sure ignition key is in pocket, not in the ignition. Bucket should always be on the ground. Check hydraulic hoses to be sure they have enough slack when operating boom. Ensure all pins are in place. Grease equipment every 10 hrs of work.
3	Clean/defrost mirrors and windows.	Obstructions in windshield and mirrors could cause injury/equipment damage-	Keep paper towels and window cleaner in equipment. Clean only when equipment is off and

No	Job Steps	Potential Hazard(s)	Critical Action(s)
		reduced visibility	parking brake is applied.
4	Enter the equipment.	Slips and falls; pinch points may cause injury or death	Always use 3 point mount/dismount. Stay clear of pinch points. Utilize approved mounting steps, brackets and hand rails. Use required PPE
5	Configure controls and seating.	ergonomics/unnecessary physical stress, incapable of reaching controls, visual blocks	Upon sitting, adjust seat fully to accommodate reach and comfort zone. Adjust mirrors, fasten seat belt. Make certain that all controls are in the neutral position.
6	Start and warm up.	unanticipated rolling or movement, engine fire, mechanical/electrical faults	Review operator's manual if new to machine. Start engine and check controls to ensure all green lights. Allow minimum of two minutes to warm up. Ensure parking brake remains engaged while warming.
7	Move equipment to work area.	other equipment, site traffic, overhead utilities, personnel or objects in work area, uneven terrain	Conduct JTR. Know the daily task and tasks of other people and equipment in the area. Raise the bucket off the ground to situate machine in the work area. If traveling from one work area to another, watch for overhead power lines. Travel with boom low and bucket curled. Survey the travel path for overhead utilities ahead of time.
8	Perform task.	Other equipment (collision), slopes, ground conditions changing, possible injuries to personnel/equipment, buried obstacles, underground and overhead utilities and other overhead hazards; muddy or water filled excavations; uncovering drums or other unknown hazardous material, cave-ins	Perform JTR. Know where utilities are located and have them marked. Know the scope of work to be performed. Know the paths of other equipment or persons entering and leaving the work area. Communicate with supervisors throughout the day with questions. Stop work immediately and contact a supervisor if you are uncertain of your task, experience equipment

No	Job Steps	Potential Hazard(s)	Critical Action(s)
			problems or personnel injury or loss. Never enter an excavation that contains water. Survey an excavation that is wet to determine if the soil is to soft to enter. Any questionable excavations should not be entered. Anytime questionable debris, material or drums is uncovered during excavation, the FPM should be notified immediately. Excavation should be stopped until further instruction from the FPM. Never stand or work within 2 ft. of the edge of an excavation. If working on top of a spoil pile, never throw material over the side without checking for others working below. Never let other workers stand behind or in front of the excavator while it is being operated. If working at the bottom of a stockpile, remain aware of activity on top of the stockpile. Maintain constant communication with others working in the area.
9	Park, shut down and exit equipment.	Unexpected movement, trespasser starting/moving equipment, unstable ground sloughing	Park equipment on stable ground and lower bucket to ground. Consider weather. Will ground become unstable overnight? Set parking brake and remove keys. Use a 3 pt. dismount.

ATTACHMENT K INCIDENT REPORTING

ENTACT is guided by an established safety policy. This policy is based on a sincere desire to eliminate personal injuries, occupational illnesses, and damage to equipment and property, as well as to protect fellow associates and the general public whenever the public comes in contact with, or is affected by, ENTACT's work.

Managers and supervisors are charged with the responsibility of preventing the occurrence of incidents or conditions that could lead to occupational injuries or illness. While it is management's responsibility to provide a safe environment in which to work, the ultimate success of a safety and health program depends upon the full cooperation of each individual associate.

Safety should never be sacrificed for production. It must be considered an integral part of quality control, cost reduction and job efficiency. Every supervisor will be held accountable for the safety performance demonstrated by the associates under their supervision. Our goal is the total elimination of incidents from our operations. There are three sound reasons for this goal:

1. No endeavor is worthy if it should cause human suffering through disabling injury or loss of life.
2. A good safety record reflects the quality of management, supervisors, and the work force. It also serves to promote business and thereby contributes to the continuing growth and success of ENTACT.
3. Poor incident experience increases costs and results in a loss of profits. Our policy is to accomplish work in the safest possible manner consistent with good work practices. Management at every level is charged with the task of translating this policy into positive actions.

INCIDENT REPORTING PROCEDURES

All incidents, injuries, and significant near misses must be reported immediately to the associate's supervisor. Subcontractors will promptly report any incident to the ENTACT Field Project Manager. Work will stop until the situation is addressed and work can safety resume. Incident information will be forwarded to the Project Health and Safety Coordinator and Corporate Health and Safety Director within 24-hours. The client or owner representative will be notified according to their requirements.

The project management team will use ENTACT's Online Incident Notification System to report losses and significant near losses. This notification system does NOT replace any part of ENTACT's incident notification requirements and investigation process.

http://www.sentact.com/entactincidents/

A thorough investigation will commence to determine the facts of the incident, root causes, solutions, and verification and validation of solutions. A completed Loss Investigation / Near

Loss Investigation report and supplemental information (first report of injury, witness statements, supervisor statement, police report, damaged equipment report, monitoring reports, photographs, drawings, etc.) must be provided to Corporate Health and Safety within 5 working days of all incidents. If applicable, a Why Tree Incident Investigation will commence following established protocol and final report submitted to the Health and Safety Director within two weeks of the incident. ENTACT's Post Accident Drug and Alcohol testing procedures will be followed. Completed incident documentation shall be maintained on-site and at the Corporate Health and Safety office.

Incident reporting forms are located in the Policies and Procedures section of the ENTACT Behavior Based Safety System or are available on the intranet at: http://connected.entact.com/index.php .

Failure to report an incident immediately after it happens may result in dismissal and/or delay or denial of associates' workers compensation benefits.

ENTACT shall maintain a log of occupational injuries and illnesses as required by federal law in accordance with the OSHA record keeping requirements of 29 CFR 1904.2

MOTOR VEHICLE INCIDENT REPORTING

Associates, supervisors, and subcontractors are responsible for reporting all motor vehicle incidents involving ENTACT (business or personal). This includes any incident involving a company owned, leased or rented motor vehicle. Where appropriate, work will stop until the situation is addressed and work can safety resume. Verbal notification of a motor vehicle incident will be given to the HSD or his designee within 24-hours of the incident. An incident investigation will commence as noted above including loss of load and/or damaged to other property. This documentation will be forwarded to the Project Health and Safety Coordinator and Health and Safety Director within 72-hours of the incident. The client or owner representative will be notified.

ATTACHMENT L SPILL CONTROL

Information for this plan will vary from project to project according to site-specific needs. Site-specific information should be added once site operations have begun. The following are provided as guidelines.

Gasoline/Diesel

- Each tank is self-contained up to 110% of capacity of the tank.
- Barricades are installed around the tanks to prevent accidental damage to the tanks.
- Only skilled operators are allowed to refuel the equipment at specific times during the day.
- Tanks are inspected twice a day - once in the morning and once in the afternoon with a twenty-four hour guard service.
- Safety meetings outline spill prevention control measures.

Identifying Material

- Locations will be marked once they are established.
- Material Safety Data Sheets will be available on site for diesel and gasoline.
- "Flammable" signs will be posted at the locations on the gasoline tank.
- The material name will also be posted on all tanks.

Spill Response

The FPM is the responsible person in charge of spill protection and in the case that a spill does occur:

- The FPM will be notified.
- If a spill does occur one of the most important factors is in limiting the environmental damage through a speedy clean-up.
- The FPM will react immediately, stopping the leak, containing the product with absorbent bags and absorbent material.
- Client representatives will be notified as soon as possible.
- One person will be assigned to stand-by with a fire extinguisher.
- All materials picked up will be placed in a 55-gallon drum for proper disposal.
- All unnecessary personnel will be kept away from the area.
- Waste accumulated must be removed from the containment area within twenty-four hours or at the earliest practicable time.

To What Level Is Clean?

The spill material must be cleaned-up so that the environment is returned to as close to its pre-spill condition as possible. Any residue that remains must pose no risk to public health and must be at levels that are acceptable to regulatory agencies.

Disposal of Cleanup Materials

The material cleaned-up from a gasoline or diesel tank would be classified as hazardous waste and all containers would have to be clearly labeled and properly disposed. Material from the treated wastewater will be tested for proper disposal protocol.

Spill Report

After the clean-up has been completed a detailed report with all circumstances relating to the leak and how the spill response team reacted to the spill with an Estimated Damages Report must be submitted to ENTACT and client representatives. All spills require completion of a Near Loss Incident/Loss Incident Report.

ATTACHMENT M PERSONAL PROTECTIVE EQUIPMENT

The following is a brief description of the personal protective equipment that may be required during remediation activities. The U.S. EPA terminology for Levels A, B, C, and D personal protective equipment will be used.

Respiratory protective equipment will be NIOSH-approved and use will conform to OSHA 29 CFR 1910.134 requirements. ENTACT maintains a written respirator program detailing selection, use, cleaning, maintenance, and storage within the ENTACT Comprehensive Health and Safety Manual. A copy will be available at each project and at ENTACT's Corporate Office in Grapevine, Texas.

Equipment to protect the body against contact with known or anticipated chemical hazards has been divided into four categories or levels according to the degree of protection required:

LEVEL A
Level A provides the highest level of skin and respiratory protection and is used in the following situations:

- The extremely hazardous substance requires the highest level of protection for skin, eyes, and the respiratory system.
- Substances with a high degree of hazard to the skin are known or suspected.
- Chemical concentrations are known to be above IDLH levels.
- Biological hazards requiring Level A are known or suspected.
- Oxygen deficient or potentially oxygen deficient atmosphere (<19.5%) are possible.

Protective Gear:
Supplied Air respirator- self-contained breathing apparatus (SCBA) or air line with 5-minute egress air pack
Fully encapsulating chemical resistant suit
Inner and outer gloves
Boot covers
Work gloves
Steel-toe leather and rubber over boots
Hard hat
Hearing protection
Communication device

LEVEL B
Level B provides the same level of respiratory protection, but a lesser degree of skin protection than Level A. It is used when:

- Substances have been identified and require a high level of respiratory protection but less skin protection.
- Concentrations of chemicals in the air are IDLH or above the maximum use limit of an

APR with full-face mask.
- Oxygen deficient or potentially oxygen deficient atmosphere (<19.5%) are possible.
- Incomplete identification of gases and vapors, but not suspected to be harmful to skin.

Protective Gear
Supplied air respirator – SCBA or air line with 5-minute egress air pack
Chemical resistant suit
Inner and outer chemical resistant gloves
Steel toe leather work boots and over boots
Hard Hat
Hearing Protection
Communication devices

LEVEL C

Level C provides the same level of skin protection as Level B, but a lower level of respiratory protection is required. Level C is used when:

- The types of air contaminants have been identified, concentrations measured, and an air-purifying respirator is available that can remove contaminants.
- The substance has adequate warning properties and all criteria for the use of APR respirators have been met.
- Oxygen concentrations are in the normal range.

Protective Gear
Air purifying respirator with filters and cartridges
Chemical resistant Coveralls
Inner and outer chemical resistant gloves
Steel Toe Leather, safety boots with outer covers
Hard Hat
Safety glasses or goggles
Hearing Protection
Communication device

LEVEL D
Level D is a basic work uniform worn when no skin or respiratory hazards exist. Level D is used when:

- The atmosphere contains no known hazard; and,
- Work functions preclude splashes, immersion or the potential for unexpected inhalation of, or contact with, hazardous concentrations of harmful chemicals.

Protective Gear
Coveralls

Steel toe, leather work boots
Hard Hat
Safety Glasses or goggles
Hearing Protection

Any personal protective equipment issued to the associate by the company is the personal responsibility of the associate. He/she must ensure that it is kept in a safe and clean condition and in his/her possession at job sites. When in disrepair, it must be returned for repair or replacement.

In certain construction and maintenance operations, personal protective equipment, such as safety glasses, chemical goggles, respirators, hard hats, and protective clothing is required. The type of protective equipment to be worn will be determined by the degree of exposure to the potential hazard. When in doubt about the safety measures to be observed, associates will contact the supervisor.

Limitations of PPE

While personal protective equipment reduces the potential for contact with harmful substances, ensuring the health and safety of associates requires, in addition, safe work practices, decontamination, site entry protocols, and other safety considerations. Together these protocols establish a combined approach for reducing potential harm to associates.

Personnel must wear protective equipment when response activities involve known or suspected atmospheric contamination, when vapors, gases or particulate may be generated, or when direct contact with skin-affecting substances may occur. Respirators can protect lungs, gastrointestinal tract, and eyes against air toxicant. Chemical-resistant clothing can protect the skin from contact with skin-destructive and absorbable chemicals. Good personal hygiene limits or prevents ingestion of materials.

In addition to risks due to contaminants, some physical hazards or hazardous conditions may be present at the site. These include risk of injury while working around heavy equipment, explosive or combustible gas generation, hearing damage from heavy equipment noise, and heat or cold stress.

Additional Information

<u>Eye Protection</u>
Eye protection is required when engaging in operations such as the following:

- Drilling, chipping, grinding, wire brushing.
- Handling caustics and acids.
- Breaking bricks and concrete.
- Hammering and chiseling.
- At least number 2 shaded eye protection for burning and oxy/gas welding.

- Other situations that create a possible eye hazard, e.g., chemical environments.

The following are different types of eye protection used:

- Industrial type safety glasses must be worn. Monogoggles will be worn over regular prescription glasses, if the glasses are not industrial rated.
- A full-face shield must be worn while performing any job with high-pressure water. A face shield is not to be substituted for safety glasses or goggles, but used in addition to them.
- Chemical splash-guard goggles are required on all operations where solvents, acid, or caustics are used or in the immediate vicinity.
- Appropriate goggles must be worn at any time a hazard exists such as grinding or chipping operations or welding.
- Sandblasting hoods with plastic face shields and piece protection are required while operating a sandblast gun or nozzle. These must be positive pressure fresh air hoods.

Ear Protection

Ear plugs or muffs are required on projects where the noise level is above 85 dBA on an average of eight hours worked. If noise is a problem, associates must wear hearing protection that has NRR of 25 or greater.

Hand and Body Protection

Waterproof gloves, wet suits, and rubber boots will provide some protection. Where conditions warrant, additional protection such as acid suits, chemical aprons, chemical gloves, metatarsal guards or shin guards must be worn. Personnel using arc welding equipment will comply with 29 CFR 1926.102 and will wear a long sleeve shirt, gloves, head protection, and using a welding hood with a sufficient shaded lens for the type of welding being performed.

Safety Harness and Lifelines

Whenever any associate is exposed to the hazard of falling six feet or more (10 feet on a scaffold), he must wear a serviceable safety harness and lifeline adequately secured to a fixed support. This will be so arranged that he cannot fall freely from a vertical distance more than three feet. This included any associate working on open steel, swing stages, suspended scaffolds, platforms without proper guarding, etc.

- When working on a swing stage or elevated device, the lifeline must be secured to a structure separate from the stage or elevating device.
- All harnesses, lifelines and lanyards are to be inspected before use for fraying or other weak spots. Any defective item must be replaced before using.
- Safety body harness must be in good condition and the "D" ring must be placed in the back.
- Bolts, shackles, safety snap hooks, "D" rings and metal links which connect parts of the lifeline system to each other should be properly inspected and maintained at all times.

- Safety body harness and lifelines are required on all work performed in confined spaces where an oxygen deficiency or toxic vapors may exist.

