

# *Appendices*

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## *Appendix D* *Health and Safety Plan*



# *Appendices*

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**HEALTH AND SAFETY  
PLAN**

**PROPOSED IRVINE**

**UNIFIED SCHOOL**

**DISTRICT HIGH**

**SCHOOL #5**



*prepared for:*

**IRVINE UNIFIED  
SCHOOL DISTRICT**

*Contact:  
Dana Grudem, Facilities  
Planning Supervisor*

*prepared by:*

**THE PLANNING  
CENTER | DC&E**

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Denise Clendening,  
Ph.D.  
Director of Site  
Assessment Services*

**OCTOBER 2013**

**HEALTH AND SAFETY  
PLAN**

**PROPOSED IRVINE**

**UNIFIED SCHOOL**

**DISTRICT HIGH**

**SCHOOL #5**



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# Table of Contents

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<b>Section</b>	<b>Page</b>
<b>SECTION 1. APPLICABLE STANDARDS AND GOALS .....</b>	<b>1</b>
1.1 General.....	1
1.2 Scope and Applicability of the Health and Safety Plan .....	1
<b>SECTION 2. SITE DESCRIPTION .....</b>	<b>3</b>
2.1 Site Identification.....	3
2.2 Site Location.....	3
2.3 Current and Historical Land Uses .....	3
<b>SECTION 3. ROLES AND RESPONSIBILITIES.....</b>	<b>5</b>
3.1 Project Director.....	5
3.2 Project Manager .....	5
3.3 The Planning Center Health and Safety Manager .....	5
3.4 Site Manager .....	5
3.5 Site Safety Officer .....	6
3.6 Field Technicians .....	6
3.7 Field Team Size.....	6
<b>SECTION 4. TRAINING AND MEDICAL MONITORING REQUIREMENTS.....</b>	<b>7</b>
<b>SECTION 5. DESCRIPTION OF FIELD WORK.....</b>	<b>9</b>
5.1 Soil sampling activities.....	9
<b>SECTION 6. CHEMICAL HAZARDS .....</b>	<b>11</b>
6.1 Hazard Assessment .....	11
<b>SECTION 7. PHYSICAL HAZARDS.....</b>	<b>13</b>
7.1 Heavy Equipment.....	13
7.2 Electrocutation .....	13
7.3 Slippery Terrain, Slips, Trips, and Falls .....	13
7.4 Noise .....	13
7.5 Heat Stress .....	13
<b>SECTION 8. PERSONAL PROTECTIVE EQUIPMENT (PPE).....</b>	<b>15</b>
<b>SECTION 9. ILLUMINATION.....</b>	<b>17</b>
<b>SECTION 10. STANDARD OPERATING PROCEDURES .....</b>	<b>19</b>
10.1 Daily Safety Meetings.....	19
10.2 Daily Debriefing Meetings .....	19
10.3 Administrative Action.....	19
<b>SECTION 11. CONFINED SPACES.....</b>	<b>21</b>
<b>SECTION 12. NOISE MONITORING .....</b>	<b>23</b>
<b>SECTION 13. DESCRIPTION OF SITE WORK ZONES .....</b>	<b>25</b>



# Table of Contents

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<b>SECTION 14. DECONTAMINATION.....</b>	<b>27</b>
<b>SECTION 15. EMERGENCY SUPPLIES.....</b>	<b>29</b>
15.1 Fire Extinguishers.....	29
15.2 Spill Control Equipment .....	29
<b>SECTION 16. EMERGENCY CONTACT INFORMATION.....</b>	<b>31</b>
<b>SECTION 17. DIRECTIONS TO THE HOSPITAL.....</b>	<b>33</b>
<b>SECTION 18. AUTHORIZED CHANGES TO THE HEALTH AND SAFETY PLAN.....</b>	<b>35</b>
<b>SECTION 19. CERTIFICATION .....</b>	<b>37</b>

# 1. *Applicable Standards and Goals*

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## **1.1 GENERAL**

This Health and Safety Plan (HASP) was prepared by The Planning Center|DC&E for Irvine Unified School District (the District). This HASP provides an overview of current conditions at the site and describes the safety procedures to be employed and the rationale for their selection. The HASP has been prepared to ensure proper precautions are taken to protect human health and safety while work is being performed at the site. During the development of this HASP, consideration was given to current safety standards as defined by the U.S. Environmental Protection Agency (EPA), the Occupational Health and Safety Administration (OSHA), and the National Institute of Occupational Safety and Health (NIOSH). This HASP was prepared in accordance with guidelines set forth in Title 8 of the California Code of Regulations, Section 5192 (8 CCR 5192). In addition, this HASP also describes the health effects and standards for known contaminants and the procedures designed to account for the potential for exposure to unknown substances.

## **1.2 SCOPE AND APPLICABILITY OF THE HEALTH AND SAFETY PLAN**

The purpose of this HASP is to define the requirements and designate protocols to be followed by the onsite personnel during the field activities. Site conditions, identified sources and previous work elements implemented at the site are described in the Workplan. This HASP is applicable to all employees, government employees, contractors, subcontractors, and visitors to the site. This HASP will be used to ensure that adequate site safety practices are used during soil sample collection activities.

All personnel working at the site must review the HASP and sign an agreement to comply with its requirements and to signify their familiarity with all aspects of the HASP before entering an exclusion zone or a contamination reduction zone. A copy of the HASP Certification is provided in Section 19. All personnel working at the site will be briefed daily by the Site Safety Officer (SSO) and will be required to become familiar with the following sections of this plan:

- Directions to Hospital - Section 17;
- Safety Rules and Personal Hygiene - Appendix A;
- Field Standard Operating Procedures for Use and Decontamination of Personal Protective Equipment (PPE) - Appendix B;
- Heat Stress and Heat Stress Monitoring - Appendix C.



# *1. Applicable Standards and Goals*

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## 2. *Site Description*

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### **2.1 SITE IDENTIFICATION**

The site has been identified by the District as the Proposed Irvine Unified School District High School – Great Park.

### **2.2 SITE LOCATION**

The site is located south of the intersection of Irvine Boulevard and Desert Storm Drive in the City of Irvine, Orange County, California.

### **2.3 CURRENT AND HISTORICAL LAND USES**

#### **2.3.1 Property Ownership**

The site is currently owned by Irvine Community Development Company.

#### **2.3.2 Business/Manufacturing Activities**

Based on a review of historical documents, the southern portion of the site has been utilized for agricultural purposes since at least the 1950s, and on the northern portion of the site since at least 1994. No evidence of any manufacturing activities was observed during the site walk.

#### **2.3.3 Site Climatological Setting**

The site vicinity is an area with typical Mediterranean climate, characterized by warm dry summers and mild winters. The Western Regional Climate Center collected climatological data in Tustin Irvine Ranch from 1902 to 2003. The mean temperature in the area ranges from a low of 40.2° Fahrenheit (°F) in the winter to a high of 85.2°F in the summer. The average annual precipitation is 12.86 inches per year and snowfall is rare in the area.



