

Engineering, Fire & Environmental Services

HEALTH AND SAFETY PLAN

For work to be performed at:

Exide Residential Lead Sampling Assessment Various Locations Surrounding the Former Exide Facility in Vernon, CA

Prepared for:

Department of Toxic Substances Control 800 Cal Center Drive Sacramento, CA 95826

EFI Global Project No. 9801100100

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HEALTH AND SAFETY FORMS

Site Safety Checklist Daily Tailgate Safety Meeting Form



1.0 STATEMENT OF LIMITATIONS AND PROFESSIONAL CERTIFICATION

The information provided in this EFI Global Health and Safety Plan (HASP) is intended exclusively for the Department of Toxic Substances Control (DTSC). EFI Global is responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official view or policies of the DTSC. This HASP does not constitute a standard, specification, or regulation. The professional services provided have been performed in accordance with practices generally accepted by health and safety professionals practicing in this field. No other warranty, either expressed or implied, is made. As with all plans, there is no guarantee that this plan will identify all sources of health and safety concerns for this project.





2.0 INTRODUCTION

EFI Global has prepared this Health and Safety Plan (HASP) for subsurface investigation and assessment activities to be conducted in the preliminary investigation area (PIA) which encompasses multiple residential properties within a 1.7 mile radius around the former Exide facility (the Site, Figures 1 and 2). This HASP encompasses soil sample collection and X-ray Fluorescence (XRF) analysis of potentially lead contaminated media within the PIA utilizing hand auger equipment.

Investigation activities include boring advancement into soil for subsurface assessment, sampling and analysis at 325 residential and sensitive-use properties located near the former Exide Technologies (Exide) battery recycling facility in Vernon, California. This HASP outlines the scope of work to be completed and hazards which may be encountered during field activities on-site.

3.0 SITE DESCRIPTION

The former Exide Facility is located at 2700 South Indiana Street in the City of Vernon, California (Figure 1). This industrial property occupies approximately 15 acres, bounded by South Indian Street to the west, 26th Street to the north, Bandini Boulevard (Bandini) to the south, and industrial properties to the east. The facility was formerly used for lead battery recycling. The immediate surrounding area is industrial.

To determine whether off-site residential soils had concentrations of selected constituents that were greater than background or residential screening levels, Exide's contractors, Advanced GeoServices Corp. and ENVIRON International Corporation, conducted soil sampling at residential properties and two schools near the Site in November 2013. Additional soil samples were collected from a background area approximately 14 miles to the south of the facility.

4.0 SCOPE OF WORK

EFI Global's field scope of work will include the following:

- Utilizing a hand auger advance approximately 15 shallow soil samples to a maximum depth of 18 inches below ground surface (bgs) for soil sampling.
- Collect, homogenize and analyze on-site soil samples via X-ray Fluorescence.
- Collect and ship two samples to an offsite laboratory for analysis by EPA 6010B.
- Analyze painted surfaces and coatings on the exterior structure via X-ray Fluorescence
- Document site conditions in field logs.
- Dispose of Investigative Derived Wastes.

All borings will be advanced within the Site described above. This HASP covers the performance of the following activities: Boring, soil sampling and field XRF analysis.



5.0 EMERGENCY CONTACT INFORMATION

The following are emergency contacts designated for this project:

PARAMEDICS	911
POLICE	911
FIRE	911
SPILL	911
CALIFORNIA POISON CONTROL	1-800-222-1222
EFI Global Los Angeles Regional Office	(310) 854-6300
Shayan Simantob – Cellular Telephone	(310) 920-1230
Scott Myers – Cellular Telephone	(310) 430-0021
Steven Perez – Cellular Telephone	(310) 895-5184
Dennis Ironi – Cellular Telephone	(310) 430-4440
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6.0 NEAREST HOSPITAL INFORMATION

The preliminary investigation area (PIA) is divided into five sections, A, B, C, D and E (Figure 2). The nearest hospitals to the job site areas within each group are as follows. The routes to the nearest hospitals and turn-by-turn directions from the center of each group the job site are provided in Figures 3 through 7.

Group A, B and C

East Los Angeles Doctor's Hospital 4060 Whittier Boulevard Los Angeles, CA 90023 (323) 268-5514

Group D and E

Community Hospital of Huntington Park 2623 E Slauson Avenue Huntington Park, CA 90255 (323) 583-1931

7.0 ORGANIZATIONAL STRUCTURE AND RESPONSIBILITIES

In compliance with the California Code of Regulations, Title 8, Section 5192 (herein 8 CCR 5192), "Hazardous Waste Operations and Emergency Response," the following individuals are assigned specific responsibilities and lines of communication for the duration of this project. ALL Employees and workers on this project are expected to maintain vigilance at all times to ensure that the work is conducted in a safe and efficient manner.

7.1 CORPORATE HEALTH AND SAFETY OFFICER

Dennis Ironi will serve as the EFI Global Corporate Environmental Health and Safety Officer and has the responsibility and authority to oversee the development of this site Health and Safety Plan and to audit the equipment and training of involved company and sub-contractor employees to implement the Work Plan. He or his designated representative has discretionary authority to immediately suspend work until further notice.



7.2 **PROJECT MANAGER**

Shayan Simantob is the designated Project Manager for all operations on this project. He is responsible for overall administration of the project activities. His duties include project planning, communications, and coordination. He may also assist the Project Supervisor in the preparation of the Health and Safety Plan. The Project Manager reports to EFI Global's Health and Safety Officer.

7.3 **PROJECT SUPERVISOR**

Scott Myers is the designated Project Supervisor for this project and is responsible for verification and overall compliance with this Health and Safety Plan. Duties include, but are not limited to management of staff assignments for:

- 1. On site determination of appropriate levels of personal protective equipment (PPE);
- 2. Site surveillance, hazard identification, and health risk analysis;
- 3. Implementation of procedures and programs to eliminate risk to site personnel;
- 4. Implementation of site control measures;
- 5. Conducting daily Health and Safety meetings; and
- 6. Instructing all site personnel in the terms and conditions of this Health and Safety Plan.

