WHITTAKER PROJECT SITE SAFETY AND HEALTH PLAN

Greenville, Pennsylvania

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LIST OF ACRONYMS

WMS	Whittaker Metals Site
WPSOP	Whittaker Project Site Operation Plan
SSHP	Site Safety Health Plan
NRC	Nuclear Regulatory Commission
ALARA	As Low As Reasonably Achievable
TLDs	Thermoluminescent Dosimeters
PPE	Personnel Protective Equipment
BPM	Beats Per Minute
CRZ	Contamination Reduction Zone
NFPA	National Fire Protection Association
LQAM	Laboratory Quality Assurance Manual

1.0 SITE DESCRIPTION AND BACKGROUND

1.1 Site Location and Description

WMS is located approximately 3.5 miles south of Greenville, PA on the west side of the Shenango River. The site is an irregularly shaped parcel of about 6 acres bordering the river. The surface of the property has built up over a period of about 40 - 50 years through repeated disposal of building rubble, scrap metal, general trash and foundry slag. The present surface is generally level with the exception of a deep ravine in the south central area of the property. The central and southern portions of the property are predominately slag. The northern portion contains slag with other rubble and waste -- some dating to the early use as an Army supply base (during WWII).

There are no buildings on the property. The property contains about 20 storage bins which contain about 70 drums and boxes containing contaminated material or in some cases soil which acts as shields at the fenceline. The site also contains some uncontaminated empty shipping containers. There is no known mixed waste on the property.

1.2 Site Background

Beginning in the 1960's the Greenville firm of Mercer Alloys, predecessor of Whittaker Metals Corporation, produced ferro-columbium and ferro-nickel alloys by an aluminathermic melting process. Columbium ores and nickel scrap used in this operation contained licensable concentrations up to approximately 2 percent thorium. Process slag containing thorium was retained onsite. Natural and depleted uranium were unwanted contaminants of some of the feedmetal scrap; slags containing low-levels of uranium contamination are also present on the site.

Oak Ridge Associated Universities estimated the total volume to be 1.05 E+6 ft^3. Thorium concentrations range from less than detectable levels to 6779 pCi/g of total Thorium. Concentrations of Uranium-238 and Radium-226 also vary considerable with the highest levels being 2179 pCi/g and 226pCi/g, respectively.

Whittaker Corporation terminated all manufacturing operations involving source material in 1974. Currently, no processing is done at the site.

2.0 SITE SAFETY AND HEALTH PLAN

The purpose of this Site Safety and Health Plan is to provide a written assessment of potential safety and health hazards that may be associated with the remedial investigation at the WMS. Where determined applicable by the Health & Safety Supervisor and in coordination with LAW Environmental's Program Manager the requirements of this plan will apply to LAW employees and subcontractors associated with this project. These requirements include:

1. Personnel responsible for formulating and enforcing health and safety requirements contained in the Site Safety and Health Plan (SSHP).

2. Site personnel qualifications, training and medical surveillance requirements.

3. Personal Protective Equipment to be available and/or used during site activities.

4. Monitoring equipment and instruments to be used to evaluate hazard potential during site activities.

5. General site operating and safety procedures.

6. Site control procedures.

7. Decontamination procedures for personnel and equipment.

8. Emergency response procedures, including personnel and equipment which will be available at the site and summoned in an emergency, a map to the nearest hospital, and site evacuation procedures.

This SSHP is based on available background information pertaining to the site. Although the SSHP attempts to anticipate conditions that may be encountered during field activities at the site, the flexibility of this plan allows unanticipated site-specific conditions to be addressed, while ensuring adequate and appropriate protection of field personnel.

The SSHP will be bound with other pertinent information and used by the Health & Safety Supervisor as a field reference for safety, health and emergency response procedures. The Health & Safety Supervisor will discuss the requirements of this SSHP with site personnel to ensure sufficient awareness of potential hazardous conditions and safety procedures at this site.

Where determined applicable by the Health & Safety Supervisor, the provisions of the SSHP shall apply to field activities necessary for the execution and completion of the work covered under this project.

If field activities are modified after the issue date of this plan, the hazards associated with the modified activities must be reassessed, and the site specific provisions of this SSHP modified accordingly.