## 2. *Site Description*

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### 3. Roles and Responsibilities

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A number of roles are required for the safe and efficient operation of a field team. These roles include Project Director, Project Manager, The Planning Center|DC&E Health and Safety Manager, Site Manager, SSO and field personnel. A team member may take on more than one role, but the roles must be clearly assigned and must cover all positions required. The personnel assigned to the various roles and their phone numbers are listed below:

<u>Assignment</u>	<u>Name</u>	<u>Phone Number</u>
Project Director	Dr. Denise Clendening	(909) 989-4449
Project Manager	Dr. Denise Clendening	(909) 989-4449
Health & Safety Manager	Mike Watson	(909) 989-4449
Site Manager	Mike Watson	(909) 989-4449
Site Safety Officer	Mike Watson	(909) 989-4449
Field Personnel	Mike Watson	(909) 989-4449

The following guidelines outline assignment of responsibilities of the field team members.

#### 3.1 PROJECT DIRECTOR

The Project Director is responsible for the overall operation of the project, including safety during field activities. Specific responsibilities include organization of all project work assignments, assigning personnel to specific duties, ensuring that the field team follows health and safety procedures approved by The Planning Center|DC&E Health and Safety Manager, and overall quality assurance/quality control of the project.

#### 3.2 PROJECT MANAGER

The Project Manager will be responsible for the day-to-day progress of the project and will hold review and planning meetings as necessary with all technical staff, during which the current progress, problems encountered, and future direction will be discussed.

#### 3.3 THE PLANNING CENTER|DC&E HEALTH AND SAFETY MANAGER

The Planning Center|DC&E Health and Safety Manager is responsible for the design and, with assistance from the Project Manager on personnel issues, implementation of the health and safety program for this project. This includes developing a site HASP, ensuring that all onsite workers have met the necessary health and safety training requirements and are knowledgeable about the work they will perform, assigning a qualified SSO to the field team, verifying compliance with all applicable safety and health requirements, and updating equipment and procedures based on new information gathered during the course of work.

#### 3.4 SITE MANAGER

The Site Manager is responsible for the operation of the field team. Responsibilities include organization of field activities, compliance with the provisions of the site Workplan, field documentation and record keeping, quality control of field activities, and communication with the site's correspondent. The Site Manager, along with the SSO, must also ensure that subcontractors and outside observers comply with the HASP.



## 3. *Roles and Responsibilities*

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### **3.5 SITE SAFETY OFFICER**

The SSO works closely with the Site Manager to enforce the provisions of the HASP during field activities. The SSO is responsible for implementing the procedures stipulated in the HASP:

- Evaluating and amending the HASP daily to remedy deficiencies and post entry briefings;
- Determining the levels of personal protection based on observations or changing field conditions;
- Controlling site entry and exit;
- Briefing the field team on the health and safety decontamination procedures required for various field activities;
- Monitoring the field team for signs of stress or exposure;
- Initiating emergency procedures, if necessary;
- Verifying that field team members have met the health and safety requirements for field activities;
- Being available to document and respond to any concerns or complaints made by personnel onsite;
- Documenting unsafe work practices or conditions;
- Documenting any accidents or incidents that result in illness or injury to personnel; and
- Issuing stop work notices if site conditions become unsafe, with conference with the Project Director and/or The Planning Center|DC&E Health and Safety Manager.

### **3.6 FIELD TECHNICIANS**

The field technicians are responsible for complying with the HASP, notifying the SSO of hazardous or potentially hazardous conditions, and carrying out specialized tasks during field operations. These tasks include inspecting, calibrating, maintaining, and using field equipment; performing site characterization activities; maintaining decontamination stations; preparing and decontaminating sampling equipment; collecting and preserving samples; and packaging and shipping samples according to proper chain-of-custody procedures.

### **3.7 FIELD TEAM SIZE**

The size of the field team is determined by the nature of the field activities, the characteristics of the site, the safety hazards involved, and the prescribed levels of safety protection. The field team must be large enough to ensure onsite activities are conducted safely, but not so large as to sacrifice efficiency. The Planning Center|DC&E personnel shall be present during all phases of the field activities.

## 4. *Training and Medical Monitoring Requirements*

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Staff and subcontractors participating in the fieldwork must have completed a 40-hour health and safety training course (8 CCR 5192(e), 29 CFR 1910.120(e)(2)) as appropriate for their particular tasks and have annual refresher training. Before personnel arrive onsite, each employer will be responsible for certifying that its employees meet the OSHA training requirements.

Each employee will be familiar with the requirements of the site safety and health plan, and will participate in site activity and safety briefings. Medical surveillance is conducted as a routine program, which meets the requirements of 8 CCR 5192 (f); the medical surveillance program is detailed in Appendix D. There will not be any special medical tests or examinations required for staff involved in this project.

All personnel will be trained to operate their respective equipment, including respiratory protection if site conditions exist where respirators are needed. Under no circumstance will untrained or unqualified personnel operate equipment.



## 4. *Training and Medical Monitoring Requirements*

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## 5. Description of Field Work

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The following subsections describe tasks to be performed during the field activities and the hazards associated with each task. Some of the protective measures to be implemented during completion of those operations are also identified.

### 5.1 SOIL SAMPLING ACTIVITIES

#### 5.1.1 Soil Sampling

Soil samples will be collected on the approximately 10-acre area at twenty-two (22) sample locations to address the historical agriculture use. Soil sampling will be conducted in general accordance with the guidelines provided by the DTSC in *Interim Guidance for Sampling Agricultural Fields for School Sites (Second Revision)* (DTSC 2002). All soil samples will be collected from the ground surface to approximately 6 inches below ground surface (bgs).

#### 5.1.2 Sampling Methods and Procedures

Soil sampling will be conducted using a truck-mounted direct push drill rig (Geoprobe™). The Geoprobe™ rig advanced acetate lined sample core barrels sleeves to desired depths using a hydraulic ram or pneumatic hammer system. The inside diameter of the core barrel is 1.5 to 2.0 inches. The sample barrel will be retrieved and the sample interval will be observed, described and preserved.

### 5.2 SOIL GAS SAMPLING ACTIVITIES

#### 5.2.1 Soil Gas Sampling

Soil gas samples will be collected at ten locations at a depth of 5 and 15 feet bgs to assess if the offsite groundwater plume (Tank Farm 5), former jet fuel pipeline, and historic base operations including the former landfill to the north could be impacting the proposed school site. Soil gas samples will be collected and analyzed for volatile organic compounds by a mobile laboratory using EPA Method 8260B. Soil gas sampling will follow the Advisory - Active Soil Gas Investigations (DTSC and RWQCB 2012). The soil gas samples collected along the northern boundary, SG-1 – SG-4 will also be analyzed for methane by EPA Method 8015M or a similar method and for hydrogen sulfide using a handheld device. All samples will be analyzed for volatile organic compounds by EPA Method 8260B. One continuous core will be collected and logged by a Professional Geologist.