7.4 SITE HEALTH AND SAFETY OFFICER

Steven Perez is the Site Health and Safety Officer and reports directly to the Project Supervisor or his designated representative. Through the Project Supervisor, he also reports to the Health and Safety Officer and the Project Manager.

7.5 **PROJECT LEAD PERSONNEL**

Project Lead Personnel are responsible for the organization and direction of select technicians and laborers to accomplish certain project tasks. They report to the Project Supervisor who assigns and schedules the work to be done on a day to day basis.

8.0 TAILGATE HEALTH AND SAFETY MEETING

Before work on this site begins, all involved field personnel will be briefed of this Health and Safety Plan. This briefing will be conducted by the Site Safety Officer or by a designated member of EFI Global's Health and Safety Department. This training will focus on the potential hazards present at the site and the safety and health procedures specific to this project. The training will include, but not be limited to, the following:

- Project Introduction and Orientation;
- Characteristics and Potential Hazards of Chemical and Physical Dangers on Site;
- Personal Protective Equipment requirements- function, care, and limitations;
- Emergency Response; and
- General Site-Specific Safety Concepts.

9.0 HAZARDS AND SITE CHARACTERIZATION

As required by 8 CCR 5192, "Hazardous Waste Operations and Emergency Response," all site personnel shall be aware of the nature, level, and degree of exposure likely as a result of participation in the work



described within the Scope of Work. All personnel shall be advised of these conditions before entering the project site.

9.1 **PHYSICAL HAZARDS**

Physical hazards for this project include working around homes and residential streets with use of handoperated soil sampling equipment, such as shovels and hand augers; XRF analyzer equipment; slips, trips, and falls; heat stress and vehicular traffic. Head, eye, ear, and foot injuries are possible and will be avoided by the use of modified level D PPE.

Potable drinking water will be provided to ensure that employees stay hydrated. Water will be provided from a third-party supplier of drinking water that is a municipal water source that has been treated through a 4-stage water filtration unit including a particle filter, activated carbon filter and reverse osmosis.

The work zones for the purposes of this plan are to be established by the Site Health and Safety Supervisor, and all work is to take place inside of those areas. Personnel inside of the work zones shall be limited when EFI Global is conducting Site evaluation activities. Only authorized EFI Global personnel, and its subcontractors, will be permitted within the work zones. Emergency shutoff switches will be identified prior to the start of work.

The scope of work includes hand augering, soil sample collection and XRF analysis activities. Potential risks associated with augering and soil sampling activities include the following:

- Overhead awareness of the auger extension while removing hand auger from the borehole.
- Loose materials and tools may fall onto workers within the work area, causing injury.
- Overhead awareness while working around homes. Please see Section 9.6 of this plan for further discussion on this topic.
- Trip hazards associated with uneven surfaces and holes.
- Heat stress.

Appropriate precautions must be taken to ensure the safety of personnel within the work area.

9.2 CHEMICAL HAZARDS AND HAZARDOUS MATERIALS ANTICIPATED

Based on historical site uses and known environmental contamination from the Exide facility, the chemical of concern that may be encountered during this scope of work is inorganic lead. It is possible, but unlikely, that workers may encounter hazardous levels of lead during drilling, soil sampling and handling of soil cuttings. Therefore, for the proposed scope of work, the potential exposure routes are dermal contact with potentially impacted soil; inhalation; and ingestion.

To reduce the potential for contact with hazardous materials, personal protective equipment will be used as detailed in Section 10: Personal Protective Equipment. At a minimum, as described in Section 10.5 Modified Level D, PPE worn by all on-site workers will include a sun hat, hard hat only when overhead hazards exist, high visibility vest, safety eye glasses and safety shoes / soft toe work materials.

In addition, intermittent air monitoring will be performed as described in Section 12.0: Breathing Zone Monitoring, and control measures will be taken as necessary to address potential risks associated with the inhalation of lead contaminated soils.

9.3 **BIOLOGICAL HAZARDS**

Several biological hazards may exist on the project site and will be identified prior to conducting work for each day during the site health and safety tailgate meeting.



9.3.1 BLACK WIDOW SPIDERS

Black widow spiders can be found in many dry dark covered areas in the Western United States including monitoring well cases and lids. A black widow spider bite feels like a pin prick followed by dull, numbing pain affecting the extremities and large skeletal muscles. No effective first-aid treatment for black widow spider bites exists and victims should immediately be taken to the care of a physician.

9.3.2 SNAKES

Western diamondback rattlesnakes exist as the predominant venomous snake in this area. Venom from rattlesnake bites generally affects the cardiovascular system and is considered life threatening. Although not anticipated due to the highly urbanized setting of the subject property, any persons bitten will seek immediate medical attention, using the route to the nearest hospital shown in the front of this HASP.

9.3.3 TICKS

Ticks are vectors of many diseases and poisonings. Symptoms and signs of exposure include anorexia, lethargy, muscle weakness, uncoordinated, irregular movement of the eyes, and ascending flaccid paralysis. The bites of some Ornithodoros ("pajaroello") ticks found in southwestern United States cause local vesiculation, pustulation, rupture, ulceration, and scab, with varying degrees of local swelling and pain. Ticks are best removed by slowly withdrawing the arthropod with forceps or other similar tool. Care should be taken not to leave the capitulum in the wound, as it may induce chronic inflammation or may migrate into deeper tissues and give rise to a granuloma (small or granular nodule of the skin). Pajaroello tick lesions should be cleaned, soaked in 1:20 Burow's solution, and debrided by a trained physician.

9.3.4 **DOG BITE PREVENTION**

Approximately 4.5 million dog bites occur each year in the United States. In addition to causing pain, injury, or nerve damage, dog bites can become infected, placing the bite victim at risk for illness or even death.