Back Support Harnesses

When any associate is required to move or lift any materials, dollys, forklifts, pallet jacks, back harnesses, and proper lifting techniques should be utilized. Proper lifting techniques are taught to all associates during training sessions and are as follows:

- Put on a back harness support
- Get a good footing on a solid surface
- Place one foot alongside and the other behind the object
- Squat down beside the object keeping your back as straight as possible
- Tilt the object and firmly grasp at the bottom center
- Draw the object close to your body and lift slowly by straightening your legs
- Do not lift more than you can carry. Get help with bulky or heavy loads.

ATTACHMENT N CONFINED SPACE ENTRY REQUIREMENTS

A confined space is defined as a space or work area not designed or intended for normal human occupancy, having limited means of egress, but may be bodily entered. Examples include tanks, vats, and basements. Confined spaces will be identified during site preparation and during site activities as they are discovered. At this time, confined space entries are not anticipated for this project. If work tasks or work areas are identified as confined spaces, this HASP must be amended.

Type of Confined Space	Location
To be determined	Not applicable

The FPM will not allow a confined space to be entered until OSHA Regulations 1910.146 requirements are met, the Health and Safety Director is notified (Don Self 972.580.1323,) and all components are met and completed on Table 13.2 - ENTACT Required Confined Space Entry Permit, including the arrangement for a stand-by rescue service to be available. See the ENTACT Comprehensive Health and Safety Manual for confined space procedures.

REQUIRED CONFINED SPACE ENTRY PERMIT

ENTACT Job Name and Number:	Date:
ENTACT FPM:	ENTACT HSO:
Phone:	Phone:
Other Contractor(s)	
Contractor:	Name/Phone:
Contractor:	Name/Phone:

Location And Description Of Permit Space To Be Entered	
Purpose Of Entry	
Date of entry:	Time of entry:

Authorized Entrant(s)	
Authorized Attendant(s)	
Atmospheric Tester(s)	
Entry Supervisor	
Name:	Signature:

Hazards Of Permit Space To Be Entered	
Physical:	Chemical:

Measures Used To Isolate The Permit Space And To Eliminate Or Control Permit Space Hazards Before Entry	
Special Precautions:	Personal Protective Equipment:
Lockout/Tagout	SCBA
Lines blocked or broken	Coveralls
Air flush (preliminary)	Face/eye protection
Air flush (continuous)	Footwear
Area security	Gloves
Escape harness	Respirator
Lifeline	Head protection
Tripod/hoist	Radiation dosimeter(s)

Communication (e.g. verbal, radio)	PID
Lighting	Other (specify):
Other (specify):	

Describe Alarm Systems

Describe Communication Method(s) and Equipment Used Between Attendant & Entrant

Air Monitoring Device Information				
Device	Sequence or Serial No.	Date Due for Calibration	Pre-Use Spot Check Performed By	Notes

Air Monitoring Data									
Date	Time	Sample By	Air Sampling Required for: % O2 >19.5 %	% LEL < 10%	CO ppm < 10 ppm	H_2S ppm <10 ppm	Stratification	Other	Notes

Rescue and Emergency Services:	Description and Location of Rescue Equipment:
Fire Department: 911	
Police Department: 911	
Hospital Phone and Address:	
ENTACT Emergency Contact and Phone:	Protocol to summon emergency and rescue services:
Client Emergency Contact and Phone:	

Additional Permits (such as Hot Work)			
Permit Authorization (must be signed before entry):			
Entry Supervisor's Signature		Date	Time
(Signature certifies that all precautions and equipment are in place and all atmospheric testing shows air acceptable for entry.)			
Permit Cancellation	☐ Work Complete	☐ Work Stoppage	☐ Other
Entry Supervisor's Signature		Date	Time

ATTACHMENT O LOCKOUT/TAGOUT

I. INTRODUCTION

The purpose of this program is to prevent accidents and injury associated with confined space entry, inspection, maintenance, and/or set-up of equipment, machines, or processes where unintentional start-up, or release of stored energy, product, or process material would be expected to cause harm to persons involved in such work, bystanders or property.

II. SCOPE

This program will apply to confined space entry, equipment maintenance, utility maintenance or other work involving energized equipment performed at ENTACT and covers all hazardous energy sources including, electrical, mechanical, pneumatic, hydraulic, steam and other similar sources.

Contractors/subcontractors performing work at ENTACT project sites will be informed of the existence of this program and its requirements. Contractors/subcontractors will comply with the provisions of this program, or provide to ENTACT in writing with an equivalent means of protection to persons/property in situations in which implementation of this program would be necessary prior to work beginning.

III. RESPONSIBILITIES

A. Health and Safety Department

- Develop and implement effective lockout/tagout procedures and training.
- Provide training and support to Project Managers, Field Project Managers, Health and Safety Coordinators, and associates regarding interpretation and implementation of the procedure.
- Conduct audits and inspections of project sites to assure program is being effectively implemented, where necessary. Periodic inspections will be performed by authorized associate that is not involved with procedure being inspected.
- Review program at least annually to assure it remains relevant to the operation of ENTACT project sites. Where lockout is utilized, the periodic inspection with each authorized associate will review their responsibilities under the energy control procedure being inspected. If tagout is used for energy control the inspection will review each authorized associate and the affected associate responsibilities under the energy control procedure being inspected.. Documentation of the periodic inspection will include the type of equipment the

energy control procedure was being utilized, the date of inspection, the associates included in the inspection and the authorized associate performing the inspection. After review is complete, any deviations or inadequacies that are discovered will be corrected by retraining associates involved with the procedure. All documentation will be forwarded to Entact Health and Safety Director for review.

B. Project Managers

- Designate a qualified and authorized person (Health and Safety Coordinator) to implement the lockout/tagout program.
- Provide supplies, equipment and site personnel to effectively implement this program.
- Notify contractors/subcontractors of the lockout/tagout program, allowing time for review, and answering questions regarding involvement of contractors/subcontractors in hazardous energy control situations.
- Enforce compliance with the requirements of this program.

C. Health and Safety Officers

- Evaluate work to be performed on equipment, machines and/or processes to determine when control of hazardous energy is required.
- Identify and designate qualified authorized persons to perform the tasks required in this procedure.
- Assure suitable restraining, security, and test equipment is available for control and measurement of hazardous energy.
- Conduct pre-work meetings with affected associates to discuss the work and their involvement.
- Provide training to ensure that the purpose and function of the energy control program are understood by associates authorized to do maintenance and that the knowledge and skills required for the safe application, use, and removal of the energy controls are acquired by the associates, as required by the lockout/tagout program. Authorized associates will be trained annually in the recognition of hazardous energy sources, type and magnitude of energy available in the workplace and the methods necessary to achieve energy isolation and control. Affected associates will be trained on the purpose and use of energy control procedures
- Training will include all associates whose work is or may be in the area of energy control procedure being implemented. Associates will be instructed on recognition of hazardous energy sources, methods and means to control energy, classification of workers and the prohibition relating to attempting to restart or reenergize machinery or equipment that has been locked out or tagged out.
- Training will provide in the instruction the limitations of tags. Tags are essentially warning devices affixed to energy isolating devices and will not

provide the physical restraint of a lock. Tags that are attached as energy isolating are not to be removed without authorization of the authorized person responsible for it, and it is never to be bypassed, ignored or otherwise defeated. Tags must be legible and understandable by all authorized associates, affected associates, and all other associates whose work is or may be in the area. Tags and their attachments must be made of material which will withstand the environmental conditions of the workplace. Tags must be securely attached to energy isolating devices so they cannot be inadvertently detached during use. Associates will be instructed on the false sense of security offered by tags, if their true meaning is not understood by all involved

- Provide retraining for other authorized and affected associates when there is a change in job assignments, machines, equipment or processes that present a new hazard, or when there is a change in the energy control procedures.
- Train associates in emergency evacuation and rescue procedures.
- Post warnings about the existence, location and danger of permit-required confined spaces.
- Coordinate energy control procedures among work crews when work is of a duration that energy control procedures must be confined to another shift.
- Coordinate energy control procedures between ENTACT and contractor/subcontractor when it has been determined that joint energy control procedures must be implemented.
- Assure that all persons included in an energy control procedure are present, or positively accounted for prior to restoring energy to a previously controlled energy situation.
- Conduct pre-work inspections to assure hazardous energy has been properly secured.
- Authorize commencement of work in hazardous energy control situations.
- Conduct post-work inspections to assure work in energy control situations has been property completed.
- Authorize removal of lockout hardware and restoration of energy to machine, equipment or process.
- Complete Lockout Permit.

D. Authorized/Qualified Site Personnel

- Perform work as directed by the Health and Safety Coordinator.
- Report unusual conditions as they pertain to control of hazardous energy to the immediate supervisors.
- Maintain hardware provided by ENTACT in a serviceable condition and ready for immediate use.
- Report absences to supervisor when the facility or job site must be left for any reason.
- Apply and remove energy control hardware assigned specifically to them.
- NOT removing lockout hardware assigned to others.

IV. DEFINITIONS

Affected Associate: An associate whose job requires operation/use of equipment, machine, or process, which is being serviced, maintained, or set-up under lockout conditions or whose job requires work to be performed in areas in which such work is being performed.

Authorized/Qualified Site Personnel: An associate who locks or implements a lockout procedure on machines, equipment, or processes to perform servicing, maintenance, or set-up upon that machine, process, or equipment. An authorized associate and an affected associate may be the same person when the affected associates duties also include performing maintenance or service on a machine, equipment, or process which must be locked out. The associate(s) will be able to demonstrate, by experience, training, or both, the ability to recognize potentially hazardous energy and its potential impact upon facility or conditions, and has the knowledge to implement adequate means and methods to control and isolate such energy.

Capable of Being Locked Out: An energy isolating device will be considered to be capable of being locked out, if it is designed with a hasp, other attachment or integral part, to which or through which, a lock can be affixed, or if it has a locking mechanism built in to it. Other energy isolating devices will also be considered to be capable of being locked out, if lockout can be achieved without the need to dismantle, rebuild, or replace the energy-isolating device or permanently alter its energy control capability.

Dissipate: For the inclusion within this program the terms dissipate and dissipation will always be related to energy control. It's meaning will be to cause energy to be spread out or reduced to a level tolerable to humans.

Energized: Connected to an energy source or containing residual or store energy.

Energy Isolating Device: A device that physically prevents the transmission or release of energy. Such devices may include, but not be limited to, the following:

- A manually operated electrical circuit breaker.
- A mechanical, electrical, hydraulic, or pneumatic disconnect switch.
- A slide gate.
- A slip blind.
- A line valve.
- Blocks.
- Similar devices used to block or isolate energy.

Energy Source: As used within this program the term energy source will be considered to be any of the following, either singly or in combination:

- Mechanical energy due to motion,
- Potential energy due to pressure, springs, or gravity,
- Electrical energy due to generated electrical current, static electricity, or residual stored electrical energy,
- Thermal energy from high or low temperatures,
- Chemical reaction energy.

Isolated Energy: Energy is considered isolated or blocked when its flow would not be reactivated by a foreseeable unplanned event. The term "isolate" means to set apart from others. The term "block" means an obstacle or obstruction; or, to make unsuitable for passage or progress by obstruction, to prevent normal functioning.

Lockout: The placement of a lockout device on an energy isolating device, in accordance with this procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

Lockout Device: A device that utilizes a positive means such as a lock, either key or combination type, to hold an energy isolating device in the safe position and prevent the energizing of a machine, equipment or process.

Residual Energy: Energy such as electrical, chemical, thermal or mechanical which is stored within a port, component, or subsystem of an equipment or process following shutdown of equipment/process. Examples of residual energy would be electricity in capacitors, tension in springs, or the potential energy of an unsupported suspended load.

Tagout Device: A prominent warning device capable of being securely attached to an energy isolating device that identifies the applier or authority who has control of the lockout, and contains information/instructions to prevent operation of an energy isolating device.

V. LOCKOUT/TAGOUT PROCESSES

To prevent the unintentional, unwanted activation of equipment, machines, or processes upon which ENTACT associates work, it is necessary to identify, locate, and control energy sources capable of activating such equipment, machines, or processes. The procedures contained within this program will meet this objective if applied effectively on a consistent basis.

These procedures are required when work must be performed upon equipment, which if inadvertently operated, could cause injury to persons, damage to property, or both.

The responsibility for effectively implementing the procedure is a joint supervisor /associate undertaking. Management will provide the means and direction to implement the program while affected associates must adhere to the provisions of the program. Only those associates

authorized by their immediate supervisors are permitted to perform duties requiring a lockout procedure.

VI. PROCEDURE

A. Lockout Preparation

It is necessary to completely evaluate energized equipment, which must undergo work to assure its energy sources are identified, located, and controlled prior to start-up of work. Preparations must be made to assure appropriate lockout hardware and test equipment is available to isolate energy and evaluate the effectiveness of energy controls. The following will be evaluated and documented on the Lockout/Tagout Permit by the Supervisor.

- Equipment, machine, process requiring work
- Scope of work
- Energy sources (Includes residual)
- Energy isolation devices
- Lockout devices
- Tags
- Test procedures
- Authorized persons

B. Pre-Work Safety Meeting

The supervisor responsible for the completion of the work will convene a pre-work meeting of all affected associates to discuss the job. The supervisor will review the information pertaining to the job as recorded on the Lockout/Tagout Permit. Associates will have the opportunity to ask questions about the work and to have them answered to their satisfaction before the start of work. Associates will sign the lockout worksheet to indicate their understanding of the work being performed, and their specific assignments. The supervisor will discuss the following items at the pre-work safety meeting.

- Equipment, machine, process to be worked
- Scope of work
- Anticipated duration
- Energy source(s). Includes residual
- Energy isolation device(s)
- Lockout devices
- Locks *
- Tags *
- Energy isolation test procedures
- Designation of authorized person(s)

*NOTE: These items will be distributed to associates implementing the lockout of

they are not in their possession prior to the start of the pre-work safety meeting.

C. Equipment, Machine, Process Shutdown

The equipment, machine, or process which must undergo work should be shutdown in an orderly manner so as not to create an additional hazard to associates in the work area. Shutdown should be accomplished as follows:

1. Inform affected associate(s) in the vicinity of the need to shutdown equipment, machine, or process.
2. Clear area in vicinity of work area if shutdown will present a known or potential hazard to bystanders.
3. Locate on/off switch.
4. Shutdown equipment, machine, or process.
5. If on/off or activation/deactivation controls are not energy isolation devices, locate these devices and place in an OFF position.
6. Supervisor, or authorized person(s), will then apply lockout device to prevent operation of the energy isolation device and secure the device with a lock. Each associate involved in the work should apply their own individual ENTACT issued lock with their name on it to assure a maximum level of protection is provided to the affected associates.
7. When lockout procedures must involve multiple crews, or groups of associates, application of individual locks may not be possible. When such conditions exist, the supervisor of each crew or group will apply a lock for their group. That lock may then be removed only by that supervisor, or the superior of the supervisor.
8. Tags bearing the legend "DANGER - EQUIPMENT LOCKOUT" will be affixed to the lockout device bearing the name of the person applying the device, the date, and the time.
9. An entry will be made on the Lockout/Tagout Permit indicating the date, time and persons applying, lockout device(s) to equipment, machine, or process energy isolation device(s).

D. Residual Energy

Residual, or stored energy, within a system, component, or part of an equipment, machine or process can present a greater hazard to associates than the primary energy source due to its sometimes “hidden” nature. To assure sources of residual energy have been identified, located, and controlled, the following diagnostic procedure will be followed:

1. Qualified, authorized personnel familiar with the equipment, machine, or process being worked will review instruction manuals, manufacturer’s literature, wiring diagrams and other available information to identify and locate sources of residual energy.
2. An appropriate method of controlling any residual energy will be selected and the suitable hardware obtained to implement the control. Residual energy controls may include, but not be limited to, electrical circuit grounding,

releasing pneumatic/hydraulic line pressure, allowing a suspended object to come to rest at ground level, relieving spring compression.

