

**INTERIM SOURCE REMOVAL ACTION (ISRA)  
HEALTH AND SAFETY PLAN**

**ADDENDUM 23 TO RCRA FACILITY INVESTIGATION  
HEALTH AND SAFETY PLAN  
SANTA SUSANA FIELD LABORATORY  
VENTURA COUNTY, CALIFORNIA**

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**REVIEW AND APPROVALS:**

Prepared by:



**June 26, 2009**

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**Ben Stewart, PG  
MWH, Project Manager**

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**Date**

Approved by:



**June 26, 2009**

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**Alex Fischl, PMP  
MWH, Project Manager**

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**Date**



**June 26, 2009**

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**Rick Shassetz, CIH, CSP  
MWH, Director of Env. Health and Safety**

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**Date**

This site-specific Health and Safety Plan has been developed in accordance with OSHA 29 CFR 1910.120 and Cal-OSHA Title 8 CCR Section 5192, and has been streamlined to avoid duplication of existing documents.

## **HEALTH AND SAFETY ADDENDUM NUMBER 23**

This Health and Safety Plan Addendum Number 23, prepared June 25, 2009, amends the existing Rocketdyne RCRA Facility Investigation, Volume III, Appendix E, Health and Safety Plan (HSP) dated June 1996. This addendum addresses the new scope of work for the removal actions at various locations within the Outfall 008 and 009 watersheds. This addendum describes specific health and safety measures to be taken during the field efforts associated with this project. A copy of this HSP addendum must be on site at all times while work is being conducted. MWH subcontractors are to independently evaluate this HSP to determine what additional health and safety safeguard may be necessary or appropriate to protect their employees and others within the context of their own scope of work.

### **SITE**

The Santa Susana Field Laboratory (SSFL) is located approximately 29 miles Northwest of Los Angeles, California, in the Southeast corner of Ventura County (see Figure 1). The address is:

The Boeing Company Santa Susana Field Laboratory  
5800 Woolsey Canyon Road  
Canoga Park, California 91304-1148

The site is jointly occupied by The Boeing Company (Boeing [formerly the Rocketdyne Division of Rockwell International]), the National Aeronautics and Space Administration (NASA) and the U.S. Department of Energy (DOE). Boeing acts as the agent for NASA and DOE concerning the RFI, RI/FS and remediation projects at SSFL. Figure 2 is a Site Map with outfall locations, and Figure 3 shows the boundaries of the Outfalls 008 and 009 watersheds.

### **SCOPE OF WORK**

The work to be performed includes the excavation of impacted soil from areas within the Outfall 008 and 009 watersheds, implementing erosion and sediment control measures during construction activities, transporting excavated soil to the offsite disposal facility; collecting confirmation samples from excavation sidewalls and floors; and restoring disturbed areas to approximately existing grades.

Nine areas are currently planned for excavation as part of the 2009 ISRA project, seven in Happy Valley within the Outfall 008 watershed and two in ELV within the Outfall 009 watershed. Figures 4 and 5 show planned excavation extents for excavations at Outfalls 008 and 009, respectively. Final excavation depths are estimated to range from 2 to 3 feet below ground surface (bgs). Excavation boundaries may change slightly or additional excavation locations may be added into the scope of work, pending the results of ongoing soil sampling.

Excavated non hazardous soil will be loaded directly into haul trucks for transportation to the Lower Parking Lot where it will be stockpiled. Stockpiles will be segregated and maintained in accordance with the project Soil Management Plan (SMP) and the Ventura County Air Pollution Control District (VCAPCD) Rule 55 (Fugitive Dust). Stockpiled soil will be loaded and transported to the Boeing designated/approved offsite disposal facility in accordance with the project Transportation Plan. After the excavations are completed, all equipment will be dismantled and removed from SSFL.

The MWH Field Site Manager (MWH FSM) and Contractor will survey the entire work site in order to ensure project safety, site security and prevention of unauthorized entries. This survey will also include evaluation of any obvious outside hazards for e.g., slips, trips, falls, poison oak, etc.

The site will be secured by the posting of an “Authorized Personnel Only” - sign in the staging area. The sign must also contain the contact information for the MWH FSM and the proper level of PPE required. The MWH FSM will verify with Boeing Safety and or security that all support organizations (Medical, Fire Dept, and Safety) are on standby and all operation notifications and needed evacuations are complete.

A Safety Briefing will be held in the project zone before the initiation of the project field activities. All contractors and personnel involved in the project are encouraged to attend the safety briefing. This briefing will include the discussion of this Health and Safety Plan Addendum in its entirety. During this meeting scope of work and job responsibilities of all participating individuals will be discussed, contingency plan reviewed, and hazards anticipated in the project described and discussed. All employees will have an opportunity to raise questions, concerns and/or suggestions to improve the work plan. This will be a critical exercise of involving the entire participating crew in critiquing the work plan and making adjustments prior to initiation so that work can be completed safely and efficiently.

Once the briefing is concluded all MWH participants will be asked to sign the Health and Safety Plan Amendment as a documentation of their understanding of the project and their work responsibilities.

## **HAZARD ANALYSIS**

The sections below provide an evaluation of the hazards anticipated during this project’s fieldwork.

### **Constituents of Concern**

*During Excavation:* The following are the constituents of concern during removal activities:

- Dioxins/Furans (up to 97.5 pg/g)
- Lead (up to 88 mg/kg)
- Copper (up to 414 mg/kg)
- Cadmium (up to 36 mg/kg)
- Arsenic (up to 24.4 mg/kg)
- Zinc (up to 181 mg/kg)
- TCE (up to 66 mg/kg)
- Particulates/Dust

Table 1 contains occupational health exposure information and toxicological properties of the potential chemicals of concern, except for dioxins.

*Chemicals Brought to SSFL to Support Work:* The following chemicals are brought by MWH to SSFL to support the excavation field work:

- Liquinox
- Isobutylene calibration gas
- Isopropyl alcohol

Material Safety Data Sheets (MSDS) for each of these must be kept on file with the Boeing Contractor Coordinator as well as in the Health and Safety Addendum binder on the project site. All containers must be labeled with the identity of the contents as well as a hazard warning and emergency notices.

Each person working on this project shall review these MSDSs to become familiar with the health hazards, handling and storage procedures, first aid, exposure controls and personal protection.

### **Biological**

Some of the biological hazards like poison oak, bees, ticks, mosquitoes, rattle snakes, black widows, brown recluse spiders, bacteria, viruses and wild animals (coyotes, rats, foxes, and mountain lions, etc.) could be encountered. The varied biological hazards associated with the fieldwork will be discussed during the safety briefings. All team members will review the “Health and Safety Plan, RCRA Corrective Action Program Activities, Santa Susana Field Laboratory, Ventura County, California” (Health and Safety Plan, Revision 2, August 2003). Workers should be aware that poison oak grows abundantly in this area. Field personnel at SSFL are accustomed to donning disposable coveralls and barrier creams (e.g., Ivy Block) to help prevent direct contact with poison oak. Level D clothing should be sufficient to protect against incidental contact. If poison oak is contacted, field personnel should clean the affected area with soap and water thoroughly.

Bees exhibiting aggressive behavior have been encountered on numerous occasions at the SSFL field sites. These bees have been known to hover and attach to field vehicles. Boeing has had a professional investigation of these bees and determined that they are NOT the Africanized honey bees. So, practice good bee etiquette and wear light colors, do not wave your hands around them and turn off any vibrating equipment (this seems to irritate them). When going into brushy areas wear long pants and gators to protect from rattlesnake bites. If rattlesnakes are encountered, step back slowly from the danger and alert security.

### **Radiological**

Nuclear reactor development and testing programs were carried out at selected sites in Area IV of the SSFL. Based on site knowledge, previous monitoring of the area, and previous sampling analysis, there is no evidence to suggest that any radiological contamination exists in the excavation areas. However, screening of excavated soils and debris will be conducted to verify that the excavated materials have no radiological restrictions and do not violate any local, state, or federal requirements regarding their management, handling, or disposal. Procedures for radiological monitoring have been established by the Boeing Radiation Safety Team (see Attachment 1).

### **Unexploded Ordnance (UXO)**

An interim measure (IM) was conducted in 1999 to remove suspect ordnance from the Happy Valley site. The scope of the 1999 IM extended into the areas surrounding Happy Valley. While it is not anticipated that UXO will be encountered, a professional experienced at the identification and management of unexploded ordnance will be present during excavation activities in Happy Valley. All field personnel will be trained to recognize UXO. Upon encountering UXO, work will be halted and an exclusion zone will be erected around the UXO until it can be sampled, identified and safely disposed of.

### **Physical**

*Excavations:* Entry into excavations by an MWH employee will be avoided when possible. If an excavation or trench entry is necessary during the course of the project, specific details concerning the nature of the entry and safety precautions must be discussed with the MWH EHS Director and then any modifications amended to this plan. The excavation will be overseen by a designated “Competent Person” (someone knowledgeable about the hazards and authorized to implement controls). Protective measures such as sloping, benching or shoring will be implemented depending on the nature of the entry and soil classification as determined by the designated competent person. All trenching and excavation activities will conform to the requirements of 29 CFR 1926 Subpart P / 8 CCR 1541.

Entry into excavations is not anticipated to be required. The following general requirements apply to all excavations at SSFL:

- Identification of “competent person” prior to beginning of dig – notify all team members during the tailgate safety meeting.

- Limit number of people in work zone to only those necessary to complete the task.
- Maintain at least a two foot clearance to the edge of the excavation for all equipment, supplies, spoil piles and people. A greater distance should be selected if possible, especially if the soils are sandy.
- Collect all soil samples from the backhoe or excavator bucket.
- Prior to approaching the backhoe or excavator make eye contact with the operator and ensure that the bucket is securely on the ground.
- Identify the swing radius of the bucket and operator blind spots and do not stand in those locations.
- Wear a brightly colored, traffic safety vest.

*Dust Control:* The excavation of soil carries with it the potential for dust to become airborne. In order to prevent fugitive dust, the following controls will be implemented:

- Keep soil moist using a water truck or fire hydrant; and
- Keep soil piles covered if very dry and windy.

*Foot Hazards:* All personnel should wear steel toes shoes with the exception of personnel operating electrical equipment to prevent physical and chemical injuries. Personnel operating electrical equipment shall either wear rubber shoes or hard toes shoes (fiber plastic toe). High top boots should be used to strengthen ankles against twisting hazards.

*Hand Hazard:* Personnel should wear Nitrile gloves when material handling. If in contact with soil, rinse with soap and water for no less than 20 seconds.

*Eye Hazard:* Personnel should wear either safety glasses. Eye hazards will be removed during the site assessment. If handling chemicals, personnel should use good chemical handling practices to eliminate splashing.

*Material Lifting Hazards:* Heavy items such as ice chests filled with samples will need to be transported. Use proper lifting procedures. Authorized personnel should use mechanical lifting devices such as forklifts and/or use two or more persons to lift when possible.

*Slipping or Tripping Hazards:* The site may contain tripping hazards. Personnel should be aware of their surroundings at all times. When out in the field, personnel should work in teams and have a radio available at all times.

*Heat Stress:* California Employers with any outdoor places of employment must comply with the Heat Illness Prevention Standard T8 CCR 3395. Outdoor work environments involving high air temperatures, radiant heat sources, high humidity, direct physical contact with hot objects, or strenuous physical activities in high heat have a possibility for inducing heat stress in employees engaged in such operations.

Summers are hot in Southern California, and although winters are typically mild, the SSFL area does experience hot, dry and/or humid weather. If temperatures peak above 80 or

85 degrees F, personnel should review the signs of heat stress contained in this Addendum or the primary Health and Safety Plan, dated August 2007. If temperatures become elevated above 85 to 90 degrees F, a shaded area for breaks and regular hydration breaks should be scheduled by the Site Health and Safety Officer or Field Site Manager (e.g., at least every other hour, more if personnel show signs or symptoms of heat disorders).

The stress of working in a hot environment can cause a variety of heat related illnesses (HRI) including sunburn, heat rash, heat cramps, heat exhaustion or heat stroke; the latter can be fatal. Personal protective equipment (i.e., Level C protection) can significantly increase heat stress. To reduce or prevent heat stress, frequent rest periods and controlled fluid consumption (one liter/hour) to replace body fluids and salts may be required. It should be noted that heat stress can also occur to people working in Level D, permeable, work clothing.