As the project involves working around residences, the following precautions will be taken to prevent dog bites:

- If a dog is present in the yard, do not enter without first speaking to the property occupant.
- Ask the property occupant to put the dog inside the house. Having the dog tied up or being told by the owner that the dog is friendly is not sufficient and the assessment will not be performed unless the dog is put indoors or removed from the property for the duration of the assessment.
- Unfamiliar dogs:
 - Do not approach an unfamiliar dog.
 - Remain motionless (e.g., "be still like a tree") when approached by an unfamiliar dog. Do not run, panic or make loud noises. Avoid direct eye contact with the dog.
 - Do not disturb a dog that is sleeping, eating, or caring for puppies.
 - Do not pet a dog without allowing it to see and sniff you first.
 - Immediately let your supervisor know about any stray dogs that are behaving strangely or aggressively.
- If bitten by a dog:
 - When you get to a safe place, immediately wash wounds with soap and water. Seek medical attention, especially:



- If the wound is serious (uncontrolled bleeding, loss of function, extreme pain, muscle or bone exposure, etc.).
- If the wound becomes red, painful, warm, or swollen, or if you develop a fever.
- If it has been more than 5 years since your last tetanus shot and the bite is deep.
- Because anyone who is bitten by a dog is at risk of getting rabies, consider contacting your local animal control agency or police department to report the incident, especially:
 - If you don't know if the dog has been vaccinated against rabies.
 - If the dog appears sick or is acting strangely.
 - If possible, contact the owner and ensure the animal has a current rabies vaccination. You will need the rabies vaccine license number, name of the veterinarian who administered the vaccine, and the owner's name, address, and phone number.

9.4 PERSONAL SECURITY

The project area includes working in neighborhoods that have higher than average crime rates. As such, the following actions are being implemented to protect employees from crime and potential violence:

- Employees must work in groups of two or more. No one should be working alone.
- All work is to occur during daylight hours. Night time hours are more risky.
- Be alert at all times.

9.5 ELECTRICAL HAZARDS

While performing the sampling, EFI Global personnel may come within close proximity to electrical lines, electrical panels or other wiring or electrical equipment. When working on or around electrically energized wiring, equipment, or panels the potential for electrical shock, fires, and burns can be minimized if proper work practices are maintained.

As a precaution, all electrical circuits will be treated as live until their condition has been verified. Treat even low voltages as dangerous. Inspect all electrical equipment and tools before each use. Inspect insulation, fixtures, switches, plugs, fuses, etc. Remove from service any faulty equipment and notify the source of the equipment. Do not work with electrical equipment with wet hands or standing in wet areas. Only a qualified electrician shall wire or install electrical systems.

Use lockout/tagout procedures whenever working on electrical equipment. When employees perform a service that requires a lockout or tagout, they shall coordinate all activities with the operator of the equipment or facility. The following actions should be performed to execute a lockout or tagout:

- Notify the appropriate site personnel;
- Shut down the equipment;
- Isolate the equipment;
- Apply lockout devices or warning tags; and
- Release stored energy to achieve a "zero energy state".

In the event that a rescue from electrical equipment is required, use the following precautions:

• Disconnect the circuit before attempting the rescue;



- Make sure you are standing on a dry surface;
- Use a dry belt, rope, coat, or other nonconductive material to loop over the victim and drag them away from the contact;
- Assess the condition of the victim; do not approach if they are still in contact with the circuit; and
- Apply first aid and/or CPR (if you are qualified) and get medical help by dialing 911.

9.6 **OVERHEAD UTILITY HAZARDS**

Minimum safe distances from energized overhead high-voltage lines must be maintained in compliance with the requirements of Cal-OSHA regulations (8 CCR 2946). Any overhead conductor shall be considered to be energized unless and until the person owning or operating such line verifies that the line is not energized, and the line is visibly grounded at the work site.

General Clearances Required from Energized Overhead High-Voltage Conductors

Nominal Voltage (Phase to Phase)	Minimum Required Clearance (Feet)
600 - 50,000	6
50,000 - 345,000	10
345,000 - 750,000	16
750,000 - 1,000,000	20

Boom-Type Lifting or Hoisting Equipment Clearances Required from Energized Overhead High-Voltage Lines

Nominal Voltage (Phase to Phase)	Minimum Required Clearance (Feet)
600 - 50,000	10
50,000 - 75,000	11
75,000 - 125,000	13
125,000 - 175,000	15
175,000 - 250,000	17
250,000 - 370,000	21
370,000 - 550,000	27
550,000 - 1,000,000	42

9.7 UNDERGROUND UTILITY HAZARDS

Prior to the start of any activities that require digging (i.e., drilling, excavation, etc.), the site will be inspected for potential hazards. This visual site survey will include an inspection for (1) overhead hazards and access constraints, and (2) any underground utilities or hazards that are identifiable by means of pavement cuts, drains, etc. In addition, utility maps and survey results from previous work, if available, will be reviewed to identify hazards.



As required by California law, DigAlert will be notified at least 48 hours before the start of field activities so that the owners of subsurface utilities can mark the locations of buried lines they have in the work area.

Information gathered during the site inspection will be used, along with the locations of marked subsurface utilities, to determine final boring/excavation locations.

9.8 TRAFFIC HAZARDS

When work is performed in high-traffic areas, such as roadways or parking lots, traffic patterns will be observed prior to work, and a safe zone will be established by delineating the work area with orange traffic cones or other indicators. These delineators will be set to caution drivers and prevent unauthorized vehicles from entering the work zone. In addition, site personnel will wear high-visibility safety vests and use care when exiting the work area and entering traffic.

In pedestrian areas, caution tape will be used to delineate the work zone and prevent unauthorized persons from entering the area. Workers and members of the public will be encouraged to use sidewalks whenever possible. If necessary, alternative walkways outside of the work area will be established using cones and caution tape, or signs will be placed to direct foot traffic to alternative walkways outside of the work zone.

9.9 NOISE HAZARDS

Noise hazards are not expected to occur during the sampling project (collecting soil samples in residential neighborhood using hand tools). However, if it is suspected that noise levels exceed Cal-OSHA's Action Level of 85 dBA, a properly calibrated noise meter or personal noise dosimetry shall be used to determine the noise levels. Measurements will be collected and/or evaluated by a Certified Industrial Hygienist.

