Times Beach Remediation Project

Health and Safety Plan

Prepared for

Agribusiness Technologies, Inc.

August 1992

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July 1994

Prepared by

Enserch Environmental Corporation
Formerly the Environmental Division of Ebasco Services Incorporated

TIMES BEACH REMEDIATION PROJECT

SITE-SPECIFIC HEALTH AND SAFETY PLAN

SITE: TIMES BEACH

LOCATION: TIMES BEACH, MISSOURI

PREPARED BY: ENSERCH ENVIRONMENTAL CORPORATION

PREPARED FOR: AGRIBUSINESS TECHNOLOGIES, INC.

DATE PREPARED: JULY 1994

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APPROVALS

By their signature, the undersigned hereby certify that this HASP has been reviewed and approved and shall be utilized at the Times Beach Site.

Health and Safety Officer — Date: 8/30/94

Construction Manager — Date: 8-30-94

Project Manager/Vice President — Date: 9/14/94

Remediation Health and Safety Manager — Date: 9/16/94

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1.0 SITE SPECIFIC HEALTH AND SAFETY PLAN

1.1 GENERAL

The purpose of this plan is to assure, so far as possible, the health and safety of site personnel. It has been prepared in conformance with EEC Health and Safety Plan guidelines and project requirements. It addresses the activities to be conducted at the Times Beach site. This plan will be implemented by the Project Management Team during site work. Compliance with this Health and Safety Plan (HASP) is required of all EEC personnel and their subcontractors who perform field work for this project within the Scope of Work outlined in Section 1.2 of this HASP. Major subcontractors may implement their own HASP specific for their scope of work, but the subcontractor HASP must be at least as effective as this HASP. Assistance in implementing this HASP can be obtained from the EEC Site Health and Safety Officer (HSO) or Project Health and Safety Manager (HSM). The content of this HASP may change or undergo revision based upon additional information made available to health and safety personnel, monitoring results, or changes in the technical scope of work. Any changes proposed must be reviewed by the HSO and are subject to approval by the EEC HSM. The HASP Change Notice Form provided in Appendix A may be used to initiate such changes.

1.2 SCOPE OF WORK

The following list of activities reflects the Scope of work anticipated for the Times Beach project. The list is broken down into activities specific to the individual workplans to be utilized for the project. The potential hazards for activities that are not reflected in the Scope of Work will need to be evaluated and addressed prior to allowing those activities to take place. If necessary, the HASP shall be amended to reflect the changes. Thermal treatment activities will be conducted under a separate HASP to be submitted and implemented by the thermal treatment subcontractor.

1.2.1 Remediation Workplan

- Surveying operations
- Clearing in dioxin-contaminated areas
- Grubbing in dioxin-contaminated areas
- Excavation and handling of dioxin-contaminated soils
- Dumping and handling of dioxin-contaminated material in on-site storage buildings
- Soil sampling
- Soil inversion of dioxin-contaminated soils
- Soil covering of dioxin-contaminated soils
- Decontamination of equipment/vehicles
- Backfilling activities

1.2.2 Restoration Workplan

- Restoration of remediated areas
- Restoration of other areas
- Demolition
- Grading
- Seeding and mulching

1.2.3 Thermal Treatment Facility (TTF) Workplan

- Construction and operation of the TTF and all of its support facilities are not covered in this HASP.

1.3 HEALTH AND SAFETY STAFF ORGANIZATION

The responsibilities of the Health and Safety staff and project personnel are described in the following sections. Each subcontractor has the ultimate responsibility for the health and safety of their employee.

1.3.1 Project Manager

- Has the overall responsibility for the Health and Safety program at the site;
- Ensures that adequate resources are provided to the EEC field health and safety staff to carry out their responsibilities as outlined below;
- Directs and coordinates activities of Site Health and Safety Officer and his staff.

1.3.2 Construction Manager

- Ensures that field work is scheduled with adequate personnel and equipment resources to complete the job safely;
- Ensures that field site personnel are adequately trained and qualified to work at the site.

1.3.3 Construction Superintendent

- Enforces health and safety requirements for EEC personnel and ensures subcontractor's compliance with the HASP;
- Investigates accidents and completes all necessary forms;
- Conducts periodic inspections of EEC and subcontractor activities for compliance with the HASP.

1.3.4 Construction Supervisor

- Assist Construction Superintendent in enforcement of HASP;
- Ensures that adequate telephone communication between field crews and emergency response personnel is maintained;

- Investigates accidents and completes all necessary forms;
- Conducts periodic inspections of EEC and subcontractor activities for compliance with the HASP.

1.3.5 Health and Safety Manager

- Provides for the development and implementation of the HASP;
- Serves as the primary contact to review Health and Safety program matters that may arise;
- Approves revisions to the HASP or new safety procedures for field operations;
- Periodically audits the on-site Health and Safety program to evaluate the effectiveness of the HASP.