There are two sources of heat exposure, the outside environment and internal muscle activity (80% of muscle energy is turned into body heat). High temperatures and high levels of physical work create heat stress. The body defends itself by sweating and evaporating. Caution should be noted, because the higher the humidity levels the more difficult it is for sweat to evaporate from the skin. A heat index chart is included in Attachment 2.

It is difficult to predict just who will be affected and when, because individual susceptibility varies. In addition, as previously mentioned, environmental factors include more than the ambient air temperature. Radiant heat, air movement, conduction, and relative humidity all affect an individual's response to heat.

*Causes, symptoms, and treatment of HRI:*

Heat stress symptoms are a set of natural body signals indicating that something needs to be done to balance the body's heating and cooling. As the body heats up, it tries to rid itself of excess heat through the evaporation of sweat. If it is unable to cool itself this way, your body temperature will increase. When body temperature gets above 100.4 to 102.2°F, the brain starts to overheat, leading to a shutdown of the body's cooling system (sweating stops). The internal temperature continues to rise even faster, leading to heat stroke and possibly death.

The symptoms and treatment of various heat-related illnesses are listed below:

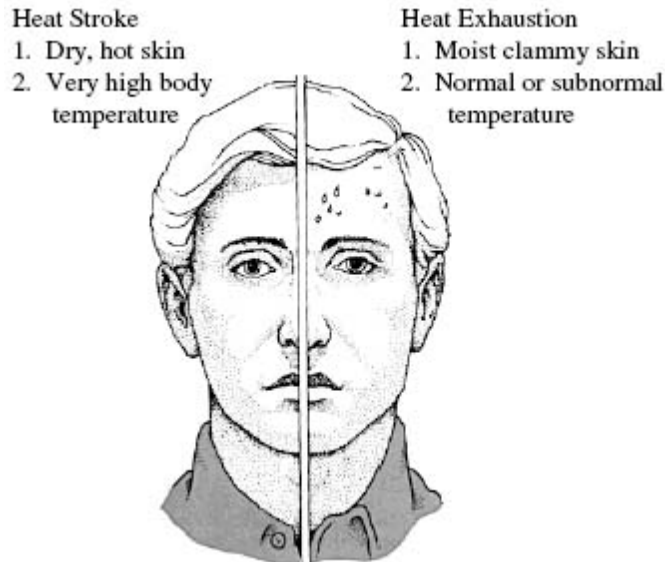
<b>Heat-Related Illness (HRI)</b>	<b>Signs and Symptoms</b>	<b>First Aid and Emergency Response Procedures</b>
<b>Sunburn</b>	Red, hot skin; May blister	Move to shade, loosen clothes to reduce temperature; Apply cool compress or water to cool burn; Get medical evaluation if severe
<b>Heat Rash</b>	Red, itchy skin; Bumpy skin; Skin infection	Apply cool water or compress to cool rash; Keep affected area dry to minimize infection; Control itching and infection with prescribed medication

<b>Heat-Related Illness (HRI)</b>	<b>Signs and Symptoms</b>	<b>First Aid and Emergency Response Procedures</b>
<b>Heat Cramps</b>	Muscle cramps or spasms; Grasping the affected area; Abnormal body posture	Drink water or sports drinks to re-hydrate body; Rest, cool down in shaded area; Massage affected muscle to release body toxins; and Get medical evaluation if cramps persist
<b>Heat Exhaustion</b>	High pulse rate Extreme sweating Pale face Insecure gait Headache Clammy and moist skin Weakness Fatigue Dizziness	Move to shade and loosen clothing to cool down; Initiate rapid cooling with fan, water mister, or ice packs; Lay flat and elevate feet to reduce heart rate and blood pressure; Monitor recovery (is body cooling?); Drink small amounts of water to cool body and re-hydrate Evaluate mental status (ask Who? Where? When? Q's) <b>If no improvement call 911</b>
<b>Heat Stroke</b>	The above but more severe; Hot, dry skin (25-50% of cases); Altered mental status with confusion and agitation; Can progress to loss of consciousness and seizures; Can be fatal	<b>Call 911</b> <b>Provide EMS with directions to work site;</b> Immediately remove from work activity to slow/stop body temp rise; Start rapid cooling with fan, water mister, or ice packs; Lay flat and elevate feet to reduce heart rate and blood pressure; If conscious give sips of water to cool body and re-hydrate; Monitor airway and breathing-administer CPR if needed

Another cause of heat stroke occurs when a person's body has used up all its water and salt reserves, resulting in the cessation of sweating, causing the body temperature to rise rapidly; resulting in heat stroke or heat exhaustion.

The most serious heat related illness is heat stroke. The symptoms include confusion, irrational behavior, convulsions, coma, and death. While over 20% of heat stroke victims die regardless of health or age, children seem to be more susceptible to heat strain than adults. In some cases, the side effects of heat stroke are heat sensitivity and varying degrees of brain and kidney damage.





Signs and symptoms of heat stroke and heat exhaustion

Signs and symptoms of heat stroke included a high body temperature above 105.8°F and any of the following: the person is weak, confused, upset, or acting strangely; has hot, dry, red skin; a fast pulse; headache or dizziness; in later stages, a person may pass out and have convulsions **THIS IS AN IMMEDIATE MEDICAL EMERGENCY. PROMPT ACTION MAY SAVE THE PERSON'S LIFE, CALL AN AMBULANCE.**

This condition can kill a person quickly; before emergency medical personnel arrive remove excess clothing; fan and spray the person with cool water; offer sips of cool water, if the person is conscious.

*Prevention of HRI:*

Attachment 3 presents MWH's procedures for heat illness prevention. The best approach is preventative heat stress management. The elements reflected within this consist of the following:

- Provision for Water
- Access to Shade
- Acclimation
- Work/Rest Regime and Work Shift Rotation

Provisions for Water

Water is a key preventive measure to minimize the risk of heat related illnesses. Employees shall have access to potable drinking water. Where the supply of water is not plumbed or otherwise continuously supplied, water shall be provided in sufficient quantity at the beginning of the work shift to provide one quart per employee per hour for drinking for the entire shift. Work crews may begin the shift with smaller quantities of water if they have

effective procedures for replenishment during the shift as needed to allow all crew members to drink one quart or more per hour. The frequent drinking of water shall be encouraged.

#### Access to Shade

Access to rest and shade or other cooling measures (e.g., an air-conditioned vehicle) are important preventive steps to minimize the risk of heat related illnesses. Employees suffering from heat illness or believing a preventative recovery period is needed shall be provided access to an area with shade that is either open to the air or provided with ventilation or cooling for a period of no less than five minutes. Such access to shade shall be permitted at all times.

#### Acclimation

The human body will get used to working in a hot environment gradually over time. Workers should acclimate to site work conditions by slowly increasing workloads, i.e., do not begin site work activities with extremely demanding activities. This acclimation process may require up to two weeks for completion.

#### Work/Rest Regiment and Work Shift Rotation

An appropriate work/rest regiment can reduce the risk of HRI. The table in Attachment 2 indicates the appropriate work/rest percentage based on level of PPE and temperature. In hot weather, it can be beneficial to rotate shifts of workers with potential heat stress exposure. Also, field activities can be planned to be conducted in either the early morning or evening.

### **PPE**

The minimum PPE required for site survey, set-up, operation and clean-up activities will be Level D, which must include, full pants, light colored shirt, leather steel-toe boots, nitrile gloves, and safety glasses.

### **ADDITIONAL SAFETY PRECAUTIONS**

All required safety equipment must be staged within or near the project zone. The safety equipment will include, ABC fire extinguisher, portable eye wash equipment (capable of a 15-minute flush) and Nitrile gloves. A first aid kit can be accessed by calling Security at ext. 4800 (818-466-8600).

#### General

To prevent injuries and to minimize potential exposure, the following general safe work practices will be adhered to at the facility. These procedures are particularly important when dealing with situations of known or unknown toxic hazards. These practices serve as a guideline of general precautionary operations at potentially hazardous locations.

#### Personal Hygiene

1. Eating, drinking, chewing gum or tobacco, taking medication, smoking, and the application of makeup is prohibited in any contaminated or potentially contaminated area or where the possibility for the transfer of contamination exists.
2. All contact with potentially contaminated substances will be avoided. Whenever possible, limit the number of individuals entering a known contaminated or restricted work zone.
3. No beard or facial hair may be worn by individuals working in areas that require respiratory protection.

### **Personal Protection**

1. Be familiar with and knowledgeable about standard operating procedures for safety.
2. Be familiar, knowledgeable, and adhere to all instructions in this safety addendum.
3. Identify and be aware of arrangements for emergency medical assistance.
4. While working, consider fatigue, heat stress, and other environmental factors such as plant surroundings influencing personal safety.

At the end of each work day, the entire project area will be cleaned of loose debris.

### **DECONTAMINATION**

This investigation is not expected to encounter excessive contamination or result in contamination exposure to personnel, equipment, or clothing. However, the following decontamination protocols shall be followed:

- Wash hands with soapy water when leaving the exclusion zone.
- Discard disposable gloves and coveralls in a trash container acceptable to Boeing. These items are not deemed to meet the characteristics of a hazardous waste. They can be discarded as solid waste in a standard trash receptacle.
- A boot wash should include a water rinse and/or brush, if necessary, to ensure that potentially contaminated soil does not leave the Site on the soles of worker's boots.

### **Project Personnel**

MWH Onsite Safety Officers: Eric VanderVelde (626-568-6517 or 818-391-4247)

MWH Field Site Manager: Ben Stewart (818-266-0305)

MWH Project Manager: Alex Fischl (925-627-4627)

Boeing Project Safety Officer: Robert Mako (818-466-8735)

## **EMERGENCY INFORMATION**

Attachment 4 to this HSP Addendum is an updated list of emergency contact phone numbers and a map to the nearest hospital.

At least one two-way radio should be used onsite whenever personnel are in the project area. In the case of an incident requiring emergency assistance, the two-way radios can be used to contact Lori Blair or Gilbert Fuentes on Channel 2 of the radio. Briefly describe your location and the nature of the emergency.

To ensure that all Site personnel are updated of changes and daily work tasks, tailgate safety meetings will be scheduled by the Field Site Manager on an as-needed basis. Attachment 5 to this HSP Addendum is a form to be used to document the tailgate safety meetings. The MWH Field Site Manager will direct the meeting and all Site workers (including subcontractors) are expected to attend. Attachments 6 and 7 to this HSP addendum are Activity Hazard Analysis forms summarizing scope of work, related hazards, and hazard controls.



**TABLE 1**

**OCCUPATIONAL HEALTH EXPOSURE AND TOXICOLOGICAL PROPERTIES FOR  
CONTAMINANTS OF OCCUPATIONAL HEALTH CONCERN**

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**OCCUPATIONAL HEALTH EXPOSURE AND TOXICOLOGICAL PROPERTIES FOR**  
**CONTAMINANTS OF OCCUPATIONAL HEALTH CONCERN**

Contaminant	OSHA PEL	NIOSH REL	ACGIH TLV	ACGIH/OSHA STEL	OSHA/NIOSH IDLH	IP (eV)	Vapor Pressure (mmHz)	Route of Exposure	Symptoms of Exposure
TRICHLOROETHYLENE (TCE)	100 ppm	Carcinogen	50 ppm	100 ppm	Carcinogen 1,000 ppm	9.45	58	INH, ING, CON	Headache, vertigo; visual disturbance, tremors, somnolence; nausea, vomiting; irritation to eyes; dermatitis; cardiac arrhythmia; CARCINOGEN.
ARSENIC	0.01 mg/m <sup>3</sup>	0.002 mg/m <sup>3</sup>	0.01 mg/m <sup>3</sup>	NA	100 mg/m <sup>3</sup>	NA	NA	INH, ING, CON, ABS	Ulceration of nasal septum, dermatitis, gastro-intestinal disturbances, peripheral neuropathy, respiratory irritant, hyperpigmentation of the skin, CARCINOGEN.
CADMIUM	0.005 mg/m <sup>3</sup>	Carcinogen (lowest possible)	0.01 mg/m <sup>3</sup>	NA	9 mg/m <sup>3</sup>	NA	NA	IHN, ING	Pulmonary edema, dyspnea, cough, chest tightness, pain, headache; chills, muscle aches; nausea, vomiting, diarrhea; emphysema, mild anemia; CARCINOGEN.
COPPER	1 mg/m <sup>3</sup>	1 mg/m <sup>3</sup>	1 mg/m <sup>3</sup>	NA	100 mg/m <sup>3</sup>	NA	NA	INH, ING, CON	Irritant to nasal mucus membranes, pharynx; nasal perforation; eye irritant; metallic taste; dermatitis.
LEAD	0.05 mg/m <sup>3</sup>	0.100 mg/m <sup>3</sup>	0.15 mg/m <sup>3</sup>	NA	100 mg/m <sup>3</sup>	NA	NA	INH, ING CON	Weakness, lassitude, insomnia, facial pallor; pale eyes, anorexia; malnutrition, constipation; abdominal pain, colic, anemia; gingival lead line; tremors, paralysis of the wrist and ankles; encephalopathy; nephropathy; irritant to eyes; hypotension.