If measurements indicate 8-hour time-weighted average (TWA) exposure levels over the 85-dBA action level, hearing protection in the form of ear plugs, or equivalent, will be made available nearby any noisy areas. All EFI Global employees and subcontractors must wear hearing protection (approved by a Certified Industrial Hygienist) if noise levels exceed the Cal-OSHA PEL of 90 dBA during an 8-hour work day or if a sound impulse exceeds 140 dBA. In addition, a Hearing Conservation Program will be provided and followed as required by 8 CCR Article 105.

The hearing protection must reduce employee exposures to an 8-hour permissible exposure limit (PEL) of 90 dBA as required by Title 8 CCR Article 105. Hearing protection types will be approved by a CIH.

If the noise meter is not available on the subject site and normal conversion is impeded by noise levels, personnel of EFI Global and its subcontractors will wear hearing protection until such time that the noise levels are properly evaluated and determined to be safe.

9.10 SOLAR RADIATION HAZARDS

Ultraviolet rays (UV) from the sun can damage the exposed areas of the skin and cause the skin to become hot or even burn. The American Conference of Governmental Industrial Hygienists (ACGIH) has established UV guidelines. Tanned individuals can tolerate skin exposure in excess of the threshold limit value (TLV) without experiencing inflammatory redness of the skin. However, such conditioning may not protect persons from exposure to skin cancer.

Personnel of EFI Global and its subcontractors working outdoors will be required to apply a sunscreen designed to protect the exposed areas of the skin from the sun. In addition, wearing hats that helps provide protection from the sun is recommended.



9.11 X-RAY FLUORESCENCE (IONIZING RADIATION)

All personnel must complete manufacturer's safety and operations training prior to use of the portable x-ray florescence analyzer (XRF). The XRF being utilized by the project is a Niton XL3T GOLDD and the manufacturer's training is being provided by Steven Gendel of Great Western Analytical Solutions.

The XRF unit produces ionizing radiation, when energized, by means of an x-ray tube. In order to minimize exposure to ionizing radiation, the principle of ALARA (as low as reasonably achievable) will be utilized. Exposure will be minimized by minimizing time and maximizing distance, as well as avoiding pointing the beam in the direction of other people in the vicinity.

When analyzing painted components on residential structures, the operator will select test locations in a manner that minimizes potential exposure to building occupants. Test locations can minimize potential exposure to occupants by placing the X-ray beam in a downward direction (i.e. top of window sill) or in a location where there is considerable shielding from building materials (foundation level walls and corners). If such test locations cannot be selected then the building occupant will be asked to vacate the area during testing.

10.0 SITE CONTROL MEASURES

Site control measures (as required by 8 CCR Section 5192, "Hazardous Waste Operations and Emergency Response") are required during the field sampling operations. Work areas will be closely monitored by the site health and safety supervisor.

Only those involved directly with the project and who have attended the site safety meeting will be allowed within the work area. Communications within the work area will be by verbal command. In the event of an emergency, an alert will be sounded with a vehicle horn or air horn. There will be no smoking or eating within work areas.

Site control is necessary to minimize the potential contamination of site workers, protect the public from physical and chemical hazards associated with the work, and protect site equipment from theft or vandalism. Work area boundaries will be established by the Site Health and Safety Supervisor to reduce the accidental spread of hazardous substances by controlling the movement of personnel in and out of the zones.

11.0 PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment (PPE) shall be selected and used to protect employees from hazards and potential hazards they are likely to encounter as identified during the site characterization and associated activities. The level of PPE protection will be increased should additional information or site conditions indicate that increased protection is necessary to reduce worker exposure below 10 ppm for volatile compounds. The level of PPE may be upgraded, but may not be reduced, by the site Health and Safety Officer. PPE is ranked from Level D (lowest level of protection) to Level A (greatest level of protection).

The designated PPE for all personnel in the work area is **MODIFIED LEVEL D** but can be upgraded as necessary. A description of the levels of PPE follows below:



11.1 LEVEL A

Level A PPE consists of the following equipment:

- A fully encapsulating, chemically protecting, positive pressure suit with full face piece and selfcontained breathing apparatus (SCBA) or positive pressure, supplied-air respirator with escape SCBA approved by NIOSH;
- Disposable outer suit (may be optional depending upon suit construction);
- Reflective safety vest;
- Inner and outer chemical resistant gloves;
- Chemical resistant boots with steel toe and shank; and
- Hard hat, and optional long underwear, coolant vest, and coveralls.

11.2 LEVEL **B**

Level B PPE consists of the following equipment:

- Positive pressure, full face piece SCBA or NIOSH approved, full face, positive pressure, suppliedair respirator;
- Hooded, chemical resistant, disposable coveralls and boot covers;
- Reflective safety vest;
- Inner and outer chemical resistant gloves;
- Chemical resistant boots with steel toe and shank; and
- Hard hat, face shield, coveralls and optional coolant vest and long underwear if applicable.

11.3 LEVEL C

Level C PPE consists of the following equipment:

- NIOSH approved full face or half mask air purifying respirator;
- Disposable, hooded chemical resistant coveralls;
- Reflective safety vest;
- Chemical resistant outer and inner gloves;
- Hard hat and boots with steel toe and shank; and
- Optional inner coveralls, chemically resistant boots, boot covers, face shield, escape mask, long underwear, and coolant vest.

11.4 LEVEL D

Level D PPE consists of the following equipment:

- Disposable nitrile gloves, face shield or ANSI 2000 protective eye glasses;
- Reflective safety vest;
- Hard hat and boots with steel toe and shank; and



• Eyewash kit will be available at all times.

11.5 MODIFIED LEVEL D

Level D PPE consists of the following equipment:

- Disposable nitrile gloves;
- Face shield or ANSI 2000 protective eye glasses;
- Reflective safety vest;
- Work boots (no steel toe required) with disposable boot covers;
- Sun Hat for UV Protection;
- Hard Hat for <u>select sites</u> when:
 - There is active construction taking place on-site.
 - One is working beneath an active work area
- Eyewash kit will be available at all times.