1.3.6 Site Health and Safety Officer

- Directs and coordinates activities of EEC health and safety technicians;
- Directs and coordinates EEC health and safety monitoring activities;
- Conducts and documents daily safety briefings. These activities may be delegated to subcontractors or other site supervisors;
- Audit the daily safety briefing program to ensure its effectiveness;
- Maintains medical and training records;
- Maintains Accident/Incident Report Forms;
- Notifies the Health and Safety Manager of all accidents/incidents;
- Determines upgrade or downgrade of personal protective equipment (PPE) based on site conditions and/or real time monitoring results;
- Conducts periodic inspections of EEC and subcontractor activities for compliance with the HASP.

1.3.7 Health and Safety Technician

- Accompanies field teams in the exclusion zone;
- Ensures that monitoring instruments are properly calibrated;
- Conducts and evaluates real time air monitoring data, and consults with the HSO when action levels are exceeded;
- Ensures that proper personal protective equipment is utilized by field personnel;
- Ensures that field personnel comply with this HASP;
- Maintains health and safety field log books.

1.3.8 Site Personnel

- Report any unsafe or potentially hazardous conditions to the HSO;
- Correct all unsafe or potentially hazardous conditions;
- Maintain knowledge of the information, instructions, and emergency response actions contained in this HASP;
- Comply with rules, regulations and procedures as set forth in this HASP, and any revisions which are instituted;
- Prevent admittance to work areas by unauthorized personnel.

1.4 EMERGENCY/IMPORTANT PHONE NUMBERS

The following is a list of emergency and other important phone numbers for the Times Beach site.

Emergency Phone Numbers	Contact	Phone Number
Ambulance	St. Louis County PD	911 or 314-889-2301
Police	St. Louis County PD	314-889-2260
Fire	Eureka Fire Department	314-938-5505
Hospital	St. Johns Mercy Medical	314-569-6090
USEPA National Response Center		800-424-8802
Poison Control Center	Cardinal Glennon Hospital	314-772-5200
National Poison Control Center		800-962-1253
Chemtrec		800-424-9300

EEC Project Management/Health and Safety Numbers		Phone Number
Project Manager	Tom Granger	201-460-6197
Construction Manager	Gary Stiles	314-938-3233
Construction Superintendent	Bruce Bennett	314-560-3401
Construction Supervisor	Roy Mahon	314-560-3402
Health and Safety Manager	Mike McMcSherry	609-467-3891
Health and Safety Officer	Lonnie Wright	314-560-3403

Other Important Phone Numbers		
ATI Project Director	Gary Pendergrass	417-866-4050
ATI Project Manager	Rob Kain	314-938-9520
ATI Assistant Project Manager	Jim Whitehead	314-938-9520
MDNR On Site Coordinator	Jim Silver	314-938-9150
USEPA On Site Coordinator	Jim MacDonald	314-938-9870

HOSPITAL ROUTE

Directions to Hospital

St. Johns Mercy Medical Center
615 South New Ballas Road
St. Louis, Missouri 63141
314-569-6090 (Emergency Room)

Leave the site via Lewis Road and get on I-44 east. Take I-44 east for about 10 miles and get on I-270 North. Continue on I-270 for 5 miles and get on Route 40 East and stay in the right lane. Get off at the first exit onto Ballas Road. Turn right at the first light onto South New Ballas Road. The hospital is 2 blocks on the left, follow signs to the emergency room.

The hospital route is provided for **non-emergency** purposes only. Under no circumstances should an injured worker requiring **emergency** medical treatment, be driven to the hospital by site personnel. Both ambulance and med-evac helicopter are available to transport an injured worker, the dispatcher will determine what is appropriate depending upon the nature and extent of the injury.

1.5 SITE LOCATION, DESCRIPTION, AND HISTORY

Times Beach was formerly an incorporated town in the southwest of St. Louis County, Missouri along the Meramec River. The site encompasses 480 acres and is bounded on the north and east by unincorporated areas of St. Louis County, is bordered on the west by the Burlington Northern Railroad lines, and is bisected on the south by Interstate 44. The site is contiguous to the Meramec River on the north and east and much of the site is located in the Meramec's five year floodplain and the entire site is located in the Meramec's twenty five-year floodplain.

The contamination at Times Beach resulted from spraying streets for dust control in the early 1970's with waste oil which was contaminated with dioxin. In November and December of 1982 the EPA collected soil samples for analysis. Just after the soil sampling program was completed at Times Beach, heavy rains caused the Meramec River to rise to its highest levels since 1915, causing flooding and forcing the residents to evacuate their homes. In late December of 1982, analytical results of the soil samples revealed that all but five streets in Times Beach were contaminated with dioxin. On December 23, 1982 the U.S. Centers for Disease Control urged the residents who had returned to their homes to leave Times Beach, due to the risk of developing adverse health effects from exposure to dioxin.

In order to assist in coping with the twin disasters of flooding and dioxin contamination, the residents of Times Beach were offered temporary housing. The EPA conducted additional testing of the soils in January and February of 1983; which confirmed that the dioxin contamination was widespread along the town's streets. In response to pressure from Missouri's congressional delegation, the EPA announced that it would pay 90% of the $36.7 million cost to permanently relocate Times Beach residents and businesses. In February of 1983, the EPA transferred $33.1 million, under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), for the relocation effort. On March 23, 1983, Missouri's governor signed legislation appropriating $3.6 million, the state's required 10% matching share, for the relocation effort of Times Beach residents and businesses. The buyout took several years to complete, after which the town of Times Beach was disincorporated in 1985.