INH = Inhalation    ING = Ingestion    ABS = Skin Absorption    CON = Skin or mucous membrane contact  
 NA = Not applicable or available    Ca = NIOSH considered carcinogen    CNS = Central Nervous System

**TABLE 1-1 (Continued)**

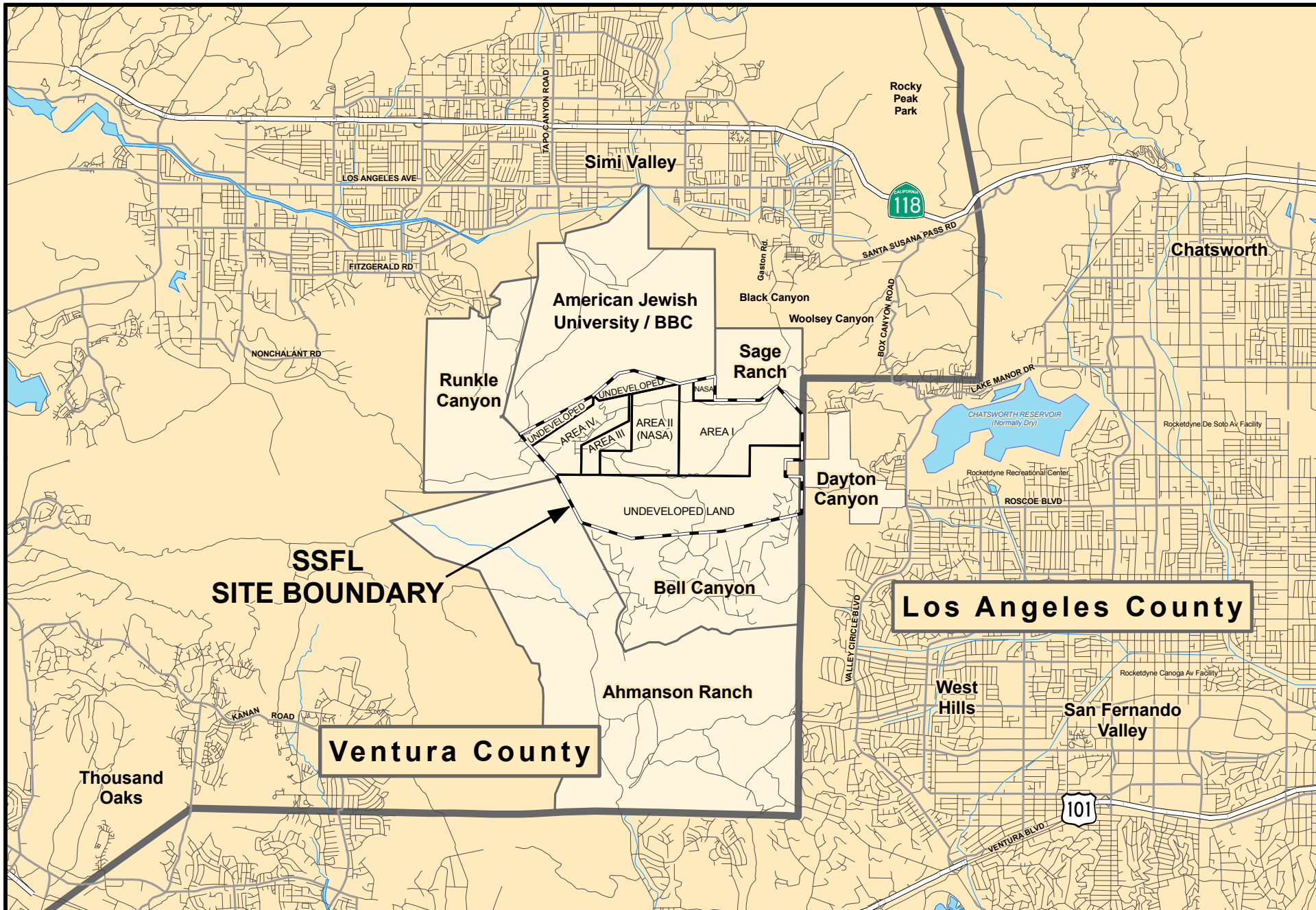
**OCCUPATIONAL HEALTH EXPOSURE AND TOXICOLOGICAL PROPERTIES FOR  
CONTAMINANTS OF OCCUPATIONAL HEALTH CONCERN**

Contaminant	OSHA PEL	NIOSH REL	ACGIH TLV	ACGIH/OSHA STEL	OSHA/NIOSH IDLH	IP (eV)	Vapor Pressure	Route of Exposure	Symptoms of Exposure
ZINC (Zinc Oxide Fume)	5 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>	500 mg/m <sup>3</sup>	NA	NA	INH	Sweet, metallic taste; dry throat, cough; chills, fever; tight chest, dyspnea, rales, reduced pulmonary function; headache, blurred vision; muscle cramps, low back pain; nausea, vomiting; fatigue, lassitude and malaise.

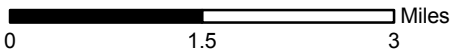
INH = Inhalation    ING = Ingestion    ABS = Skin Absorption    CON = Skin or mucous membrane contact  
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## **FIGURES**



1 inch equals 1.5 miles



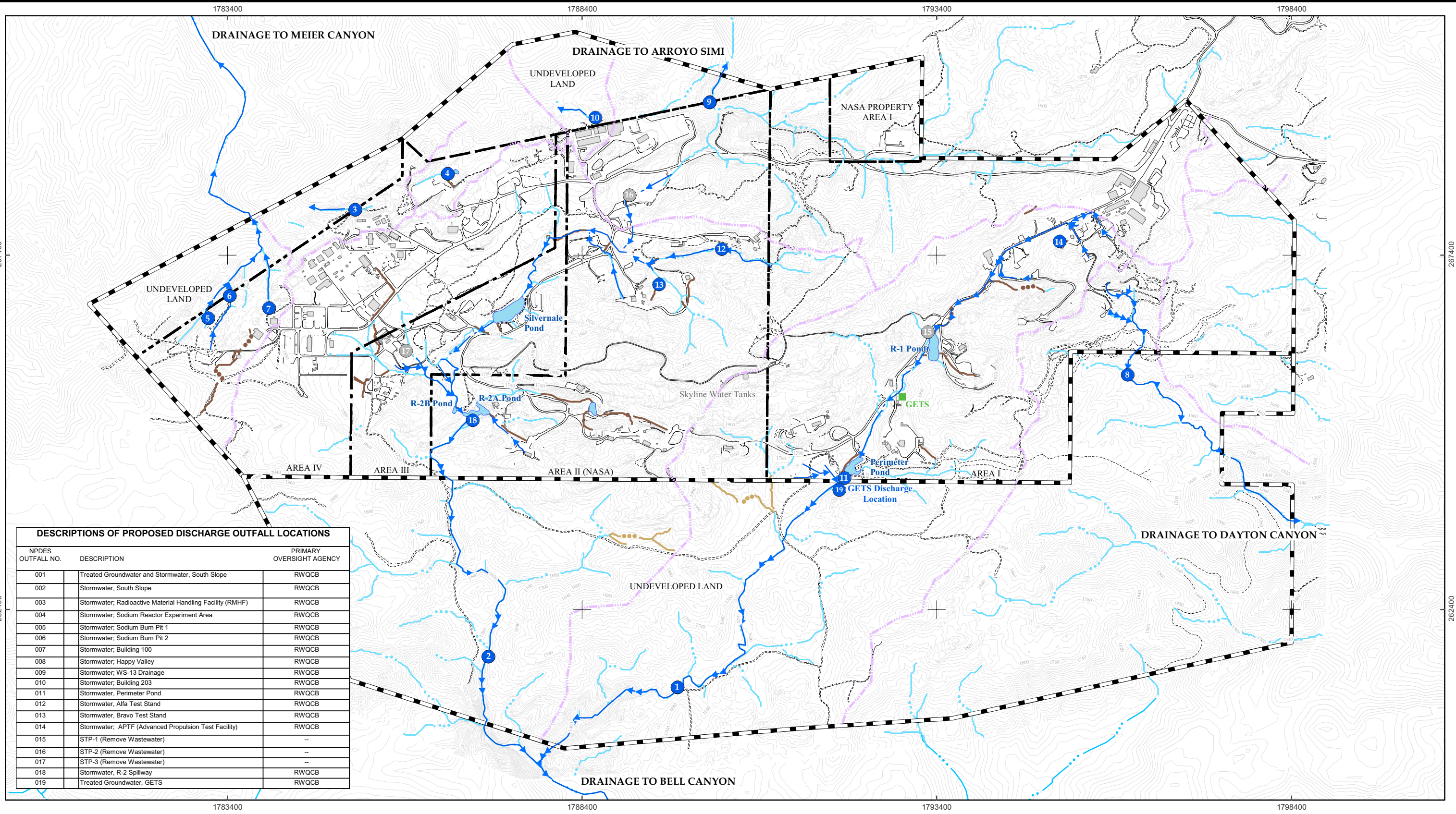
### SANTA SUSANA FIELD LABORATORY

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Date: Dec 10, 2007

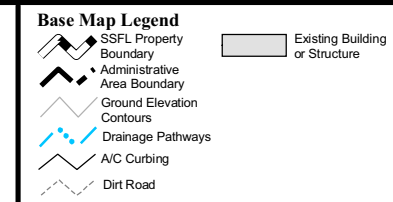
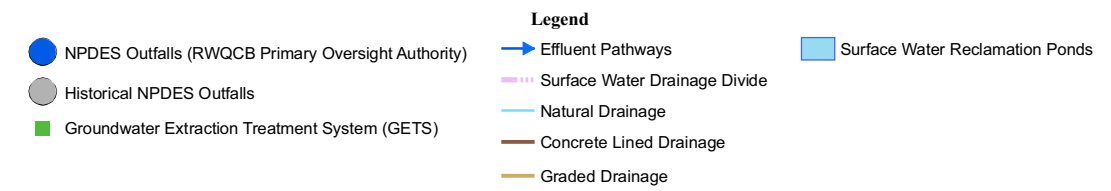
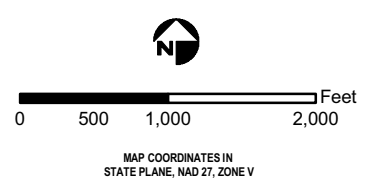
Regional Map

FIGURE  
1



**DESCRIPTIONS OF PROPOSED DISCHARGE OUTFALL LOCATIONS**










NPDES OUTFALL NO.	DESCRIPTION	PRIMARY OVERSIGHT AGENCY
001	Treated Groundwater and Stormwater, South Slope	RWQCB
002	Stormwater, South Slope	RWQCB
003	Stormwater; Radioactive Material Handling Facility (RMHF)	RWQCB
004	Stormwater; Sodium Reactor Experiment Area	RWQCB
005	Stormwater; Sodium Burn Pit 1	RWQCB
006	Stormwater; Sodium Burn Pit 2	RWQCB
007	Stormwater; Building 100	RWQCB
008	Stormwater; Happy Valley	RWQCB
009	Stormwater; WS-13 Drainage	RWQCB
010	Stormwater; Building 203	RWQCB
011	Stormwater, Perimeter Pond	RWQCB
012	Stormwater, Alfa Test Stand	RWQCB
013	Stormwater, Bravo Test Stand	RWQCB
014	Stormwater; APTF (Advanced Propulsion Test Facility)	RWQCB
015	STP-1 (Remove Wastewater)	--
016	STP-2 (Remove Wastewater)	--
017	STP-3 (Remove Wastewater)	--
018	Stormwater, R-2 Spillway	RWQCB
019	Treated Groundwater, GETS	RWQCB