3. A lockout device will be applied and secured to the residual energy control. The control must stay in place throughout the duration of the job to prevent re-accumulation of the residual energy or because removal would permit residual energy to be transmitted to equipment, machine, process being worked.
4. A tag will be applied to the residual energy lockout device.
5. Application of the residual energy controls will be recorded on the Lockout/Tagout Permit with the time, date, and name of person(s) applying device(s).

E. Pre-Work Inspection/Energy Isolation Verification

Prior to releasing equipment, machine, process for work following implementation a lockout procedure, it is necessary to verify the effectiveness of the applied controls. This task should be performed by the work crew's supervisor. As an alternative, it may be performed by a qualified, authorized associate who has been designated by the supervisor and granted the authority to release the equipment for work, or to reject the lockout procedure as being unsatisfactory, based upon the outcome of energy isolation verification procedures. When lockout procedures must be implemented which involve multiple crews, the verification task should be performed by the supervisors of each work crew. The inspection/test sequence should be performed as follows:

1. Use Lockout/Tagout Permit to account for all personnel involved in lockout.
2. Clear points of operation of all personnel/material, which could be affected by start-up of equipment, machine, process.
3. Inspect energy isolation devices to assure they are in the off position, secured with locks, and appropriately tagged.
4. Inspect residual energy control devices to assure they are in place, secured with locks, and appropriately tagged.
5. Conduct any necessary testing of equipment, machine, process systems, components or parts to assure they are free of energy.
6. Attempt to operate energy isolation device, and observe equipment, machine, and process to assure it remains inoperative.
7. Attempt to operate equipment, machine, process controls. Observe to assure it remains inoperative.
8. Return activation controls to off position following testing.
9. If equipment, machine, process remains inoperative and testing indicates residual energy has been controlled, the equipment may be released for work by supervisor or designated qualified authorized person.
10. The date, time, and name of person(s) conducting the inspection(s) and test(s) will be recorded on Lockout/Tagout Permit.
11. Authorization to commence work will then be given to affected associates by

designated qualified, authorized associate.

12. If inspection/testing reveal inadequate control of primary/residual energy source(s), the immediate supervisor responsible for completion of the work will be contacted by person(s) performing testing prior to taking any further action. The inadequacy of the controls must be recorded on the Lockout/Tagout Permit with the date, time and name of person making the entry.
13. If it is necessary to safety test the equipment, clear away tools, remove employees from the area, remove the LO/TO device, energize the equipment and test. Next de-energize the equipment and re-apply LO/TO.

F. Release for Work

Upon completion of the necessary inspection and tests, the immediate supervisor responsible for completion of the work will release the equipment, machine, process to the authorized person(s) for completion of the work. The release for work will be performed as follows:

1. Supervisor will assure all required inspections/tests have been performed by checking Lockout/Tagout Permit entries.
2. Supervisor will assure all affected associates are aware of the release for work status of the equipment, machine, and process by verbally informing them and noting the communication on Lockout/Tagout Permit.
3. Supervisor will note on Lockout/Tagout Permit the date and time that the equipment, machine, process was deemed safe and able to be worked upon by authorized person(s).

G. Energy Restoration - Purpose

Upon completion of assigned tasks the authorized person(s) will inform supervisor that job has been completed. It will then be necessary to prepare the de-energized equipment, machine, or process for start-up and to restore energy in a manner which will minimize hazards to persons/property in the area. Energy restoration will be performed as follows:

1. Authorized person performing work will inform supervisor that assigned tasks have been completed.
2. Supervisors will use the Lockout/Tagout Permit to account for all personal involved in lockout procedure and work to be completed. (See H if all associates cannot be accounted for.)
3. Supervisor will instruct affected associates and others in area to remain clear of points of operation of equipment, machine, process.
4. Supervisor will inspect equipment, machine, process to assure points of operation are free of tools, debris, or other material which could be placed

into motion if equipment, machine, process were to immediately restart following restoration of energy.

5. Lockout serving residual energy controls will be removed by those who applied them.
6. Residual energy control devices will be removed by those who applied them.
7. Energy isolation lockouts will be removed by those who applied them.
8. Energy isolation controls will be removed by those who applied them.
9. Supervisor will again check area around equipment, machine, process to assure personnel are clear of points of operations.
10. Energy will be restored to equipment, machine, or process through activation of energy isolation device.
11. Proper operation of equipment, machine, or process will be verified by supervisor prior to releasing equipment, machine, process for routine use.
12. Tags will be removed from equipment, machine, or process following verification of proper operation.
13. Completion of work, removal of lockout devices, verification of proper operation, and release for routine use will be recorded on Lockout/Tagout Permit with date, time and name of supervisor or qualified authorized person responsible for completion of work.
14. Lockout/Tagout Permit will be retained in a permanent file available for inspection/audit. Such files may include maintenance job files or Health and Safety files.

H. Absent Associates and Group LO/TO

Accounting for associates involved in lockout procedures is required prior to removal of lockout hardware and re-energization of equipment to assure associates are clear of areas which could expose them to existing or potential hazards when equipment, machine, process is reenergized and tested prior to releasing it for routine operations. Should there be any associates who cannot be accounted for the supervisors responsible for completion of the lockout related work will initiate the following to attempt to locate the absent associate(s).

1. Lockout/Tagout Permit will be used to account for affected and authorized associate(s).
2. Supervisors will obtain a Lockout Absent Associate Notification Form.
3. Supervisor will record name(s) of absent associate(s).
4. Supervisor will instruct crew members as needed to search work area for absent associate(s) as determined by size and configuration of equipment, machine, process which has undergone lockout related work. Page associate over public address system if one is available.
5. Searchers will pay special attention to locations in which associate presence would result in physical harm through start-up of equipment, which is undergoing lockout.

6. When it has been established through a comprehensive search of the work area that the absent associate is not present and is incapable of being injured by start-up of equipment, machine, process the supervisor will dispatch an associate to contact the house(s) of the absent associate(s) and to search other outlying areas as needed.
7. Upon completion of the searches conducted in G if the associate(s) have still not been located, the supervisor will sign the Absent Associate Notification Form attesting to the conduct of the required searches and inability to account for absent associate(s).
8. The supervisor will appoint associate(s) in numbers dictated by equipment, machines, process which has undergone work to secure all possible points of access to prevent the absent associate(s) from returning to the area.
9. The supervisor will then release the equipment, machine, process for routine use providing all other conditions in paragraphs F and G have been fulfilled.
10. Copies of the Absent Associate Notification Form will be posted conspicuously in the work area.
11. Supervision of the area in which the equipment, machine, process are located will be informed of the absent associate(s) identity and that the associate(s) are to be prevented from entering the work area until they have been informed that the lockout is no longer in effect.

ENTACT associates utilize single owner LO/TO devices however, in the event a group LO/TO device is utilized overall responsibility must be given to a single authorized employee to ensure continuity of protection. Each crew, craft or individual will then affix their personal LO/TO device to the group LO/TO when they begin work. The individual LO/TO device will be removed upon completion of the task.

VII. DISCIPLINE

Effective implementation of this program is dependent on <u>all</u> affected associates complying with its provisions. All affected associates will be informed during training of the contents of this program that failure to abide by any of its provisions will be grounds for discipline which will be progressive up to and including discharge.

VIII. TRAINING

All affected, authorized associates will be trained in the provisions of this procedure prior to engaging in any lockout related work. Verification of an associate's training in the contents of this procedure will be performed before associate may be assigned to lockout created work. Training will be conducted annually for those associates who will be required to perform lockout/tagout procedures. Training will follow OSHA 29cfr1910.147 and will include energy control procedures, documentation, periodic inspection, associate training and retraining on new or modified equipment, associate

protection, application of energy control, release from lockout/tagout, testing of equipment, outside personnel, group lockout/tagout requirements.

ENTACT will provide retraining when there is a change in job assignment, machinery, equipment or process that introduce or create a new hazard or if the procedure itself is revised, and whenever inspections reveal inadequacies in the program or ENTACT has reason to believe that deviations from or inadequacies in the associate's knowledge of the program.

The training associates will receive will include:

- Safe application, usage and removal of the energy controls.
- Authorized Associates – recognition of hazardous energy sources, type and magnitude of the energy available in the workplace and the methods necessary to achieve energy isolation and control.
- Affected Associate – Instructed in the purpose and use of the energy control procedure.
- Other Associates whose work is or may be in the area are instructed about the procedure and about the prohibition relating to attempting to restart or reenergize machinery or equipment that has been locked out or tagged out.
- Tags are warning devices and do not provide physical restraint that is provided by a lock.
- Tags are not to be removed without authorization of the authorized person, bypassed, ignored or otherwise defeated.
- Tags must be legible and understandable by all personnel whose work is or may be in the area.
- Means used to attach tags must withstand the environmental conditions of the workplace.
- Tags may evoke a false sense of security and their meaning needs to be understood by all involved.
- Tags must be securely attached so that they cannot be inadvertently or accidentally detached.

IX. REVIEW

This program will be reviewed annually to assure it is relevant to ENTACT operations. It will be amended and redistributed when changes are made.

ENTACT GENERAL LOTO CHECKLIST	
Date:	Associate Performing Inspection:
Associate(s) Observed:	

	Check
Manufacturer/Model/Serial Number of Equipment or System:	☐
The general procedures for the various types of energy sources are as follows:	
Review the manufacturers literature and/or wiring and mechanical schematics to assure that all energy sources have been identified, otherwise, inspect the equipment/machine to identify all energy sources. During this inspection do NOT perform work near exposed energized circuits unless you are a person qualified to work on electrical systems, and do NOT put any part of your body in any area where moving parts may cause injury. If you are unsure of the hazard, STOP WORK and contact your supervisor for guidance.	☐
ELECTRICAL CONTROLS	
Isolate the machine or piece of equipment by using an electrical plug lock or by locking and tagging the disconnect switches. A special adaptor may be needed to LO/TO circuit breakers. Document where the LOTO are applied:	☐
Bleed any stored electrical energy to a "zero energy state". If this type of hazard is present, document here:	☐
Ensure that all power sources are LOTO by using a tester to check that all circuits are de-energized.	☐
PNEUMATIC CONTROL	
Release the pressure to reach a "zero energy state".	☐
Document where the LOTO are applied. LOTO the energy source(s).	☐
HYDRAULIC CONTROL	
Release the pressure to reach a "zero energy state".	☐
Document where the LOTO are applied. LOTO the energy source(s).	☐
FLUIDS AND GASES	
Evaluate all hoses and valves connecting to the system or equipment. Determine what type of fluid or gas may be present and, if necessary, obtain and review the Material Safety Data Sheet (MSDS) for the material. Take precautions as needed to protect you from exposure to any hazardous material that may be contained in the system. Contact your supervisor as needed for guidance.	☐
Close all valves on supply lines, and as necessary, bleed or drain the contents. Contact your supervisor as needed for guidance on proper disposal of the material.	☐

ENTACT GENERAL LOTO CHECKLIST	
If working on a pressurized system where valve leaks may re-pressurize the line, insert a blank or blind in the line.	☐
Use lockout valves, chains, and locks and tags at the isolating source. Document where the LOTO are applied, and document all related hazards:	☐
MECHANICAL CONTROL	
Release or block all stored mechanical energy. Be cautious of springs, tension, elevated mechanical arms or platforms that could lower, and other sources of energy that are not always obvious. If needed, restrain the system by inserting blocks.	☐
Document where the LOTO are applied. LOTO the energy source(s):	☐
Recheck all areas for potential sources of energy.	☐
Review the LOTO procedure with your supervisor if the procedure, the system, or the equipment is new or unfamiliar.	☐
Review the type and magnitude of the energy and the required controls.	☐
Inform all affected associates, and all other associates working in or entering the work area, that LOTO is to be performed. Instruct these associates that they must not attempt to start equipment that has been locked/tagged out, and that locks/tags must not be bypassed or removed.	☐
Shutdown the equipment/process/system.	☐
Locate the necessary energy isolating device(s) for the equipment/process/system and operate them to isolate them from the energy sources. Affix LOTO devices.	☐
Relieve all stored or residual energy and take appropriate measures to ensure the energy will not re-accumulate. Affix lockout/tagout devices as necessary.	☐
Verify that all sources of energy have been isolated and stored energy relieved after ensuring that associates are not exposed and before beginning work. Activate equipment or system controls in a safe manner to ensure that the equipment or system will not operate, and then deactivate the controls.	☐
Perform the servicing or maintenance.	☐
Replace all guards and safety devices. Remove all tools and equipment from the work site. Assure that all personnel are clear of the equipment.	☐
Notify all affected personnel that the system will be reactivated.	☐
Lockout/tagout devices are removed by the authorized associate(s) who installed the devices. Document this authorized entrant:	☐
LOCKOUT/TAGOUT DEVICE REMOVAL BY SUPERVISOR	
If it becomes necessary to remove a LOTO of an associate who is unavailable on site, the removal of this device must be done using the following procedure. • The supervisor must ensure that the associate who applied the lock or tag is <u>not</u> available at the workplace; and	

ENTACT **GENERAL LOTO CHECKLIST**
• The supervisor must make all reasonable efforts to contact the authorized associate to inform him or her that his/her lockout and/or tagout device has been removed; and, • The supervisor ensures that the associate is made aware that his or her lock or tag was removed before he or she resumes work at that worksite.
GROUP LOCKOUT/TAGOUT
When a lockout/tagout job involves numerous lockout/tagout devices and many associates, the group lockout/tagout procedures should be used.
CONTRACTORS
All contractors must comply with ENTACT and OSHA safety requirements.

LOCKOUT TAGOUT SAFETY PERMIT

SAFETY PERMIT	
DATE:	PERMIT ISSUED TO:
TIME ISSUED:	EXPIRATION TIME:
PURPOSE:	
DESCRIPTION OF WORK TO BE DONE:	

CHECKED PRECAUTIONS WILL BE OBSERVED	
☐ TAG & DISCONNECT ELECTRIC EQUIPMENT	☐ FIRE EXTINGUISHER AT SITE
☐ LINES BLINDED	☐ CONTAINS SPARKS
☐ VALVES CLOSED & TAGGED	☐ KEEP AREA FREE OF COMBUSTIBLES
☐ LOCKED OUT	☐ BARRICADE AREA
☐ LINES DISCONNECTED	☐ SHIELD ARC
☐ BLEEDERS OPEN	
PROTECTIVE EQUIPMENT REQUIRED	
☐ WEAR GOGGLES FACE SHIELD	☐ WEAR RUBBER BOOTS
☐ WEAR GLOVES RUBBER THERMAL	☐ WEAR SAFETY BELT & LINE
☐ WEAR HOOD ACID THERMAL	☐ WEAR RESPIRATOR DUST CHEMICAL
☐ WEAR SUIT RUBBER THERMAL	

OTHER PRECAUTIONS

APPROVALS	
ENTACT FIELD PROJECT MANAGER	DATE/TIME
ENTACT ASSOCIATE	DATE/TIME
SUBCONTRACTOR REPRESENTATIVE	DATE/TIME
Work must begin within ninety minutes of issuance of this permit. If the work is interrupted, the foreman, craftsman, or contractor must indicate equipment condition to operations foreman or operator when leaving job for more than two hours or when job is complete.	
❑ JOB COMPLETED	❑ JOB INCOMPLETE
THIS PERMIT IS TO BE KEPT ON THE JOB UNTIL WORK IS COMPLETED, PERMIT EXPIRES OR IS REVOKED	

ATTACHMENT P HEALTH AND SAFETY PLAN TEST

Project Name/Number:	FPM:
Your Name (please print):	Date:
Company:	
Score:	Corrected to 100%:

1. If a person's safety or the environment are at risk all on-site personnel are empowered, expected, and have the responsibility to stop their own work and

   a) the work of co-workers
   b) other contractors
   c) all of the above

2. Subcontractors will prepare their own HASP, which must

   a) Meet or exceed the requirements of ENTACT's HASP.
   b) Be reviewed by the Project Safety Officer before work begins.
   c) Include ENTACT's scope of work.
   d) a and b

3. All injuries will be reported to

   a) The Health and Safety Coordinator.
   b) A co-worker.
   c) The police.