12.0 ENGINEERING CONTROLS AND WORK PRACTICES

Engineering controls and work practices used to protect site personnel from exposure to hazardous substances and health and safety hazards will include the following at a minimum.

12.1 Equipment

Construction equipment may be used during execution of the scope of work, and shall conform to the following conditions:

Proper use and care of tools is critical to the safety of Site workers:

- Only authorized persons shall operate equipment.
- All tools and equipment shall be maintained in good condition and inspected daily.
- Workers shall report all tools or equipment that are not working properly.
- Damaged tools or equipment shall be removed from service and tagged "DO NOT USE."
- Only appropriate tools shall be used for the job.
- Appropriate PPE shall be used when using tools.
- In locations where the use of a portable power tool is difficult, the tool shall be supported by means of a rope or similar support of adequate strength.
- Employees shall not work under vehicles supported by jacks or chain hoists without protective blockings that will prevent injury if jacks or hoists should fail.

12.2 Illumination

All project field activates will take place during daylight hours.



12.3 LADDER SAFETY

It is expected that employees will need to use ladders in the performance of the Scope of Work of this project. Falls from portable ladders (step, straight, combination and extension) are one of the leading causes of occupational fatalities and injuries. For this reason, the following ladder safety requirements are being enacted for this project:

- Never use a metal ladder where it could come in contact with energized parts of equipment, fixtures or circuit conductors.
- Read and follow all labels/markings on the ladder.
- Avoid electrical hazards! Look for overhead power lines before handling a ladder. Avoid using a metal ladder near power lines or exposed energized electrical equipment.
- Always inspect the ladder prior to using it. If the ladder is damaged, it must be removed from service and tagged until repaired or discarded.
- Always maintain a 3-point (two hands and a foot, or two feet and a hand) contact on the ladder when climbing. Keep your body near the middle of the step and always face the ladder while climbing (see diagram).
- Only use ladders and appropriate accessories (ladder levelers, jacks or hooks) for their designed purposes.
- Ladders must be free of any slippery material on the rungs, steps or feet.
- Do not use a self-supporting ladder (e.g., step ladder) as a single ladder or in a partially closed position.
- Do not use the top step/rung of a ladder as a step/rung unless it was designed for that purpose.
- Use a ladder only on a stable and level surface, unless it has been secured (top or bottom) to prevent displacement.
- Do not place a ladder on boxes, barrels or other unstable bases to obtain additional height.
- Do not move or shift a ladder while a person or equipment is on the ladder.
- An extension or straight ladder used to access an elevated surface must extend at least 3 feet above the point of support. Do not stand on the three top rungs of a straight, single or extension ladder.
- The proper angle for setting up a ladder is to place its base a quarter of the working length of the ladder from the wall or other vertical surface.
- A ladder placed in any location where it can be displaced by other work activities must be secured to prevent displacement or a barricade must be erected to keep traffic away from the ladder.
- Be sure that all locks on an extension ladder are properly engaged.
- Do not exceed the maximum load rating of a ladder. Be aware of the ladder's load rating and of the weight it is supporting, including the weight of any tools or equipment.

12.4 FALL PROTECTION

Fall protection shall be used when workers are exposed to an environment with risk of a fall hazard.

• For working on roofs: A fall protection system consisting of safety lines and other appropriate equipment shall be used. A scaffold shall be erected to the eave line, or other approved methods



shall be used. An area surrounding the building will be barricaded so that personnel on the ground will not be exposed to any objects that might fall from the roof.

12.5 ELECTRICAL PRECAUTIONS

Precautions shall be taken when working with electrical equipment or in areas where electrical utilities may be present. Even low voltages will be treated as dangerous. All electrical equipment and tools, including insulation, fixtures, switches, plugs, fuses, etc., will be inspected before each use. Any faulty equipment will be removed from service, and the owner of the equipment will be notified. Personnel with wet hands or standing in wet areas shall not work with electrical equipment. Only a qualified electrician shall wire or install electrical systems.

Lockout/tagout procedures will be used whenever working on electrical equipment. When employees perform a service that requires a lockout or tagout, they shall coordinate all activities with the operator of the equipment or facility. The following actions shall be performed to execute a lockout or tagout:

- 1. Notify the appropriate site personnel.
- 2. Shut down the equipment.
- 3. Isolate the equipment.
- 4. Apply lockout devices or warning tags.
- 5. Release stored energy to achieve a "zero energy state."

In the event that a rescue from electrical equipment is required, the following precautions shall be used:

- Disconnect the circuit before attempting the rescue.
- Make sure you are standing on a dry surface.
- Use a dry belt, rope, coat, or other nonconductive material to loop over the victim and drag them away from the contact.
- Assess the condition of the victim; do not approach if they are still in contact with the circuit.
- Apply first aid and/or CPR (if you are qualified), and get medical help by dialing 911.

13.0 BREATHING ZONE MONITORING

Initial and periodic air monitoring will be performed and reported by a CIH for exposure to airborne lead in compliance with 8 CCR Section 1532, Lead in Construction.

- The CIH shall conduct personal monitoring by calibrated personal sampling using National Institute of Safety and Health method ("NIOSH") 7300.
- All air samples will be submitted to an AIHA certified laboratory under appropriate chain-of-custody procedures. Results shall be analyzed and be available for review within 5 to 10 business days.

Should sampling results indicate that employee exposure is greater than the Cal-OSHA action level for lead (30 micrograms per cubic meter, or $\mu g/m3$) the Site Health and Safety Officer will stop work and modify work procedures and/or PPE levels to reduce exposure to lead.

In addition, the biological monitoring requirements and other provisions of 8 CCR Section 1532 that apply to above Action Level exposure to lead will be immediately implemented before further work proceeds. Following implementation of any corrective actions, re-sampling will occur immediately to assure that exposure levels have been appropriately reduced.