2.1 Safety Meetings

A site safety meeting with all site personnel will be held prior to the onset of field activities at WMS and once a month thereafter during site activities. The purpose of the meetings will be to discuss the potential health and safety hazards associated with field activities, and to ensure that standard operating procedures are followed at all times.

2.2 Contamination Characterization

Previous investigations conducted at the site included a 1984 study by Oak Ridge Associated Universities. As discussed in Section 2.1 (Site Background) there is estimated 1.05E+6 ft^3 of slag material containing natural thorium and uranium. Thorium concentrations range from less than detectable levels to 6779 pCi/g of total thorium. Concentrations of U_{238} and Ra_{226} also vary considerably with the highest levels being 2179 pCi/g and 226 pCi/g respectively.

As part of a semi-annual and annual surveillance by LAW/Applied Radiological Control (ARC) a walkover gamma survey was performed in December, 1992. Gamma radiation levels ranged from 10 - 3000 microRoentgens per hour (μR/Hr). The 3000 μR/Hr level was on contact with slag material in ore boxes.

No chemical contamination has been detected by previous investigations.

2.3 Potential Hazards

Potential hazards anticipated during remedial investigation are categorized as radiological, physical, and biological. These hazards include:

1. Radiation Exposure: Internal radiation exposure due to inhalation of dust particles and inadvertent ingestion of contaminated solids. External radiation exposure from gamma emitting radionuclides present in waste residual material. See Table 2.3 for toxicological properties.

2. Physical Hazards: Physical hazards will be present due to the use of some heavy equipment, primarily well drilling equipment. Physical hazards include the possibility of being struck by objects, equipment and tools.

3. Heat Stress: Heat stress is a potential hazard if work is conducted during warm weather (>70°F), especially when semi-permeable or impermeable personal protective clothing and respirators are worn.

4. Cold Injury: Cold injury (frostbite and hypothermia) and impaired ability to work is a potential hazard when work is conducted at low temperatures and the wind-chill factor is low.

5. Biological Hazards: Biological hazards are associated with working out-of-doors, especially during warm weather. These hazards include contact with poisonous plants, snakes, mosquitos, bees, and ticks.

6. Excessive Noise: Excessive noise levels may be present with drilling equipment and other heavy equipment operations.

2.4 Hazard Evaluation

Intrusive activities taking place at this site will increase the potential for exposure to hazardous materials via contaminated soil or ground-water contact. These activities include:

- Surface water sampling
- Soil test boring advancement and soil sampling
- Surface soil sampling
- Sediment sampling
- Monitoring well installation
- Monitoring well development and sampling
- Well abandonment

Non-intrusive activities are anticipated to have a lower or non-existent potential for exposure to hazards because unlike the intrusive activities listed above there will be little or no contact with contaminated soil and water. These activities include:

- Site reconnaissance
- Topographical and location surveys

2.5 Personnel Monitoring

Monitoring for the presence of hazardous conditions will be performed during work to prevent personnel exposure to radiological, physical and possibly chemical hazards. Information gathered from air monitoring will be used to determine appropriate protective measures to be taken during site activities so that appropriate contingency and control measures can be implemented. Table 2.5 summarizes the monitoring program and action levels established for site activities.

Limitations on the use and application of monitoring instruments will be reviewed by the Health & Safety Supervisor prior commencement of work at the site.

TABLE 2.5

SUMMARY OF MONITORING PROGRAM AND ACTION LEVELS
Whittaker Metals Site, Greenville, PA

HAZARD	ACTION LEVEL	PRECAUTION IF ACTION LEVEL IS EXCEEDED	MONITORING FREQUENCY
Long-lived airborne particulate radionuclides in work area	That combination of airborne radioactivity concentration and work duration such that an unprotected worker could receive a committed effective dose equivalent in excess of 1mSv (100 mrem)	Wear full-face respirator with HEPA cartridges	Daily for workers in Exclusion Zone
External beta/gamma radiation	2 mR/hr	Designate area with signs or ropes	Daily during work activities on-site
Internal radiation exposure	Confirmed positive bioassay result	Perform dose assessment, notify worker	Before work begins, after project completion, employee termination, once per calendar quarter
Noise	85 decibels	Use hearing protection	At discretion of Health & Safety Supervisor, based on site activities
Heat stress	Oral temperature 99.6°F, heart rate 110 bpm	Use of cooling vests, reduced work cycle duration	Dependent on ambient temperature, PPE requirements, and nature of task
Dust	1 mg/m³ 50% of OSHA PEL-TWA	Implementation or improve dust control measures. Upgrade to Level C PPE with HEPA cartridges	At discretion of Health & Safety Supervisor
Long-lived radioactive airborne particulates at work site perimeter		Improve dust control measures	Daily during work activities on-site