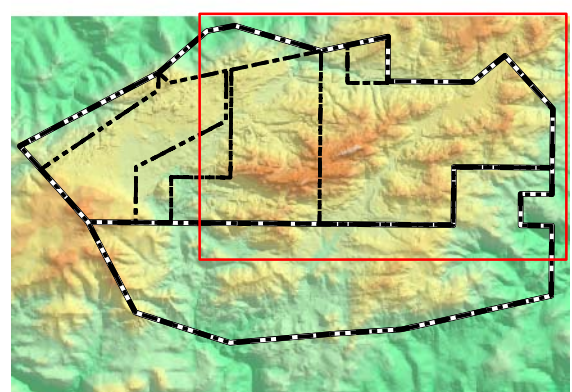
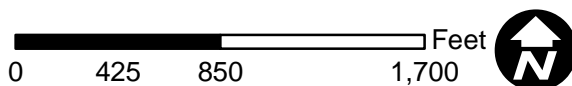
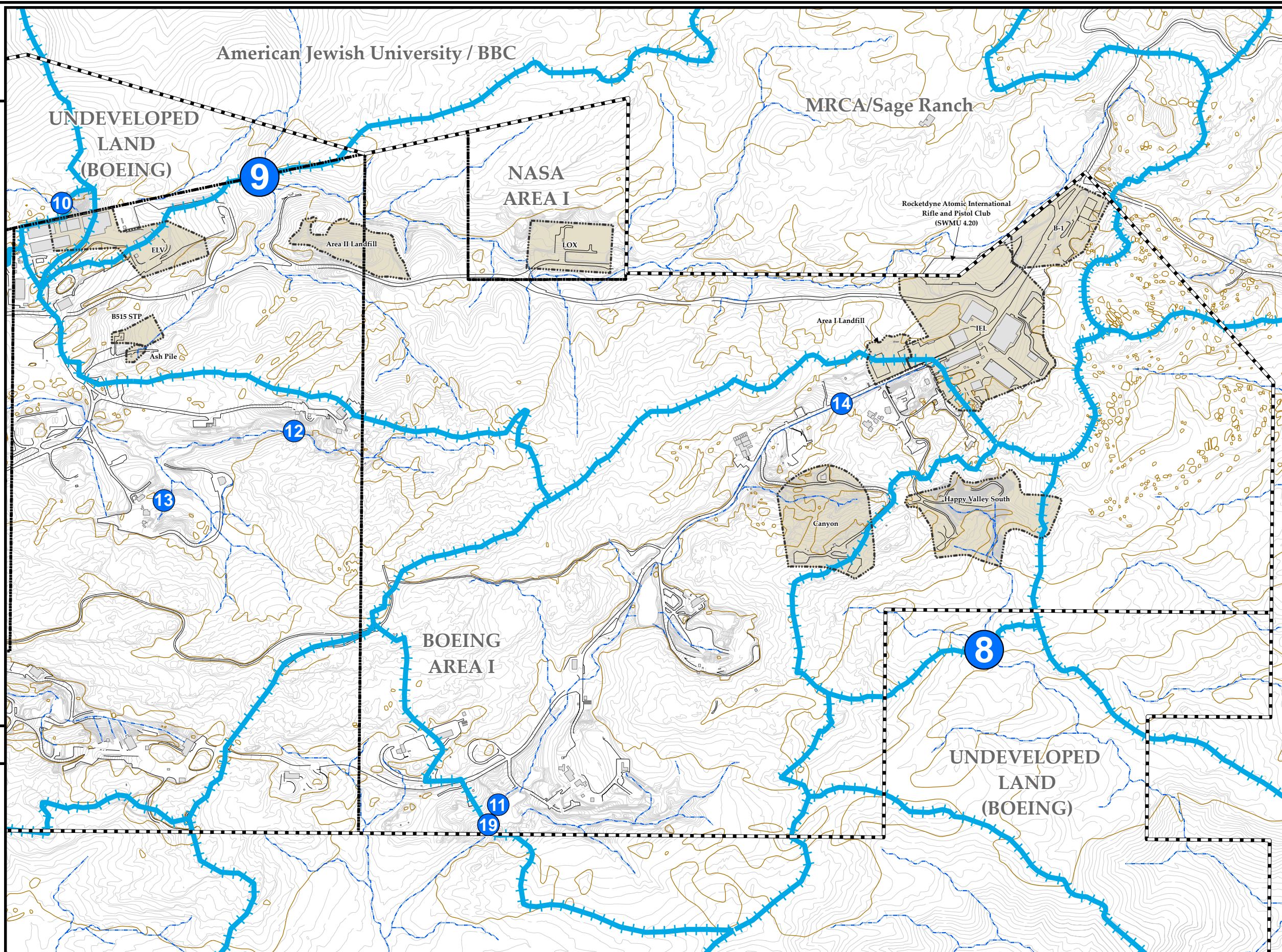


**Site Map with Outfall Locations and Storm Water Drainage Systems**

# Outfalls 008 and 009 Location Map

## Base Map Legend

-  Administrative Area Boundary
-  Historical Operations Areas (RFI Sites) Within Outfall 008 and 009
-  Surface Water Drainage
-  Surface Water Divide
-  NPDES Outfall
-  Existing Building or Structure
-  Paved Road
-  Elevation Contour
-  Bedrock Outcrop
















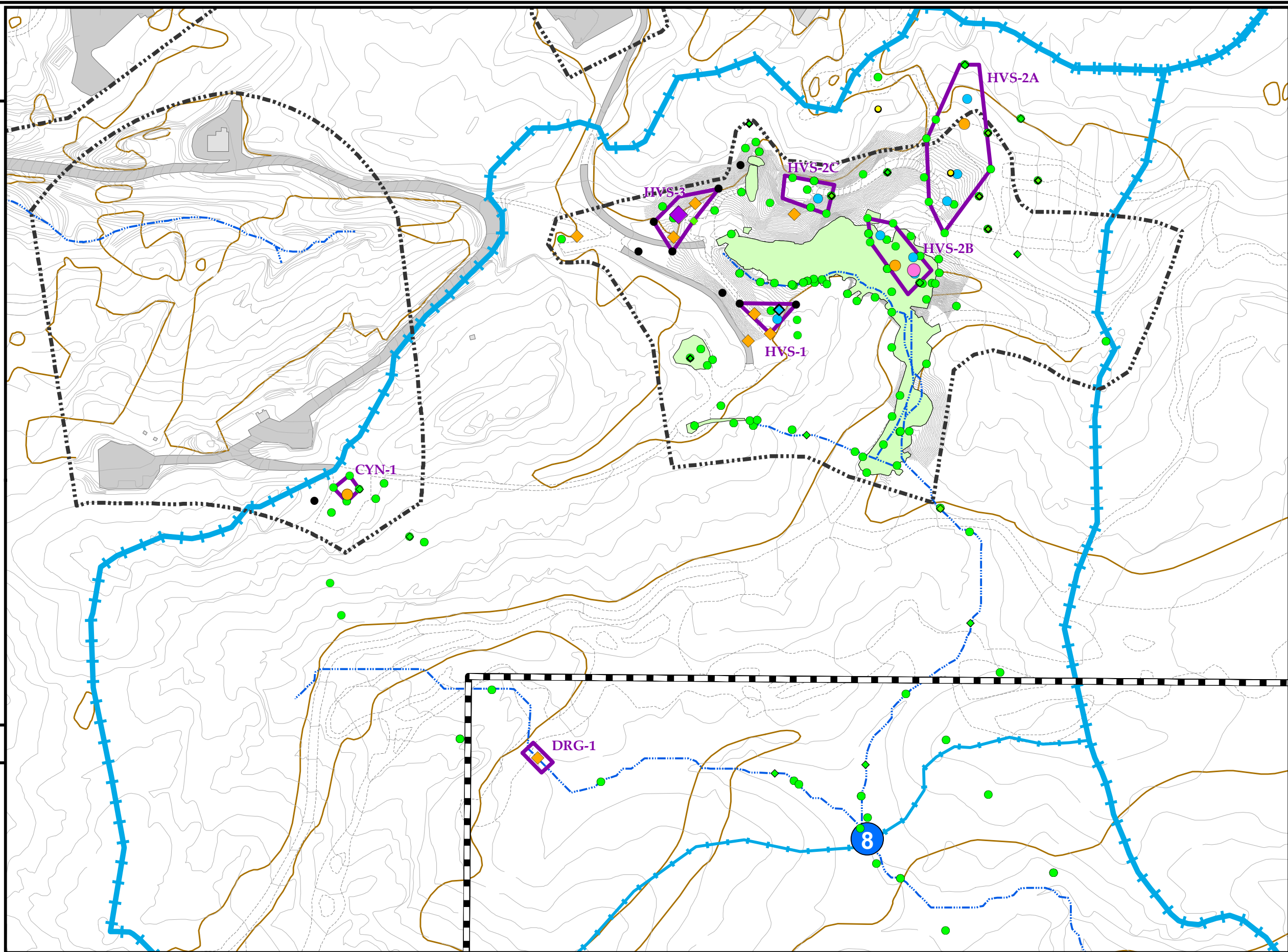
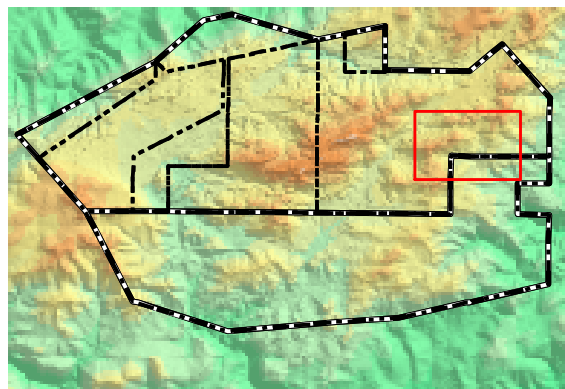
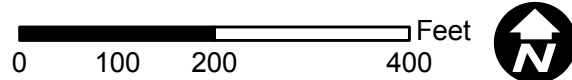
S A N T A S U S A N A F I E L D L A B O R A T O R Y



# ISRA Excavation Area Outfall 008

## Base Map Legend













-  Administrative Area Boundary
-  RFI Site Boundary
-  Existing Building or Structure
-  Previously Excavated Area
-  Excavation Area
-  Surface Water Drainage
-  Surface Water Divide
-  Outfall Water Divide
-  NPDES Outfall
-  Dirt Road
-  Paved Road
-  Elevation Contour
-  Bedrock Outcrop