The continued threat of flooding and further erosion of soils in which dioxin was detected at Times Beach prompted development of a flood control study for the area. The U.S. Army Corps of Engineers, through an interagency agreement with the EPA, implemented the Spur Levee Project. The project, completed in 1988, included raising the level of an existing levee and constructing flood barriers at key locations.

On September 28, 1988, the EPA issued a Record of Decision (ROD) for the Times Beach site and the Stout/Minker/Romaine Site. The ROD called for locating a thermal treatment unit (TTU) temporarily at the Times Beach site to treat dioxin contaminated soils. The TTU will treat dioxin contaminated soils from the Times Beach site and from 26 other designated sites in eastern Missouri.

In November of 1988, the EPA conducted additional soil sampling to statistically determine, within a 95% confidence level, the extent and concentrations of dioxin in the soil at the Times Beach site.

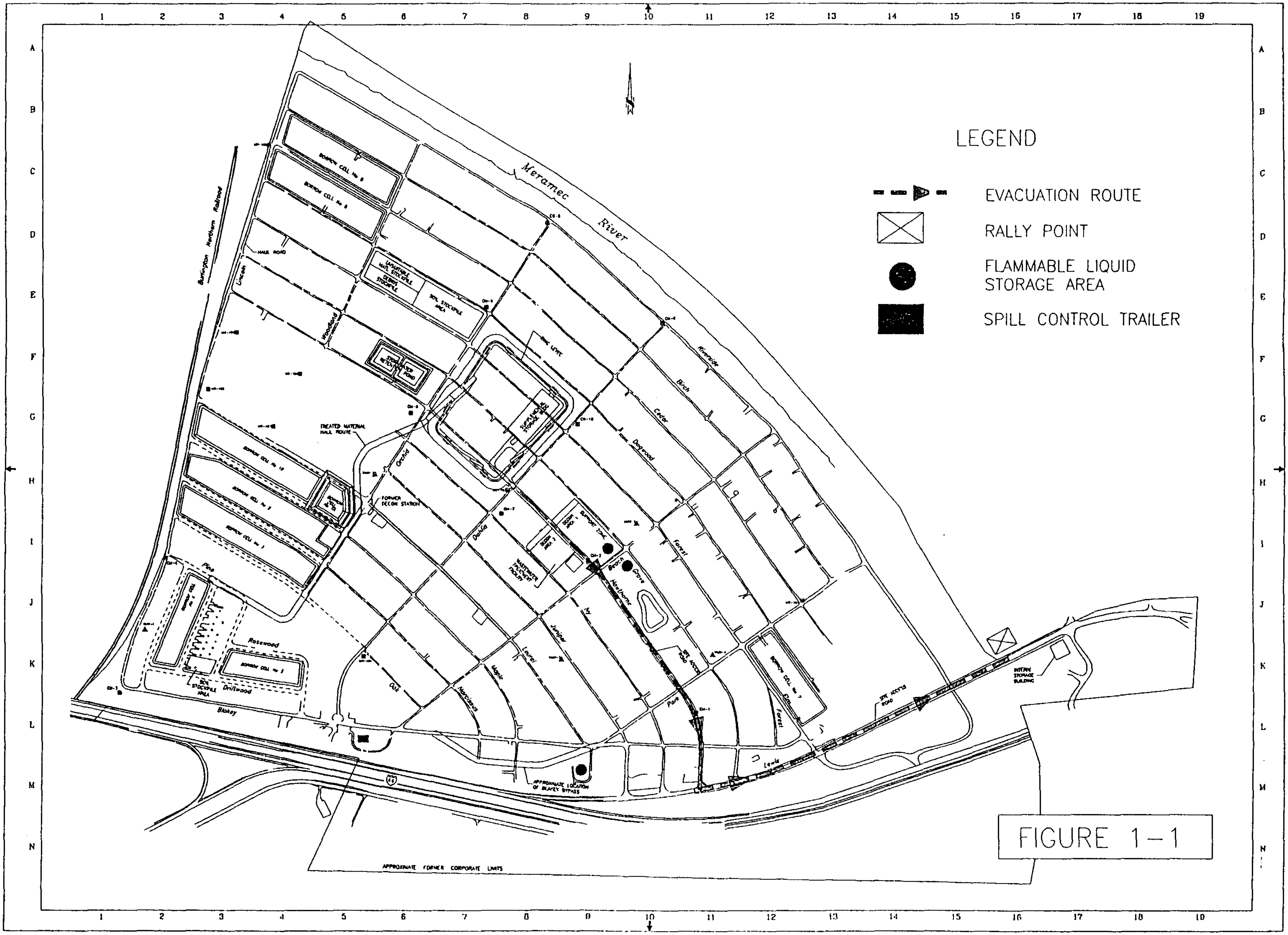

LEGEND
EVACUATION ROUTE
RALLY POINT
FLAMMABLE LIQUID STORAGE AREA
SPILL CONTROL TRAILER
Meramec River
Burlington Northern Railroad
APPROXIMATE FORMER CORPORATE LIMITS
TREATED MATERIAL HAUL ROUTE
FORMER DECON STATION
WASTEWATER TREATMENT FACILITY
APPROXIMATE LOCATION OF BLAKEY BYPASS
INTERIM STORAGE BUILDING

FIGURE 1-1

2.0 HAZARD ASSESSMENT

The potential hazards associated with planned site activities include chemical, physical and biological hazards. This section discusses those hazards that are anticipated to be encountered during the activities listed in the Scope of Work outlined in Section 1.2 of this HASP.