14.0 MEDICAL MONITORING

As stated earlier, it is believed to be highly unlikely that significant worker exposure to lead will occur during the project. However, should air monitoring determine that exposure is at or above the Cal-OSHA action level for lead (TWA of 30 micrograms/cubic meter for 8 hours), then the medical monitoring requirements of Cal-OSHA's Lead in Construction Standard (Section 1532.1) shall be enacted.

14.1 PRE- AND POST- PROJECT MEDICAL EXAM

Regardless of the medical monitoring requirements of Cal-OSHA and the result of personnel monitoring, all EFI Global employees assigned to conduct field sampling and office work for this project will receive a baseline Blood lead and Zinc Protoporphin levels exam prior to starting work on the project. In addition, at the time of termination from their activities on the project (for whatever reason) employees may also receive a similar exam.

15.0 HEAT STRESS MONITORING

The climate at the project site (Vernon, California) is characterized by summers with frequent warm days, and mild winters.

	January	July
Mena High (°F)	68	84
Mean Low (°F)	48	65

Temperatures in Vernon, California

Given the ambient temperatures in the area, workers (especially when wearing protective clothing) may experience varying degrees of heat stress if precautions are not taken. Because of this, the providing of Cal-OSHA's Heat Illness Prevention (8 CCR 3395) standard must be followed.

15.1 Ambient Temperatures (above 80°F)

Once ambient temperatures reach 80°F, EFI Global will assure that maintain one or more areas with shade at all times while employees are present that are either open to the air or provided with ventilation or cooling:

- The amount of shade present shall be at least enough to accommodate the number of employees on recovery or rest periods, so that they can sit in a normal posture fully in the shade without having to be in physical contact with each other.
- The shade shall be located as close as practicable to the areas where employees are working.
- Subject to the same specifications, the amount of shade present during meal periods shall be at least enough to accommodate the number of employees on the meal period who remain onsite.
- When the outdoor temperature in the work area does not exceed 80°F, shade shall be provided upon an employee's request.
- Employees shall be allowed and encouraged to take a preventative cool-down rest in the shade when they feel the need to do so to protect themselves from overheating. Such access to shade shall be permitted at all times.
- An individual employee who takes a preventative cool-down rest shall be monitored and asked if he or she is experiencing symptoms of heat illness, shall be encouraged to remain in the shade, and



shall not be ordered back to work until any signs or symptoms of heat illness have abated, but in no event less than 5 minutes in addition to the time needed to access the shade.

15.2 HIGH HEAT PROCEDURES (ABOVE 95°F)

High High-heat procedures shall be implemented when the temperature equals or exceeds 95 degrees Fahrenheit. These procedures shall include the following to the extent practicable:

- Ensuring that effective communication by voice, observation, or electronic means is maintained so that employees at the work site can contact a supervisor when necessary. An electronic device, such as a cell phone or text messaging device, may be used for this purpose only if reception in the area is reliable.
- Observing employees for alertness and signs or symptoms of heat illness. The employer shall ensure effective employee observation/monitoring by implementing one or more of the following:
 - o Supervisor or designee observation of 20 or fewer employees, or
 - o Mandatory buddy system, or
 - Regular communication with sole employee such as by radio or cellular phone, or
 - Other effective means of observation.
- Designating one or more employees on each worksite as authorized to call for emergency medical services, and allowing other employees to call for emergency services when no designated employee is available.
- Reminding employees throughout the work shift to drink plenty of water.
- Pre-shift meetings before the commencement of work to review the high heat procedures, encourage employees to drink plenty of water, and remind employees of their right to take a cool-down rest when necessary.

15.3 HEAT STRESS EMERGENCY RESPONSE

The following measures shall be employed to assure an Employer effective emergency response to heat illness:

- Ensuring that effective communication by voice, observation, or electronic means is maintained so that employees at the work site can contact a supervisor or emergency medical services when necessary. An electronic device, such as a cell phone or text messaging device, may be used for this purpose only if reception in the area is reliable. If an electronic device will not furnish reliable communication in the work area, the employer will ensure a means of summoning emergency medical services.
- Responding to signs and symptoms of possible heat illness, including but not limited to first aid measures and how emergency medical services will be provided.
- If a supervisor observes, or any employee reports, any signs or symptoms of heat illness in any employee, the supervisor shall take immediate action commensurate with the severity of the illness.
- If the signs or symptoms are indicators of severe heat illness (such as, but not limited to, decreased level of consciousness, staggering, vomiting, disorientation, irrational behavior or convulsions), the employer must implement emergency response procedures.



- An employee exhibiting signs or symptoms of heat illness shall be monitored and shall not be left alone or sent home without being offered onsite first aid and/or being provided with emergency medical services in accordance with the employer's procedures.
- Contacting emergency medical services and, if necessary, transporting employees to a place where they can be reached by an emergency medical provider.
- Ensuring that, in the event of an emergency, clear and precise directions to the work site can and will be provided as needed to emergency responders.

15.4 HEAT STRESS TRAINING

All project participants will be trained to recognize the following forms of heat stress and associated symptoms:

- <u>Heat Rash</u> can be caused by continuous exposure to hot and/or humid air. The condition is characterized by a localized red skin rash and reduced sweating.
- <u>Heat Cramps</u> can be caused by profuse perspiration with inadequate fluid intake and salt replacement. This condition is characterized by muscle spasm and pain in the extremities and abdomen. To care for heat cramps, have the person lie in a cool place and give cool water or a sports drink. Lightly stretch the muscle.
- <u>Heat Exhaustion</u>, a mild form of shock, can be caused by substantial physical activity in heat and profuse perspiration without adequate fluid and salt replacement. Symptoms include weak pulse; shallow breathing; pale, cool, moist skin; profuse sweating; dizziness; and fatigue.
- <u>Heat Stroke</u>, the most severe form of heat stress, can be fatal. Symptoms include red, hot, dry skin; body temperature of 41°C or greater; no perspiration; nausea; dizziness and confusion; strong rapid pulse; coma; and death. Heat stroke is a true medical emergency.