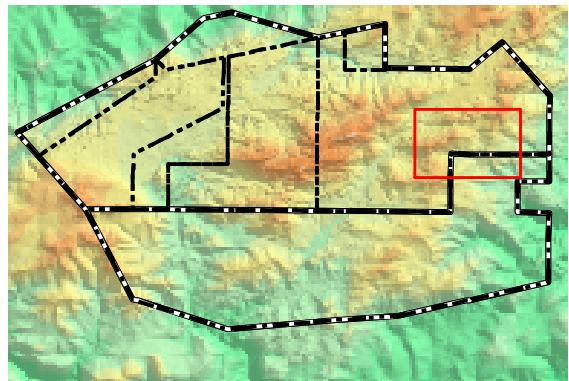
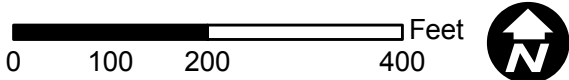
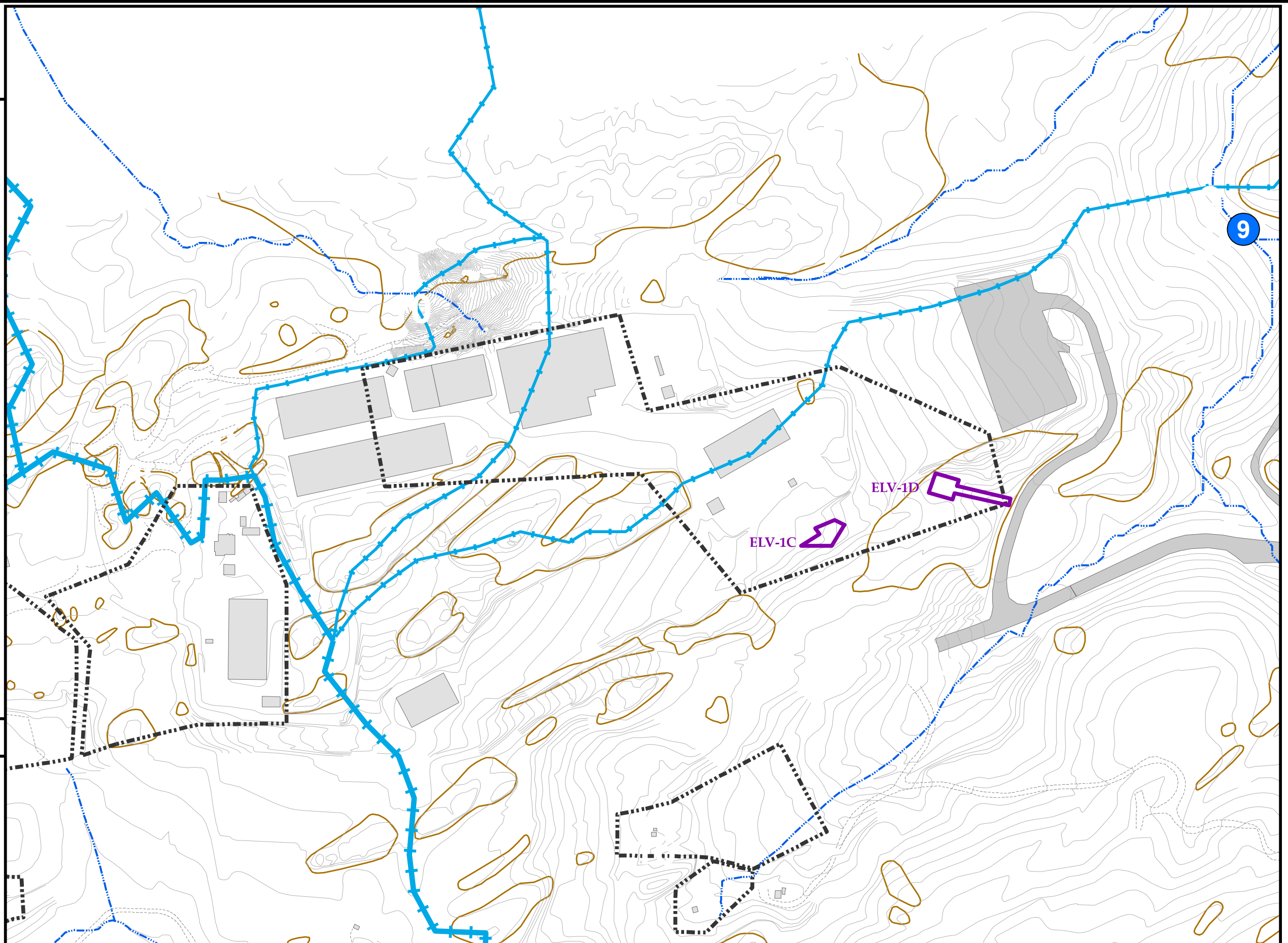


S A N T A S U S A N A F I E L D L A B O R A T O R Y

# ISRA Excavation Area Outfall 009

## Base Map Legend

-  Administrative Area Boundary
-  RFI Site Boundary
-  Existing Building or Structure
-  Excavation Area
-  Surface Water Drainage
-  Surface Water Divide
-  Outfall Water Divide
-  NPDES Outfall
-  Dirt Road
-  Elevation Contour
-  Paved Road
-  Bedrock Outcrop



S A N T A S U S A N A F I E L D L A B O R A T O R Y

**ATTACHMENT 1**

**ISRA WASTE SAMPLING FOR RADIONUCLIDES**

## Attachment 1

### ISRA Waste Sampling for Radionuclides

The following provides guidance for radiological sampling of waste generated during excavation of the ISRA Areas at Outfalls 008 and 009.

All of the chemical samples taken for waste disposal characterization shall be split for potential analyses for gamma spectroscopy, strontium-90 and tritium, using an off-site laboratory. Radiological analyses shall be conducted only if the results of chemical analyses determine that off-site disposal is necessary. A 1-liter plastic or glass bottle shall be used for the combined gamma, strontium and tritium sample. Minimum detectable activity for both cesium-137 and strontium-90 shall be  $\leq 0.05$  pCi/g. Minimum detectable activity for tritium shall be  $\leq 1$  pCi/g. The laboratory gamma spectroscopy library shall also include the following contaminants-of-concern as a minimum: Na-22, K-40, Mn-54, Co-60, Cs-134, Cs-137, Eu-152, Eu-154, Th-228, Th-232, U-235, U-238 and Am-241. Any detection of any gamma emitting radionuclides in the library shall also be reported.

Statistical evaluation of sample analytical results to determine whether or not the sampled waste contains Cs-137 or Sr-90 activity elevated above local background shall be conducted using the Wilcoxon Rank Sum Test using protocols described in NUREG-1505<sup>1</sup> and Department of Toxic Substances Control (DTSC) guidance<sup>2</sup>. Local background identified in Table 20 of the 1995 McLaren/Hart report<sup>3</sup> will be used in the statistical comparison. The Department of Public Health (DPH) and the DTSC will be notified if wastes are determined to contain radionuclides above background. The need for further waste evaluation or alternate disposition shall be determined. The waste shall be subjected to a dose analysis to determine if the material can be shipped off-site in compliance with the California Health & Safety Code<sup>4</sup>.

Field surveys, including gamma exposure, total beta contamination and alpha/beta wipe tests will be taken of any discrete objects which may be found that would be difficult to sample and analyze in a laboratory. Any solid debris surveyed that exceeds instrument minimum detectable activity, using commonly used survey instrumentation, will be held for further evaluation.

Waste generated shall be shown to meet the requirements of the relevant waste disposal facility permit before being shipped offsite.

Based on site knowledge, previous monitoring of the area, and/or previous sampling analysis, there is no evidence to suggest that any radiological contamination exists in the ISRA areas. The ISRA is not a radiological remediation project. Therefore the radiological controls normally associated with radiological

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<sup>1</sup> NUREG-1505, Nuclear Regulatory Commission, "A Non-parametric Statistical Methodology for the Design and Analysis of Final Status Decommissioning Surveys." January 1998. [http://www.philrutherford.com/Radiation\\_Cleanup\\_Standards/NUREG-1505.pdf](http://www.philrutherford.com/Radiation_Cleanup_Standards/NUREG-1505.pdf)

<sup>2</sup> DTSC, "Selecting Inorganic Constituents as Chemicals of Concern at Risk Assessments at Hazardous Waste Sites and Permitted Facilities." February 1997.

<sup>3</sup> McLaren/Hart, "Additional Soil and Water Sampling at the Brandeis-Bardin Institute and Santa Monica Mountains Conservancy." Jan 19, 1995. <http://www.etec.energy.gov/Health-and-Safety/Documents/BrandeisBardin/AddSoilandWaterSamp.pdf>

<sup>4</sup> California Health & Safety Code, Division 104, Part 9, Chapter 5, Sections 114705-114780 of the Radiation Control Law. <http://www.leginfo.ca.gov/cgi-bin/displaycode?section=hsc&group=114001-115000&file=114705-114780>





remediation projects including, radiation worker training, personnel dosimetry, baseline and post-project bioassays, workplace air monitoring for radionuclides, continuous routine radiation and contamination surveys, personnel and area contamination controls, tenting and HEPA ventilation, etc., are not planned for the ISRA project. However, as part of Boeing's commitment to a safe working environment, site conditions will be reviewed throughout the duration of the project, and adjustment to work plan monitoring will be made, as necessary.

**ATTACHMENT 2**

**HEAT INDEX CHART  
WORK/REST REGIMENTS TO PREVENT HRI**

## HEAT INDEX CHART

		RELATIVE HUMIDITY								
		10 %	20%	30%	40%	50%	60%	70%	80%	90%
TEMPERATURE F°	104°	98	104	110	120	>130	>130	>130	>130	>130
	102°	97	101	108	117	125	>130	>130	>130	>130
	100°	95	99	105	110	120	>130	>130	>130	>130
	98°	93	97	101	106	110	125	>130	>130	>130
	96°	91	95	98	104	108	120	128	>130	>130
	94°	89	93	95	100	105	111	122	128	>130
	92°	87	90	92	95	100	106	115	122	128
	90°	85	88	90	92	96	100	106	114	122
	88°	82	86	87	89	93	95	100	106	115
	86°	80	84	85	87	90	92	96	100	109
	84°	78	81	83	85	86	89	91	95	99
	82°	77	79	80	81	84	86	89	91	95
	80°	75	77	78	79	81	83	85	86	89
	78°	72	75	77	78	79	80	81	83	85
	76°	70	72	75	76	77	77	77	78	79
	74°	68	70	73	74	75	75	75	76	77

**Directions:** Locate the current temperature on the left column and then locate the relative humidity on the top row. Follow the temperature across and the humidity down until they meet; this measurement is the heat index. The heat index will increase 15 degrees in direct sunlight.

<b>Extreme Danger:</b>	<b>Heat Stroke likely to occur when working under these conditions.</b>
<b>Danger:</b>	<b>Heat Exhaustion or Heat Cramps likely. Heat Stroke may occur upon prolonged exertion.</b>
<b>Extreme Caution:</b>	<b>Heat Cramps or Heat Exhaustion likely to occur. The FSM or OSSO will implement adjusted schedules and procedures.</b>
<b>Caution:</b>	<b>Heat Fatigue may occur. Normal summer working conditions should be observed.</b>

Note: Information from National Weather Service, USAF, Texas A&M University

### Work/Rest Regimens to Prevent HRI

	(1)	(2)	(3)	(4)
Work/Rest (%)	WBGT °F	WBGT °F	WBGT °F	WBGT °F
Continuous	80	74	77	71
75/25	82	76	78	72
50/50	85	79	82	76
25/75	88	82	86	80

#### Work/Rest Regimen for Moderate Work based on WBGT Temperature Readings

- (1) Level D PPE – Hard hat, safety glasses, gloves and leather steel-toed shoes
- (2) Level C PPE – includes Level D PPE plus Tyvek coveralls. May also include respiratory protection.

#### Work/Rest Regimen for Heavy Work based on WBGT Temperature Readings

- (3) Level D PPE – Hard hat, safety glasses, gloves and leather steel-toed shoes
- (4) Level C PPE – includes Level D PPE plus Tyvek coveralls. May also include respiratory protection.

**Note:** Physiological monitoring may be utilized by workers in lieu of the work/rest regimen provided above. Refer to Attachment D for physiological monitoring guideline. The recommended work/rest regimen above can be exceeded and physiological monitoring implemented at the discretion of the entrant.

**ATTACHMENT 3**

**PROCEDURES FOR HEAT ILLNESS PREVENTION**

# MWH AMERICAS PROCEDURES FOR HEAT ILLNESS PREVENTION



March 2009



Employer Name: **MWH Americas** \_\_\_\_\_

Address: **618 Michillinda Avenue, Suite 200, Arcadia, CA 91007** \_\_\_\_\_

Contact Person(s)/Program Administrator: **Alex Fischl** \_\_\_\_\_

California Employers with any outdoor places of employment must comply with the Heat Illness Prevention Standard T8 CCR 3395. These procedures have been created to assist the employer in crafting their heat illness prevention procedures, and to reduce the risk of work related heat illnesses among their employees.

These procedures are not intended to supersede or replace the application of any other Title 8 regulation, particularly T8 3203 Injury and Illness Prevention Program (IIPP). Title 8 CCR 3203 requires an employer to establish, implement, and maintain an effective IIPP. The measures listed here may be integrated into the Employer's Injury and Illness Prevention Program.

The employer must also be aware that other standards apply to Heat Illness Prevention such as the requirement to provide for drinking water, first aid and emergency response.

To effectively establish your company procedures, carefully review the key elements listed on this document, as well as the examples provided, then select and fill out the procedures applicable to your workplace. Please use additional paper when necessary. Next, implement and train employees and supervisors on your company procedures.

**Please note:** These procedures provide the minimal steps applicable to most outdoor work settings and are essential to reducing the incidence of heat related illnesses. In working environments with a higher risk for heat illness (e.g., during a heat wave, or other severe working or environmental conditions), it is the employer's duty to exercise greater caution and additional protective measures beyond what is listed in this document, as needed to protect their employees.