2.1 CHEMICAL HAZARDS

The contaminant of concern at the Times Beach site is 2, 3, 7, 8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD), or dioxin. The maximum concentration of dioxin detected at the site was 980 ppb. Table 2-1 provides chemical data information about dioxin and Appendix B contains a public health statement from the Agency for Toxic Substances and Disease Registry (ATSDR) that provides information and answers to commonly asked questions about dioxin.

In addition to the chemical hazards existing at the site, additional chemical hazards may be present due to materials being brought to the site, such as diesel fuel, pest control products, or decontamination fluids. Prior to allowing these materials on-site, material safety data sheets (MSDS) shall be obtained and hazard communication training provided in accordance with the 29 CFR 1910.1200 regulation. The MSDS's shall be kept on file in the Health and Safety office and shall be available for review, upon request, by all site personnel.

TABLE 2-1

CHEMICAL DATA

Compounds	CAS#	ACGIH TLV	OSHA PEL	Routes of Exposure	Toxic Properties	Target Organs	Chemical Properties
2,3,7,8-TCDD (Dioxin)	1746-01-6	NA	NA	Inhalation Absorption Ingestion Skin/Eye Contact	Chloracne; suggestive evidence of the following: liver damage; loss of appetite, weight loss and digestive disorders	Skin	Colorless solid with no known odor BP-734°F FP- unknown

BP Boiling Point (degrees Farhrenheit)
CAS Chemical Abstract Service Registry
FP Flash Point
PEL Permissible Exposure Limit
TLV Threshold Limit Value

2.2 PHYSICAL HAZARDS

Several physical hazards are expected to be encountered during field activities. These hazards are not unique, but are similar to those associated with a large construction project. These hazards include, but are not limited to, those due to poor housekeeping, heavy equipment operation, the use of hand and power tools, handling and storage of fuels, and the installation and use of electrical power.

2.2.1 Noise

Noise is a potential hazard associated with the operation of heavy equipment, power tools, pumps and generators. Suspected high noise operations will be evaluated to determine if protective measures are warranted. Workers with 8-hour TWA exposures exceeding 85 dbA will be included in the hearing conservation program described in Appendix C.

2.2.2 Heat Stress

Heat stress is a significant potential hazard, associated with the use of protective equipment in hot weather environments.

Heat cramps are brought about by long exposure to heat. As an individual sweats, water and salts are lost by the body resulting in painful muscle cramps. The signs and symptoms of heat cramps are as follows:

- Severe muscle cramps, experienced in the extremities and/or the abdomen

First aid treatment includes shade, rest, and fluid replacement. Normally, the individual should recover within one half hour. If the individual is not better within 30 minutes, the individual should be transported to a hospital for medical attention.

Heat Exhaustion usually occurs in a healthy individual who has been exposed to excessive heat while working or exercising. The circulatory system of the individual begins to fail as blood collects near the skin in an effort to rid the body of excess heat. The signs and symptoms of heat exhaustion are as follows:

- Rapid and shallow breathing
- Weak pulse
- Cold and clammy skin with heavy perspiration
- Skin appears pale
- Fatigue and weakness
- Dizziness
- Elevated body temperature

First aid treatment includes cooling the victim, elevating the feet, and replacing fluids. **Individual Should Not Attempt to Continue Work.** If the individual is not better within 30 minutes, the individual should be transported to the hospital for medical attention. **Victim will be more susceptible to Heat Stress for several days after the incident.**

Heat Stroke occurs when an individual is exposed to excessive heat and stops sweating. This condition is classified as a MEDICAL EMERGENCY, requiring immediate cooling of the patient and transport to a medical facility. The signs and symptoms of heat stroke are as follow:

- Dry, hot, red skin
- Body temperature approaching or above 105° F
- Large (dilated) pupils
- Loss of consciousness - the individual may go into a coma.

First aid treatment includes cooling the patient and transporting to a medical facility immediately.

As stated before, heat stress is a significant hazard associated with the use of protective equipment in hot weather environments. Local weather conditions may produce conditions which will require restricted work schedules in order to protect employees. A Wet Bulb Globe Temperature (WBGT) Index will be used to establish a work/rest cycle.

If the measured WBGT exceeds 30° C (24° C if working in tyvek), the work/rest cycle given in Table 2-2 will serve as a guideline. The ACGIH TLV for heat stress will also be used as a guideline and may be found in Appendix D. The use of work/rest cycle and training on signs and symptoms of heat stress should help prevent heat related illnesses from occurring.