HAZARD	ACTION LEVEL	PRECAUTION IF ACTION LEVEL IS EXCEEDED	MONITORING FREQUENCY
Organic vapors	PID reading > 5ppm in breathing zone	Stop work and evaluate specific chemical hazard; upgrade PPE as necessary to minimize hazard	As directed by the Health and Safety Supervisor
Combustible gases	Lower Explosive Limit > 20%	Stop work and allow area to ventilate until levels fall below 20% LEL	Same as organic vapors
Hydrogen Sulfide	> 10 ppm	Stop work and allow area to ventilate until levels fall below 10 ppm	Same as organic vapors

2.5.1 Radiation Monitoring

The radiation exposure of an occupational worker will be maintained as far below the applicable values listed in 10 CFR Part 20 as is reasonably achievable. An administrative dose equivalent level of 125 mRem per calendar quarter has been established for radiation workers. This limit is 10 percent of the dose equivalent that is allowed by the Nuclear Regulatory Commission (NRC). If any worker exceeds the administrative dose equivalent level, a comprehensive evaluation will be conducted.

2.5.1a Air Sampling for Long-Lived Radioactive Particulates

Area monitoring will be performed at both upwind and downwind fence lines and in work locations. This sampling will be conducted primarily to ensure that airborne concentrations of contaminants are maintained As Low As Reasonably Achievable (ALARA).

2.5.1b External Beta/Gamma Radiation

Personnel working within the restricted area will be required to wear radiation monitoring badges consisting of thermoluminescent dosimeters (TLDs). These badges will be required for entry into the restricted area. This requirement applies to personnel, including supervisors and inspectors.

TLD's have been placed at the perimeter of the site to evaluate the potential exposure of off-site personnel and the public.

In addition to the above, real-time exposure rate monitoring will be conducted each day. Additional monitoring may be conducted at an increased frequency, as determined warranted by the Health & Safety Supervisor based on encountered site conditions.

2.5.1c Internal Radiation Exposure Monitoring

Bioassays will be implemented during the course of the project. Bioassay monitoring will be conducted to determine whether a worker has received an internal radiation dose while performing work at the site.

2.5.1d Instrument Calibration

Instruments/equipment used to evaluate personnel exposures to radiation, including air sampling pumps and portable survey instruments, will be calibrated in accordance with the methods and frequency specified by the manufacturer.

2.5.1e Chemical Monitoring

Chemical contaminant monitoring for volatile organic substances, methane, hydrogen sulfide, explosive and oxygen deficient atmospheres shall be performed during all activities involving excavation/handling of site waste materials. This monitoring will be conducted using the following instruments, or their equivalent:

- Photoionization detector (PID) equipped with an 11.7 eV lamp;
- Combustible gas indicator;
- Oxygen level indicator; and
- Hydrogen sulfide meter (A combination gas monitor for combustible gases, hydrogen sulfide and oxygen may be used).

NOTE: Instrument response may be affected by the presence of oxygen deficient or rich atmospheres, and combustible gas readings should, therefore, be taken in conjunction with oxygen level measurements.

2.5.2 Noise Control

Noisy conditions may occur at the site during operation of heavy equipment. Sound pressure levels will be monitored as determined necessary by the Health & Safety Supervisor to delineate areas requiring the use of hearing protection devices. Hearing protection will be required if noise level exceeds 85 decibels.

2.5.3 Dust Monitoring and Control

Dust monitoring for total airborne particulates will be conducted using a direct reading instrument when excavation activities are ongoing. The sampling frequency will be determined by the Health & Safety Supervisor.

Dust control will be required at the site to minimize the potential for personnel inhalation and off-site release of airborne contaminants. Dust suppression measures consisting of wetting down the soil/waste surface with water-spraying equipment will be used to reduce dust emissions. Dust control will be conducted prior to and during excavation.