For additional information on preventing Heat Related Illness, please visit the DOSH website at:  
<http://www.dir.ca.gov/DOSH/DOSH/HeatIllnessInfo.html>

# HEAT ILLNESS PREVENTION ELEMENTS

The elements reflected within this Heat Illness Prevention guide are those contained in Title 8 of the California Code of Regulations, Section 3395 (T8 CCR 3395) and consist of the following:

- Provision of Water
- Access to Shade
- Written Procedures
- Training



## > PROVISION OF WATER

**Water is a key preventive measure to minimize the risk of heat related illnesses.**

3395 (c) Employees shall have access to potable drinking water meeting the requirements of Sections 1524, 3363, and 3457, as applicable. Where the supply of water is not plumbed or otherwise continuously supplied, water shall be provided in sufficient quantity at the beginning of the work shift to provide one quart per employee per hour for drinking for the entire shift. Employers may begin the shift with smaller quantities of water if they have effective procedures for replenishment during the shift as needed to allow employees to drink one quart or more per hour. The frequent drinking of water, as described in (e), shall be encouraged.

**Sample procedures include but are not limited to the following:**

- Bring at least 2 quarts per employee at the start of the shift, and
- Supervisor/designated person will monitor water containers every 30 minutes, and employees are encouraged to report to supervisor/designated person low levels or dirty water.
- Supervisor will provide frequent reminders to employees to drink frequently, and more water breaks will be provided.
- Every morning there will be short tailgate meetings to remind workers about the importance of frequent consumption of water throughout the shift.
- Place water containers as close as possible to the workers, not away from them.
- When drinking water levels within a container drop below 50%, the water shall be replenished immediately; or water levels should not fall below the point that will allow for adequate water during the time necessary to effect replenishment.
- Disposable/single use drinking cups will be provided to employees, or provisions will be made to issue employees their own cups each day.
- Noise making devices, such as air horns, may be used to remind employee's to take their water break.

**To ensure access to sufficient quantities of potable drinking water, the following steps will be taken:**

---

1. MWH Field Project Manager (or designee) is responsible for ensuring that sufficient quantities of water are available and kept cool/cold for the applicable number of MWH employees on a field (outside) project site.
2. MWH will quantify the number of personnel on a jobsite before beginning work by all means necessary so as to ensure the correct amount of water is available.
3. The MWH project manager (or designee) shall verify daily that the amount of water provided was appropriate for the day's work, and make any necessary adjustments upon determining the expected number of employees for the next work cycle.
4. MWH will add additional water/beverages to account for anywhere from 1 – 3 additional personnel per shift to ensure a 'safety factor' for anticipated water need.
5. MWH field personnel will review and apply the above listed sample procedures to ensure sufficient quantities of potable water and implement all that are applicable.

**To encourage frequent drinking of potable water, the following steps will be taken:**

---

1. MWH will encourage frequent drinking breaks (hourly or more often if during strenuous work or periods of excessive heat ('heat wave')). The senior MWH field personnel (or a designee) will be responsible for maintaining the periodic breaks based on several variables (amount of time in the sun, temperature, acclimatization, etc.)
2. MWH field teams will be interviewed to determine water/beverage preferences so as to encourage adequate drinking
3. MWH Field Personnel will apply the above listed sample procedures as applicable to ensure the frequent drinking of potable water.



## > ACCESS TO SHADE

**Access to rest and shade or other cooling measures are important preventive steps to minimize the risk of heat related illnesses.**

3395 (d) Employees suffering from heat illness or believing a preventative recovery period is needed, shall be provided access to an area with shade that is either open to the air or provided with ventilation or cooling for a period of no less than five minutes. Such access to shade shall be permitted at all times. Except for employers in the agriculture industry, cooling measures other than shade (e.g., use of misting machines) may be provided in lieu of shade if the employer can demonstrate that these measures are at least as effective as shade in allowing employees to cool.

**Sample procedures include but are not limited to the following:**

- Supervisor will set-up an adequate number of; umbrellas, canopies or other portable devices, at the start of the shift and will relocate them to be closer to the crew, as needed. Equipment should be placed in close proximity (i.e., no more than 50-100 yards) to the work activity.
- Employees have access to office or construction trailer, or other building with air conditioning.
- Every morning there will be short tailgate meetings (in the employees' language) to remind workers about the importance of rest breaks and the location of shade.
- Non-agricultural employers can use other cooling measures **if** they demonstrate that these methods are as effective as shade.

**To ensure access to shade at all time, the following steps will be taken:**

- 
1. MWH employees suffering from heat illness or believing that some type of recovery period is necessary will have access to either some type of shade, or an air-conditioned building or vehicle. This shade will be within 50 -100 yards of the work activity.
  2. During the daily JHA review and documentation, the topic of heat stress will be discussed as appropriate based on heat-stress potential.
  3. MWH will continually assess heat-stress potential and implement additional, and/or unique measures to ensure that heat illness is prevented.

**To ensure that employees have access to a preventative recovery period, the following steps will be taken:**

1. To ensure MWH employees have access to a preventative recovery period, MWH field project managers (or a designee) will discuss heat-related issues and symptoms during the daily tailgate meeting.
2. MWH personnel will have the opportunity, either within a group or individually, to discuss any heat-related concerns with their supervisor on a daily basis. Employees summarizing concern about acclimatization, work efforts, or lack of recovery to the MWH supervisor will have an opportunity to discuss the applicable issues.
3. If a MWH employee identifies an issue with access to preventative recovery period, they are to contact the MWH EHS Director at 303.410.4127 to determine an appropriate and safe path forward and solution.

## **> WRITTEN PROCEDURES**

**Written procedures help reduce the risk of heat related illnesses, and ensure that emergency assistance is provided without delay.**

3395 (e) (3) The employer's procedures required by subsections (e) (1) (B), (G), (H), and (I) shall be in writing and shall be made available to employees and to representatives of the Division upon request. These include:

- (B) Procedures for complying with the requirements of this standard,
- (G) Procedures for responding to symptoms of possible heat illness, including how emergency medical services will be provided should they become necessary,
- (H) 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;
- (I) Procedures for ensuring that, in the event of emergency, clear and precise directions to the work site can and will be provided as needed to emergency responders.

**Sample written procedures include but are not limited to the following:**

- All employees will be trained prior to working outdoors.
- Working hours will be modified to work during the cooler hours of the day, when possible.
- When a modified or shorter work-shift is not possible, more water and rest breaks will be provided.

- Supervisors will continuously check all employees, and stay alert to the presence of heat related symptoms.
- Supervisors will carry cell phones or other means of communication, to ensure that emergency services can be called, and check that these are functional at the worksite prior to each shift.
- Every morning, workers will be reminded about address and directions to the worksite and emergency procedures.

**To reduce the risk of heat-related illness (HI) and respond to possible symptoms of HI, the following steps will be taken:**

- 
1. MWH Health and Safety Plans (HASPs) discuss heat-related illness, causes, and potential symptoms. All California-based work projects will conform with T8 CCR 3395 to ensure all appropriate and applicable programs and procedures are implemented.
  2. All MWH HASPs discuss and identify emergency procedures to be implemented in the event of any type of employee injury or illness.
  3. MWH projects will implement all applicable listed sample written procedures as detailed above including training, modification of work-hours (if possible), and modification of both water and rest breaks (based on temperature , work load, PPE, and any other factors affecting heat-related illness potential).
  4. MWH supervisors will continually assess both current weather conditions and employee working conditions along with individual employee health in order to proactively prevent any type of heat-related illness.
  5. MWH supervisors are instructed to discuss heat-related illness or related issues both as a pre-work and post-work topics based on weather conditions.
  6. MWH will provide additional training, employ heat-stress monitoring equipment, and/or apply other tools to ensure that heat-related illnesses are prevented.

**To ensure that emergency medical services are provided without delay, the following steps will be taken:**

- 
1. All MWH HASPs present and discuss emergency medical services as well as identify the nearest hospital.
  2. All MWH employees must read and sign-off on a field project HASP to ensure comprehension and response procedures in the event of a medical emergency.

## > TRAINING

**Training is critical to help reduce the risk of heat related illnesses and to assist with obtaining emergency assistance without delay.**

**3395 (e) (1) Employee training:** Training in the following topics shall be provided to all supervisory and non-supervisory employees:

- (A) The environmental and personal risk factors for heat illness;
- (B) The employer's procedures for complying with the requirements of this standard;
- (C) 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;
- (D) The importance of acclimatization;
- (E) The different types of heat illness and the common signs and symptoms of heat illness;
- (F) The importance to employees of immediately reporting to the employer, directly or through the employee's supervisor, symptoms or signs of heat illness in themselves, or in co-workers;
- (G) The employer's procedures for responding to symptoms of possible heat illness, including how emergency medical services will be provided should they become necessary;
- (H) The employer's 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;
- (I) The employer's 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.

Note: T8 CCR 3203(a)(3) requires that communication for employees shall be in a form readily understandable by all affected employees.

**(e) (2) Supervisor training:** Prior to assignment to supervision of employees working in the heat, training on the following topics shall be provided:

- (A) The information required to be provided by section (e) (1) above.
- (B) The procedures the supervisor is to follow to implement the applicable provisions in this section.
- (C) The procedures the supervisor is to follow when an employee exhibits symptoms consistent with possible heat illness, including emergency response procedures.

**Sample written procedures include but are not limited to the following:**

- All employees will receive heat illness prevention training prior to working outdoors. Especially all newly hired employees
- On hot days, and during a heat wave, supervisors will hold short tailgate meetings to review this important information with all workers.
- All newly hired workers will be assigned a buddy or experienced coworker to ensure that they understood the training and follow the company procedures.
- Supervisors will be trained prior to being assigned to supervise outdoor workers.
- Primary (Farm Labor Contractors, staffing companies, etc) and secondary employers will ensure that all employee's (including temporary) working outdoors are trained in heat illness prevention.

**To ensure employees are trained, the following steps will be taken:**

---

1. All MWH employees with potential heat stress work environments must review the MWH Heat Illness Prevention (HIP) powerpoint (based on the Cal-OSHA HIP template).
2. Each MWH employee reviewing the MWH HIP acknowledges understanding of the MWH program by signing off on the project HASP.
3. All project personnel heightened concern—it is the MWH field project manager (or designee) who will designate and identify times of raised heat-illness potential will work in a “team atmosphere” and utilize the “buddy system” on days where heat-illness is of potential
4. MWH will implement additional procedures listed in the sample written procedures (as above) as necessary
5. Tailgate meetings will be held on days where excessive temperature is expected / predicted.
6. MWH supervisors must review the MWH HIP and the project-specific HASP to ensure adequate training to supervise other MWH employees. MWH EHS provides additional training materials to MWH supervisors to ensure additional knowledge about heat-related illness.