TABLE 2-2

PERMISSIBLE HEAT EXPOSURE THRESHOLD LIMIT VALUES**
(Values are given in ^{o}C WBGT)

Work/Rest Regimen	Workload Light	Moderate	Heavy
Continuous Work	30.0 (24.0)	26.7 (20.7)	25.0 (19.0)
75% work-25% rest each hour	30.6 (24.6)	28.0 (22.0)	25.9 (19.9)
50% work-50% rest each hour	31.4 (25.4)	29.4 (23.4)	27.9 (21.9)
25% work-75% rest each hour	32.2 (26.2)	31.1 (25.1)	30.0 (24.0)

- Rest means minimal physical activity. Rest should be accomplished in the shade. An activity requiring only minimal physical activity can be performed during rest periods.

** Values in parenthesis are for workers utilizing tyvek or equivalent coveralls.

2.2.3 Cold Stress

At certain times of the year, workers may be exposed to the hazards of working in cold environments. Potential hazards in cold environments include frostbite and hypothermia as well as slippery working surfaces, brittle equipment, poor judgement and taking short cuts.

In order to minimize the risk of the hazards of working in cold environments, workers will be trained to recognize the physiologic responses of the body to cold stress. In addition, the use of insulated work clothing, warm shelters and work/warming regimens may be used to further reduce the hazards of cold stress. Also, special attention will be paid to equipment warm-up time and freeze protection for vessels, piping, and walking/working surfaces. The current ACGIH threshold limit values (TLV's) for cold stress found in Appendix D will be used as a guideline.

2.3 BIOLOGICAL HAZARDS

During the course of the project, there is a potential for workers to come in contact with several biological hazards including wild animals, insects and plants.

2.3.1 Wild Animals

During the site operations, wild animals such as stray dogs or cats, raccoons, mice and snakes may be encountered. Workers shall use discretion and avoid all contact with wild animals. If these animals present a problem, efforts will be made to remove these animals from the Site.

2.3.2 Insects

Insects, such as mosquitos, ticks, bees and wasps are prevalent at the Site during certain times of the year. Workers will be trained to recognize and to minimize contact with these insects. Workers will be encouraged to use insect repellent when working in areas where insects may be present.

2.3.3 Plants

Plants such as poison ivy and poison oak are prevalent at the Site during certain times of the year. Workers will be trained to recognize these plants and to minimize contact with them.

2.4 ACTIVITY HAZARD ANALYSIS

This section provides a hazard analysis for each activity listed in the Scope of Work outlined in Section 1.2 of the HASP. Each hazard analysis will discuss the likelihood of exposure to the chemical, physical and biological hazards and risks associated with those exposures. Tasks with similar hazards have been grouped together. In addition, the control measures employed to reduce the risk associated with the potential exposures will be discussed.

2.4.1 Remediation Workplan Activities

Soil Inversion, Excavation, Handling and Storage of Dioxin-contaminated Soils and Heavy Equipment/Vehicles Decontamination

The likelihood of exposure to dioxin during these activities is moderate. The risk associated with potential exposure is also moderate, particularly due to the inhalation and skin contact routes of exposure and the potential health effects of dioxin exposure. Control measures that will be employed to significantly reduce the potential risk of exposure include dust suppression, the use of PPE, decontamination, personal hygiene, and real-time air monitoring with adherence to the action levels found in Table 6-1.

The likelihood of exposure to physical hazards and biological hazards is low to moderate. The risk associated with exposure to these agents is moderate, based upon the potential for serious injury from heavy equipment and heat stress in particular. Control measures that will be employed to reduce the potential risk of exposure include properly inspected and maintained heavy equipment, employee training to recognize physical and biological hazards, adherence to heat stress and cold stress guidelines contained in this HASP, and the use of PPE as outlined in Section 5.0 of this HASP.

Clearing and Grubbing, Soil Covering, Soil Sampling and Surveying of Dioxin-contaminated Areas

The likelihood of exposure to dioxin for these activities is low to moderate. The risk associated with potential exposure is low to moderate, due to the low potential for inhalation of dioxin-contaminated particulate matter and due to the skin contact route of exposure and the potential health effects of dioxin exposure.

Control measures that will be employed to significantly reduce the potential risk of exposure include the use of PPE, decontamination, personal hygiene, and real-time air monitoring with adherence to the action levels found in Table 6-1.

The likelihood of exposure to physical hazards and biological hazards is low to moderate. The risk associated with exposure to these agents is also low to moderate, based upon the potential adverse health effects from heat stress in particular. Control measures that will be employed to reduce the potential risk of exposure include employee training to recognize physical and biological hazards, adherence to heat stress and cold stress guidelines contained in this HASP, and the use of PPE as outlined in Section 5.0 of this HASP.