2.5.4 Heat and Cold Stress Monitoring

2.5.4a Heat Stress Monitoring

Heat stress can be a major hazard for personnel wearing PPE. Depending upon the ambient conditions and the work being performed, onset of heat stress can be rapid. Heat stress monitoring will be initiated when ambient air temperatures exceed 80 degrees fahrenheit and impervious clothing (full-body) is worn.

2.5.4b Cold Stress Monitoring

Field activities at WMS should not take place during the fall and winter months. However, should the remedial investigation extend into cold weather the following precautions should be taken, workers will wear warm and insulated clothing. The higher the wind speed and the lower the temperature in the work area, the greater the insulation value of the protective clothing required.

2.6 Medical Surveillance

Personnel involved in on-site operations must participate in an ongoing medical surveillance program meeting the requirements of OSHA 29 CFR 1920.120 and ANSI Z 88.2 before working at the site. The medical surveillance protocols and examination results are overseen by a licensed physician who is certified in Occupational Medicine by the American Board of Preventative Medicine, or who, by necessary training and experience, is Board-eligible. At a minimum, each person who wears respiratory protection must meet the requirements of 29 CFR 1910.134. A written certification from the examining physician is required stating the person is "fit for duty" to wear the required PPE, including air-purifying respirators or SCBA, and perform the required work. The report shall also include a description of any recommended work limitations placed on the employee as a result of medical conditions detected from the examination. Medical examination forms shall be submitted and approved by the Health & Safety Supervisor prior to the start of work.

2.6.1 Medical Examinations and Bioassays

In consultation with the occupational physician, and based upon probable site conditions, potential occupational exposures and required protective equipment, the minimum content and frequencies of required medical examinations are as follows:

- **Baseline Physical** - Performed prior to potential exposure to hazardous/toxic substances. The baseline examination will establish data to subsequently verify the efficacy of protective measures and to later determine if exposures have adversely affected the worker. The standard biomedical monitoring performed includes a full physical, vital signs, EKG, chest X-ray (if none in the past 5 years for personnel under age 40 and annually for personnel above age 40), hematology evaluation (including complete blood count, differential and platelet count, hemoglobin and hematocrit), urinalysis, vision screen, Executive profile (SMA-22, CBC, thyroid profile), pulmonary function test, audiometry, and protoscopic examination (at the physician's discretion for males).

- **Site Specific Bioassays** - Site specific bioassay monitoring of workers for uranium and/or other radionuclides will be conducted to determine whether the employee has received an internal radiation dose while performing work at the site. Personnel who are issued radiation dosimetry shall provide urine samples prior to the start of work within the restricted area where a potential radiological exposure exists. Additional samples will be required once per Calendar quarter, or upon completion of the project, whichever occurs first. Exit samples will be required from personnel upon completion of the worker's last day of work within the controlled area, or upon termination of employment.

- **Annual Examination** - Same as Baseline Physical, with the exception that the EKG, chest X-ray, audiometry and protoscopic examinations are performed at the discretion of the examining physician.

- **Special Medical Surveillance Parameters** - Additional examinations and tests may be performed following exposure to hazardous substances, or if deemed necessary by the examining physician, as indicated by the medical history and/or initial examination results. The evaluation will be repeated as indicated by substandard performance or evidence of particular stress evidenced by injury or time loss due to injury by the worker.

- **Final Examination** - A final examination will be performed for any employee terminating employment.

2.6.2 Medical Surveillance Records

Records certifying the participation of the worker in the medical surveillance program, the date of the last examination, and name of reviewing occupational physician will be maintained for each employee. The written medical opinion from the attending physician as to fitness for site work and wearing respiratory protection will be maintained in the employee's files.

2.7 Personnel Protective Equipment

The use of appropriate personal protective equipment (PPE), in conjunction with site entry, safety, and decontamination procedures will reduce the potential for worker contact with hazardous and radioactive substances present at the site. A personal protective equipment (PPE) program established in accordance with 29 CFR 199.120(g)(5) and 29 CFR 199.134 will be implemented. The level of protection to be used at the WMS will be determined based upon actual conditions encountered at the site in accordance with site procedures, or additionally as required by the Health & Safety Supervisor. Pre-requirements will either be posted at the affected area or defined on the applicable work permit.