**To ensure supervisors are provided training, the following steps will be taken:**

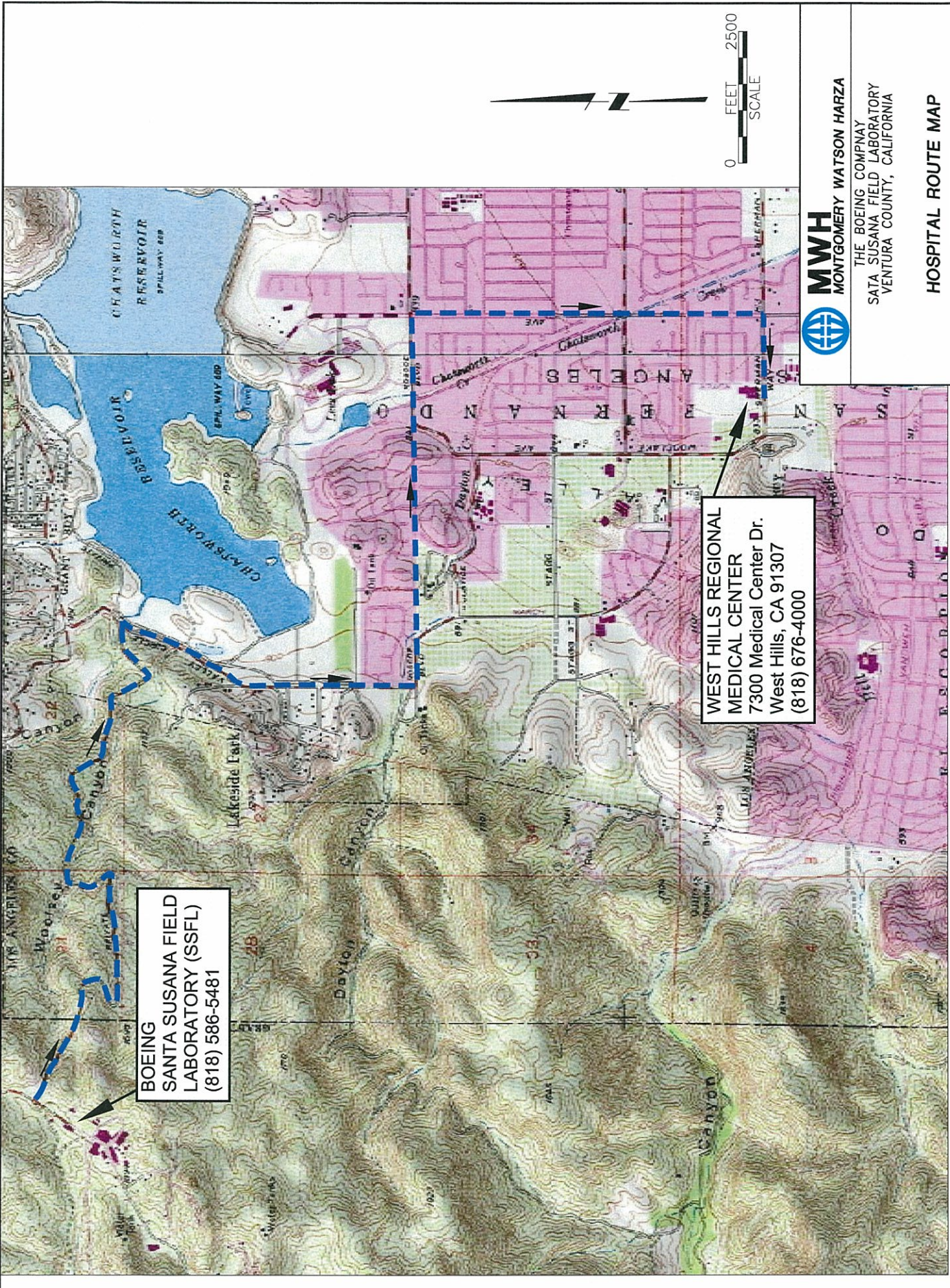
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1. All MWH supervisors overseeing MWH employees shall review both the project HASP and the MWH HIP.
2. MWH supervisors are responsible for overseeing MWH field employees for heat-related issues or concerns.
3. MWH supervisors should contact MWH EHS for additional information or with any questions related to heat-stress or any other safety/health issue either directly or via the emergency contact number (1.866.469.4456).

**ATTACHMENT 4**  
**EMERGENCY ASSISTANCE INFORMATION**

**BOEING (ROCKETDYNE) SANTA SUSANA FIELD LABORATORY,  
TOP OF WOOLSEY CANYON  
SIMI VALLEY, CALIFORNIA, 93063**

<b>Nearest Hospital</b>	<b>West Hills Hospital and Medical Center</b> 7300 Medical Center Dr. West Hills, California Phone: (818) 676-4000  <u>Directions to Hospital</u> – See Emergency Route Map (next page) Exit onto Woolsey Canyon Road and make a right on Valley Circle Blvd. (Lake Manor Road). Head south to Vanowen St. and make a left. Go to Sherman Way and make a left to Medical Center Dr. Make a left and the hospital is on the right.	
<b>Nearest Telephone</b>	Field Vehicle	
<b>Ambulance, Fire, Police, &amp; Sheriff</b>	1. Boeing SSFL Security Department Control Center (fire and emergency medical technicians with ambulance available to contractors ) (818) 586-5481 or (818) 586-5333 2. <b>From a Boeing phone dialing 911 will automatically transfer to their emergency dispatch – but you will need to explain that you are at the SSFL</b> 3. Fire (LAFD), Valley Industrial Unit (818) 756-8561 4. Police (818) 756-8542, West Valley Division	
<b>State Highway Patrol</b>	(818) 888-0980, Woodland Hills Division	
<b>First-Aid Kit, Fire Extinguishers and eye lavages</b>	Field Vehicle and Field Command Center	
<b>Poison Control</b>	(800) 876-4766	
<b>Project Contacts</b>	<u>MWH</u> Ben Stewart Field Site Manager (818) 266-0305 (cell)	
		Alex Fischl Project Manager (925) 627-4627
	<u>Client Contact</u> Mr. Robert Mako EHS Health and Safety Officer Boeing 818-466-8735 office	
		Lori Blair Project Coordinator Boeing (818) 466-8741
<b>Regulatory Notification</b>	Cal-EPA DTSC Gerard Abrams (916) 255-3600 EPA Region IX (415) 744-1305 EPA Region IX spill response (415) 744-2000 NRC (800) 424-8802 California Office of Emergency Services (800) 852-7550	
<b>Utilities</b>	<ul style="list-style-type: none"> <li>• <u>DigAlert (Underground Service Alert)</u> (800) 227-2600</li> <li>• <u>Electric (Boeing owned and controlled)</u> Emergency: (818) 586-5333  Maintenance Manager – Brian Logan (818) 586-9052</li> <li>• <u>The Gas Company (Dean Jaedtke):</u> (805) 520-7529; (805) 523-4777 pager</li> </ul>	
		<ul style="list-style-type: none"> <li>• <u>Water:</u> Calleguas Water District (805) 526-9323</li> <li><u>Sewer (Boeing controlled treatment plant):</u> Emergency: (818) 586-5333 Maintenance Manager – Brian Logen (818) 586-9052</li> </ul>



**BOEING**  
**SANTA SUSANA FIELD**  
**LABORATORY (SSFL)**  
**(818) 586-5481**

**WEST HILLS REGIONAL**  
**MEDICAL CENTER**  
**7300 Medical Center Dr.**  
**West Hills, CA 91307**  
**(818) 676-4000**



**MWH**  
**MONTGOMERY WATSON HARZA**

THE BOEING COMPANY  
 SATA SUSANA FIELD LABORATORY  
 VENTURA COUNTY, CALIFORNIA

**HOSPITAL ROUTE MAP**



**ATTACHMENT 5**  
**TAILGATE SAFETY MEETING FORM**



**TAILGATE SAFETY MEETING FORM**

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Job Number: \_\_\_\_\_

Client: \_\_\_\_\_

Site Specific Location: \_\_\_\_\_

**Safety Topics Presented**

Protective Clothing/Equipment: \_\_\_\_\_

Chemical Hazards: \_\_\_\_\_

Physical Hazards: \_\_\_\_\_

Special Equipment: \_\_\_\_\_

Other (IIPP): \_\_\_\_\_

Emergency Procedures: \_\_\_\_\_

Hospital: \_\_\_\_\_ Phone: \_\_\_\_\_ Ambulance Phone: \_\_\_\_\_

Hospital Address and Route: \_\_\_\_\_

**ATTENDEES**

NAME PRINTED

SIGNATURE

\_\_\_\_\_

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\_\_\_\_\_

Meeting Conducted By: \_\_\_\_\_

Name Printed

Signature

On-Site Safety Officer: \_\_\_\_\_ Project Manager: \_\_\_\_\_

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**ATTACHMENT 6**  
**ACTIVITY HAZARD ANALYSIS FORM NO. 1**

## Attachment 6

### Activity Hazard Analysis Form No. 1

ACTIVITY: Excavation and Backfilling CERTIFIED BY: Beth Darnell, CIH / 09-12-03 REVIEWED BY: Ben Stewart, PG / 06-12-09

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
Identify the principal steps and sequence. List equipment below.	Analyze each principal step for its potential chemical/ toxicological, radiological, biological and physical hazards.	Develop specific controls for each potential hazard. Also: <ul style="list-style-type: none"> <li>• List inspection requirements for the equipment / machinery listed</li> <li>• Specify worker training requirements</li> </ul>
1. Access excavation location with vehicle 2. Excavation of soil with backhoe, trackhoe, excavator, loader or similar track-mounted equipment. 3. Drive soil to temporary compost pile location at the upper reach of Happy Valley or to dump truck. 4. Haul backfill soil from acceptable	<p><u>Chemical/Toxicological Hazards:</u></p> <ul style="list-style-type: none"> <li>• Dioxins/Furans</li> <li>• Lead</li> <li>• Copper</li> <li>• Cadmium</li> <li>• Arsenic</li> <li>• Zinc</li> <li>• TCE</li> <li>• Liquinox</li> <li>• Isopropyl Alcohol</li> </ul> <p><u>Radiological Hazards:</u> None</p> <p><u>Biological Hazards:</u></p> <ul style="list-style-type: none"> <li>• <b>Poison Oak</b></li> <li>• Poisonous snakes</li> <li>• Spiders</li> <li>• Bees</li> <li>• Mosquitoes</li> <li>• Ticks</li> </ul> <p><u>Physical Hazards:</u></p> <ul style="list-style-type: none"> <li>• Slip/trip/fall on uneven terrain or into open excavation</li> <li>• Sidewall collapse due to unstable soils, water in excavation, vibration</li> </ul>	<p><u>Chemical/Toxicological Hazards:</u></p> <p>a) Monitoring Requirements</p> <ul style="list-style-type: none"> <li>✓ Visual monitoring for dust</li> </ul> <p>b) Engineering and Work Practice Controls</p> <ul style="list-style-type: none"> <li>✓ Keep soil moist to prevent dust potentially containing hazardous constituents from becoming airborne</li> <li>✓ Ensure that soil piles are covered if very dry and windy.</li> <li>✓ Ensure contractor has necessary supplies to handle a hydraulic oil leak.</li> </ul> <p>c) Personal Protective Equipment (PPE)</p> <ul style="list-style-type: none"> <li>✓ Initial Level D</li> </ul> <p><u>Radiological Hazards:</u> None</p> <p><u>Biological Hazards:</u></p> <ul style="list-style-type: none"> <li>• PPE: Long pants, light colored clothing, ankle high boots, Tyvek and gloves optional.</li> <li>• First Aid Kit: Insect repellent with the active ingredient DEET at no more than 30%; bug bite supplies.</li> <li>• Conduct self inspection for ticks or insect bites or Poison oak.</li> </ul> <p><u>Physical Hazards:</u></p> <ul style="list-style-type: none"> <li>• Track-mounted equipment has been specifically chosen for this work because of the steep, narrow and difficult access road. Driving is to be done by experienced, trained and authorized operators only. While vehicle is moving all other people are to be clear of the road and areas below or to the side where it could possibly fall. If at any time the operator believes it would be unsafe to access an area, work shall</li> </ul>