Transportation of Dioxin-contaminated Soils, Backfilling Activities, and Post-excavation Soil Sampling

The likelihood of exposure to dioxin is low an the associated risk is low. Contaminated soils will be transported in covered trucks, and backfilling activities and post-excavation soil sampling represent minimal contact with dioxin-contaminated soils. Control measures that will be employed to significantly reduce the potential risk of exposure include decontamination, personal hygiene, and real-time air monitoring with adherence to the action levels found in Table 6-1.

The likelihood of exposure to biological and physical hazards is low. The risk associated with the potential exposure is also low. Control measures that will be employed to reduce the potential risk of exposure include employee training to recognize physical and biological hazards, adherence to heat stress and cold stress guidelines contained in this HASP, and the use of PPE as outlined in Section 5.0 of this HASP.

2.4.2 Restoration Workplan Activities

Restoration of Remediated and Other Areas, Demolition and Demobilization

The likelihood of exposure to dioxin is low and the associated risk is low. While particulate matter may become airborne during restoration activities, dioxin concentrations are expected to be below 1 ppb. Control measures that will be employed to significantly reduce the potential risk of exposure include decontamination, personal hygiene, and real-time air monitoring with adherence to the action levels found in Table 6-1.

The likelihood of exposure to physical hazards and biological hazards is low to moderate. The risk associated with the exposure to these agents is low, based upon the potential for serious injury during demolition and from the use of heavy equipment. Control measures that will be employed to reduce the potential risk of exposure include employee training to recognize physical and biological hazards, adherence to heat stress and cold stress guidelines contained in this HASP, and the use of PPE as outlined in Section 5.0 of this HASP.

Control measures that will be employed to reduce the potential risk of exposure include dust suppression, properly maintained heavy equipment, employee training to recognize physical and biological hazards, adherence to heat stress and cold stress guidelines contained in this HASP, and the use of PPE as outlined in Section 5.0 of this HASP.

2.4.3 Thermal Treatment Facility Workplan Activities

Thermal Treatment Facility (TTF) construction and operation activities are to be addressed separately in the TTF subcontractor HASP.

3.0 TRAINING

3.1 GENERAL HEALTH AND SAFETY TRAINING

In accordance with Enserch Environmental Corporation corporate policy, and pursuant to 29 CFR 1910.120, hazardous waste site workers shall, at the time of job assignment, have received a minimum of 40 hours of initial health and safety training for hazardous waste site operations unless otherwise noted in the above referenced standard. As a minimum, the training shall have consisted of instruction in the topics outlined in the above reference. Personnel who have not met the requirements for initial training shall not be allowed to work in any site activities in which they may be exposed to hazards (chemical, physical, or biological). Completion of the EEC Health and Safety Training Course for Hazardous Waste Operations or an approved equivalent will fulfill the requirements of this section.

In addition to the required initial training, each employee shall have received 3 days of directly supervised on-the-job training. This training shall be under the direct supervision of a trained, experienced supervisor and will address the duties the employees are expected to perform.

The Project Manager has the responsibility of ensuring that personnel assigned to this project comply with these requirements. Written certification of completion of the required training will be provided to the Project Manager.

3.2 SUPERVISOR/MANAGER TRAINING

In accordance with 29 CFR 1910.120, on-site management and supervisors who will be directly responsible for, or who supervise employees engaged in hazardous waste operations shall receive training as required by Section 3.1 of the HASP and at least 8 additional hours of specialized training in managing such operations at the time of job assignment.

3.3 ANNUAL 8-HOUR REFRESHER TRAINING

Annual 8-hour refresher training will be required of all hazardous waste site field personnel in order to maintain their qualifications for field work. The following topics will be reviewed: toxicology, respiratory protection, including air purifying devices, and self-contained breathing apparatus (SCBA), medical surveillance, decontamination procedures, and personnel protective clothing. In addition, topics deemed necessary by the HSO or HSM may be added to the above list.

3.4 SITE-SPECIFIC TRAINING

Prior to commencement of field activities, all field personnel assigned to the project will be provided training that will specifically address the activities, procedures, monitoring, and equipment for the site operations. It will include site and facility layout, hazards, and emergency services at the site, and will highlight all provisions contained within this HASP. This training will also allow field workers to clarify anything they do not understand and to reinforce their responsibilities regarding safety and operations for their particular activity.

3.5 DAILY SITE SAFETY BRIEFINGS

Project personnel will be given daily health and safety briefings by the HSO, or their designee, to assist site personnel in safely conducting their work activities. The briefings will include operations to be conducted, levels of protection, and information on new operations to be conducted, changes in work practices, or changes in the site's environmental conditions. The briefings will also provide a forum to facilitate conformance with safety requirements and to identify performance deficiencies related to safety during daily activities or as a result of safety audits. These briefings shall be documented on the form provided in Figure 3-1 along with a sign-in sheet listing all personnel attending the briefings.

3.6 FIRST AID AND CPR

The HSO will identify those individuals having first aid and CPR certification in order to ensure that emergency medical treatment is available during field activities. It is anticipated that a selected number of field personnel will have first aid and CPR certification. The certification will be consistent with the requirements of the American Red Cross.

3.7 ADDITIONAL TRAINING

Additional training, if required for completion of field tasks during the project, will be identified and provided for personnel as the work progresses. This training could involve hazard communication training or special emergency response training.