#### 5.2.2 Sampling Methods and Procedures

Probes will be installed using standard Geoprobe™ rods. After the rod is driven to the desired depth using a direct push installation rig, the rod will be retracted. The implant that will be attached to the 1/4-inch outer diameter sample line and lowered into the boring. Use of the implant, attached to relatively small diameter tubing, allows for the soil gas to be sampled with a minimum volume of line purging. A sand pack will be poured into the boring, followed by a hydrated bentonite slurry and the probe will be allowed to equilibrate for a minimum of two hours prior to sampling. The purge volume test will be conducted for VOCs using the mobile lab. The sample is collected from a septum or through a hose attached to the top of the probe upstream of the pump. The use of a tracer gas will be employed at the surface and will be selected based on the recommendations of the Soil Gas Advisory.

Hazards associated with this task include dermal contact with and accidental ingestion of contaminated soil and inhalation of dusts and vapors (i.e. VOCs), noise and lifting. Some of the



## 5. *Description of Field Work*

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protective measures to be implemented during soil sampling include periodic (every 15 minutes) air monitoring with a photoionization detector (PID) (as necessary) where appropriate (breathing and work zones around the borehole) and the use of chemical-resistant gloves to reduce the hazards associated with soil sampling. PID monitoring records will be maintained (as necessary) in the project field book. Level D PPE will be used when sampling is initiated, but will be upgraded as necessary. The use of the PID for air monitoring will be used (as necessary) primarily for the detection of VOCs and not organochlorine pesticides or metals, which are not detectable with a PID.

Previous surveys indicate that heavy equipment such as drilling or excavation equipment may produce continuous and impact noise at or above the action level of 85 dBA. All site personnel within 25 feet of operating equipment, or near an operation that creates noise levels high enough to impair conversation, shall wear hearing protective devices (either muffs or plugs). All The Planning Center|DC&E personnel are in The Planning Center|DC&E Hearing Conservation Program and have had baseline and, where appropriate, annual audiograms. Personnel will wash their hands with soap and water prior to inserting earplugs to avoid initiating ear infections.

The following guidelines will be followed whenever lifting equipment such as portable generators, coolers filled with samples, any other objects that are of odd size or shape, or that weigh over 40 pounds.

- Get help when lifting heavy loads. Portable generators will only be lifted using a two-person lift.
- When moving heavy objects such as drums or containers, use a dolly or other means of assistance.
- Plan the lift. If lifting a heavy object, plan the route and where to place the object. In addition, plan communication signals to be used (i.e., “1,2,3, lift,” etc.)
- Wear sturdy shoes in good condition that supply traction when performing lifts.
- Keep your back straight and head aligned during the lift and use your legs to lift the load – do not twist or bend from the waist. Keep the load in front of you – do not lift or carry objects from the side.
- Keeping the heavy part of the load close to your body will help maintain your balance.



## 6. Chemical Hazards

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The presence of chemical hazards at the site has not been confirmed; however, the primary suspected potential constituents of concern associated with the site are metals and organochlorine pesticides. The list of chemicals of concern for the site will be reassessed, as more data becomes available. Brief toxicological profiles of the major constituents of concern are included in Appendix E. Chemical and physical characteristics of these compounds are presented in Table 1.

Potential exposures to these chemicals during field activities include the following:

- Dermal contact with and accidental ingestion of potentially contaminated rinsate and residue during decontamination and sampling; and
- Splash hazards during decontamination.

To protect workers from eye and skin contact, skin absorption, and accidental ingestion of airborne dust, PPE will be used as outlined in Section 8.0.

### 6.1 HAZARD ASSESSMENT

A literature review was conducted to find ionization potentials (IPs), exposure limits, and concentrations immediately dangerous to life and health (IDLH) for the constituents of concern in environmental media at the site. Exposure limit data are expressed as 8-hour time-weighted averages (TWAs). TWAs promulgated in OSHA regulations are referred to as permissible exposure limits (PELs). The American Conference of Governmental and Industrial Hygienists adopts values for exposure limits that are referred to as threshold limit values.

Exposure limits and the IDLH for the constituents of concern are depicted in Table 1. These data are also used to establish action levels to determine when personnel should upgrade from Level D PPE (i.e., no respiratory protection) to Level C PPE (i.e., full-face air-purifying respirator) and to select the appropriate types of outer garments, gloves, and respirator cartridges. Action levels triggering an upgrade in respiratory protection from Level D to Level C are established by examining exposure limit data and selecting compounds with the lowest PEL.

Site work will be initiated in Level D protection. If unusual odors or symptoms are noted in the field, and engineering controls cannot reduce potential hazards in the breathing zone, the level of protection will be upgraded to Level C. If an upgrade to Level B is required, field activities will stop and the site will be evacuated. If Level B is required, the project will be stopped and the current operating procedures will be assessed by the SSO, the Health and Safety Officer, and the Health and Safety Committee. If it is determined that Level B PPE is required, a subcontractor will be retained to conduct this supervised work.

The potential for injuries inherent in operating heavy equipment presents additional hazards, especially because the operator may be wearing restrictive clothing. The use of heavy equipment creates the potential for contact with active utility lines. These utility lines will be located before intrusive activities are conducted and avoided.



## 6. *Chemical Hazards*

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## 7. *Physical Hazards*

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Potential physical hazards associated with this project include, but are not limited to, working around heavy equipment, electrocution, slippery terrain, noise, weather conditions, and heat stress.

### **7.1 HEAVY EQUIPMENT**

It is important that personnel be aware of all operations that are occurring at a work location as well as physical hazards, such as excavations, trenches, or open pits. Personnel will be aware of the position and movement of equipment by identified operational areas. Special precautions, with regard to layout of equipment traffic patterns associated with other vehicles and buildings, will be carefully considered before beginning field activities. Traffic barriers and/or caution barrier tape will be used to delineate the layout and assist in directing traffic flow to reduce risk of vehicle injury. Employees will be notified during daily meetings as to the established traffic patterns of heavy equipment. Whenever heavy equipment operations are conducted in a congested site area, a traffic coordinator designated by the SSO will direct movement of heavy equipment and pedestrians. For non-essential persons, pedestrian traffic will be prohibited where heavy excavation equipment is in operation. Operators will be tasked to watch for employees that might stray into the restricted entry area; site personnel will be required to wear orange safety vests in the vicinity of heavy equipment operation.

### **7.2 ELECTROCUTION**

Electrical power lines above (overhead) and below ground will be identified at the site before to the start of any activities to prevent electrocution. Minimum safe distance will be established by the SSO in areas of overhead and underground power lines. Subcontracted utility locating services will be used as necessary to locate or confirm the presence of suspected underground utilities at drilling or boring locations.