4. The chemical hazards on this site are:

5. All ENTACT associates are required to

   a) Have OSHA 40-Hour HAZWOPER training.
   b) Have BBS 8-Hour training.
   c) Both a and b.

6. Tailgate meetings are held

   a) In the morning.
   b) at the end of the day.
   c) in the morning and afternoon.

7. The PEL for nuisance dust is

   a) PEL:15 total/5 resp mg/m^3
   b) PEL:25 total/10 resp mg/m^3
   c) PEL:35 total/15 resp mg/m^3

8. Name at least five of the physical hazards (non-chemical) that exist on this site.

9. Three (3) short blasts signal

   a) tailgate meeting time.
   b) the scheduled time for JTOs.
   c) an emergency.

10. An eye wash station will be located near the decontamination area but no more than _____ feet from the exclusion zone.

    a) 50
    b) 100
    c) 150

11. What level of PPE is required at this site?

a) Level D
b) Level D modified
c) Level C
d) Level B
e) Level A

12. Name at least three job tasks that will be performed on this site (other than mobilization and demobilization):

13. Who are ENTACT's project management team for this site?

a) Field Project Manager -
b) Health and Safety Coordinator -
c) Client representative –

14. Air monitoring is performed to determine associate exposure levels to

a) physical hazards.
b) airborne dust/heavy metals/organics.
c) biological hazards.

15. Name at least three biological hazards may be encountered at this site?

16. What is the name, address and phone number of the hospital for this site?

17. Where is the emergency meeting point(s) for this site?

18. What types of heavy equipment will be used at this site?

19. What types of JSA's are included in this HASP?

20. Journey management planning applies to ENTACT Associates and contractor/sub-contractors when on Company property or when using motor vehicles for company related business, including:

    a) Company-owned or leased vehicles
    b) Rental vehicles used on Company-authorized business
    c) Personal vehicles while being used for Company business
    d) all of the above

ATTACHMENT Q HOT WORK POLICY AND PERMIT

I. INTRODUCTION

The purpose of the ENTACT Hot Work policy is to eliminate or control potential ignition sources resulting from welding, flame cutting, soldering or similar activities which may produce flames or sparks.

II. DEFINITIONS

Hot Work. Any activity that produces sparks or flame such as welding, brazing, flame or plasma cutting, hot riveting, grinding, chipping, and soldering.

Qualified Individual. Personnel who have specific training, knowledge, experience or are certified as competent to carry out and oversee welding operations.

III. REQUIREMENTS

This policy fixes responsibility for the supervision and enforcement of a hot work permit system which includes work site, methods and equipment inspections as well as associate training and the issuance and use of personal protective equipment. The following standards are incorporated by reference into this Policy: The National Fire Protection Association (NFPA) Standard for Fire Prevention During Welding, Cutting, and Other Hot Work (NFPA 51B, 1999, Appendix A), the Occupational Safety and Health Administration (OSHA) Standard for Welding, Cutting and Brazing, Subpart Q (29 CFR 1910.251 inter alias), The OSHA Standard for the handling, storage, and use of compressed gases, contained in Subpart H, Hazardous Materials, 29 CFR 1910.101 inter alias, and the American National Standards Institute, Inc. (ANSI) Standard Z87.1-1989.

A. Enforcement and Supervision

- Field Project Managers will serve as, or will be responsible for designating a qualified individual(s) with the authority to issue a Hot Work Permit (HWP).
- Authorized personnel will be responsible for inspecting work sites where hot work activities are anticipated prior to issuing a permit. No hot work will be conducted until a permit is issued.

Safety Requirements

- A HWP will expire at the end of the shift during which it was issued.
- Authorized individuals will be responsible to ascertain that no hot work takes place half an hour before shift change and to thoroughly inspect, during this period, the area where hot work was conducted. In a multi-story building, this area will extend one floor above and below.
- Whenever circumstances permit, all hot work will be conducted within a designated area or at the site where hot work is normally done.
- No HWP will be issued at a site where a fire protection system impairment is known to exist while the system is impaired.
- No flammable or combustible materials will be allowed within 35 feet of a hot work site.
- If necessary, a metal guard, flame-proof curtain or cover will be used.
- No HWP will be issued and no hot work will be allowed in, on or near any vessel or container of flammable or combustible liquids or gases.
- No HWP will be issued and no hot work will be allowed in, on or near any vessel or container where flammable or combustible liquid or gas residue may be present.
- If it is not known, the determination of whether a flammable or combustible substance or residue is present will be made by the Field Project Manager, Health and Safety Coordinator, or the designated individual or company.
- No HWP will be issued for work to be conducted in areas where there is accumulation of ignitable debris, materials, furnishings, etc., or where other safety or fire hazards are present.

- Prior to issuing a HWP, the authorized individual will ascertain that a fire extinguisher of the appropriate type and size is readily available and accessible, and that a fire-watch attendant (a second person) will be present during the hot work activity to respond promptly should an incident occur.

- No HWP will be issued until all wall and floor openings within 35 feet have been covered or protected.

C. Equipment Inspection

The authorized individual(s), as defined will be responsible for the following:

- Gas cylinders will be properly secured at all times.

- Gas cylinders, valves, hoses, regulators, connections and torches will be inspected periodically and before each use for leaks, defects or damage.

- All electrical arc welding equipment will be grounded in a manner where the grounding connection can be observed by the operator and the attendant.

D. Education and Training

- All personnel involved in hot work will have the necessary training and skill to perform these tasks.

- Training sessions will be arranged and coordinated as required.

E. Field Project Manager, Health and Safety Coordinator, or Qualified Designee

- Determine, or arrange for determination, of the presence of flammable or combustible substance or residue.

- Coordinate training sessions as required.

- Conduct an evaluation of the procedures contained in this policy periodically and submit modifications to the ENTACT Health and Safety Director.

Hot Work Permit

This form will be completed daily whenever Hot Work is being conducted.
The signed form will be posted at the task location.

PROJECT NAME (& #): _____

DATE: _____ TIME: FROM_____TO_____
COMMENCES EXPIRES

TASK & LOCATION: _____

ISSUED TO: _____
WELDER / CUTTER SPOTTER

SITE SAFETY OFFICER: _____

SUPERVISOR: _____

No welding or cutting activities will commence without a completed and signed permit. Do not use open-flame or spark producing equipment until the following precautions have been taken and checked off on this permit. This permit not valid for confined space entry.

_____ The location where the work is to be done has been personally examined.

_____ There are no flammable dusts, vapors, liquids or unpurged tanks (empty) in the area.

_____ LEL reading _____% LEL (must be <10%) O2 reading _____% (must be <23%)

_____ All combustibles moved away from the operation, or otherwise protected with fire curtains or equivalent.

_____ Arrangements have been made to patrol the area for at least ½ hour after the work has been completed.

_____ Any available fire protection systems are in service.

_____ Ample portable fire extinguishing equipment on hand SIZE / TYPE :_____

_____ The phone number for the local FIRE DEPARTMENT is _____

Burn Protection Equipment Used (circle): HELMET SHIELD BOOTS GOGGLES JACKET SHIRT GLOVES APRON

The undersigned acknowledge their role and understand the necessary procedures to perform the permitted operations safely.

WELDER / CUTTER	SPOTTER

The undersigned approve this permit and authorize the work.

SUPERVISOR	SITE SAFETY OFFICER

ATTACHMENT R DAILY WORK PERMIT

Project:		Project No.:
Date:	Day:	Activity:

PERSONNEL				
Role	Name	Hours	Job Task	PPE Level

HAZARDS ANTICIPATED			ACTION TAKEN
Electrical Lines	☐ Yes	☐ No	
Fall Hazards	☐ Yes	☐ No	
Confined Space	☐ Yes	☐ No	
Trenching and Excavation	☐ Yes	☐ No	
Chemicals 1. 2. 3.	☐ Yes	☐ No	
High Pressure Air Lines	☐ Yes	☐ No	
Gas Lines	☐ Yes	☐ No	
Propane Lines	☐ Yes	☐ No	
Water Lines	☐ Yes	☐ No	
Hot Conditions (Weather)	☐ Yes	☐ No	
Cold Conditions (Weather)	☐ Yes	☐ No	
High Pressure Washing	☐ Yes	☐ No	
Other Hazards Identified 1. 2. 3.	☐ Yes	☐ No	

EXPLAIN ANY SPECIAL CONDITIONS AND WHAT HAS BEEN DONE TO ELMINATE HAZARDS OR RISKS:

FORMS COMPLETED TODAY
❑ Fall Protection
❑ Air Monitoring
❑ Hot Work Permit Completed
❑ Confined Space Permit Completed
❑ Heavy Equipment Inspected
❑ Demolition Form Completed
❑ Incident/Accident Report
❑ Monthly Safety Report

PPE REQUIRED TODAY			
Circle one:	Level D	Level C	Level B	Level A
Additional check:			
❑ Full Face	❑ Goggles	❑ Tyvek
❑ PAPR	❑ Face Shield	❑ Body Harness
❑ Special Filters	❑ Rubber Rain Gear	❑ Lanyards

OTHER SITE ACTIVITIES DAILY WORK SUMMARY:
LIST ANY INCIDENTS THAT OCCURRED TODAY:

PROBLEMS/DELAYS:

SPECIAL REQUESTS:

PM SIGNATURE H&S OFFICER SIGNATURE CREW LEADER

ATTACHMENT S SITE SECURITY CHECKLIST

Project Name & #:	Project Location:
Field Project Manager:	Admin Project Manager:
Date of Checklist:	Form completed by:
Project Start Date:	Anticipated Completion Date:

YES	ITEM / ACTIVITY	
	Property, trailers, and equipment are protected with a locked security fence. If "no", explain how you will prevent the public from having access to the site and equipment:	
	All ENTACT offices or trailers have secure locks on doors and windows. If "no", please explain:	
	All windows in ENTACT offices or trailers have window shades or blinds that can be closed when personnel have left the site.	
	All laptop computers and other portable electronic equipment are securely stored each night.	
	A security service is provided for the site. Please provide the security company's name, phone number, and hours of service at the site. Who is the ENTACT contact for the security guard? Security Company: _____ Phone Number: _____ Hours of service: _____ ENTACT Contact: _____ Home phone and pager: _____ If a security service is not used please explain the procedures to be used to protect ENTACT property after working hours:	
	All personnel entering the site or entering offices or trailers after working hours will sign-in noting the time entering and leaving.	

	Petty cash is locked up each night. The ENTACT associate responsible for petty cash is:	
	Keys for offices or support trailers are signed for and keys are returned if the associate is terminated from the site. Extra keys are not left outside the office or trailer.	

Heavy Equipment

Yes	Activity	No
	All heavy equipment is stored in a securely fenced area. If a fenced area is unpractical, please explain how heavy equipment is being protected. _____ Who is responsible to ensure the equipment is properly stored each night? Responsible associate: _____	
	Keys to heavy equipment are removed from the equipment each night and kept in a secured area. If not, please explain: _____	
	Equipment was inspected prior to use and pictures were taken to verify condition.	
	Equipment is inspected weekly and the findings are documented. (See Weekly Checklist for ENTACT Vehicles)	
	The type of work performed by ENTACT in most cases allows the use of used equipment instead of new equipment. On this project used equipment was leased.	
	Projects are instructed to immediately report any accidents or equipment damage to Don Self (972/580-1323) in Dallas within 48-hours of their occurrences. (See Vehicle and Equipment Damage Report)	
	All equipment (owned or leased) valued over $1,000 is listed on the vehicle and equipment sheet.	

Leasing Agreements

Yes	Activity	No
	Always read leasing agreements and understand what you are signing. Ensure the following is comparatively stated: Equipment lost or stolen will be replaced "like in kind". Example:_____ Used equipment will not be replaced with new equipment.	
	If negligence was *not* involved ENTACT will not be responsible for the *loss of use* of stolen equipment.	

Driving on Company Business

Yes	Activity	No
	Associates will be required to have an approved Motor Vehicle Record check. Associates must be approved by ENTACT's Health and Safety Department. (See Vehicle Policy)	
	The Project Manager will be responsible for ensuring that only approved drivers are allowed to drive company vehicles or personal vehicles on company business. (See Vehicle Policy)	

Extra Security

Yes	Activity	No
	Motion detection lighting is installed at the site.	
	An alarm system is installed on site. If "yes", what does it monitor and is it connected to a central monitoring service? Alarm system will monitor: _____ _____ Central monitoring service and phone: _____ _____	
	Other:	

ATTACHMENT T BBS TOOLS

JOB TASK OBSERVATION

Project Name and No.:			**FPM:**
HSO:			**Field Supervisor:**
Observer:			**Observation Date:**
Job Task Observed	**Field Area Work (job task):**		
	Office Area (job task):		
Location on the site where the observation took place:			
Number of Personnel Observed (individual, crew of #, etc.)	**ENTACT**	**Subcontractor: (name)**	**Other: (name)**

Listing	GOALS Ref. #	Safe	Concern	Comments
Personal Protective Equipment				
Hand Protection	1.1			
Eye & Face Protection	1.2			
Head Protection	1.3			
Foot Protection	1.4			
Hearing Protection	1.5			
Monitors (Air)	1.6			
Body Use & Position				
Line Of Fire	2.1			
Lifting/Pulling/Pushing/Carrying	2.2			
Walking – Eyes on Path	2.3			
Eyes On Work	2.4			
Ergonomics – PC Workstation	2.5			
Pinch Points	2.6			
Tools				
Tool Use/Selection	3.1			
Tool Condition	3.2			
Job Planning				
Pre-Job Inspection*	4.1			
Tailgate Safety Meeting*	4.2			
Work Permits	4.3			
Working Environment				
Walking/Working Surface	5.1			

Housekeeping	5.2			
Vehicle Operation				
Driving/Seat Belts	6.1			
Parking/Backing	6.2			
Safety Procedures				
Familiar w/Emergency Procedures	7.1			
Safety Reporting Requirements	7.2			
Safety Procedures	7.3			
Other				
	8.1			

*Ask questions to confirm.

GOALS Ref. #	Feedback Discussion	Solution Implemented

Tenants of Operational Excellence

We believe:

- All incidents are preventable.

Two Key Principles:

- Do it safely or not at all.
- There is always time to do it right.

We ALWAYS:

1. Operate within design or environmental limits.
2. Operate in a safe and controlled condition.
3. Ensure safety devices are in place and functioning.
4. Follow safe work practices and procedures.
5. Meet or exceed customer's requirements.
6. Maintain integrity of dedicated systems.
7. Comply with all applicable rules and regulations.
8. Address abnormal conditions.
9. Follow written procedures for high risk or unusual situations.
10. Involve the right people in decisions that affect procedures and equipment.

LOSS / NEAR LOSS INVESTIGATION

Incident Date/Time			
Loss Type	☐ Near Loss ☐ Theft ☐ Lost Workday Injury ☐ Restricted Duty Injury ☐ Vehicle Accident	☐ Near Loss (Potential Inj) ☐ Fire ☐ Notice of Violation ☐ Spill / Leak ☐ To Be Determined	☐ Equipment/Property Damage ☐ First Aid ☐ OSHA Recordable ☐ Third Party Injury / Fatality
Work Type			
Project Name and No.			
ENTACT FPM		**ENTACT HSO**	
Stop Work Authority Used	☐ Yes ☐ No		

Investigation Date/Time		**Investigation Supervisor**	

Employee Title		**Supervisor**	
Employment Status	☐Regular ☐Part Time	**How long in present job**	

Incident Location	
Incident Reported To	

Description of Incident / Near Loss (Describe what happened and how it happened)

Investigation Team	**Position/Title/Phone**	**Primary Contact**
		☐

	"5-Why" Investigation (there may be more than one root cause, may need 5-why m ore than once)		**Verification (visual, interviews, expert, written data, testing, etc.)**
A	Why did incident happen?		
B	Why did "A" happen?		
C	Why did "B" happen?		
D	Why did "C" happen?		
E	Why did "D" happen?		