<p>location and drive to excavation area.</p> <p>5. Decon heavy equipment with steam/pressure washer.</p> <p>6. Placement of perimeter control to prevent accidental walk into open pit.</p> <p>7. Backfilling to grade as required to meet elevation specifications.</p>	<p>from surface, etc.</p> <ul style="list-style-type: none"> <li>• Heat stress, sunburn</li> <li>• General heavy equipment hazards of being struck by or caught between moving parts.</li> <li>• Noise from heavy equipment</li> <li>• Hand injury from hand tools and heavy equipment</li> <li>• Fires from dry brush or refueling generators</li> <li>• Spill or damage to equipment not secured in vehicles during travel.</li> <li>• Burn or laceration from high temperature/pressure steam cleaning equipment.</li> </ul>	<p>stop and the crew will meet to discuss options. Jeopardizing anyone's safety is not acceptable or expected – it is understood that this area is difficult to access.</p> <ul style="list-style-type: none"> <li>• Watch where you step, be aware that sticks, rocks or other items can be concealed by leaves and grass, causing you to trip.</li> <li>• Personnel will stay at least 3 feet from the edge of the trench. A competent person must be on-site at all times to monitor the safety of the excavation and to classify the soils. Be cautioned that the soil could contain sands that would make the sidewall less stable, a classification of the soil should be made prior to approaching the edge. De-watering may be necessary to allow for visual observation and for safety of personnel at the surface.</li> <li>• The Contractor must have a current permit on file with Cal-OSHA for excavation work.</li> <li>• Moving equipment must have properly functioning back-up alarms</li> <li>• Spotters on the ground will assist operators in maneuvering vehicles and equipment into tight or confined places</li> <li>• Operators will maintain a constant awareness of personnel and equipment in the work area.</li> <li>• Workers will wear high visibility vests and hard hats and stay out of the way of moving equipment and at least 3 feet from the edge of the excavation.</li> <li>• Machinery or equipment shall not run unattended unless secured by the operator.</li> <li>• Blade, bucket etc. will be fully lowered or blocked when not in use or being repaired</li> <li>• Rollover protection will be used when conditions call for such use. Safety belts will be used by the operator while equipment is in use</li> <li>• Hearing Protection will be worn at 85 dBA (typically only needed when within 10 feet of operating machinery)</li> <li>• Equipment or machinery will be taken out of service if an unsafe deficiency is noted and will remain out of service until corrected</li> <li>• Machinery or equipment will not be operated in a manner that will endanger persons or property nor will the safe operating speeds or loads be exceeded</li> <li>• Seats will be provided for each occupant of the equipment</li> <li>• Equipment operated on the highway will be equipped with headlights, taillights, brake lights, back-up lights, and turn signals visible from the front and rear</li> <li>• All mobile equipment and the areas in which they are operated will be adequately illuminated.</li> </ul>
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		<ul style="list-style-type: none"> <li>• Before starting work, walk around the site looking up for any overhead lines. If a 20-foot clearance can not be maintained contact the utility and arrange to have the power turned off or insulated.</li> <li>• On hot days (e.g., over 90 degrees F) wear light colored clothing. It is recommended that sunscreen be used if working in direct sunlight. Refer to the original HSP for work/rest schedule and methods of monitoring for heat stress.</li> <li>• Use heavy work gloves when handling tools or equipment with sharp edges. Select hand tools carefully, considering the relative safety of the tool compared to others. Choose cutters over knives for cutting things like tubing, ties, string, etc. and make a loop and cut away from the body. Use a knife as last resort – if it or other similar sharp tools like a machete is needed, call a short timeout and discuss its use with the rest of the field team to ensure that it is the best tool and the safest method will be employed. When not in use protect blades in a covered sheath. Cut away from the body and be sure that no one else is within two arms’ lengths of the tool.</li> <li>• Practice safe lifting and ergonomics refer to the original HSP for specific reminders.</li> <li>• For general safe work practices around excavating equipment refer to the original HSP. In general, ensure that the contractor inspects the equipment, keeps a tidy workplace around the site, replaces any faulty or suspect items. Stay away from rotating parts (ask operator to identify pinch points – do not touch anything you are not familiar with and know is safe), approach only when the operator knows you are there (e.g., make eye contact).</li> <li>• Mechanized equipment will be shut down prior to and during refueling operations.</li> <li>• Whenever equipment is parked, the parking brake will be set and at least two wheels choked.</li> <li>• Load capacities ratings will not be exceed at any time</li> <li>• No guard, safety appliance, or device will be tampered with</li> <li>• Operators will notify their supervisors when taking medication that may impair safe operation of the vehicle</li> <li>• Stay out of the swing radius of the equipment and any operator blind spots.</li> <li>• Verify that no dry brush is under parked vehicles. Only refuel when equipment has been turned off and is safe (cool) enough to be refueled. Have fire extinguisher readily accessible.</li> <li>• As a standard rule of practice ensure that items being hauled in vehicles are secured in sturdy containers and held from sliding with bungee cords, ties, or compartments. Any compressed gas cylinders (e.g., for equipment calibration must be secured upright or in a carry case).</li> </ul>
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		<ul style="list-style-type: none"> <li>When using high pressure/temperature steam for decontamination – ensure that the person using the equipment has been trained and operates it in accordance with the manufacturer’s guidelines (good idea to ask for a copy of the manual to be sure it is available for reference). Metatarsal guards may be necessary for the operation to protect against lacerations.</li> </ul>
<u>Equipment List:</u> 1. Field vehicle 2. Excavator or Backhoe 3. Loader 4. Compaction equipment 5. Decon water	<u>Training:</u> <ul style="list-style-type: none"> <li>Current HAZWOPER Training</li> <li>Boeing Contractor Orientation</li> <li>Operator training for heavy equipment</li> <li>Daily Tailgate Safety Meetings <ul style="list-style-type: none"> <li>✓ Check in with Contractor Coordinator and Technicians</li> <li>✓ Identify nearest assembly area</li> <li>✓ Prepare for adverse weather conditions</li> <li>✓ Review team roles and responsibilities, schedule and goals</li> </ul> </li> </ul>	<u>Inspections:</u> <ul style="list-style-type: none"> <li>Daily vehicle operability inspection</li> <li>Continuous observation of site for identified hazards</li> <li>Inspect excavation for signs of sidewall collapse, water in the bottom.</li> <li>Inspect all heavy equipment in accordance with the manufacturer’s instructions. The contractor shall keep a written record of the inspection at the site. Any items that could result in a safety hazard must be repaired or replaced prior to starting work (e.g., hydraulic hoses, frayed cords, loose bolts, unguarded drive trains).</li> <li>Terrain stability and access for moving equipment</li> <li>Inspect site for dry brush that could cause a fire hazard – remove as necessary and acceptable to Boeing.</li> <li>Concrete coring equipment must have an operating guard in place to protect against cuts – electrical connections must be solid and the cord not frayed.</li> </ul>



**ATTACHMENT 7**  
**ACTIVITY HAZARD ANALYSIS FORM NO. 2**

## Attachment 7

### Activity Hazard Analysis Form No. 2

ACTIVITY: Soil Sampling CERTIFIED BY: Rick Shassetz, CIH / 6/25/09 REVIEWED BY: Ben Stewart / 6/25/09

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
Identify the principal steps and sequence. List equipment below.	Analyze each principal step for its potential chemical/ toxicological, radiological, biological and physical hazards.	Develop specific controls for each potential hazard. Also: <ul style="list-style-type: none"> <li>• List inspection requirements for the equipment / machinery listed</li> <li>• Specify worker training requirements</li> </ul>
Set-up 1. Mobilize/drive equipment to site. 2. Evaluate site conditions for hazards (muddy, poison oak, etc.) 3. Set up materials on truck tailgate or card table – cover with visqueen or foil if handling potentially contaminated materials. 4. Core concrete if needed.  Collect Samples 1. Trowel and	<u>Chemical/Toxicological Hazards:</u> <ul style="list-style-type: none"> <li>• Dioxins/Furans</li> <li>• Lead</li> <li>• Copper</li> <li>• Cadmium</li> <li>• Arsenic</li> <li>• Zinc</li> <li>• TCE</li> <li>• Liquinox</li> <li>• Isopropyl alcohol</li> </ul> <u>Radiological Hazards:</u> None  <u>Biological Hazards:</u> <ul style="list-style-type: none"> <li>• Poison Oak</li> <li>• Poisonous snakes</li> <li>• Spiders</li> <li>• Bees</li> <li>• Mosquitoes</li> <li>• Ticks</li> </ul> <u>Physical Hazards:</u> <ul style="list-style-type: none"> <li>• Slip / Trip / Fall on same level</li> <li>• Fall in water if sampling from pond or stream</li> <li>• Contact with buried utility</li> </ul>	<u>Chemical/Toxicological Hazards:</u> a) Monitoring Requirements See Form No. 1 b) Engineering and Work Practice Controls Keep soil moist since many of the contaminants are particulates. c) Personal Protective Equipment (PPE) Initial Level D, plus safety vest and snake gators. Use nitrile (or other glove is specified for a particular site) when handling soil, contaminated equipment or water. Use hard hat if working inside designated Hard Hat area. d) Review MSDS for Alconox and isopropyl alcohol.  <u>Radiological Hazards:</u> None  <u>Biological Hazards:</u> <ul style="list-style-type: none"> <li>• PPE: Long pants, light colored clothing, ankle high boots, snake gators, and safety vest, Tyvek and gloves optional.</li> <li>• First Aid Kit: Insect repellent with the active ingredient DEET at no more than 30%; bug bite supplies.</li> <li>• Conduct self inspection for ticks or insect bites or Poison oak.</li> </ul> <u>Physical Hazards:</u> <ul style="list-style-type: none"> <li>• Observe terrain for holes and trip hazards. Wear boots with significant tread, switch to rubber or PVC if wet and muddy conditions exist.</li> <li>• On hot days (e.g., over 90 degrees F) wear light colored clothing. It is recommended that sunscreen be used if working in direct sunlight.</li> <li>• Use heavy work gloves when handling tools or equipment with sharp edges. Check</li> </ul>

<p>bowl</p> <ol style="list-style-type: none"> <li>2. Jar, sleeve or other container</li> <li>3. Hand auger</li> <li>4. Slide hammer</li> <li>5. Place soil on visqueen or in buckets</li> <li>6. Decontaminate with a 4-stage process (soap, water, isopropyl alcohol spray, deionized water)</li> </ol> <p>Demobilization</p> <ol style="list-style-type: none"> <li>1. Pack samples for analysis</li> <li>2. Containerize waste</li> <li>3. Transport waste to Building 27</li> <li>4. Replace borehole with grout or concrete patch.</li> </ol>	<ul style="list-style-type: none"> <li>• Heat stress, sunburn</li> <li>• Hand injury (cut or pinch) from hand tools and augering equipment</li> <li>• Heavy lifting</li> <li>• Awkward posture and force on hand augers, or kneeling to collect surface soil or surface water.</li> <li>• Blade and rotating concrete coring machinery.</li> <li>• Noise if using concrete coring equipment</li> </ul>	<p>the threads and ends of sampling devices for defects that could be sharp.</p> <ul style="list-style-type: none"> <li>• Select hand tools carefully, considering the relative safety of the tool compared to others (e.g., choose cutters over knives for cutting things). Use a knife as last resort – if it is needed, call a short timeout and discuss its use with the rest of the field team to ensure that it is the best tool and the safest method will be employed.</li> <li>• When using a hand auger use heavy work gloves to prevent blistering.</li> <li>• When using a slide hammer be sure to release hands when thrusting the hammer both downward and upward.</li> <li>• Practice safe lifting and ergonomics. Set sample coolers at waist height before filling, place decon buckets on a cooler to avoid stooping, or sit on a bucket to avoid prolonged stooping.</li> <li>• Specifically when augering – be sure to bend at the knees to keep the back’s natural ‘S’ curve. Move feet rather than twisting the back. Trade off with buddy to prevent overuse strain and allow for breaks.</li> <li>• Be sure that the vehicle’s emergency brake is set and wheels chocked if not in standard parking space.</li> <li>• Wear safety glasses when in the exclusion zone.</li> <li>• Wear hearing protection while using coring equipment. Hearing protection may be discarded if a noise survey indicates that levels are below 85 dBA.</li> <li>• As a standard rule of practice ensure that items being hauled in vehicles are secured in sturdy containers and held from sliding with bungee cords, ties, or compartments. Any compressed gas cylinders (e.g., for equipment calibration must be secured upright or in a carry case).</li> </ul>
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<p><u>Equipment List:</u></p> <ol style="list-style-type: none"> <li>1. Hand Auger</li> <li>2. Slide Hammer</li> <li>3. Bowl and trowel</li> <li>4. Sample containers</li> <li>5. Support vehicle</li> <li>6. Hand tools</li> <li>7. Concrete corer</li> </ol>	<p><u>Training:</u></p> <ul style="list-style-type: none"> <li>• Current HAZWOPER Training</li> <li>• Boeing Contractor Orientation</li> <li>• Hand auger use</li> <li>• Daily Tailgate Safety Meetings <ul style="list-style-type: none"> <li>✓ Check in with Contractor Coordinator and Technicians</li> <li>✓ Identify nearest assembly area.</li> <li>✓ Prepare for adverse weather conditions.</li> <li>✓ Review team roles and responsibilities, schedule and goals.</li> <li>✓ Check capacity of soil and water waste containers.</li> </ul> </li> </ul>	<p><u>Inspections:</u></p> <ul style="list-style-type: none"> <li>• Daily vehicle operability inspection</li> <li>• Continuous observation of site for identified hazards</li> <li>• Concrete coring unit according to manufacturer's instructions being sure that the blade guard is in place and electrical cord in good shape.</li> <li>• Augers – look for sharp or jagged edges, signs of wear or unusual tightness in parts that should move freely. Replace or repair parts not in safe working condition.</li> </ul>
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