### **7.3 SLIPPERY TERRAIN, SLIPS, TRIPS, AND FALLS**

Slippery and uneven terrain is common and may increase the risk of injuries. Personnel shall wear the appropriate foot protection while onsite. The SSO will monitor site work surfaces for potential trip and fall hazards. Overhead hazards consist of potential contact with falling objects, rigging equipment, or other items in use at the site. Hard hats are required at all times when at the site.

### **7.4 NOISE**

Noise levels around the equipment may exceed a comfortable range; therefore earplugs or equivalent hearing protection devices are required when equipment is operating.

### **7.5 HEAT STRESS**

The potential for heat stress is high given the warm southern California climate and use of protective garments. Heat stress and heat stress monitoring are discussed in Appendix C.



## 7. *Physical Hazards*

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## 8. *Personal Protective Equipment (PPE)*

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It is anticipated that Level D PPE will be used, with Level C PPE available on stand-by. Level D PPE will consist of the following equipment:

- Long pants and long-sleeved or short-sleeved shirts;
- Steel-toed work boots;
- Nitrile gloves;
- Hard hats, required when heavy equipment is being used and an overhead hazard exists;
- Safety glasses; and
- Hearing protection during heavy equipment operation.

Damaged PPE will be replaced immediately. Backup equipment will be kept onsite for replacement as necessary.

At a minimum, the following PPE will be discarded and replaced daily:

- Nitrile gloves; and
- Disposable type ear plugs.



New gloves will be used to collect each sample. Procedures for using PPE are given in Appendix B.

The level of protection provided by PPE selection may be upgraded or downgraded by the SSO, in conference with The Planning Center | DC&E Health and Safety Manager and/or the Project Director, based on changes in site conditions. When a significant change occurs, the hazards will be reassessed. Some indicators of the need for reassessment are as follows:

- A change in weather conditions;
- Encountering contaminants other than those previously identified;
- A change in ambient levels of contaminants; and
- A change in work scope that affects the degree of contact with contaminants.

Level C PPE will consist of the following equipment:

- Dual-canister full-face air-purifying respirator (NIOSH approved);
- Organic vapor/P100 combination cartridges;
- Tyvek or Saranex-coated coveralls;
- Steel-toed work boots;

## 8. *Personal Protective Equipment (PPE)*

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- Double layer nitrile;
- Hard hats, required when heavy equipment is being used; and
- Safety glasses.

Particulate respirator cartridges should be changed out when the wearer has difficulty breathing through the cartridges. Chemical gas or vapor respirator cartridges will be changed out at least daily.

- Proper inspection of PPE includes several levels of inspection depending on specific articles of PPE and its frequency of use. The different levels of inspection are as follows:
- Inspection of equipment received from the factory or distributor;
- Inspection of equipment as it is issued to workers;
- Inspection after use or training;
- Periodic inspection of stored equipment; and
- Periodic inspection when a question arises concerning the appropriateness of the selected equipment or when problems with similar equipment arise.

The primary inspection of PPE in use for activities at the site will occur before use and will be conducted by the user. This ensures that the device or article has been inspected by the user and the user is familiar with its use. The SSO will periodically review field technicians' knowledge and execution of inspection guidelines for the various types of PPE in use at the site.

## 9. *Illumination*

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Nighttime work activities are not anticipated; however, if nighttime work becomes necessary, illumination at the site will be supplemented in order to ensure safe working conditions. Supplemental lighting will be provided by mobile generator powered units.



## 9. *Illumination*

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# 10. Standard Operating Procedures

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The standards regarding Safety Rules and Personal Hygiene and Use and Decontamination of PPE are detailed in Appendices A and B, respectively.

Standard operating procedures (SOPs) for equipment will be presented in the Workplan.

## **10.1 DAILY SAFETY MEETINGS**

The SSO will conduct a daily safety meeting to discuss any changes in safety status, safety violations and administrative actions, work assignments, or modifications of procedures with all onsite field personnel. This safety meeting will be scheduled as the first activity of each day. An alternate person may be designated to conduct the briefing at the discretion of the SSO. All personnel present will sign the Daily Attendance sheet.

## **10.2 DAILY DEBRIEFING MEETINGS**

At the end of each workday at the site, the SSO will discuss with the Site Manager or the Project Director, daily progress, technical problems, administrative resolution of disciplinary actions, and monitoring and analytical findings.

In the event that an emergency occurs or other accident that requires immediate attention, and additional safety meeting may be conducted. Non-routine meetings will address any site changes that have safety implications, which must be immediately addressed before work can continue.

## **10.3 ADMINISTRATIVE ACTION**

Observed violations of safety procedures can result in immediate removal of the violator from the site. The Project Director will take administrative action on each violation. In the event of a violation, the nature of the violation, the past record of the violator, and any extenuating circumstances will be reviewed. The SSO and Health and Safety Officer will provide a recommendation to the Project Director regarding administrative actions such as retraining and reassignment, change in clearance status, or permanent dismissal from the site.



## 10. *Standard Operating Procedures*

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## *11. Confined Spaces*

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No confined space entry is anticipated at the site. A confined space protocol will be developed for Agency review and approval should conditions at the site change.



# 11. *Confined Spaces*

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## *12. Noise Monitoring*

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Noise may be monitored using a sound level meter (General Radio model 1565B) in areas where heavy equipment is being utilized. Hearing protection devices (HPDs) will be available onsite at all times. Use of HPDs will be required whenever the noise level equals or exceeds 85 dBA; in general, they will be used whenever equipment is operated. Field technicians will be informed on the proper use, maintenance and storage of HPDs. Engineering controls will be utilized as necessary to ensure that noise levels generated by work do not impact residences adjacent to the site.



## 12. Noise Monitoring

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## 13. Description of Site Work Zones

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The various work zones may be established at the site before commencing any field activities.

### Exclusion Zone

All workers who enter the contaminated work area will wear the correct level of protection. The number of workers in this zone will be kept at a minimum.

### Contamination Reduction Zone (CRZ)

Decontamination areas for field personnel and heavy equipment will be designated in the CRZ adjacent to the exclusion zone.

### Support Zones

The administrative and break areas shall be located in the support zone outside the CRZ and the overall work zone. The support zone will be located upwind from the overall work zone as permitted by site meteorological conditions.

The work areas and site shall be cleared and secured at the end of each workday.



## 13. *Description of Site Work Zones*

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## *14. Decontamination*

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Decontamination of PPE will take place in the decontamination area identified onsite. Before starting field activities, a decontamination station will be set with one bucket or tub containing a clean water and soap mixture and another bucket or tub containing clean water. All workers and PPE will be decontaminated to prevent the spread of potentially hazardous substances. All workers will wash their hands, arms, and face after removing PPE and before leaving the site. The volume and concentration of the decontamination fluid will be sufficiently low to allow disposal at the site. The water (and water with detergent) will be poured onto the ground or into a storm drain. Disposable items will be placed in trash bags for disposal along with other wastes removed from the property. Support vehicles are to be left, to the extent practical, outside the exclusion area so that decontamination will not be necessary. Decontamination procedures are outlined in Appendix B.