Employees will also be trained on:

- The environmental and personal risk factors for heat illness, as well as the added burden of heat load on the body caused by exertion, clothing, and personal protective equipment.
- EFI Global's procedures for complying with the requirements of this standard, including, but not limited to, EFI Global's responsibility to provide water, shade, cool-down rests, and access to first aid as well as the employees' right to exercise their rights under this standard without retaliation.
- The importance of frequent consumption of small quantities of water, up to 4 cups per hour, when the work environment is hot and employees are likely to be sweating more than usual in the performance of their duties.
- The procedures for contacting emergency medical services, and if necessary, for transporting employees to a point where they can be reached by an emergency medical service provider.
- The procedures for ensuring that, in the event of an emergency, clear and precise directions to the work site can and will be provided as needed to emergency responders. These procedures shall include designating a person to be available to ensure that emergency procedures are invoked when appropriate.

Workers must also be trained on emergency first aid procedures for heat illness. Should a worker appear to be suffering from any heat illness condition, attempts should be made to reduce the individual's body core temperature:

• First, remove the victim out of the heat immediately.



- Apply cool water to their skin with a cloth and have him/her drink cool (but not ice cold) water. Do not let the victim drink too quickly.
- Refusing water, vomiting, and changes in breathing rhythm indicates that the victim's condition is getting worse. The victim must be immediately transported to a medical care facility.
- Report the incident to the supervisor or the site health and safety officer as soon as possible.

Prior to supervising employees performing work that should reasonably be anticipated to result in exposure to the risk of heat illness effective training on the following topics shall be provided to the supervisor:

- All information required to be provided in employee training.
- The procedures the supervisor is to follow to implement the provisions of this section.
- The procedures the supervisor is to follow when an employee exhibits signs or reports symptoms consistent with possible heat illness, including emergency response procedures.
- How to monitor weather reports and how to respond to hot weather advisories.

16.0 DECONTAMINATION PROCEDURES

Although the level of exposure to contamination is expected to be low for this project, decontamination of tools and workers must occur in compliance with 8 CCR 5192. This Section describes how personnel and equipment are decontaminated when they leave the project work areas as well as how residual waste from decontamination processes is properly disposed of.

- Provisions for personal decontamination shall be provided at work sites by EFI Global. This includes adequate potable water, body/hand soap, and towels to allow washing body parts.
 - Decontamination shall be performed in at each work site (sampling location) in an area that will minimize the exposure of uncontaminated employees, equipment, or the public to contaminated employees or equipment.
 - Personnel leaving the work area will wash their hands and remove all PPE before leaving the site. At a minimum, washing of the face and hands with soap and water is required for skin decontamination.
 - To prevent ingestion, workers will wash their face and hands with soap and water before eating or smoking, as well as at the end of each shift.
- Provisions for washing equipment and tools will be provided by EFI Global at each work site. Provisions may include use of two or more plastic bins filled with phosphate-free soap solution and water, brushes, and towels for drying.
 - All equipment, tools, and supplies that have been inside the work area or in contact with contaminated materials will be decontaminated with soap and water, using the brush. The equipment will then be rinsed in clean tap water, rinsed in distilled water, and placed on a clean surface to air dry.
- Work boots may be decontaminated upon leaving the work areas if substantial clumping is present that could result in track out of soil.
 - Plastic bins/tubs filled with phosphate-free soap solution and water as well as brushes will be provided for boot washing.



- Alternately, disposable boot covers may be worn over work boots so that decontamination of boots is not required. The booties shall be disposed of upon departing each sampling location (work area). Waste booties can be collected for the day in a plastic trash bag and disposed of along with any other solid hazardous waste materials at the end of the day.
- Waste water from decontamination will be temporarily containerized in DOT-approved, 55-gallon steel drums or equivalent until proper legal disposal can be accomplished following analytical profiling of the waste.
- All solid wastes from decontamination and site activities will be temporarily containerized in DOTapproved, 55-gallon steel drums or equivalent until proper legal disposal can be accomplished following analytical profiling of the waste.
- Decontamination procedures shall be monitored by the site safety and health supervisor to determine their effectiveness. When such procedures are found to be ineffective, appropriate steps shall be taken to correct any deficiencies.

17.0 EMERGENCY RESPONSE

This section presents protocols for emergency planning and response activities.

17.1 PRE-EMERGENCY PLANNING

A daily Health and Safety (or "Tailgate") meeting will be conducted by the Site Health and Safety Officer. The topics discussed and the names of personnel in attendance will be recorded on a form designed for this purpose.

- All site personnel will be instructed as to the site topography, layout and points of ingress or egress.
- Weather and wind directions will be noted daily to identify safe routes of evacuation in case of an emergency.
- The locations of communications equipment such as cellular phones and radios will be noted.
- Specific hazards or conditions that may affect the Health and Safety of workers, and the procedures for mitigating personnel exposure will be reviewed and discussed.
- Special emphasis will be placed on any changes in site characteristics or procedures that are a result of project activities.

17.2 PPE AND EMERGENCY EQUIPMENT

At a minimum, the following equipment shall be at the work site and available for use:

- Dry Chemical Fire Extinguisher (A-B-C Rated);
- First Aid Kits;
- Portable Radios and/or Cellular Telephone; and
- Hand Tools shovels, saws, etc.

17.3 Emergency recognition and prevention

All site personnel will be trained in the site characteristics, procedures, work plan, and project tasks. They will maintain surveillance over the work that is being done around them as well as their own assigned task



and to report any anomalous or unexpected conditions to their supervisor immediately. All personnel will observe safe working practices and procedures to protect themselves and fellow workers.

17.4 EMERGENCY ALARM SYSTEM

Several warning systems may be used to sound the alarm in an emergency situation. The type of system used depends on the nature of the emergency. The type of systems is: Vehicle Horn or Air Horn

17.4.1 VERBAL COMMUNICATIONS

Used to convey specific instructions. This method may be amplified by use of a Bull Horn or Public Address system.