Refer to Why Tree Handbook, page 18 for additional assistance on 5-Why Investigations. Use RSAF to ensure all root causes are identified.

Root Cause and Contributing Factors: (Describe in Detail Why Incident / Near Loss Occurred)	
1	
2	
3	
4	
5	

Explanation of Root Cause(s) Analysis Numbers (RCA No): *(Revised 8/28/07)*			
1	Lack of skill or knowledge (Associate does not have necessary understanding of proficiency to do the job - PERSONAL FACTOR)	5	Lack of or inadequate operational procedures (No work standards or incomplete work standards (SOP, JSA, etc.) - JOB FACTOR)
2	In the past, did not follow procedures or acceptable practices and no incident occurred (injury, product quality incident, equipment damage, regulatory assessment or production delay) (Associate thinks there is no personal benefit to following safe work practices - PERSONAL FACTOR)	6	Inadequate communication of expectations regarding procedures or acceptable practices (Work standards are in place, but supervisors haven't communicated with every employee to let them know what they're suppose to be doing - JOB FACTOR)
3	Doing the job according to procedures or acceptable practices takes more time/effort (Associate thinks it is easier and faster to get the job done rather than follow established safe work practices - PERSONAL FACTOR)	7	Inadequate tools or equipment (available, operable and safely maintained, proper task and workplace design) (Tools and equipment are not available, they're not designed to do the job properly, or they're not maintained and in proper working condition - JOB FACTOR)
4	Short-cutting procedures or acceptable practices is positively reinforced or tolerated (Supervisor either accepts, or positively reinforces associate to not do the job exactly the way it should be done - PERSONAL FACTOR)	8	External factors (Have taken all the necessary precautions to prevent the loss from occurring and still cannot prevent it)

BE SURE ROOT CAUSE AND SOLUTIONS MATCH			
	PERSONAL FACTORS	**JOB FACTORS**	**EXTERNAL FACTORS**
ROOT CAUSES	RCA1 – always include the word "training." If an employee or contractor doesn't know how to do the job, the recommended solution should be training. RCA2 – Lack of motivation - Include some significant communication between the supervisor and the employee about the personal consequences (not disciplinary action) to the employee physically if the employee continues to do the job contrary to work standards – this is telling the employee that he/she needs to understand the cost to him/herself or to others (such as family members) when his/her actions result in an injury. RCA3 – Lack of motivation – same RCA4 – Lack of motivation – same (Refer to Slide #38-39 of LPS Field Assist)	RCA5 – The solution should specify which steps the organization needs to take, such as developing or modifying work standards, communicating work expectations regarding standards, and providing proper tools and equipment. RCA6 – same RCA7 – same (Refer to Slide #38-39 of LPS Field Assist)	RCA8 – Even though the root cause may not be controllable, solutions should focus on minimizing loss when the situation occurs again. Make sure you have asked "why" enough to justify using RCA #8.

Item No	RCA No	Solution(s): How to Prevent Incident / Near Loss From Recurring	Person Responsible	Due Date	Date Completed	Verified/ Validated by First Line Supervisor

Results of Solution Verification and Validation

Injury or Illness Information			
Date of Injury or Onset of Illness			
Employee's Specific Activity			
Equipment, Materials, or Chemicals Used			
Specific Injury or Illness			
Treatment Provider Name & Address		**Phone No**	
Hospital Name & Address (if hospitalized)		**Phone No**	
Employee Missed Work? (other than day of injury)	☐No ☐Yes, first day absent was:		
Returned To Work?	☐No ☐Yes, first day back was:		
Others Injured?	☐No ☐Yes If yes, provide names:		

Third Party Incident Information			
Description of Damage			
Owner Name & Address		**Phone No**	
Witness1 Name & Address		**Phone No**	
Witness2 Name & Address		**Phone No**	

LESSONS LEARNED

ENTACT
JOB SAFETY ANALYSIS

Date:	Project # and Name:	FPM/HSC:	
Work Type (Task):			
Development Team:		Master ☐ Revision ☐ (maintain hard copies on site for audit)	Rev#:

Equipment / Tools / Materials Required	Personal Protective Equipment	Reason for JSA Revision

Step#	Job Steps	Potential Risks / Hazards	Critical Actions / Mitigation	Responsible Person
	Discuss emergency contingency plan (required)			

☐ Stop Work Authority – All on-site personnel are empowered, expected, and have the responsibility to stop their own work and the work of co-workers, or other contractors if any person's safety or the environment is at risk. NO negative repercussions will result from this action.
☐ Safety Tools – Site personnel are participating in the daily safety tools including JTR, JTO, NLI, and JSA.
☐ JSA Review – This JSA was reviewed after completion of the job. ☐ JSA adequately addressed the task, hazards, and mitigations. ☐ Changes to JSA are noted in Changes or Revisions section.

CONFIRMATION OF JOB SAFETY ANALYSIS REVIEW:

I have reviewed and understand the chemical and/or physical hazards, critical actions, and my responsibility and accountability to actively participate in JSA review and implementation steps.

Printed Name	Signature	Date

APPROVAL OF JOB SAFETY ANALYSIS:

I have reviewed and approve this version of the JSA.

FPM, HSC or Supervisor Printed Name	Signature	Date

CHANGES OR REVISIONS:

Date	Job Steps	Potential Risks / Hazards	Critical Actions / Mitigation	Responsible Person	Development Team Initials Changes

JSA Hazard Checklist

Potential Hazards

- ☐ Chemical Exposure
- ☐ Hazardous Atmosphere
- ☐ Confined Spaces
- ☐ Noise
- ☐ Working/Walking Surfaces
- ☐ Environment/Weather
- ☐ Arc/Flash
- ☐ Open Hole
- ☐ Other - _____
- ☐ Ignition Sources
- ☐ Pressure
- ☐ Lifting
- ☐ Overhead
- ☐ Falls
- ☐ Machinery
- ☐ Heat Stress
- ☐
- ☐ Fire/Explosion
- ☐ Spills
- ☐ Slips/Trips
- ☐ Chips/Slivers
- ☐ Pinch Points
- ☐ Hot Surface
- ☐ Simultaneous
- ☐

Hazard Controls and Emergency/Contingency Plans

- ☐ Personnel Protective Equipment
- ☐ Physical Barriers
- ☐ Safety Equipment
- ☐ Ignition Source Controls
- ☐ Lock Out Tag Out
- ☐ Required Work Permits
- ☐ Fall Protection/Open Hole Policy
- ☐ Other – Describe: _____
- ☐ Spill Control/Contingency Plan
- ☐ Fire Fighting
- ☐ Emergency Evacuation Procedures
- ☐ Eyewash/Safety Shower Location
- ☐ Material Safety Data Sheets
- ☐ Simultaneous Operations
- ☐ Hot Bolting Policy

Safety Equipment Required

- ☐ Hard Hats
- ☐ Safety Shoes
- ☐ Safety Glasses
- ☐ Face Shield
- ☐ Goggles
- ☐ Cotton Gloves
- ☐ Leather Gloves
- ☐ Rubber/Chemical
- ☐ Chemical Apron
- ☐ Other – Describe: _____
- ☐ Work Vest/Life Jacket
- ☐ Full Body Harness
- ☐ Double Lanyard w/ Shock
- ☐ Life Line
- ☐ Safety Cable
- ☐ Safety Barricade
- ☐ Caution Tape
- ☐ Clothing
- ☐ Work Permit
- ☐ Respirator
- ☐ Fire Extinguisher
- ☐ Fire Retardant
- ☐ Lock Out Tag Out Devices
- ☐ Gas Detector
- ☐ Hearing Protection
- ☐ Adsorbent Pads
- ☐ Containment Pans
- ☐ Proper Tools

CONTACT WITH – Will the task put you in contact with hazardous energy/materials-electricity, chemicals, heat, cold radiation, gases or fumes, water, steam, or poor air quality?	STRUCK BY – Can you be struck by moving objects, flying objects or falling material?
STRIKE AGAINST – Can you strike your body against stationary, moving, protruding, sharp or jagged objects?	CAUGHT IN, ON, OR BETWEEN – Can you be caught in, on, or between anything? Look for pinch points, protruding objects, moving and fixed objects.

SLIPS, TRIPS, OR FALL – Can you slip, trip or fall? Will the fall be to the same level or a lower level?	OVEREXERTION (LIFTING, PULLING, PUSHING) – Does the task involve lifting, pulling or pushing? Is there a possibility for over exerting or straining yourself? Is the job highly repetitive?

ATTACHMENT U SITE SAFETY INSPECTION AND END OF JOB EVALUATION

ENTACT HEALTH AND SAFETY
PROJECT SITE HEALTH & SAFETY INSPECTION AND EOJ EVALUATION FORM

Project Name & Number:	Date of Inspection:	
	Start Date:	Anticipated End Date:
Project Address:	FPM:	
Project Phone:	APM:	
Project Fax:	HSO:	
Project Coordinator:	QAQC:	

Inspection Scoring System (items not corrected by the end of the day of the inspection): • 5 items or less = A • 6 to10 items = B • 11 to 15 items = C • 16 to 20 items = D • More than 20 items = F	Inspection Score =

Positive Comments and Observations

Action Items and Responsible Personnel			
Action Item	Responsible Personnel	Due Date	Completion Date

Conclusion and Comments

	ACTIVITY REQUIRED	Yes	No	Corrected Same Day	Incomplete
ORIENTATION	**Orientation completed and documented (site history, site hazards, safety requirements).**				
	A. All site and incidental personnel have received site specific safety orientation prior to that person's exposure to the site.				
	B. All Subcontractors have received site safety orientation and meet safety qualifications (list subcontractors below, must be documented):				
	1.				
	2.				
	3.				
	4.				
	C. All visitors entering the work zone have received visitor orientation and are identified with a Visitor's Badge. Must be documented.				
	D. Truck driver orientation is complete and chemical hazards discussed.				
RECORDS	**All required and up-to-date records for associates and subcontractors are on-site.**				
	A. OSHA 40-Hour HAZWOPER training.				
	B. Behavioral Based (LPS) 8-Hour Initial training.				
	C. OSHA 8-Hour HAZWOPER Update.				
	E. Other specialized training (indicate type:)				
	F. Hazardous materials physical (medical clearance & respirator clearance).				
	G. Drug and alcohol test.				
	H. Motor Vehicle Record verified for all associates (email confirmation).				
	I. First Aid and CPR trained personnel are on site.				
	J. Respiratory Program and fit test completed.				
	K. Defensive driving certifications.				
	L. Medical Data and Emergency Contact sheet is current *(new form at job start up or < 1 year old)*				
	M. ENTACT H&S Filing System in place and functioning				
SIGNS AND POSTERS LOGS AND JOURNALS	**Posters and appropriate signage have been posted accordingly. Logs and journals obtained.**				
	A. Federal and state required labor posters.				
	B. Safety signs are posted around the project site as required.				
	C. Safe Performance Self Assessment (Job Task Review) poster.				
	D. Root Cause Analysis and Stop Work Authority poster.				
	E. Safety Incentive poster.				

	ACTIVITY REQUIRED	Yes	No	Corrected Same Day	Incomplete
	F. Emergency contacts and hospital route.				
	G. Health and Safety Plan, Project Journal, EZ & Visitor/Contractor Sign-In Logs, Daily Safety Meeting Log, Sampling Journal, etc.				
	H. OSHA 29 CFR 1910 and 1926 regulations are onsite.				

	ACTIVITY REQUIRED	Yes	No	Corrected Same Day	Incomplete
BBS AND REPORTING	**Weekly safety reports completed and forwarded to PHSC.**				
	A. Monthly Safety Report.				
	B. NLI with Root Cause Analysis process in place. V&Vs complete.				
	C. Incident investigation process established (Why Tree, etc.).				
	D. Process of sharing lessons learned and best practices (tailgate, etc.).				
	E. Project team understands client incident reporting process.				
	F. Job Safety Analysis (on major job tasks at the site, updated regularly).				
	G. JSAs adequately identify job steps, hazards and critical actions.				
	H. JSAs reviewed by associate performing work prior to beginning task				
	I. The Task Observation process utilized				
	J. Observations performed per requirements				
	L. Follow-up, communication, review Observation trends				
	M. Equipment and vehicle inspections are maintained on-site.				
	N. Monthly LPS/BBS spreadsheet submitted to Becky.				
PROJECT SET-UP	A. FPM/HSO has visited local clinic. Contact names and phone numbers, established minor injury requirements, and special medical services.				
	B. Background air monitoring completed and documented.				
	C. Exclusion, decon, and support zones are established and identified.				
	D. Overhead and underground utilities have been located, marked and discussed with the team, must be documented.				
	E. Hazard Communications area is established and MSDSs are on-site.				
	F. First Aid and CPR trained personnel are on site.				
	G. Respiratory Program and fit test completed.				
	H. Spill prevention plan and spill kit.				
OPERATIONS	A. During operations JSAs are developed and updated as required.				
	B. Documented inspections of heavy equipment and motor vehicles.				
	C. Decon area set-up and is being utilized.				
	D. Two daily tailgate meetings completed and documented each day.				
	E. Stop work authority discussed and encouraged.				
	F. Emergency drills performed.				
E K E E	A. Administration and decon trailers are cleaned daily.				

	B. Materials and equipment properly cleaned and stored, in good working order. Unusable items are marked and removed from service.				
	C. Equipment cabs are clean and free of debris and moving material.				
	D. Portable toilets properly sanitized.				
	E. Clear access to all fire extinguishers				
	F. All working platforms are clear of debris.				
	G. Trash containers are marked and appropriately stationed.				
	H. Soap, water and clean towels are available.				
	I. Walk areas are clear of debris or tripping hazards.				
	J. Break areas and eating areas are marked and kept clean.				
	K. Worksite left clean and usable.				
	L. Emergency ingress/egress routes identified, kept clear of obstructions.				

	ACTIVITY REQUIRED	Yes	No	Corrected Same Day	Incomplete
SUB CONTRACTORS	A. Subcontractor orientation complete and signed.				
	B. EMR, number of recordable injuries, incident rate, fatalities, and insurance requirements meet ENTACT's requirements and are complete and submitted to Health and Safety.				
	C. Adheres to all requirements in the ENTACT Behavior Based Health and Safety System Manual, the site specific Health and Safety Plan, orientation process, daily safety meetings, and any specific guidelines directed toward subcontractors.				
	D. Participates in daily tailgate meetings.				
PERSONAL PROTECTION EQUIPMENT	A. What level of protection is required on this site? A, B, C, D or combination?				
	B. Do associates understand why the level of protection is required?				
	C. Are associates wearing the required PPE? Requirements are enforced?				
	D. Have the associates been trained on PPE procedures, i.e. wearing, cleaning, replacing, storage.				
	E. Are upgrades to PPE utilized where needed, i.e. face shield when power washing.				
	F. Is contaminated PPE properly disposed of?				
	G. Are the appropriate filters used with respiratory equipment?				
	H. Are eye wash stations and/or emergency showers on-site and appropriately placed with signage?				
	I. Is hearing protection required and enforced around heavy equipment and/or noise levels exceeding 85 dBa?				
	J. PPE is inspected prior to use.				
LOCK-OUT / TAG-OUT	A. Is all machinery, equipment, or electrical services capable of movement required to be de-energized or disengaged and locked out during clearing, servicing, adjusting or setting up operations? Items are locked out and tagged. LOTO process is documented.				
	B. All stored energy (mechanical, hydraulic, air, etc.) has been released or blocked before equipment is locked out for repairs.				
	C. Are sufficient number of signs or tags and safety padlocks provided?				
	D. Is it required that only the associate exposed to the hazard is the only one to place or remove the safety lock?				
	E. Are associates required to keep personal control of their key while they have safety locks in use?				
	F. Are permits signed and saved?				