It should be noted that the use of PPE can itself create hazards such as heat stress, impaired vision and mobility, and communications difficulties. Equipment and clothing will be selected that provides an adequate level of protection, but avoids, to the maximum extent practicable, potentially adverse effects that can result from overprotection. PPE levels and equipment are described below.

2.7.1 Modified Level D PPE

Modified Level D PPE will typically be the minimum protection level for work activities at the WMS site. Modified Level D PEE can include the following clothing and equipment:

- Cotton coveralls or distinctive work clothing.
- Hard hat meeting OSHA Standard 29 CFR Part 199.135 (mandatory during work around heavy equipment).
- Safety goggles or glasses with side shields.
- Substantial work shoes.
- Hearing protection (for work with sound pressure levels > 85 dba).
- Heavy cotton or leather work gloves (as appropriate).
- Full-face shield to be worn by members of excavation/construction crew during activities that may promote eye injury as specified by the Health & Safety Supervisor.

2.7.2 Level C PPE

Level C PPE will be used when the substance and concentration of contaminants are known, and the criteria for using air-purifying respirators are be met (non-IDLH concentrations of contaminants and normal oxygen levels). Level C PPE includes the equipment and clothing designated for Modified Level D PPE, plus the following as required:

- Air-purifying respirator, with combination organic vapor and dust/mist (HEPA) cartridges.

- Outer boot covers (Tyvek).
- Hooded Tyvek coveralls over cotton coveralls.
- All joints between various garments must be securely sealed with tape.
- Butyl rubber, neoprene or equivalent gloves.

2.7.3 Respiratory Protection

Respirators will be selected in accordance with ARC procedures based on the hazards to which the worker is exposed. Only full-face air-purifying respirators will be used when respiratory protection is required at the site. Air-purifying respirators will not be used under the following conditions:

- Oxygen deficient atmospheres.
- IDLH concentrations of specific substances.
- Entry into unventilated or confined areas where the exposure conditions have not been characterized.
- Contaminant concentrations are unknown or exceed the protect factors for air purifying respirators.
- Identified gases or vapors that have inadequate warning properties and the sorbent service life is not known and the unit has no end-of-service indicator. (Note: High relative humidity may reduce the protection offered by the sorbent.)

2.7.3a Respirator Maintenance/Inspection/Storage

Air-purifying respirators and cartridges will be stored and maintained properly and checked before and after each use. Respirators will be dismantled, cleaned and disinfected after each use. Clean respirators will be stored individually in sealable plastic bags in a clean, convenient location. Respirators will be inspected before each use for material damage (pliability, deterioration or distortion, cracks, crazing or fogginess). Worn or deteriorated parts will be replaced as soon as identified. Respirator cartridges will be checked to ensure that they are proper for the intended use, the expiration date has not passed, and that they have not been opened or used previously.

Each employee issued a respirator will be responsible for routine inspection and cleaning of the respirator in accordance with OSHA 1910.134. Surveys of the interiors of respirators for loose contamination prior to cleaning may be conducted at the discretion of the Health & Safety Supervisor.

2.7.3b Fit Testing

Fit testing procedures will be performed to ensure the proper fit of the respirator, and personal comfort of the user. Fit testing methods are contained in 29 CFR 199.1025. Fit testing will be performed on an annual basis, or if physical changes in face structure or significant weight gain or loss (> 20 pounds) has occurred.

Prior to entry into the restricted area, the respirator user will perform a negative pressure test upon donning the respirator to ensure a tight face-to-facemask seal. Adjustments will be made until a proper fit is achieved. The respirator will not be used if a proper seal is not achievable.

2.8 Site Control Measures

Access to the area of work will be controlled by the Health & Safety Supervisor and/or the Program Manager at all times during the course of the project. Workers will be issued radiation dosimetry badges daily at the access control point prior to entering the controlled area. They will be required to sign in and out on the site entry register. Delivery personnel will be permitted access only to uncontaminated portions of the work site. Upon completion of decontamination procedures at the end of work each day, workers will be required to scan themselves for radioactive contamination and remove their radiation monitoring badges for storage at the access control point.