3.8 SUBCONTRACTOR TRAINING

All subcontractor personnel will have completed a minimum of 40 hours of initial health and safety training for hazardous waste site operations pursuant to 29 CFR 1910.120 and in accordance with Sections 3.1, 3.2, and 3.3 of this HASP, where applicable.

FIGURE 3-1

TIMES BEACH REMEDIATION PROJECT

Daily Health & Safety Briefing

Date: _____ Time: _____

Scheduled Work Activities:

	Activity	Level of Protection Respiratory / PPE
1.		
2.		
3.		
4.		
5.		
6.		

Health & Safety Concerns: _____

_____

_____

_____

Employee Suggestions: _____

_____

_____

Changes to Health & Safety Plan: _____

_____

_____

Other Pertinent Information or Comments: _____

_____

_____

Employee's in Attendance: See Attached Sign-in Sheet

Presented By: _____
Signature: _____
Title: _____

4.0 MEDICAL SURVEILLANCE PROGRAM

All personnel performing field work in potentially contaminated areas at Times Beach Site are required to have passed a complete medical surveillance examination in accordance with 29 CFR 1910.120 (f). A physician's medical release for work will be confirmed by the HSO before an employee can begin site activities. The exam will be taken annually at a minimum and offered upon termination of site work. Additional medical testing may be required by the HSM in consultation with the occupational medical consultant and the HSO if an overt exposure or accident occurs, or if other site conditions warrant further medical surveillance. Protocols for various exams are listed below. These protocols may be modified by an occupational physician with an understanding of the site contaminants, exposure potential and anticipated work activities.

4.1 BASELINE MEDICAL EXAMINATION

The purpose of the baseline (initial) examination is to determine if employees are able to meet the work requirements for the site and to establish baseline data for comparison with future examinations. EEC's baseline medical examination included a medical and occupational work history, physical examination, and a determination of the employee's ability to perform work while wearing the required protective equipment. The baseline medical examination shall include the following:

- Medical and occupational work history
- Physical examination, including:
  - height, weight, temperature, pulse, respiration, and blood pressure
  - head, nose, and throat
  - eyes, including visual acuity testing that measures refraction, depth perception, and color vision
  - ears, including integrity of the eardrum and audiometric tests performed at 500, 1000, 2000, 3000, 4000, and 6000 Hertz pure tone, in an approved audiometric testing booth
  - chest (heart and lungs)
  - peripheral vascular system
  - abdomen (liver, spleen, kidneys)
  - spine and other components of the musculoskeletal system
  - genitourinary system
  - skin (paying particular attention to scars, moles, keloids, etc.)
  - nervous system
  - pelvic, breast, and rectal exam for women
  - Testicular (including hernia) and rectal exam for men
- Complete blood count, SMAC-24 and chemistries including gamma-glutamyl transpeptidase.

- Urinalysis, including:

    - color and character
    - specific gravity
    - Ph
    - protein
    - glucose
    - microscopic examination

- Chest X-ray (14 x 17 inch posterior/anterior view with lateral or oblique views only if mandated by state of local regulations)

- Pulmonary function testing including:

    - forced vital capacity (FVC)
    - forced expiratory volume at one second ($FEV^{1.0}$)
    - $FEV^{1.0}$ to FVC ratio.

- Electrocardiogram (EKG), standard 12-lead (at the discretion of the physician)

4.2 ANNUAL MEDICAL EXAMINATION

Annual medical examinations shall be conducted for ongoing comparison with baseline data to determine trends which may indicate early signs of chronic and/or adverse health effects. The annual medical examination shall include the following:

- Medical history, focusing on changes in health status, illnesses, and potential work-related symptoms since the baseline medical examination;

- Physical examination as outlined in the baseline medical examination;

- Blood, urine, and pulmonary function testing as outlines in the baseline medical examination;

- Additional medical testing as determined by the occupational consultant.

4.3 TERMINATION MEDICAL EXAMINATION

Termination medical examinations shall be made available to employees in two situations: termination of employment and termination of work at the Times Beach site. The termination medical examination is intended to detect adverse health effects or conditions which may have developed while working at the site. If an EEC employee declines to take a termination medical examination, EEC will request that the employee sign a form to document refusal of the examination. The termination medical examination shall consist of the following:

- Medical history, focusing on changes in health status, illnesses, and potential work-related symptoms since the baseline medical examination.

- Physical examination as outlines in the baseline medical examination
- Blood, urine, and pulmonary function testing as outlined in the baseline medical examination
- Additional medical testing as determined by the occupational consultant

4.4 MEDICAL SURVEILLANCE PROGRAM REVIEW

In order to ensure the effectiveness of the medical surveillance program, a periodic evaluation shall be conducted. This evaluation will include the following:

- A determination that each reported accident or illness was promptly investigated to determine the cause and make necessary changes in health and safety procedures
- An evaluation of the efficiency of specific medical testing in the context of potential site exposures, in consultation with the occupational medical consultant
- Addition or deletion of certain medical tests as indicated by review of air monitoring data, in consultation with the occupational medical consultant

4.5 RECORD KEEPING

The medical records of employees who participate in the medical monitoring program for the Times Beach site shall be maintained as confidential information and retained for a period of 30 years after leaving the site. These records shall be made available to the employees or their authorized representatives in a timely manner upon request.