## 14. Decontamination

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## 15. *Emergency Supplies*

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### **15.1 FIRE EXTINGUISHERS**

A fire extinguisher will be available onsite during field activities. Field technicians will be informed on the proper use of fire extinguishers.

### **15.2 SPILL CONTROL EQUIPMENT**

Accidental spills will be contained with sandbags or commercially available absorbent materials especially designed for spill containment or cleanup.



## 15. *Emergency Supplies*

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## 16. Emergency Contact Information

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Emergency response shall be addressed according to the requirements of T8 CCR 5192. If it is determined that the emergency could threaten human health or the environment, the incident will be reported to the proper agencies:

Police/Fire	911
Department of Toxic Substances Control 5796 Corporate Avenue Cypress, California 90630 Fax: (714) 484-5302	(714) 484-5300
Department of Health Services 714/744 P Street Sacramento, California 95814	(916) 445-4171
The closest hospital is: Irvine Medical Center 16200 Sand Canyon Road Irvine, California 92618	(949) 753-2000



## 16. *Emergency Contact Information*

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## *17. Directions to the Hospital*

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Directions (See Figure 1): Start out going northwest on Irvine Boulevard. Make a left on Sand Canyon Avenue. Make a U-turn at Alton Parkway. Arrive at hospital on right side.



## *17. Directions to the Hospital*

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## *18. Authorized Changes to the Health and Safety Plan*

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Changes to the HASP are to be documented by completing a Modification of Site Health and Safety Plan form. This completed form must be signed by the Site Safety Officer, the Health and Safety Manager, and the Project Director. A copy of each completed form is to be included with each copy of the HASP and made a part of the project files.



## *18. Authorized Changes to the Health and Safety Plan*

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## 19. Certification

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**TABLE 1**  
**OCCUPATIONAL HEALTH GUIDELINES AND TOXICOLOGICAL INFORMATION**  
**Proposed Irvine USD High School #5**  
**South of Irvine Blvd and Desert Storm Dr**  
**Irvine, California**

Contaminant	OSHA PEL (ppm)	STEL (ppm)	NIOSH REL (ppm)	IDLH (ppm)	Ionization Potential (eV)	Routes of Exposure	Known or Suspected Carcinogen	Symptoms	1997 NIOSH Page Reference
Chromium (Cr III and Cr VI)	0.5 mg/m <sup>3</sup>	n/a	0.5 mg/m <sup>3</sup>	25 mg/m <sup>3</sup>	varies	Inhalation, Ingestion, Contact	Yes	Irritation to eyes and skin	70
Arsenic	0.010 mg/m <sup>3</sup>	n/a	2 mg/m <sup>3</sup> (15-minute period)	5 mg/m <sup>3</sup>	n/a	Inh, Ing, Absorption, Contact	Yes	Ulceration of nasal septum, dermatitis, GI disturbances, peripheral neuropathy, respiratory irritation, hyperpigmentation of skin	20
Lead	0.050 mg/m <sup>3</sup>	n/a	0.100 mg/m <sup>3</sup>	100 mg/m <sup>3</sup>	n/a	Inh, Ing, Contact	No	Weak, lassitude, insomnia, facial pallor, pal eye, anorexia, weight loss, malnutrition, constipation, abdominal pain, colic, anemia, gingival lead line, tremor, ankle or wrist paralysis, encephalopathy, kidney disease, irritated eyes, hypotension	184
Dichlorodiphenyltrichloroethane (DDT)	1 mg/m <sup>3</sup> (skin)	n/a	0.5 mg/m <sup>3</sup>	500 mg/m <sup>3</sup>	n/a	Inh, Ing, Absorption, Contact	Yes	Irritation to eyes and skin, paresthesia of the tongue, lips, and face, tremor, apprehension, dizziness, confusion, malaise, headache, fatigue, convulsions, paresis of hands, vomiting, potential occupational carcinogen	88
Aldrin	0.25 mg/m <sup>3</sup> (skin)	n/a	0.25 mg/m <sup>3</sup> (skin)	25 mg/m <sup>3</sup>	n/a	Inh, Ing, Absorption, Contact	Yes	Headache, dizziness, nausea, vomiting, malaise, myoclonic jerks of limbs, clonic, tonic convulsions, coma, hematuria, azotemia, potential occupational carcinogen	8
Toxaphene	0.5 mg/m <sup>3</sup> (skin)	n/a	n/a	200 mg/m <sup>3</sup>	n/a	Inh, Ing, Absorption, Contact	Yes	Nausea, confusion, agitation, tremor, convulsions, unconsciousness; dry, red skin; potential occupational carcinogen	58
Dieldrin	0.25 mg/m <sup>3</sup> (skin)	n/a	0.25 mg/m <sup>3</sup> (skin)	50 mg/m <sup>3</sup>	n/a	Inh, Ing, Absorption, Contact	Yes	Headache, dizziness, nausea, vomiting, malaise, sweat, myoclonic limb jerks, clonic, tonic convulsions; coma, potential occupational carcinogen, in animals: liver, kidney damage	104

ppm - parts per million  
mg/m<sup>3</sup> - milligrams per cubic meter  
n/a - not applicable