	ACTIVITY REQUIRED	Yes	No	Corrected Same Day	Incomplete
CONFINED SPACE	A. Was background air monitoring performed according to the appropriate sequence (O2, LEL, toxic materials concentration, and determine if continuous monitoring is needed) and documented?				
	B. Was ENTACT's confined space permit fully completed, posted, and saved, and procedures followed on all permitted confined spaces.				
	C. Was an Emergency Rescue Plan completed and set in place in case of an emergency and was rescue equipment made available?				
	D. Have all associates entering a permitted confined space received confined space training?				
	E. Is adequate illumination provided for the work?				
	F. Have entry supervisor, attendant, entrant(s), and rescue personnel been identified, trained, and understand their responsibilities?				
	G. Is the correct PPE being used including skin protection and respiratory?				
	H. Have confined space rescue team performed emergency drill?				
FALL PROTECTION	A. Slip, trip and fall hazards have been identified and eliminated from the site or are marked.				
	B. Ladders are in good condition.				
	C. Correct type of ladders, heavy duty Type 1, are being utilized.				
	D. Temporary stairs to trailers are on good condition.				
	E. Safety harnesses, connectors and lanyards are in good condition.				
	F. Rebar protection is being utilized.				
	G. Rescue and Post Fall Recovery Plans are available and are current.				
	H. Aerial lifts are being utilized and are in good condition.				
	I. Associates are properly trained in the use of aerial lifts.				
	J. Maintenance and inspections are completed for aerial lifts.				
	K. Tie-off points have a 5000-pound capacity for each associate tying off.				

	ACTIVITY REQUIRED	Yes	No	Corrected Same Day	Incomplete
HEAVY EQUIPMENT / TRUCKS	A. Heavy equipment inspected each day by operators and documented?				
	1. Noted deficiencies repaired in a timely manner.				
	2. Fire extinguishers located on equipment.				
	3. No eating, smoking or chewing while in the equipment.				
	B. Operators use 3-point mount and dismount procedures.				
	C. No eating, smoking or chewing while in the equipment.				
	D. Operator stops work if ground crew walks into swing radius of equipment.				
	E. All truck drivers have completed site orientation and Truck Driver Safety Orientation and have signed the orientation sheet. Drivers understand chemical hazards.				
	F. Truck routes and speed limit signs are posted and discussed in daily safety meetings.				
	G. Area for dump trucks to unload is properly marked and is level.				
	H. Use of cell pones is not allowed by the operator of moving equipment or vehicles.				
	I. Equipment is turned off prior to fueling.				
	J. Damage or incidents (requires drug and alcohol test- see Drug and Alcohol Policy):				
	1. Minor damage or incidents reported within 3 days of incident.				
	2. Major damage or incidents reported as soon as possible or not later than 24-hours of occurrence.				
	K. Operators are qualified to operate equipment. Documentation available.				
	L. Equipment is stored in a secure area when not in use.				
	M. Truck routes are maintained in good condition, are level, and are a safe distance from excavation site.				
	N. Weekly fuel tank inspections are complete and documented.				
	O. Inspection forms are sent to Ronnie Greer				
FLAMMABLES	A. Containers are labeled and stored according to Haz Com regulations.				
	B. Signs are posted.				
	C. Emergency spill procedures are in place and spill kit is available.				
	D. Portable fire extinguishers are placed appropriately.				
	1. Mounted off the ground.				
	2. 20 to 25 feet from bulk storage.				

	3. Proper size and type of fire extinguishers.				
	4. Map showing location of all fire extinguishers.				
	E. Monthly documented on-site inspection of each fire extinguisher and yearly outside inspection.				

	ACTIVITY REQUIRED	Yes	No	Corrected Same Day	Incomplete
EXCAVATIONS	A. Competent Person has classified soil conditions.				
	B. Excavation area is marked with fencing and signage.				
	C. Excavations greater than 4 feet deep, slopes are 1 ½ to 1 or 34%.				
	D. Excavated material set a minimum of two feet from the edge of excavation.				
	E. All overhead and underground utilities are marked.				
	F. Work, haul, and traffic areas are marked and organized for safe operation.				
	G. Spotters are used for trucks dumping material.				
	H. Work is stopped immediately if lightning is observed.				
	I. Equipment that must be removed by other equipment must use the appropriate rated strap (chains are not to be used).				
	J. Keys are removed from equipment at night and weekends or when not in use.				
	K. Operator wearing PPE designated in H&S Plan.				
	L. Excavation area is inspected by the Competent Person each day before work begins. Documented.				
DEMOLITION	A. Utilities are disconnected/de-energized.				
	B. Warning signs and barricades are in place.				
	C. Competent Person has surveyed the project. Documented.				
	D. Thorough communication takes place between all members of the demolition crew.				
	E. Proper engineering controls keep dust to a minimum.				
	F. All personnel are restricted from demolition drop areas.				
	G. Working above 6 feet off the ground appropriate fall protection is provided.				
	H. Open pits and open holes are marked and properly covered.				
	I. Hot work permit is complete and is being utilized.				
COMPRESSED GAS	A. Bottles are properly transported.				
	B. Valve Protection caps are in place.				
	C. Bottle carriers are utilized in trucks.				
	D. Oxygen cylinders are separated from fuel gas cylinders and combustibles by a distance of 20' or 5' high barrier with ½ hour fire rating.				
	E. Cylinders are in good condition.				
	F. Regulators are in good condition.				
	G. Hoses are in good condition.				
	H. Torches are in good condition.				
	I. Gauges are in good condition.				

	ACTIVITY REQUIRED	Yes	No	Corrected Same Day	Incomplete
VEHICLES	A. Only authorized personnel drive Company vehicles. MVR complete.				
	B. Vehicles are inspected prior to use and are in good mechanical condition. Documented and maintained on site for audit.				
	C. Vehicle interior/exterior is maintained in good condition. Smoking is now allowed in vehicles.				
	D. All vehicle incidents are reported to the Health and Safety Department in Dallas, Texas the day of occurrence. Reporting documentation is complete and submitted to Health and Safety Department in Dallas.				
	E. Required documentation is with the vehicle:				
	1. Current insurance card.				
	2. Current inspection sticker.				
	3. Current registration sticker.				
SAMPLING DATA AND EQUIPMENT	A. Personal air monitoring program is established and results are posted in the trailer.				
	B. Equipment is calibrated, clean and in good working condition.				
	C. XRF equipment is properly operated following SOP.				
	D. XRF is properly stored in a secure area.				
	F. Documented corrective action taken if readings go over action level.				
	G. Air sampling log is used for setup, operation, and results.				
	H. PID and PDR information downloaded and sent to PHSC.				
	I. All laboratory analyses forwarded to PHSC.				
PORTABLE (POWER OPERATED) TOLS AND EQUIPMENT	A. Are chainsaws, grinders, saws, power washers, water pumps, and similar equipment provided with appropriate safety guards?				
	B. Is power equipment used with the appropriate PPE and trained personnel?				
	C. Are electrical cords rated for use in good condition and ground fault interrupters (GFI) utilized on-site?				
	D. Are pneumatic and hydraulic hoses checked for deterioration or damage?				
	E. Energy source to equipment is disconnected when equipment is not in use?				
HOT WORK PERMIT	A. Permissible areas for hot work operations are being utilized.				
	B. Fire blankets are being utilized.				
	C. Fire extinguishers are available and are the proper rating.				
	D. Ventilation is being utilized.				
	E. A fire watch is being implemented.				

	F. Areas are being checked for combustibles in all directions for 35'.				
	G. Areas are being inspected ½ hours after completion of hot work.				
	H. Hot Work Permits are properly completed and saved.				

	ACTIVITY REQUIRED	Yes	No	Corrected Same Day	Incomplete
WASTE MANAGEMENT	A. Waste minimization procedures utilized.				
	B. Waste shipping papers (manifests, bills of lading) properly prepared and signed by authorized personnel.				
	C. Wastes properly labeled and accumulated while on site.				
	D. Proper shipping records maintained (manifests, bills of lading, weigh tickets, etc.).				
OTHER	A. HASP completed and at least one copy is on site.				
	B. Behavior Based Health and Safety System being utilized by FPM.				
	C. Site is using ENTACT's comprehensive operational policies and procedures for daily activities.				
	D. Where applicable, Short Service Employee and mentorship policy implemented.				
	F. Site emergency drills have been conducted.				

I have reviewed this safety audit and fully understand the recommendations and will make every attempt to correct them immediately.

	Signature	Date
Field Project Manager		
Site Health and Safety Officer		
Health and Safety Auditor		

(Use the space below if any response is indicated in the findings above.)

RESPONSE ACTIONS (& DATE):

	Signature	Date
Field Project Manager		
Site Health and Safety Officer		

ATTACHMENY V FIRE PREVENTION

I. INTRODUCTION

The purpose of this Fire Prevention Plan is to eliminate the causes of fire, prevent loss of life and property by fire, and to comply with the Occupational Safety and Health Administration's (OSHA) standard on fire prevention, 29 CFR 1910.39. It provides associates with information and guidelines that will assist them in recognizing, reporting, and controlling fire hazards.

ENTACT is committed to minimizing the threat of fire to associates, visitors, and property. ENTACT complies with all applicable laws, regulations, codes, and good practices pertaining to fire prevention. ENTACT's site specific Emergency Action Plan spells out the procedures for responding to fires. This Fire Prevention Plan serves to reduce the risk of fires at in the following ways:

A. identifies materials that are potential fire hazards and their proper handling and storage procedures;
B. distinguishes potential ignition sources and the proper control procedures of those materials;
C. describes fire protection equipment and/or systems used to control fire hazards;
D. identifies persons responsible for maintaining the equipment and systems installed to prevent or control ignition of fires;
E. identifies persons responsible for the control and accumulation of flammable or combustible material;
F. describes good housekeeping procedures necessary to insure the control of accumulated flammable and combustible waste material and residues to avoid a fire emergency; and
G. provides training to associates with regard to fire hazards to which they may be exposed.

II. ASSIGNMENT OF RESPONSIBILITY

Fire safety is everyone's responsibility. All associates should know how to prevent and respond to fires, and are responsible for adhering to company policy regarding fire emergencies.

Management

ENTACT's Corporate Health and Safety Department determines fire prevention and protection policies. Site Management will provide adequate controls to provide a safe workplace, and will provide adequate resources and training to its associates to encourage fire prevention and the safest possible response in the event of a fire emergency.

Plan Administrator

The Corporate Health and Safety Department will manage the Fire Prevention Plan for and will maintain all records pertaining to the plan. Site specific fire prevention plans will be administered by the Health and Safety Officer.

1. Develop and administer the fire prevention training program.
2. Ensure that fire control equipment and systems are properly maintained.
3. Control fuel source hazards.
4. Conduct fire risk surveys when required (see Appendix A) and make recommendations.

Supervisors

Supervisors are responsible for ensuring that associates receive appropriate fire safety training, and for notifying the Field Project Manager when changes in operation increase the risk of fire. Supervisors are also responsible for enforcing ENTACT's fire prevention and protection policies.

Associates

All associates will:

1. Complete all required training before working without supervision.
2. Conduct operations safely to limit the risk of fire.
3. Report potential fire hazards to their supervisors.
4. Follow fire emergency procedures.

III. PLAN IMPLEMENTATION

A. Good Housekeeping

To limit the risk of fires, associates will take the following precautions:

1. Minimize the storage of combustible materials.
2. Make sure that doors, hallways, stairs, and other exit routes are kept free of obstructions.
3. Dispose of combustible waste in covered, airtight, metal containers.
4. Use and store flammable materials in well-ventilated areas away from ignition sources.
5. Use only nonflammable cleaning products.
6. Keep incompatible (i.e., chemically reactive) substances away from each other.
7. Perform "hot work" (i.e., welding or working with an open flame or other

ignition sources) in controlled and well-ventilated areas and follow ENTACT Hot Work policy.
8. Keep equipment in good working order (i.e., inspect electrical wiring and appliances regularly and keep motors and machine tools free of dust and grease.
9. Ensure that heating units are safeguarded.
10. Report all gas leaks immediately. The Field Project Manager will ensure that all gas leaks are repaired immediately upon notification.
11. Repair and clean up flammable liquid leaks immediately.
12. Keep work areas free of dust, lint, sawdust, scraps, and similar material.
13. Do not rely on extension cords if wiring improvements are needed, and take care not to overload circuits with multiple pieces of equipment.
14. Ensure that required hot work permits are obtained.
15. Turn off electrical equipment when not in use.

B. Maintenance

The Field Project Manager will ensure that equipment is maintained according to manufacturers' specifications. ENTACT will also comply with requirements of the National Fire Protection Association (NFPA) codes for specific equipment. Only properly trained individuals will perform maintenance work.

The following equipment is subject to the maintenance, inspection, and testing procedures:

1. equipment installed to detect fuel leaks, control heating, and control pressurized systems;
2. portable fire extinguishers, automatic sprinkler systems, and fixed extinguishing systems;
3. portable fire extinguishers will be inspected monthly and annual maintenance performed (documented and records maintained on-site);
4. detection systems for smoke, heat, or flame;
5. fire alarm systems; and
6. emergency backup systems and the equipment they support.

TYPES OF HAZARDS

The following sections address the major workplace fire hazards and the procedures for controlling the hazards.

Electrical Fire Hazards

Electrical system failures and the misuse of electrical equipment are leading causes of workplace fires. Fires can result from loose ground connections, wiring with frayed insulation, or overloaded fuses, circuits, motors, or outlets.

To prevent electrical fires, associates will:

1. Make sure that worn wires are replaced.
2. Use only appropriately rated fuses.
3. Never use extension cords as substitutes for wiring improvements.
4. Use only approved extension cords [i.e., those with the Underwriters Laboratory (UL) or Factory Mutual (FM) label].
5. Check wiring in hazardous locations where the risk of fire is especially high.
6. Check electrical equipment to ensure that it is either properly grounded or double insulated.
7. Ensure adequate spacing while performing maintenance.

Portable Heaters

If utilized, all portable heaters will be approved by the Corporate Health and Safety Department. Portable electric heaters will have tip-over protection that automatically shuts off the unit when it is tipped over. There will be adequate clearance between the heater and combustible furnishings or other materials at all times.

Office Fire Hazards

Fire risks are not limited to industrial facilities. Fires in offices have become more likely because of the increased use of electrical equipment, such as computers and fax machines. To prevent office fires, associates will:

1. Avoid overloading circuits with office equipment.
2. Turn off nonessential electrical equipment at the end of each workday.
3. Keep storage areas clear of rubbish.
4. Ensure that extension cords are not placed under carpets.
5. Ensure that trash and paper set aside for recycling is not allowed to accumulate.