2.8.1 Work Zones

The site will be divided into three zones, based on the potential for exposure to hazardous conditions and activities to be performed:

- Exclusion Zone
- Contamination Reduction Zone (CRZ)
- Support Zone

The Exclusion Zone is the area of greatest contamination and presents the highest potential for worker exposure to hazardous conditions. The Exclusion Zone will be comprised of all active work areas at the WMS. Personnel entering the Exclusion Zone must wear the mandated level of PPE designated for the task to be performed and upgrade PPE as conditions warrant. The determination of the boundaries of the Exclusion Zone will be specific to the site and the area of work each day.

The Contamination Reduction Zone (CRZ) serves as a transition area between the Exclusion Zone and Support Area. Personnel and equipment decontamination facilities will be located in the CRZ. The following emergency equipment will be maintained in the Contamination Reduction Zone.

- Fire extinguishers
- First Aid Kit
- Emergency Eye Wash

The Support Zone serves as a clean control area. The Support Zone will include a change area for personnel to change into street clothes after decontamination, a break area where food and beverages can be consumed, and equipment storage and maintenance areas.

2.8.2 Site Access

A check-in and check-out system will be used so that there is a written record of personnel, including visitors, in the work zone(s) at all times. The Health & Safety Supervisor will be responsible for controlling site access and maintenance of records.

2.8.3 Communications

Emergency telephone numbers and reporting instructions for ambulance, physician, hospital, fire and police will be conspicuously posted, both at the work sites and in the Support Zone. Field personnel will be briefed concerning emergency response procedures and chain of command during emergencies.

An internal communication system consisting of hand signals as well as voice communications will be adopted by field personnel if noisy conditions exist at the site. The Health & Safety Supervisor will coordinate the choice and use of hand signals during on-site safety briefings.

2.9 Personal and Equipment Decontamination

2.9.1 Personnel Decontamination

The purpose of decontamination is to minimize the risk of personnel exposure to hazardous substances and to keep contamination within the designated controlled areas. Personnel associated with this project will complete appropriate decontamination procedures (if required) prior to leaving the site. A decontamination area will be set up at an appropriate site location within the Contamination Reduction Zone. The decontamination process will consist of a series of procedures performed in a specific sequence.

Personal hygiene primarily entails washing and is not strictly considered decontamination. Each individual shall conduct appropriate personal hygiene, prior to eating, drinking, smoking and leaving the Access Control Point. A sufficient supply of clean potable water and hand soap will be provided in the CRZ for the personal hygiene of field personnel.

Personnel performing work in the Exclusion Zones will be required to remove and store their street clothing and shoes in a locker/storage area prior to donning their protective clothing and proceeding to the work area.

Suitable containers for placement of soiled coveralls and other PPE waste will be available in the CRZ.

2.9.2 Equipment Decontamination

Equipment to be used at the WMS includes some excavation/ drilling equipment. This equipment shall be monitored for contamination. To prevent transport of contamination off-site. An area will be designated for equipment decontamination. Any decontamination fluids will be pumped into drums and stored on-site pending determination of the method of ultimate disposal. Law and its subcontractors will assist WMS in the proper disposition of these materials, e.g. characterization, packaging, shipping and disposal.

2.10 Emergency Response and Contingency Procedures

The construction activities to be performed at the Whittaker Metals site will require handling of contaminated media, particularly soils and waste residual material. Air monitoring, use of PPE (protective clothing and respiratory protection), and careful work practices will be implemented to limit the incidence of accidents and emergencies. In order to effectively handle emergency situations, planning is essential. An emergency response and contingency plan will be implemented in accordance with 29 CFR 1910.120 which includes measures to prevent accidents and emergencies and to limit the adverse impact of these incidents when they occur. Specific aspects of emergency planning are discussed below. Emergency equipment to be available at the site is discussed in this section.

2.10.1 Pre-Notification of Off-Site Emergency Response Personnel

Local fire/police/rescue authorities and nearby hospital personnel will be contacted and briefed prior to site entry or work regarding the scope of the work and hazardous conditions that may be encountered at the site. In addition, off-site emergency personnel will be informed about site emergency procedures and decontamination procedures.