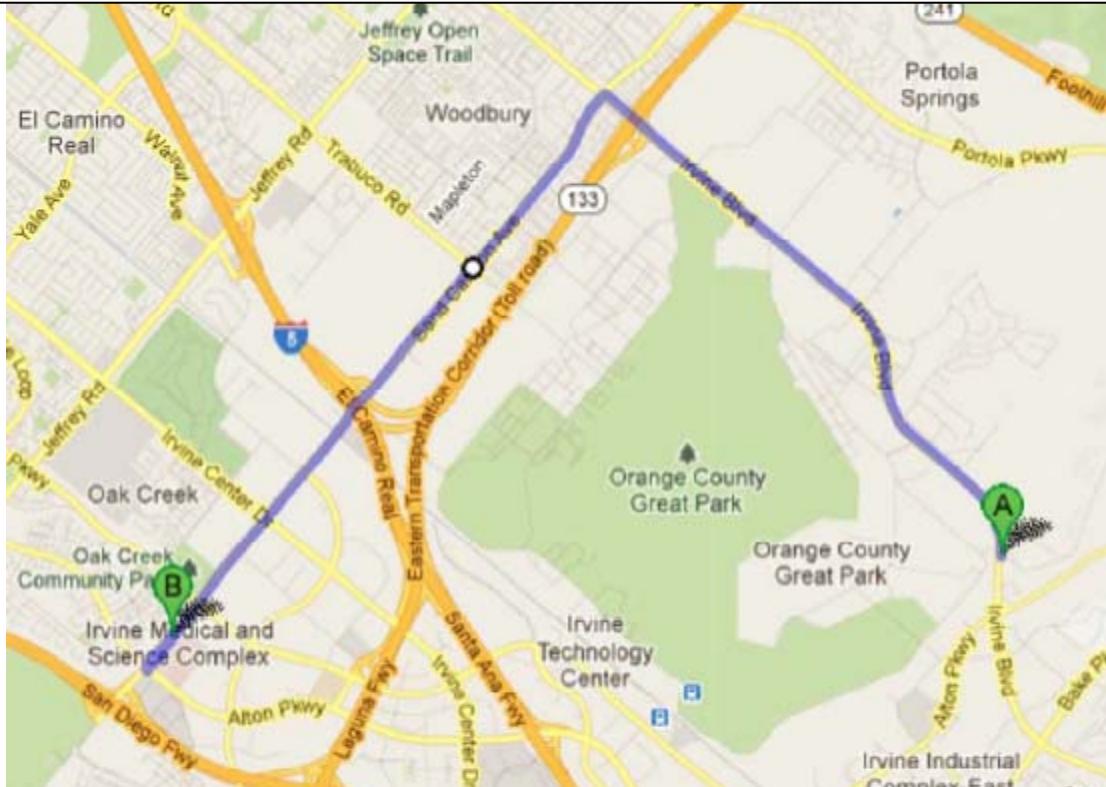
**FIGURE 1  
HOSPITAL ROUTE MAP**

**Starting from: Intersection of Desert Storm Drive and Irvine Boulevard, Irvine, CA**

**Arriving at: Irvine Medical Center  
16200 Sand Canyon Avenue, Irvine, CA**

**Distance: 6.6 miles  
minutes**

**Approximate Travel Time: 14**



Directions	Mile
1. Start out going northwest on Irvine Boulevard	2.9
2. Turn left on Sand Canyon Avenue	3.4
3. Make a U-turn at Alton Parkway	0.2

## **Appendix A**

### **Safety Rules and Personal Hygiene**

1. Remove all facial hair that interferes with a satisfactory fit of respiratory protective equipment.
2. Do not wear contact lenses while wearing full-face respirators.
3. Do not take prescribed drugs unless specifically approved by a physician. Notify the SSO that prescription medication is being taken.
4. In the work zone, do not eat, drink, smoke, chew gum or tobacco, or engage in any other practice that increases the probability of hand-to-mouth transfer or ingestion of material.
5. Wash hands and face thoroughly after leaving the work area and before eating, drinking, or any other activities.
6. Thoroughly wash entire body as soon as possible after removing Level C protective garments.
7. Whenever possible, avoid contact with contaminated or suspected contaminated surfaces.

## Appendix B

### Field Standard Operating Procedures for Use and Decontamination of Personal Protective Equipment

1. Park vehicles outside the site boundaries.
2. During the pre-work safety meeting, the SSO will provide the following information:
  - A. a description of the site and known problem areas
  - B. the level of protection required
  - C. emergency medical information
  - D. the locations of the first aid kit and fire extinguisher
3. Use the nearest lavatory.
4. Lay out and check safety gear.
5. Check and don Level D PPE.
6. For work in Level C PPE, put on safety gear in the following order:
  - A. Coveralls
  - B. Steel-toed work boots
  - C. Connect suit and boots with tape
  - D. Outer booties, if used
  - E. Air purifying respirators (APRs), if required
7. For work in Level C PPE, put on APRs as follows:
  - A. Inspect.
    - (1) Inspect before each use to ensure that they have been cleaned adequately.
    - (2) Check material conditions for signs of pliability, deterioration, or distortion.
    - (3) Examine cartridges and ensure that they are the correct type for the intended use, that the expiration date has not passed, and that they have not been opened or used previously.
    - (4) Check face shields for cracks or fogginess.
  - B. Loosen all harness strap adjustments.
  - C. Place chin in chin cup and draw back evenly on strap adjustments - the two bottom straps first, then the two top straps, and the center top strap last.
  - D. Check that the respirator is centered evenly on the face and that the straps are not uncomfortably tight.



- E. Check for leaks or proper facial seals.
  - (1) To conduct a negative-pressure test, close the inlet part with the palm of the hand so it does not pass air, and gently inhale for about 10 seconds. Any inward rush of air indicates a poor fit. Note that a leaking facepiece may be drawn tightly to the face to form a good seal, giving a false indication of adequate fit.
  - (2) To conduct a positive-pressure test, gently exhale while covering the exhalation valve to ensure that a positive pressure can be built up. Failure to build a positive pressure indicates a poor fit.
  
- 8. Put on the rest of the gear in the following order:
  - A. Raise hood
  - B. Hard hat, if necessary
  - C. Surgical gloves
  - D. Outer gloves
  - E. Connect gloves and suit with tape
  
- 9. Select a buddy to act as a safety backup.
  
- 10. Check your buddy's equipment and have your buddy check yours for rips, tears, or malfunctions. Pay special attention to respirators, making sure that seals are good and that cartridges are securely in place.
  
- 11. If any equipment or gear gets damaged or if your suit tears badly, GO BACK.
  
- 12. If you experience physical discomfort, breathing difficulties, light-headedness, dizziness, or other abnormalities, GO BACK.
  
- 13. When you return, have your buddy check for external accumulation of contamination and remove it. Also check gear for damage.
  
- 14. Decontamination will be performed in steps as follows (as appropriate for the PPE being utilized):

Step 1 - Segregated Equipment Drop: Deposit equipment used onsite (tools, sampling devices and containers, monitoring instruments, clipboards, etc.) in different containers with plastic liners. Each may be contaminated to a different degree. Segregation at the drop reduces the probability of cross-contamination. This equipment may be reused if properly decontaminated.

Equipment:            various sizes of containers  
                             plastic drop cloths

Step 2 - Boot Cover and Outer Glove Wash and Rinse: (Optional - will be used at the Site Safety Officer's discretion.)

Equipment:            spray bottle/container with nozzle  
                             two wash basins or tubs  
                             scrub brush  
                             water  
                             Liqui-nox nonphosphate soap solution (1%)

Step 3 - Tape Removal: Remove tape around boots and gloves, and deposit in container with plastic liner. Remove boot covers, then outer gloves, and place them in the container.

Equipment:            container (30-50 gallons)  
                             plastic liners  
                             folding chairs

Step 4 - Safety Boot Wash and Rinse: (Optional - will be used at discretion of field team members.)

Equipment:            two wash basins or tubs  
                             scrub brush  
                             water  
                             Liqui-nox solution (1%)

Step 5 - Protective Coverall Removal: With the assistance of a helper, remove protective coverall. Deposit in container with plastic liner.

Equipment:            container (30-50 gallons)  
                             folding chairs  
                             plastic liners

Step 6 - Respirator Removal: Remove facepiece. Avoid touching face with gloves. If work is completed for the day, discard cartridges in lined container, and wash and rinse respirator.

Equipment:            container (30-50 gallons)  
                             plastic liners

Step 7 - Inner Glove Removal: Remove inner gloves and deposit in container with plastic liner.