Cutting, Welding, and Open Flame Work

The Health and Safety Officer will ensure the following:

1. All necessary hot work permits have been obtained prior to work beginning.
2. Cutting and welding are done by authorized personnel in designated cutting and welding areas whenever possible.
3. Adequate ventilation is provided.
4. Torches, regulators, pressure-reducing valves, and manifolds are UL listed or FM approved.
5. Oxygen-fuel gas systems are equipped with listed and/or approved backflow valves and pressure-relief devices.
6. Cutters, welders, and helpers are wearing eye protection and protective clothing as appropriate.
7. Cutting or welding is prohibited in sprinklered areas while sprinkler protection is out of service.
8. Cutting or welding is prohibited in areas where explosive atmospheres of gases, vapors, or dusts could develop from residues or accumulations in confined spaces.
9. Cutting or welding is prohibited on metal walls, ceilings, or roofs built of combustible sandwich-type panel construction or having combustible covering.
10. Confined spaces such as tanks are tested to ensure that the atmosphere is not over ten percent of the lower flammable limit before cutting or welding in or on the tank.
11. Small tanks, piping, or containers that cannot be entered are cleaned, purged, and tested before cutting or welding on them begins.
12. Fire watch has been established.

Flammable and Combustible Materials

The Health and Safety Officer will regularly evaluate the presence of combustible materials at each project site (see Appendix D).

Certain types of substances can ignite at relatively low temperatures or pose a risk of catastrophic explosion if ignited. Such substances obviously require special care and handling.

Class A combustibles.

These include common combustible materials (wood, paper, cloth, rubber, and plastics) that can act as fuel and are found in non-specialized areas such as offices.

To handle Class A combustibles safely:

1. Dispose of waste daily.
2. Keep trash in metal-lined receptacles with tight-fitting covers (metal wastebaskets that are emptied every day do not need to be covered).
3. Keep work areas clean and free of fuel paths that could allow a fire to spread.
4. Keep combustibles away from accidental ignition sources, such as hot plates, soldering irons, or other heat- or spark-producing devices.
5. Store paper stock in metal cabinets.
6. Store rags in metal bins with self-closing lids.
7. Do not order excessive amounts of combustibles.
8. Make frequent inspections to anticipate fires before they start.

Water, multi-purpose dry chemical (ABC), and halon 1211 are approved fire extinguishing agents for Class A combustibles.

Class B combustibles.

These include flammable and combustible liquids (oils, greases, tars, oil-based paints, and lacquers), flammable gases, and flammable aerosols.

To handle Class B combustibles safely:

1. Use only approved pumps, taking suction from the top, to dispense liquids from tanks, drums, barrels, or similar containers (or use approved self-closing valves or faucets).
2. Do not dispense Class B flammable liquids into containers unless the nozzle and container are electrically interconnected by contact or by a bonding wire. Either the tank or container must be grounded.
3. Store, handle, and use Class B combustibles only in approved locations where vapors are prevented from reaching ignition sources such as heating or electric equipment, open flames, or mechanical or electric sparks.
4. Do not use a flammable liquid as a cleaning agent inside a building (the only exception is in a closed machine approved for cleaning with flammable liquids).
5. Do not use, handle, or store Class B combustibles near exits, stairs, or any other areas normally used as exits.
6. Do not weld, cut, grind, or use unsafe electrical appliances or equipment near Class B combustibles.
7. Do not generate heat, allow an open flame, or smoke near Class B combustibles.
8. Know the location of and how to use the nearest portable fire extinguisher rated for Class B fire.

Water should not be used to extinguish Class B fires caused by flammable liquids. Water can cause the burning liquid to spread, making the fire worse. To extinguish a fire caused by flammable liquids, exclude the air around the burning liquid. The following fire-extinguishing agents are approved for Class B combustibles: carbon dioxide, multi-purpose dry chemical (ABC), halon 1301, and halon 1211. (**NOTE:** Halon has been determined to be an ozone-depleting substance and is no longer being manufactured. Existing systems using halon can be kept in place.)

Smoking

Smoking is permitted only in designated areas. Certain outdoor areas may also be designated as no smoking areas. The areas in which smoking is prohibited outdoors are identified by NO SMOKING signs.

V. TRAINING

A qualified instructor will present basic fire prevention training to all associates upon initial assignment and at least annually thereafter, and will maintain documentation of the training, which includes:

1. review of 29 CFR 1910.38, including how it can be accessed;
2. this Fire Prevention Plan, including how it can be accessed;
3. good housekeeping practices;
4. proper response and notification in the event of a fire;
5. instruction on the use of portable fire extinguishers (as determined by company policy in the Emergency Action Plan); and
6. recognition of potential fire hazards.

Supervisors will train associates about the fire hazards associated with the specific materials and processes to which they are exposed, and will maintain documentation of the training. Associates will receive this training:

1. at their initial assignment;
2. annually; and
3. when changes in work processes necessitate additional training.

VI. FIRE EXTINGUISHERS

1. Portable fire extinguishers will be conspicuously marked and identifiable. Portable fire extinguishers will not be obstructed or obscured from view, and clear access to the portable fire extinguishers will always be maintained.
2. Portable fire extinguishers used for welding/cutting operations are not required to be secured at the location of the welding or cutting.
3. Portable fire extinguishers provided for vehicles will be mounted or otherwise safely secured.
4. Portable fire extinguishers will be inspected monthly, and the inspection documented on an inspection form.
5. Portable fire extinguishers will be maintained fully charged and operable at all times, and will be retested re removed from service before their hydrostatic test date.
6. Immediate corrective action will be taken for portable fire extinguishers identified as having a deficiency (e.g., empty, not mounted or missing, broken seal, etc.).
7. Associates will receive general fire extinguisher training. This training is provided as follows:
    a. On initial employment
    b. Annual refresher training for associates who may use a portable fire extinguisher
    c. Annual hands-on training for associates who may use a portable fire extinguisher as part of an emergency action plan or a fire watch (such as for welding/cutting operation).
8. Portable fire extinguishers will be inspected monthly (documented) and have annual maintenance.

VII. FIRE EXTINGUISHER PROCEDURE

There are four things to remember when it comes to using a fire extinguisher:

1. Use Your Judgment
2. Communicate
3. Ready the Extinguisher
4. Use It

You must also know what to do if your efforts fail.

A. **Use Your Judgment** --When you see smoke or fire you should use your own good judgment before you decide to extinguish the blaze. Ask yourself these questions: Is the fire limited in size and spread? Will you have an escape route if something goes wrong? Do you know the location of the nearest fire extinguisher?

If you are confident the fire is controllable and your safety is ensured, attempt to

put it out. If the answer to any of these questions is *no*, evacuate the area immediately.

B. **Communicate** -- Once you have decided to extinguish the blaze, make every reasonable attempt to tell at least one other person what you are doing. This person should report your activity to someone else as soon as possible.

C. **Ready the Extinguisher** --You must select the proper extinguisher. Fire extinguishers are classified according to the type of fires they extinguish. It is very important to use the proper extinguisher. Some extinguishers are rated for more than one class. Some are for only one type of fire. Just be sure the extinguisher you're using is rated for the fire you're extinguishing:

Types of Fire Extinguishers

Class A: Use on ordinary combustibles such as wood, cloth, paper, rubber, and many plastics.

Class B: Use on flammable liquids such as gasoline, oil, grease, tar, oil-based paint, lacquer, and flammable paint.

Class C: Use on energized electrical equipment including wiring, fuse boxes, circuit breakers, machinery, and appliances.

Class D: Use on flammable solids such as magnesium.

Class K: Cooking oils and greases.

Quickly but carefully remove the extinguisher from its mounting bracket. It may be heavy, so use caution when lifting it.

Stand about six feet from the fire.

Extend the nozzle toward the fire.

D. **Use It** --Once the extinguisher is ready, you are ready to release the extinguishing agent. This must be done properly. For example, if you squeeze the handle before you have aimed the nozzle properly, valuable time and extinguishing agent will be wasted.

VIII. NFPA TECHNIQUE (P.A.S.S.)

A technique to remember for using an extinguisher is published by the National Fire Protection Association (NFPA). It is known as the **P.A.S.S.** *Technique*.

The **P.A.S.S.** Technique:

- **Pull** out the pin that secures the handle.
- **Aim** the extinguisher nozzle at the base of the fire.
- **Squeeze** the handle. (Do not be startled by the noise or velocity of the agent as it is released.)
- **Sweep** the agent stream from side to side across the base of the fire until it is completely out. Be alert for re-ignition. If this happens, douse the fire until the extinguisher is empty.
- Once the fire is out, back carefully away from the scene. This will enable you to know immediately if the fire re-ignites.

Knowing how to use a fire extinguisher the right way is an important skill. Sometimes, though, in spite of your best efforts, your attempt may fail. The last point to remember about using a fire extinguisher is what to do if your efforts fail. It is really quite simple. If you cannot extinguish the blaze or it recurs repeatedly, **evacuate the area immediately**.

The best time to familiarize yourself with potential fire hazards in your work area is before a fire happens. Knowing the hazards that exist, and what types of fires could occur are critical skills to working safely. You can also use this knowledge to make sure the proper type of fire extinguisher is available should the need arise.

IX. PROGRAM REVIEW

The Corporate Health and Safety Department will review this Fire Prevention Plan at least annually for necessary changes.

ATTACHMENT W BEHAVIOR BASED SAFETY: WRITTEN PLAN

Purpose

ENTACT is committed to operating incident free. ENTACT's most valuable resource is its employees. Protecting the members of our team has been and will always be priority number one. Promoting safety at work and empowering employees to be involved in the process has always been our goal. The key to preventing injuries is to be proactive. A behavior-based safety program is built around observing at-risk behaviors and replacing at-risk behavior with safe behavior and work practices. All employees at a ENTACT site will exercise the right to stop work if an unsafe act is occurring or perceived to be occurring. There is always time to discuss the act and come to a consensus to proceed in a safe manner.

Administrative Duties

The ENTACT Project Safety Coordinator, H&S Officer, and the Field Project Manager, is responsible for developing, amending and maintaining the written behavior-based safety program.

Corporate Performance Goals

The following corporate level goals for our behavior-based safety program are:

- Reduce personal injures.
- Reduce vehicle accidents at work and away from work.
- Complete participation from all employees, regardless of position or level.
- Observe, analyze, and reward safe work practices.
- Ensure that each division establishes and has the training to obtain its goals.
- Allow and encourage groups to discuss and achieve their own safety goals.
- Mandate that all employees actively participate in the program.

Theory and Implementation

There are two basic theories about people that are widely accepted in the psychology field. Theory X assumes that people do not like work and must be directed and or coerced into work. Theory Y assumes that people enjoy work, are committed toward achieving goals, and accept and need responsibility. A behavior-based program embraces the second theory and empowers employees to attain their goals. At ENTACT, we feel that people are motivated and we empower them to make decisions and advance themselves.

The focus of this company and its employees is to safely perform all tasks. Each task must be done safely or not at all. Employees will encounter situations where the "easy way" will save

them time, but at ENTACT the "easy way" is unacceptable. Our team believes that injuries are preventable, but prevention takes effort and we are willing and determined to protect our employees.

As part of our program:

- Each employee will set individual, departmental and participate in setting company goals
- ENTACT will provide training and mentoring to all employees

Safe Work Environment

ENTACT tries to provide a work environment free of hazards by:

- Ensuring channels of communication are always open (open door policy)
- Provide employees with communication devices, so that field personnel can up-channel information or questions
- Create an atmosphere where trust is paramount, because trust is essential to open communication

Even with channels of communication open, steps need to be taken to ensure the working environment is free of physical, chemical, and environmental hazards. Employees have the right to work in a hazard free workplace. To keep our workplace safe, we have programs and training in the following:

- Hazard communication (per 29 CFR 1910.1200)
- Hazard identification (per 29 CFR 1910.120)
- HAZWOPER certifications are maintained (per 29 CFR 1910.120)

Observation and Feedback

At the heart of behavior-based safety is observation of tasks. At ENTACT observations are to be conducted by all employees. The observer must be trained in the task in which they are observing. The observation record must illustrate how many listed behaviors were recorded. Every behavior is rated as safe or unsafe. Immediately following the observation appropriate personnel will discuss and provide feedback.

All observations are recorded and forwarded the job site trailer at 2210 W. Pine River Rd, Breckenridge, MI, 48615.

Feedback and guidance is the key to field corrections. Observers are instructed to **STOP WORK IMMEDIATELY** if a behavior could cause an injury. Observers must also provide positive feedback for actions that are done safe. Feedback needs to constructive. Feedback may

be negative or positive. When providing feedback, keep in mind that the goal of this program is to make the site safer for all personnel. Do not become condescending or authoritarian in tone or manner.

Evaluate and Record

ENTACT continually tracks information from the observations. Every month, ENTACT will update tables and do a trend analysis for all at-risk behaviors. The results of our observations will be shared with all personnel working on the project. ENTACT will also do a quarterly analysis to assess the success of our safety program. Quarterly evaluations were being shared with all employees. The sharing of information will be continuous and not restricted to monthly or quarterly. Charts and graphs of at-risk practices will be posted and reviewed by all employees working on ENTACT projects.

Team Building

Teams are the building block of our behavior-based safety program. With a team structure, no single person is obligated to carry the program. Success of the program is based on the team ensuring that they meet there team goals. Each team will develop there goals, but each team is a working unit within the total program.

Roles and Responsibilities

Each employee is expected to be a professional and each professional is responsible for his or her own safety. Employees must accept this responsibility or the safety of everyone is at-risk.

ENTACT accepts the responsibility of implementing a behavior-based safety program and developing a culture that promotes and lives safety. The only way to meet our goals is to ensure that every employee receives and understand our goals. Training will be conducted to ensure that employees are knowledgeable in the plans and procedures of their company. All new employees will go thru a comprehensive orientation program and will be mentored.

New employee training will consist of:

Instruction will involve multiple types of media. Our training program is both classroom and field based. Training will cover the following topics:

- Definition of behavior-based safety
- Safety goals of the company
- Training on goals setting and productivity
- Hazardous communicate and hazard recognition
- A review of Standard Operating Procedures for all appropriate tasks
- Introduction to observation and feedback tactics

- How observations are evaluated
- Stop work authority
- A review of trends and at-risk behaviors
- The team philosophy
- Team training
- Roles and responsibilities within behavior-based safety
- OSHA HAZWOPER (initial or refresher)

Training is done either in-house or by an outside company. Training is lead by a competent person who is knowledgeable in the topic. All personnel are encouraged to conduct training sessions in their area of expertise. Employees are encouraged to be actively involved in their health and safety program.

All employees are mandated to conduct a formal observation of a co-worker once every two weeks for a total of two per month. These observations are the backbone of the behavior-based safety program. The observations will be recorded into a database, which will enable ENTACT to track at-risk behaviors. All data output will be discussed and or posted so that all employees can review the information.