2.10.2 Emergency Recognition and Prevention

Field personnel associated with this project will be briefed by the Health & Safety Supervisor prior to site entry concerning potential hazards, recognition of emergency conditions (including heat stress), personnel and equipment which will be available and summoned during an emergency and concerning their responsibilities during an emergency situation. Personnel will be briefed on assembly points, evacuation routes, and the person to report to when an emergency occurs. Visitors will be briefed on basic emergency procedures or escorted by Field personnel.

2.10.3 Communications

Emergency communications will be established prior to site entry. The communication program will describe the signals to be used during an emergency. Signals used will be brief and exact and limited in number so that they are easily remembered. Appropriate communications devices (i.e. flags, lights, radio) will be used.

2.10.4 Posted Instructions and Emergency Contacts

Names and phone numbers of all emergency response personnel (ambulance, physician, hospital, fire and police) and a map showing the route to the hospital will be conspicuously posted at the work site. Field personnel associated with this project will be briefed concerning the people and equipment which will be summoned during an emergency and their responsibilities during an emergency situation requiring hospitalization. Emergency contacts and telephone numbers are provided in Table 2.10.4.

2.10.5 Site Evacuation

There are three stages of site evacuation, based upon the hazard posed by the incident:

1. Withdrawal from the immediate work area;
2. Evacuation of potentially affected facilities in vicinity of the WMS; and
3. Evacuation of the WMS.

2.10.6a Withdrawal from Work Area

Withdrawal to a safe location outside the Exclusion Zone will be required should any of the following occur:

- Concentrations of volatile organics, combustible gases or toxic gases exceed action guidelines. Work will be temporarily stopped until concentrations fall below action levels, or PPE upgrade will be implemented.

- If an incident such as a containable fire or minor accident occurs, field operations will resume after appropriate response is completed and the Site Manager has cleared the site for work resumption.

- Equipment malfunctions.

The work site will be evacuated if:

- Level of contaminants or radiation hazard are detected in excess of action levels.
- A major accident or injury occurs.
- Fire and/or explosion occurs.

TABLE 2.10.4

EMERGENCY CONTACTS
WHITTAKER METALS
GREENVILLE, PA

Contact	Telephone Number
POLICE	
Emergency	911
Pennsylvania State Police	(412) 646-1133
AMBULANCE	
Gold Cross	(412) 588-6101
Eastern Medical Service	(412) 588-0330
FIRE	
Greenville Fire Department	(412) 588-4190
DOCTOR	
TBD	
HOSPITAL	
Greenville Regional Hospital 110 North Main Street Greenville, PA	(412) 588-2100
HEALTH INFORMATION SERVICES	
Poison Control Center	(412) 681-6669

Figure 2.10.5 Map to the Greenville Hospital

2.10.6b Evacuation of Off-Site Facilities in Vicinity of Site

The Health & Safety Supervisor is responsible for determining if circumstances exist adversely affecting areas or facilities surrounding the site. If air concentrations exceed the work area site action levels, monitoring will be performed at the edge of the Exclusion Zone. If action levels are encountered at these locations the Health & Safety Supervisor will inform the Whittaker Metal point of contact immediately.

2.10.7 Site Control During Emergencies

The buddy system will be adhered at all times to during response to emergencies. Control checkpoints will be designated to maintain a record of personnel present in the emergency area. Written records of the names and affiliation of personnel, status, time of entry/exit, areas to be entered, team or "buddy", task being performed, PPE, and rescue and response equipment will be maintained during emergency response.

2.10.8 Medical Emergency Response and Decontamination

Depending upon the severity of the injury, first aid treatment may be given at the site by trained and certified personnel. Additional assistance from emergency medical technicians may be required at the site, and/or the victim may require transport to the hospital for treatment. The Health & Safety Supervisor and/or the Program Manager will be notified immediately of the medical emergency situation and provided with the following information:

- Location of victim
- Nature of emergency
- Whether victim is conscious

After being notified of the medical emergency, the Health & Safety Supervisor will determine whether the victim requires off-site assistance. Actions required depend upon the seriousness of the emergency. Personnel with minor injuries that can be treated with standard first aid procedures will be threated by the Health & Safety Supervisor or other First-Aid Certified person. If a life-threatening condition or condition requiring emergency care exists, off-site assistance will be summoned immediately and the injured person will be transported to the Greenville Hospital. The Health & Safety Supervisor will meet or appoint a person to meet off-site personnel when they arrive and lead them to the victim. When possible, normal decontamination procedures will be followed. In life-threatening situations, care must begin WITHOUT considering decontamination. Outer protective clothing and equipment can be removed if it will not delay or aggravate the victim's condition.

