Air Monitoring Procedure

Ambient Air Monitoring

Volatile organic compounds (VOCs) are not expected to be encountered during the work. However, a portable photoionization detector (PID) will be used for the monitoring of volatile contaminants in the ambient air on-site, if encountered. Monitoring will be conducted during excavation and sampling activities as deemed necessary by the Site Safety Officer.

Soil Analysis

Site soils will be screened for the presence of volatile organic compounds as deemed necessary by the Site Safety Officer using the Jar Headspace analytical protocol.

Respirable Dust

During excavation activities, air monitoring will be conducted with the objective of protecting both Site workers, nearby residents and transients from potential contaminated dust originating on the Site.

Dust monitoring will be conducted regularly throughout the project using portable real-time aerosol monitor (MIE PDR-1000 Dust Monitor, or equivalent) to measure particulates in the upwind, work zone and downwind directions from the work areas. A total dust action level has been calculated for chromium (primary compound of concern) and lead for potential transport by dust. Below is a description of proposed air monitoring and controls.

An action level for chromium as total dust was calculated using the OSHA PEL of 1,000 $\mu g/m^3$ (U.S. Department of Health and Human Services, NIOSH Pocket Guide to Chemical Hazards, June 1997) and the maximum detected concentration of chromium in soil samples collected during previous subsurface investigations at the Site; the maximum detected concentration of chromium was 86,000 mg/kg (jjr-050811-01, 8/11/05). The worker dust action level for lead was calculated using the following equation.

Chromium Worker Dust Action Level =

$$\frac{1{,}000\ \mu g\ (Cr)}{m^3} \times \frac{1\ kg\ soil\ (dust}{86{,}000\ mg/kg\ (Cr\ in\ soil)} \times \frac{1\ mg}{1000\ \mu g} \times \frac{1{,}000{,}000 mg}{kg}$$

$$= 11.6\ mg\ dust/m3\ air$$

An action level for lead as total dust was calculated using the OSHA PEL of 50 $\mu g/m^3$ (U.S. Department of Health and Human Services, NIOSH Pocket Guide to Chemical Hazards, June 1997) and the maximum detected concentration of lead in soil samples collected during previous subsurface investigations at the Site; the maximum detected concentration of lead was 3,110 mg/kg (SD-07, 6/22/04). The worker dust action level for lead was calculated using the following equation.

Lead Worker Dust Action Level =

$$\frac{50\ \mu g\ (Pb)}{m^3} \times \frac{1\ kg\ soil\ (dust}{3{,}110\ mg/kg\ (Pb\ in\ soil)} \times \frac{1\ mg}{1000\ \mu g} \times \frac{1{,}000{,}000 mg}{kg}$$

$$= 16.1\ mg\ dust/m3\ air$$

In addition, OSHA also has a nuisance dust action level for workers of 5.0 mg/ m^3 for respirable dust particles and 15.0 mg/ m^3 for total suspended particles.

The lowest calculated dust action level was 5 mg dust/m^3, representing the nuisance dust action level. Therefore, the action level for personal protection adjustments and/or the application of dust controls within the Site work area will commence whenever visible dust is present or the real time aerosol monitor detects dust levels at or above 5.0 mg/m^3.

Off-site monitoring will be performed to ascertain background dust levels (upwind of the work area) and downwind dust levels. The off-site dust level is governed by the national ambient air quality standards (NAAQS) standards. Therefore, dust levels downwind (outside the work area) should not exceed 0.150 mg/m^3. If any one of these standards is approached or exceeded, application of dust controls and/or engineering controls will be implemented to abate the dust levels.

Air monitoring will typically be performed up to six times per eight hour day (at the start of the day and approximately every two hours thereafter). However, air monitoring efforts may be modified in part by weather conditions or sensitive receptor proximity to the excavations. For example, during rain events, the air monitoring efforts will be minimal; conversely, during sunny, dry weather, the air monitoring efforts will intensify. The location of measurement will be the nearest downwind distance from the excavation where a reading can be safely measured. The reading will be taken until the monitoring device provides a consistent reading. The wind direction and results of the measurement will be recorded in the field book. If action levels are exceeded, immediate corrective actions will be taken to reduce the amount of dust emitted. These corrective actions may

include, but are not limited to, wetting active areas with water to reduce emissions and/or reducing the Site activities that produce emissions (i.e., truck traffic, excavation, loading etc.). After corrective actions are implemented, additional reading(s) will be taken to assess particulate levels with respect to action levels.

Personnel Protection Requirements

General Requirements

The purpose of personal protective clothing and equipment is to shield or isolate individuals from the chemical, physical, and biological hazards that may be encountered. Careful selection and use of adequate protective equipment should protect the respiratory system, skin, eyes, face, hands, feet, head, body, and hearing. Personnel should be aware of limitations in their equipment and alternative equipment that is available if conditions should change. Personal protective equipment is classified into four broad categories by Appendix B of the OSHA Standard on Hazardous Waste Operations and Emergency Response (29 CFR 1910.120). These categories are designated Level A which affords maximum protection to Level D which affords nominal protection from hazardous chemical agents. A complete description of these levels of protection are described in 29 CFR 1910.120. Work described in this Health and Safety Plan will be performed by personnel donning Level D and/or Level C personal protective equipment as indicated. The following table is a general guideline showing the type of Personal Protective Equipment that will be worn, and a contingency level of protection that will be used in the event that hazardous materials are identified that pose a risk to employees working at the Site.

Site Activities	Level of Protection	Contingency
Soil sampling/excavation	D	C

The following is a synopsis of Level D and Level C personal protective equipment. The Site Safety officer and/or environmental conditions may require that equipment labeled "optional" be worn.

Level D

- Coveralls or work uniform
- Gloves
- Boots/shoes, leather or chemical-resistant, steel toe and shank
- Safety glasses or chemical splash goggles