Equipment:            container (20-30 gallons)  
                             plastic liners

15. Respirators will be cleaned daily by hand washing with MSA cleaner-sanitizer solution followed by a thorough rinse and air drying. NEVER ALLOW A RESPIRATOR TO DRY WITH THE STRAPS PLACED FORWARD ACROSS THE FACESHIELD BECAUSE THIS MAY CAUSE CHANGES IN THE FACE-TO-RESPIRATOR SEAL SURFACE. The specific procedures to be employed are as follows:

A. Remove all cartridges (canisters) and filters plus gaskets and seals not

- permanently affixed to their seats.
  - B. Loosen harness adjustment straps.
  - C. Remove exhalation valve cover.
  - D. Remove inhalation and exhalation valves.
  - E. Remove protective faceshield cover.
  - F. Wash facepiece in MSA cleaner/sanitizer powder mixed with warm water, preferably at a temperature of 120° F. Wash components separately from facepiece. Heavy soil may be removed from the facepiece surface using a medium-soft handbrush.
  - G. Remove all parts from the wash solution, and rinse twice in clean, warm water.
  - H. Air dry all parts in a designated clean area.
  - I. Pat facepieces, valves, and seats to remove any remaining soap residue, water, or other foreign material with a clean, damp, lint-free cloth.
  - J. Reassemble respirator.
  - K. Place respirator in a plastic bag and the respirator box or otherwise store the respirator to prevent exposure to dust, moisture, sunlight, damaging chemicals, extreme temperatures, and impact.
16. Investigation-derived waste material will be handled as follows:
- A. Used PPE and disposable equipment will be double bagged and placed in a municipal refuse dumpster on site. These wastes are not considered hazardous and can be sent to a municipal landfill. Any PPE and disposable equipment that is to be disposed of which can still be reused will be rendered inoperable before disposal in the refuse dumpster.
  - B. Wash and rinse waters from personal and equipment decontamination will be poured onto the ground or into a storm drain.
  - C. Soil cuttings generated during the subsurface sampling will be placed back into the soil borings from which the samples were obtained. Any remaining soil cuttings will be spread around the sampling location.

## Appendix C

### Heat Stress and Heat Stress Monitoring

Heat is one of the most common (and potentially serious) illnesses at hazardous waste sites where PPE is worn; therefore, regular monitoring and other preventive precautions are vital. Shelter from the sun will be provided during rest periods. Below is a list of the signs and symptoms of heat stress. Initial work schedules will be approximately 90 minutes of work followed by 15 minutes of rest. Work intervals will be adjusted to shorter periods based on the assessment of the SSO. Monitoring for heat stress will be conducted by visual observation by the individual team members.

#### Signs and Symptoms of Heat Stress

- **Heat rash** may result from continuous exposure to heat or humid air.
- **Heat cramps** are caused by heavy sweating with inadequate electrolyte replacement. Signs and symptoms include:
  - muscle spasms
  - pain in the hands, feet, and abdomen
- **Heat exhaustion** occurs from increased stress on various body organs, including inadequate blood circulation caused by cardiovascular insufficiency or dehydration. Signs and symptoms include:
  - pale, cool, moist skin
  - heavy sweating
  - dizziness
  - nausea
  - fainting
- **Heat stroke** is the most serious form of heat stress. Temperature regulation fails, and the body temperature rises to critical levels. Immediate action must be taken to cool the body before serious injury and death occur. Competent medical help must be obtained. Signs and symptoms include:
  - red, hot, usually dry skin
  - lack of or reduced perspiration
  - nausea
  - dizziness and confusion
  - strong, rapid pulse
  - coma

First-aid remedies for heat stress and heat stroke includes removing the worker to a cool place, providing cool water or a commercial sport drink, loosen tight clothing, and call for an ambulance if victim vomits or starts to lose consciousness.

## **Appendix D**

### **Medical Monitoring Program**

The workers most likely to be exposed to contaminated materials at the site are sampling and inspection personnel. These personnel are included in this Medical Monitoring Program.

The purposes of the Medical Monitoring Program are to identify any illness or problem that would put an employee at an unusual risk from exposures; to ensure that each employee can use negative-pressure respirators safely and withstand heat or cold stress; and to establish and maintain a medical data base for employees to monitor any abnormalities that may be related to work exposure and that could increase injury risk for the employee or others in the performance of job functions. The Medical Monitoring Program includes:

- A baseline physical examination;
- A medical determination of fitness of duty, including work restrictions after any job-related injury or illness or non job-related absence lasting more than three working days;
- The review of each site-specific Health and Safety Plan and potential exposure list to determine the need for specific biological and medical monitoring; and
- Annual and exit physical examinations with attention given to specific exposures or symptoms.

#### **Baseline Physical Examination**

A Baseline Physical Examination will be performed on each employee engaged in hazardous waste activities. The purposes of this examination are to identify any illness or problem that would put an employee at unusual risk from certain exposures; to certify the safe use of negative-pressure respirators (OSHA Safety and Health Standard 29 CFR 1910.134); and to develop a database for the assessment of exposure-related events detected through periodic medical monitoring. Variable data, such as age, sex, race, smoking, prior employment, and exposure history, that may have a bearing on the occurrence of subsequent events after employment begins will be gathered.

The content of the Baseline Physical Examination will include:

- Medical, occupational, and fertility histories;
- A physical examination, stressing neurological, cardiopulmonary, musculoskeletal, and skin systems;
- An electrocardiogram;
- PA and lateral chest x-rays;
- A pulmonary function test (FEV1, FVC, FEV 25-75);
- An audiogram;

- A multi-chemistry blood panel, including kidney and liver function tests, CBC with
- differential, and urinalysis;
- Tests deemed necessary by symptoms or exposure history;
- A red blood cell cholinesterase; and
- Physical parameters, including blood pressure and visual acuity testing.

### **Annual Physical Examination**

An examination and updated occupational history will be performed on an annual basis during the anniversary month of the baseline physical examination. The Annual Physical Examination serves to identify and prevent illness caused by cumulative exposure to toxic substances.

The Annual Physical Examination will include:

- A personal work history (based on specific project histories);
- A physical examination, stressing neurological, cardiopulmonary, musculoskeletal, and skin systems;
- Pulmonary function test (FEV1, FVC, FEV 25-75);
- A multi-chemistry blood panel, including kidney and liver function test;
- An audiogram;
- Tests deemed necessary by symptoms or exposure history; and
- An optional wellness profile.

### **Return to Work Examination**

Any job-related illness or injury will be followed by a medical examination to determine fitness for duty or possible job restrictions based on the physical findings of the medical examiner. A similar examination will be performed following three missed workdays caused by a non job-related illness or injury requiring medical intervention.

