1 Purpose

The purpose of this procedure is to describe the selection and use of air monitoring equipment to assess a jobsite for potentially hazardous conditions. The results of air monitoring data will be used to determine the level of personal protective equipment that is required during the various phases of site assessment, remediation and closure.

2 Responsibilities

It is the responsibility of the Project Manager to ensure that a qualified person conducts routine air monitoring.

3 Policy Content

3.1 INSTRUMENTATION

The nature of hazardous waste sites requires the routine monitoring of the jobsite throughout the work period. The hazards of concern include organic compounds (both volatile and semi-volatile), dusts and radiation. The Site Specific Health and Safety Plan should contain a list of the possible materials that could be encountered on the jobsite. The appropriate instruments should then be selected. The type of instruments that can be used include, but are not limited to, the following:

- photoionization detectors (for organic compounds)
- detector tubes (for organic compounds)
- total dust meters (for dusts)
- Geiger-Muller instruments (for radiation)
- combustible gas meters (for flammables)
- oxygen sensing meters (for oxygen deficient atmospheres)

Sufficient numbers of operating instruments will be maintained on hand to ensure that work is not delayed by the lack of properly operating instruments.

All equipment must be properly calibrated and operating prior to use on a jobsite. Equipment should be checked prior to starting work, frequently during the workday and at the completion of the workday. Malfunctioning equipment must be removed from service until it is returned to the proper operating order.

Only trained and experienced personnel will be allowed to use monitoring equipment. Equivalently trained or experienced workers may conduct monitoring under the direction of a qualified individual.

3.2 SAMPLING

Prior to sampling, the appropriate NIOSH/OSHA/EPA sampling method will be determined for the various hazardous substances that are likely to be encountered on the job site. An AIHA Accredited Laboratory will conduct analytical tests. In general, the following sampling methods will be used:

Dust levels should be monitored during soil screening operations that could potentially liberate large amounts of soil dusts bearing organic compounds, metallic contaminant particulate and other compounds.

Subsurface levels of radioactive materials should be determined periodically using a Geiger-Muller instrument to identify increased levels of beta or gamma radiation.

Monitoring for hazardous materials can be conducted using detector tubes. Benzene-non specific tubes can be used as an indicator of the presence of aromatic compounds. Hnu meters equipped with PID lamps (10.2 electron volts) can be used to sample for both smaller hydrocarbon and large aromatics.

Oxygen deficient atmospheres can occur in confined spaces. Oxygen levels of <19.5% require the use of Self Contained Breathing Apparatus. Continuous monitoring of oxygen levels must be conducted whenever a worker is a confined space.

Many organic compounds are flammable and combustible. Combustible gas meters should be used to determine the lower explosive limit (LEL). The alarms on the combustible gas meter should be set to 10% of the LEL. Levels above 10% of the LEL require the evacuation of all employees until a determination is made that the area is safe to reenter.

Monitoring should be conducted after each significant excavation by mechanical removal equipment and always prior to workers entering the excavations to conduct routine operations. Monitoring must be conducted in the breathing zone of employees near freshly dug soil. During hand excavation, monitoring should be conducted continuously during the digging.

If gross contamination is suspected or whenever worker exposure is greatly increased (such as during the screening of excavated soils) monitoring must be conducted. Activities generating significant levels of dust (such as screening site soils) should be monitored using a total dust meter in the location of the workers.

3.3 MONITORING RESULTS

In order to downgrade to a Level D, at the discretion of the Site Safety and Health Officer (in consultation with a CIH is recommended) all of the following must be satisfied:

- <1ppm on an Hnu instrument
- <2 times background beta/gamma radiation levels, as indicated on radiation monitoring equipment
- no pronounced reaction on a benzene non-specific detector tube
- <1.0 mg/m3 of total dust

Any of the following will terminate work immediately (consultation with a CIH is recommended):

- >5 ppm on an Hnu
- a pronounced reaction on any benzene tube
- >5,0 mg/m3 total dust
- >2 times background beta/gamma radiation levels

If excessive contamination (buried drums, large pools of oily materials, gases, etc) is suspected from sensory observation, the Site Safety and Health Officer will terminate work and remove all workers from the immediate area. At this point consultation with a Certified Industrial Hygienist is recommended to determine whether the area is considered safe or will recommend modifying or terminating the work entirely.

3.4 DOCUMENTATION OF RESULTS

All monitoring results must be documented on an air sampling record form and placed in the project folder or Site Specific Health and Safety Plan. Results should be communicated to employees immediately so appropriate action can be taken. Monitoring results will be kept by (Insert Company Name) for a period of service plus 30 years.

4 References

None

5 Appendices

None