The area surrounding an accident site must not be disturbed until changes to the site have been cleared by the Health & Safety Supervisor. It will be the responsibility of the Health & Safety Supervisor to thoroughly investigate the details of any accident or injury. Based on his findings, he will recommend any corrective action relative to field procedures or emergency response procedures to prevent recurrence of accidents and improve response actions.

2.10.9 Fire/Explosion

The local fire department will be alerted to the nature and location of field investigation activities to take place at the WMS. The following fire prevention procedures will be followed during site activities:

- Potential sources of ignition will be identified and kept away from areas in which potentially flammable materials will be encountered.
- Air monitoring will be performed during subsurface operations using combustible gas, oxygen level indicators and organic vapor monitoring equipment.
- Field personnel will be briefed on action levels for combustible gases and oxygen prior to starting work at a site.
- No smoking signs will be conspicuously posted at the work site.
- Fire extinguishers will be kept readily available (within 100 feet) of the work site.

The following procedures for responding to a fire will be followed during work at the site:

- The buddy system will be adhered to during response to a fire. Work teams will exit the work area together if evacuation is necessary. All personnel will be evacuated to a safe upwind location.
- All personnel in the immediate work area will be alerted to the presence of a fire. Personnel will disconnect all electrical equipment in use at the site and move other equipment, if possible, away from the fire.
- Field personnel are not trained fire-fighters and will not attempt to combat fires that can not be quickly contained with the available fire extinguishers.

- If there is any doubt that a fire can not be quickly contained and extinguished with available fire extinguishers, personnel will sound the fire alarm and proceed to the designated assembly point upwind of the fire. Personnel will be permitted to fight fires only under limited conditions, such as small fires in uncontaminated areas where flammable liquids are not present.

- If a small fire has been extinguished not requiring fire department support services, the Health & Safety Supervisor and Program Manager will be immediately informed of the incident.

In the event of a fire that can not be rapidly extinguished using available equipment, the following personnel will be contacted immediately:

- Personnel in the immediate work area

- Fire Department Dispatcher

- Program Manager and Health & Safety Supervisor

- Whittaker Metals Point of Contact

2.10.10 Followup Response to Emergencies

The Health & Safety Supervisor will be responsible for investigating the details of any accident or injury on-site. Based on the findings of the investigation, the Health & Safety Supervisor will recommend, corrective actions to prevent recurrence. Occupational health and safety deficiencies and corrective measures taken to address deficiencies will be identified and recorded.

The following actions will be taken prior to the resumption of normal site activities:

- The Health & Safety Supervisor will notify appropriate government agencies, as required.

- All equipment and supplies will be restocked and damaged equipment replaced or repaired.

- All aspects of the contingency plan will be reviewed according to new site conditions and lessons learned from the emergency response.

- Personnel will be briefed on revisions to the contingency plan and emergency procedures and other information pertinent to future emergency response activities prior to resuming work.

2.10.11 Emergency Equipment and First Aid Requirements

The following emergency equipment will be available on-site at all times during field operations.

2.10.11a Fire Extinguishers

Because of the possibility of fire and explosion at the sites, portable fire extinguishers (ABC-type) meeting the standards of the National Fire Protection Association (NFPA 10) will be readily available to field personnel during all on-site work. Foam, dry chemical or CO_2 type extinguishers will be inspected for proper charge, pressure and physical integrity before field operations begin and after each use. Personnel associated with this project will be trained in the use of fire extinguishers before commencing work at the site.

2.10.11b First Aid Kits

An industrial first aid kit with sufficient supplies will be readily available at the work site. It will be rechecked routinely and immediately after each emergency to ensure that expended items are replaced.

2.10.11c Emergency Eye Wash

A portable emergency eye-wash meeting ANSI Z-358.1 standards and sufficient potable water for copious flushing (for 15 minutes) will be provided at the work site.

2.10.11d Emergency Spill Clean-up Kit

An emergency spill clean-up kit with sorbent materials will be available for use in the event of a spill or leak of fuel, hydraulic oil, lubricating oil, or other similar material from equipment.