### **Exit Physical Examination**

The content of the Exit Physical Examination will include:

- a personal work history (based on specific project histories);
- medical, exposure, and fertility histories;
- a physical examination, stressing neurological, cardiopulmonary, musculoskeletal, and skin systems;
- a pulmonary function test (FEV1, FVC, FEV 25-75);
- an electrocardiogram;
- PA and lateral chest x-rays;
- an audiogram;
- a multi-chemistry blood panel, including kidney and liver function tests, CBC with differential, and urinalysis;
- tests deemed necessary by symptoms or exposure history;
- a red blood cell cholinesterase; and
- physical parameters, including blood pressure and visual acuity testing.

## Appendix E

### Properties of Materials and Toxicological Profiles

#### Chromium (Cr III and Cr VI)

The permissible exposure limit (PEL) for chrome is  $0.5 \text{ mg/m}^3$ , which is also the recommended exposure limit (REL) established by the National Institute for Occupational Safety and Health (NIOSH). The Immediately Dangerous to Life or Health (IDLH) concentration for this substance is  $25 \text{ mg/m}^3$ .

The appearance and odor of this substance varies depending on the type of chrome compound. Symptoms of exposure to chrome may include irritation of the skin and eyes. If splashed in the eyes, irrigate immediately. For dermal exposure, wash with soap and water immediately. If swallowed, immediately seek medical attention. If victim stops breathing after exposure to vapors, begin artificial respiration.

#### Arsenic

The PEL for arsenic is  $0.010 \text{ mg/m}^3$ . NIOSH has established an REL, based on a 15-minute exposure period, of  $2 \text{ mg/m}^3$ . The IDLH concentration for this substance is  $5 \text{ mg/m}^3$ .

The appearance and odor of arsenic varies depending upon the specific organic arsenic compound. Routes of exposure include inhalation, ingestion, and contact. The skin, respiratory system, kidneys, central nervous system (CNS), liver, GI tract, and reproductive system are all target organs or chronic exposure.

#### Lead

The PEL for lead is  $0.050 \text{ mg/m}^3$ . NIOSH has established an REL of  $0.100 \text{ mg/m}^3$ . The IDLH concentration for this substance is  $100 \text{ mg/m}^3$ .

A heavy, ductile, soft, gray solid, lead is also known as lead metal and plumbum. A person can be exposed to lead contamination by inhalation, ingestion, or contact. The target organs for lead include eyes, GI tract, CNS, blood, and gingival tissue.

Symptoms of lead exposure include weakness, lassitude, insomnia; facial pallor; pal eye, anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; ankle or wrist paralysis, encephalopathy; kidney disease; irritated eyes; and hypotension. If eye contact occurs, the eyes should be washed immediately with large amounts of water. For dermal contact, remove any penetrated clothing and immediately flush the contaminated skin with soap and water. If this chemical is inhaled in large quantities, move to fresh air at once. Perform mouth-to-mouth resuscitation if breathing has stopped. Keep the person warm and resting. For any of the above or if the chemical has been swallowed, seek medical attention promptly.

### **Dichlorodiphenyltrichloroethane (DDT)**

The PEL for DDT is 1 mg/m<sup>3</sup>. NIOSH has established an REL of 0.5 mg/m<sup>3</sup>. The IDLH concentration for this substance is 500 mg/m<sup>3</sup>.

Routes of exposure include inhalation, ingestion, absorption, and contact. Symptoms of exposure to DDT include irritation to eyes and skin, paresthesia of the tongue, lips, and face, tremor, apprehension, dizziness, confusion, malaise, headache, fatigue, convulsions, and vomiting. If eye contact occurs, the eyes should be washed immediately with large amounts of water. For dermal contact, remove any penetrated clothing and immediately flush the contaminated skin with soap and water. If this chemical is inhaled in large quantities, move to fresh air at once. Perform mouth-to-mouth resuscitation if breathing has stopped. Keep the person warm and resting. For any of the above or if the chemical has been swallowed, seek medical attention promptly.

### **Aldrin**

The PEL for aldrin is 0.25 mg/m<sup>3</sup>. NIOSH has established an REL of 0.25 mg/m<sup>3</sup>. The IDLH concentration for this substance is 25 mg/m<sup>3</sup>.

Routes of exposure include inhalation, ingestion, absorption, and contact. Symptoms of exposure to aldrin include headache, dizziness, nausea, vomiting, malaise, and coma. If eye contact occurs, the eyes should be washed immediately with large amounts of water. For dermal contact, remove any penetrated clothing and immediately flush the contaminated skin with soap and water. If this chemical is inhaled in large quantities, move to fresh air at once. Perform mouth-to-mouth resuscitation if breathing has stopped. Keep the person warm and resting. For any of the above or if the chemical has been swallowed, seek medical attention promptly.

### **Toxaphene**

The PEL for toxaphene is 0.5 mg/m<sup>3</sup>. The IDLH concentration for this substance is 200 mg/m<sup>3</sup>.

Routes of exposure include inhalation, ingestion, absorption, and contact. Symptoms of exposure to toxaphene include nausea, confusion, agitation, tremor, convulsions, dry, red skin, and unconsciousness. If eye contact occurs, the eyes should be washed immediately with large amounts of water. For dermal contact, remove any penetrated clothing and immediately flush the contaminated skin with soap and water. If this chemical is inhaled in large quantities, move to fresh air at once. Perform mouth-to-mouth resuscitation if breathing has stopped. Keep the person warm and resting. For any of the above or if the chemical has been swallowed, seek medical attention promptly.



## **Dieldrin**

The PEL for dieldrin is 0.25 mg/m<sup>3</sup>. NIOSH has established an REL of 0.25 mg/m<sup>3</sup>. The IDLH concentration for this substance is 50 mg/m<sup>3</sup>.

Routes of exposure include inhalation, ingestion, absorption, and contact. Symptoms of exposure to dieldrin include headache, dizziness, nausea, vomiting, sweat, and coma. If eye contact occurs, the eyes should be washed immediately with large amounts of water. For dermal contact, remove any penetrated clothing and immediately flush the contaminated skin with soap and water. If this chemical is inhaled in large quantities, move to fresh air at once. Perform mouth-to-mouth resuscitation if breathing has stopped. Keep the person warm and resting. For any of the above or if the chemical has been swallowed, seek medical attention promptly.

## **Appendix F**

### **Site Safety Officer Responsibilities**

An SSO will be designated. The responsibilities of the SSO will include the following:

- briefing personnel on the hazards at the site, the standard operating procedures to be employed, and emergency procedures;
- conducting onsite health monitoring;
- coordinating access control and site security, including responsibility for protection of third parties, such as visitors or the surrounding community;
- monitoring work practices and decontamination to ensure that required procedures are being followed;
- being available to document and respond to any concerns or complaints made by onsite personnel;
- documenting unsafe work practices or conditions;
- documenting any accidents or incidents that result in illness or injury to personnel; and
- evaluating and amending the HASP daily to remedy deficiencies and post entry briefings.



## **References**

U.S. Department of Health and Human Services, 1997. NIOSH Pocket Guide to Chemical Hazards. Washington, DC.