ATTACHMENT X VISITOR ORIENTATION

VISITOR, VENDOR, OCCASIONAL WORKER, SUBCONTRACTOR ORIENTATION

Project Name:	Date:	
FPM:	HSO:	
Signed Visitor Log and received a Visitor badge.		☐
I acknowledge that eating, drinking, smoking and use of tobacco at non-designated areas is prohibited.		☐
I will stay with my assigned escort at all times. My escort is: _____		☐
I have reviewed the Health and Safety Plan and I am aware of the physical, chemical, and biological hazards that may exist at the project site. I will obey all safety signs, comply with all safety requirements as set forth in the HASP, and will report any unsafe condition(s) immediately.		☐
I have reviewed the site air monitoring plan.		☐
I have reviewed this list of site-specific hazards with the FPM and/or HSO and have discussed how I may come into contact with them. <u>SITE HAZARDS AT-A-GLANCE</u> CHEMICAL HAZARDS 1. 2. 3. PHYSICAL HAZARDS 1. 2. 3.		☐
I have reviewed and will comply with the visitor PPE requirements as set forth in the site-specific Health and Safety Plan. I have been provided the following PPE: □ Hard Hat □ Safety Glasses □ Gloves □ Hearing Protection □ Protective Clothing □ Half-Face Respirator w/ P-100 Filters □ Half-Face Respirator w/ Combination Filters □ Other:		☐
If I require access into the Exclusion Zone and Contamination Reduction Zone I have provided to the FPM/HSO the following certifications: OSHA 40-Hr HAZWOPER and current refresher, behavior based safety certification, current hazmat physical, current respirator certification and fit test.		☐
I have authorization to stop work and will report any unsafe acts, conditions, or Near Losses and Loss Incidents to the FPM.		☐
I have been shown and know the locations of first aid care, emergency phone numbers, MSDSs, first aid stations, eye wash stations (showers), fire extinguishers, restrooms, emergency evacuation procedures, and emergency meeting point.		☐
I have been show and know boundaries of all work zones (support, decon and exclusion zones).		☐
I agree to abide by ENTACT's Health and Safety policies. I understand that any violation of this Orientation and/or Health and Safety Plan requirements may result in my being dismissed from the project site.		
Name (Printed and Signature):	Date:	

Company:	
Orientation By:	Date:

ATTACHMENT Y COMPETENT PERSON EXCAVATION INSPECTION

COMPETENT PERSON EXCAVATION INSPECTION

Project Name & #:	Project Location:
Field Project Manager:	Admin Project Manager:
Inspection Date/Time:	Competent Person:
Weather Conditions:	

Checklist Item	Yes	No
Have all surface encumbrances been removed?		
Have underground/overhead utilities been located and marked?		
Have underground and/or overhead utilities been rendered non-hazardous? De-energized _____ Insulated _____ Other _____		
Do trenches have less than twenty-five (25) feet lateral travel between ladders?		
If excavation is a trench, do ladders extend three (3) feet above excavation edge?		
Is vehicular traffic eliminated near excavation? Are associates aware of traffic?		
Is there adequate fencing or barricades surrounding the excavation to limit worker access and provide fall prevention?		
Were atmospheric readings taken and recorded for oxygen deficient and hazardous atmospheres prior to associate ingress?		
Is any water accumulating in the excavation?		
Are pumps used to discharge water from the excavation?		
Are spoil piles (all rocks and soils) located two (2) feet or more from the excavation edge?		
Will excavating undermine the stability of adjoining buildings?		
Proper PPE (body harness, etc.) worn by associates?		
What is the slope of the excavation? _____		

Are any of the following potential hazards present? Vibrations __ Yes __ No Excess weight __ Yes __ No Temp. Changes __ Yes __ No Boiling __ Yes __ No Surface Water __ Yes __ No Tension cracks __ Yes __ No Heaves/bulging __ Yes __ No Spalling of soil __ Yes __ No (Any "yes" response requires corrective action and a reassessment of excavation slope.)		
Has rescue equipment been checked and is it easily accessible?		
All trenches 5 feet or deeper have approved bracing and shoring or an approved trench box or benched and sloped accordingly?		

ATTACHMENT Z JOURNEY MANAGEMENT PLANNING

Background

The first step of journey management planning is to "question the need for every trip." The journey management planning process is a simple risk assessment of the relative value of any proposed trip versus the inherent risk that making it presents. This planning process will ensure that all identified hazards are understood and managed and that unnecessary trips or those presenting an unreasonable or uncertain risk are not taken. Depending on the nature of company travel, this assessment may be something as simple as a driver asking themselves what route and time they will travel to a destination to a formal documented project journey management plan (JMP.)

Purpose

This document provides guidance and outlines requirements regarding journey management planning. Its purpose is to minimize the risk associated with motor vehicle use and transport. This document includes forms which should be used to prepare a JMP.

Scope

Journey management planning applies to ENTACT Associates and contractor/sub-contractors when on Company property or when using motor vehicles for company related business, including:

- Company-owned or leased vehicles
- Rental vehicles used on Company-authorized business
- Personal vehicles while being used for Company business

Journey management planning excludes multiple transport mode journeys where associated motor vehicle travel is less than 100 miles. Multiple transport mode journeys are those that include the use of, for example, a combination of personal vehicle, airplane, and rental car.

Definitions

All employees should categorize their business travel into one of the following categories:

Routine journeys: routine and repetitive driving tasks associated with short journeys (those less than 100 miles one way), familiar regions and terrain, and normal driving conditions (such as familiar roads, good weather, and owner's vehicle.) For example, travel to a local site for a weekly project meeting is a routine journey.

Non-routine journeys: driving tasks associated with extended travel distances (greater than 100

miles one way) or duration, unfamiliar regions or terrain, and unusual conditions (such as unfamiliar roads, bad weather, and use of a rental vehicle.) For example, mobilizing to a new project or area that is not familiar to the driver, either because of unfamiliar roads, wildlife, night driving, and bad weather is a non-routine journey. Such journeys may also require specific security and emergency response considerations as well as additional planning and controls.

Basic Operating Standards

All journeys, whether routine or non-routine, must comply with ENTACT's basic motor vehicle operating standards as follows:

- All vehicle occupants must wear safety belts (seatbelts and shoulder harness if provided)
- No vehicle shall be operated by a driver under the influence of drugs or alcohol
- Keep speed appropriate to conditions and follow all local laws and regulations
- Cellular telephone and 2-way radio use, in either the hand-held or hands free mode, by the driver of a motor vehicle is strictly prohibited while the vehicle is in motion
- Never operate a motor vehicle if you will exceed the "16 Hour Rule"
- Where practical, vehicles will be parked such that the first movement after inspecting and starting the vehicle is in the forward direction

16 Hour Rule

To minimize risk caused by fatigue, employees will not engage in driving if the journey requires them to exceed 16 hours of continuous duty in one day. For example, a 5 hour road trip at the end of 12 hour work shift can raise the risk of a crash due to fatigue to an unacceptable level. The driver should have adequate rest prior to the start of the trip.

Additional Requirements for Routine Journeys:
Employees on routine journeys should "question the need for every trip" by asking themselves the following:

- Is there an alternative way of achieving this trip's objective, such as using a courier or having a teleconference or net meeting? If the answer to this question is yes, the trip may not be necessary.
- Do I know the route to the destination well? Drivers should have a clear understanding of the best route to the destination in advance. If this is not the case, a better alternative may be to take a taxi or car service.
- Have I considered all environmentally related hazards for the route of travel? Weather conditions, road conditions, and traffic conditions present at the planned time of departure must be considered. Fog, rain, ice, or road construction present hazards that need to be accounted for by selecting an alternative route or delaying or rescheduling the trip.
- Must this journey be made at night? Driving at night increases risk substantially.

Consequently, extra caution is required. For night travel on routine journeys, consider what steps must be taken to minimize the risk. Actions such as decreasing speed, altering the route to well lighted streets, or delaying or rescheduling to arrive in daylight hours are possibilities.

Additional Requirements for Non Routine Journeys

All non-routine journeys require a formal journey management plan (JMP.) The JMP should address security concerns (if applicable) and emergency response issues. At a minimum, all drivers will inquire about the safest route of travel and notify their business contact and/or supervisor of travel plans and expected arrival time. Copies of completed JMPs should be included with the employee's or contractor's travel itinerary. Completed JMPs should be electronically sent to the destination location. Safe arrival should be confirmed within 4 hours of the estimated arrival time with personnel at the same destination location. Personnel at the destination location should notify the traveler's supervisor if the traveler fails to confirm safe arrival. Additional considerations are as follows:

- Security concerns that may be present on the planned route need to be addressed. For example, planned demonstrations, high risk crime areas, car jacking, and kidnapping are security concerns. If security is an issue for the journey, the JMP should address how that risk will be minimized. Carrying of weapons while on Company business is not permitted.
- Emergency response (ER) services, especially in remote locations may not be available. Arrangements for communication and support, such as cell phone, local 911 service, two way radio must be made. The local emergency response service is an appropriate answer in many cases, however, on some journeys; drivers need to be aware of the limitations and even existence of ER services. The best way to minimize this risk is by ensuring personnel at the destination location know the planned arrival time and what to do in the event the driver does not arrive or make contact.
- Night driving during non-routine journeys should be avoided except in the event of an emergency. The journey should be rescheduled to allow for daylight travel in all other cases.

Related Documents

Forms (provided on the following pages) have been developed to assist drivers and other affected Associates in complying with this journey management process. The forms include a Journey Assessment Form and Journey Management Plan. Also, a JSA (provided on the following pages) for driving passenger vehicles is applicable and required as part of the overall safety process.

Journey management planning requirements are in addition to other ENTACT requirements that appear in Section 9.0 and 10.0 of the Associate Handbook as well as the Driver Safety and Cell Phone Policies.

JMPs will be prepared in addition to site-specific Health and Safety Plans.

Journey Assessment Form

For use by: ☐ ENTACT Associate ☐ Contractor/Sub-contractor

Assessment developed by: _____ _____ _____

_____ _____ _____

Driving requirement: _____

Is this trip necessary?	☐ Yes	☐ No
Is there an alternative that does not involve driving?	☐ Yes	☐ No

If yes, by what means: _____

Basic Journey Steps

Was a JSA developed or revised for this driving task by employees from the site that will be involved in the task?	☐ Yes	☐ No
Does the JSA break the journey into steps necessary to accomplish the task and describe in "what" not "how" steps?	☐ Yes	☐ No
Are the journey steps numbered for reference?	☐ Yes	☐ No

Potential Crashes or Hazards

Are the hazards associated with each journey step identified by asking "what" driver action, condition, or event can lead to a crash?	☐ Yes	☐ No
Are potential health hazards identified (toxics, heat/cold, fatigue)	☐ Yes	☐ No
Are all potential crashes (struck by, line of fire, pinch points) identified with a corresponding solution or mitigation technique?	☐ Yes	☐ No
Are the potential crashes/hazards numbered for reference?	☐ Yes	☐ No

Safe Procedures and Behaviors

Are safe procedures and behaviors identified for minimizing or eliminating each identified potential crash or hazard?	☐ Yes	☐ No
Are the safe procedures and behaviors specific?	☐ Yes	☐ No
Are vague and general statements avoided?	☐ Yes	☐ No
Are the safe procedures and behaviors numbered for reference?	☐ Yes	☐ No

JSA Process Review

Was the JSA revised because the scope of work changed?	☐ Yes	☐ No

Does the JSA match the task to be performed? ☐ Yes ☐ No

Journey Management Plan

For use by: ☐ ENTACT Associate ☐ Contractor/Sub-contractor

Developed by: _____ _____ _____

_____ _____ _____

Task or Trip description: _____

_____

Is this trip necessary? ☐ Yes ☐ No
Is there an alternative way of achieving the trip objective? ☐ Yes ☐ No
If yes, how: _____

Destination: _____ Contact Phone Number _____

Vehicle	**Driver**	**Passenger**
_____	_____	_____
_____	_____	_____
_____	_____	_____

Departure Time: Estimated Time of Arrival:

Security Escort Required? ☐ **Reason:** _____

Weather ☐ Dry ☐ Windy ☐ Rain ☐ Snow ☐ Fog ☐ Icy ☐ Dust

Road Conditions ☐ Dirt Road ☐ Pot holes ☐ Paved Road ☐ Mixed Conditions

Driver Hours Work hrs _____ + Driving Hrs _____ = Total Hrs _____
(total hours may not exceed 16 hours in any day)

Communications ☐ Cell phone ☐ Two-Way Radio ☐ Other _____

Night Driving ☐ Yes ☐ No Is it essential? ☐ Yes ☐ No
Night driving controls (list) _____

Vehicle condition ☐ **Satisfactory**
Person responsible for the daily inspection of the (these) vehicle(s)? _____

Person responsible for preventive maintenance on the (these) vehicle(s)? _____

Documentation Check	Yes	No

Vehicle registration/license	☐	☐
Proof of insurance	☐	☐
Valid driver's license (or CDL as required)	☐	☐
Valid vehicle inspection (if required)	☐	☐

Journey Hazard Review

Step	Hazard	Mitigation
1	_____	_____
2	_____	_____
3	_____	_____
4	_____	_____
5	_____	_____
6	_____	_____
7	_____	_____
8	_____	_____
9	_____	_____
10	_____	_____

Comments:

Supervisor Approval _____ Date _____

Job Safety Analysis	
Field staff must review job-specific work plan and coordinate with project manager to verify that all up-front logistics are completed prior to starting work including, but not limited to, permitting, success agreements and notification to required contacts (e.g., site managers, inspectors, clients, subcontractors, etc.). Additionally, a tailgate safety meeting must be performed and documented at the beginning of each work day. Job Task Review (JTR) procedures must be used during field activities. Also consider weather conditions (heat, cold, rain, lightning).	
Date:	
Work Type:	Driving - Passenger Vehicle
Personal Protective Equipment (PPE) needed	
Safety Glasses	
Work Boots - Steel Toe, Leather	

Job Steps	Potential Hazard(s)	Critical Action(s)
Conduct JTR	• NLI/LI	Always conduct an JTR prior to start. • Assess the risk. What is the worst that could happen? • Analyze how to reduce the risk. Ask yourself what you could do to make the task safer. If you are uncertain, then ask someone who would know. • Act to ensure safe operations. Use the ideas and tools that make the task safer.
Perform Vehicle Inspection	• Vehicle failure • Incident or injury	• Check overall condition of vehicle. • Inspect tire condition and pressure. • Check all fluids. • Check head lamps, turn signals, and back up lights. • Clean mirrors and windows. • Inspect the interior of the vehicle; including seat belts and gauges. Remove any clutter or items that may affect your driving or visibility. • Follow appropriate maintenance schedule for your vehicle. Verify insurance card, registration and inspection.
Pre vehicle entry	• Injury or incident. • Vehicle or property damage	• Before entering your vehicle, do a complete walk around. • Be sure that there are no persons or objects behind you or in your path. • Consider ground conditions. Is it wet or muddy? Could the vehicle become stuck or slide? • Consider weather conditions. Is there lightning, flooding or high winds?
Configure seating and	• Visibility • Sitting to far or to	• Adjust seating to a comfortable position and so that you can easily reach the pedals and steering wheel. • Adjust all mirrors.

Job Steps	Potential Hazard(s)	Critical Action(s)
controls and lock doors	close to pedals may effect reaction time in a stop, or have unexpected results during acceleration.	• Wear seat belt. • If you haven't operated this vehicle before, become familiar with all the controls and where every this is located in the vehicle. • Look for blind spots in your viewing area. • Refer to the owner's manual if necessary.
Starting Vehicle	• Unexpected vehicle movement. • Engine damage or failure	• Before starting, ensure that the vehicle is in park and the parking break is applied. • After starting, check all gauges for proper temperatures, pressures, etc.
Pulling away from parked area.	• Collision with other vehicles, objects or persons.	• Check mirrors and over the shoulder before pulling away. • Vehicle should be situated so the first movement is forward, however if backing, either use a spotter or blow horn to warn others. • Proceed Cautiously.
Driving	• Auto incident • Pedestrians • Foreign objects in roadway • Cross traffic • Mechanical failure • Becoming lost or disoriented. • Weather	• Always be alert while driving. • Plan your route, review maps before leaving. Stop in a secure areas if you need to review your map again. • NEVER drive under the influence of drugs or alcohol. If under medical treatment, consult your physician about side effects of medications. Inform H&S if you are taking any medications. • Never operate the vehicle if you are abnormally tired. • Obey all laws of the land as well as site procedures. Follow posted signs. • Be observant of pedestrians and other traffic around you. Be prepared to "expect the unexpected". You never know what someone else (or animals) might do. • Watch your gauges and listen to the sounds that the vehicle makes. If something doesn't seem right, pull over and check it out or call for help. • Continually check mirrors. Follow the 3 second rule for following in normal circumstances. • Leave adequate space between you and other when stopping. • Never use a cell phone or 2-way radio while driving. Save phone calls for when you are stopped. If you must take a call, pull off the road in a safe area away from traffic. • Reduce speed during hazardous circumstances. Pull off the road if necessary during bad weather.