17.4.2 HAND SIGNALS

Used to give instructions and directions. Also used for communications when noise precludes verbal communication. Workers are to use the buddy system at all times and be aware of the reduction of verbal communication abilities in high-noise areas. The specific hand signals to be used during the project will be discussed during the tailgate safety meeting and will include, but not be limited to, the following:

•	Closed fist:	Stop work
•	Hands crossed above head:	Personal injury
•	Hand gripping throat:	Cannot talk; having difficulty breathing
•	Grip partner's wrist:	Cannot talk; leave area immediately
•	Hands on top of head:	Need assistance
•	Thumbs up:	Okay, I am alright, I understand
•	Thumbs down:	No, negative.

17.4.3 RADIO COMMUNICATIONS

Radios can be used to give instructions and directions. They may also be used for communications between on site and off site personnel. Emergency radio communications will be identified as such and have priority over normal operational messages.

17.4.4 VEHICLE AND PORTABLE COMPRESSED AIR HORNS

Horn signals are used to signify an emergency situation or to attract attention when other forms of communication are not available or practicable. Standard horn signals are:

- **One Short Blast** to signify that communication is required. Personnel should report immediately to their supervisor.
- **One Long Blast** to signify an IDLH emergency evacuation of the work area. Personnel should evacuate to a pre-determined site upwind. A head count will be taken and further instructions given.
- **Repeated Short Blasts** to signify an IDLH emergency evacuation of all site personnel through predetermined egress routes. A head count will be taken and further instructions given at the meeting point outside the evacuated area.



17.5 Emergency evacuation

In the event that the area must be evacuated, site personnel will move off site via the nearest up-wind route. Safe distances and places of refuge will be determined in the field by air monitoring. Emergency response teams will be notified by phoning 911 on cellular or installed telephones. No one will re-enter the site without approval from the Site Safety Officer.

All personnel will familiarize themselves with points of egress and be aware of wind patterns that will affect dispersion of hazardous fumes or smoke in an emergency.

17.6 EMERGENCY RESPONSE PROCEDURES

In case of emergency or hazardous situation, the individual or individuals who observe the situation shall immediately give the alarm. Upon hearing the alarm, all non-essential communication shall cease. The individual(s) who sounded the alarm shall notify his supervisor of the situation. Immediate actions that will be taken to correct the situation shall be dictated by the emergency. These actions may be one or more of the following:

17.6.1 FIRES

Extinguish fire with fire extinguishers or blankets if possible. Evacuate the area and notify the fire department if uncontrolled.

17.6.2 GAS OR FUME RELEASE

Evacuate the area until the fumes have dispersed. Notify appropriate authorities if fumes threaten to escape the exclusion zone.

17.6.3 PERSONNEL INJURY

Administer first aid and/or call 911 as appropriate.

17.7 HAZARD SUBSTANCE RELEASE

Should a hazardous substance be released, all personnel will immediately evacuate the area to a safe area up wind. Emergency personnel will be summoned to the site for appropriate response.

Upon completion of emergency response, site work may resume pending approval by the responding agency.

17.8 INJURY AND EXPOSURE

In the event of overt personal injury, exposure, fire, or explosion, notification will be made immediately to EFI Global's Health and Safety Officer as per company policy. Any job related injury or illness will be reported within 24 hours.

If an injury should occur, stabilize the injured person and administer first aid. If the person is in the exclusion zone, they must be decontaminated or contained in uncontaminated materials prior to removal from the zone. Medical aid may be summoned by dialing 911 on cellular or installed telephones. Care must be taken to describe the nature of the injury and location of the victim to the emergency response dispatch and/or team member.

17.9 Emergency medical treatment and first aid

Adequate facilities and personnel will be provided to assure prompt and efficient first aid in the event of injury or exposure. First aid kits will conform to 8CCR 5192 and will consist of individually sealed items within a weatherproof container. Each first aid kit will be inspected and fully equipped before being deployed to the site. Any expended items will be replaced as soon as used.



General first aid practices that may be employed in the event of personal injury or exposure are:

- Eyes Irrigate immediately with pressurized eye/face wash unit.
- Skin Wash with soap and water.
- **Breathing** Move victim to fresh air at once and begin CPR. Phone 911 to obtain medical attention as soon as possible.
- **Swallowing** Identify the item swallowed. Follow appropriate first aid procedures and obtain medical attention as soon as possible.



18.0 HEALTH AND SAFETY PLAN CERTIFICATION

By their signature, the following undersigned certify that this Health and Safety Plan has been read, or otherwise communicated to them. They further certify that they completely understand this plan and will follow its procedures for the protection of the health and safety of all persons entering upon this site.

Signature	Printed Name	Date
Signature	Printed Name	Date



Signature	Printed Name	Date
Signature	Printed Name	Date

Engineering, Fire & Environmental Services

Signature	Printed Name	Date
Signature	Printed Name	Date

Engineering, Fire & Environmental Services

Signature	Printed Name	Date
Signature	Printed Name	Date



FIGURES





Engineering, Fire & Environmental Services



EFI Global



















HEALTH AND SAFETY FORMS





Engineering, Fire & Environmental Services

SITE SAFETY CHECKLIST

PROJECT ADDRESS	
PROJECT NUMBER	
DATE	

YES	NO	N/A	ITEM	NOTES
			Health and safety plan on-site, read and signed by all personnel	
			Daily tailgate safety meeting held	
			Personnel hold applicable safety training and medical clearances	
			Work area secure from unauthorized entry	
			Emergency and First Aid kit and equipment on site	
			Exclusion zones, Contaminant Reduction Zones, Support Zones established	
			Chemical decontamination and containment procedures implemented, stations established	
			Personnel protective equipment available and implemented	
			Hearing and eye protection used as appropriate	
			Heat Illness Prevention program implemented, adequate potable water on site	
			Emergency phone present and accessible	
			Tools and equipment in good working order	
			Adequate lighting available	
			Traffic control implemented	

Completed By



Engineering, Fire & Environmental Services

TAILGATE SAFETY MEETING

PROJECT ADDRESS	
PROJECT NUMBER	
DATE	

Attendees:

What was the main topic?

What were the subtopics?

What questions or concerns were expressed?

Safety rules reviewed