4.6 MEDICAL DATA SHEET

A medical data sheet is provided in Figure 4-1. This medical data sheet will be completed by all on-site personnel and kept at the site in a secure location and used only on a "need to know" basis. Where possible, this medical data sheet will accompany personnel needing medical assistance or transport to hospital facilities.

FIGURE 4-1

MEDICAL DATA SHEET

THIS BRIEF MEDICAL DATA SHEET WILL BE COMPLETED BY ALL ON-SITE PERSONNEL AND WILL BE KEPT AT HEALTH AND SAFETY OFFICE AND SECURITY OFFICE DURING THE CONDUCT OF SITE OPERATIONS. IT IS IN NO WAY A SUBSTITUTE FOR THE MEDICAL SURVEILLANCE PROGRAM REQUIREMENTS CONSISTENT WITH THE ENSERCH ENVIRONMENTAL CORPORATION HEALTH AND SAFETY PROGRAM FOR HAZARDOUS WASTE SITES. THIS DATA SHEET WILL ACCOMPANY PERSONNEL WHEN MEDICAL ASSISTANCE IS REQUIRED OR IF TRANSPORTATION TO A HOSPITAL FACILITY IS REQUIRED.

PROJECT: TIMES BEACH

NAME: _____ HOME PHONE: _____

ADDRESS: _____

AGE: _____

EMERGENCY CONTACT NAME AND PHONE NO: _____

ALLERGIES: _____

PARTICULAR SENSITIVITIES: _____

DO YOU WEAR CONTACTS: _____

LIST ANY MEDICATIONS YOU ARE CURRENTLY TAKING: _____

_____

DO YOU HAVE ANY MEDICAL RESTRICTIONS: _____

_____

NAME OF PERSONAL PHYSICIAN: _____ PHONE: _____

NAME OF COMPANY WORKING FOR: _____

DATE: _____ SIGNATURE: _____

5.0 SITE CONTROL, PPE AND COMMUNICATIONS

5.1 SITE CONTROL

A basic three zone approach will be employed in order to control the potential spread of contamination. The three zones include: the Exclusion Zone, the Contamination Reduction Zone and the Support Zone. Other zones particular to the workplans for the Times Beach Remediation Project are also discussed.

5.1.1 Support Zone

The Support Zone (SZ) is an uncontaminated area where site administration activities are conducted. Change rooms, lunch and break areas, operational direction and support facilities shall be located in this zone. Potentially contaminated personnel or materials are not allowed in this zone without being properly decontaminated. The only exception will be appropriately packaged, decontaminated and labeled samples. Meteorological conditions pertinent to heat stress will be observed and noted from this zone.

5.1.2 Contamination Reduction Zone

The Contamination Reduction Zone (CRZ) is established as a buffer between the exclusion zone and the Support Zone. The CRZ provides an area for decontamination of personnel and equipment. This zone will help to minimize the potential spread of contamination from the EZ.

5.1.3 Exclusion Zone

The exclusion zone (EZ) encompasses all areas where excavation and handling of contaminated materials takes place. Personnel are not allowed in the EZ without:

- Appropriate training for the activity to be performed
- A Buddy
- Appropriate Personal Protective Equipment
- Medical Authorization
- Training Certification

5.1.4 Other Zones

There are two other zone designations which will be used for the Times Beach Remediation Project. They are Authorized Access Zone and Restricted Zone.

An Authorized Access Zone is an area which allows employees and vehicles to move between the CRZ and the SZ and to exit the site from the Support Zone.

A Restricted Zone is an area in which no active work is being performed. No employee is allowed to enter a Restricted Zone without approval from the EEC site health and safety staff.

5.1.5 Zone Designations

Due to the unique characteristics of the Times Beach Remediation Project, dividing the entire site into one EZ, one CRZ and one SZ is not practical or necessary. The EEC HSO, with assistance from the EEC HSM, will have full authority to classify specific areas as one of the specified types of zones. The following general rules will apply when designating zones.

1. All areas where dioxin contaminated material is being excavated, loaded, dumped or otherwise handled and processed will be designated as an EZ. Other roads not included in the activities described above, but are contaminated and do not have sufficient cover to prevent contact with the contamination, will also be designated as an EZ.

2. Transportation routes from the EZ to the CRZ equipment/vehicle decon pads will be designated as Authorized Access Routes once contaminated material begins to be transported on them due to the potential of spillage and tracking of small amounts of contaminated material.

3. Contaminated material storage and handling areas and facilities will be considered contaminated until decontaminated and verification sampling is completed.

4. Around each EZ where contaminated material is being excavated, loaded, dumped or otherwise handled and processed, there will be a minimum of a 50 foot buffer which will serve as the CRZ. Exceptions can be made where a physical barrier (e.g. SSB) effectively prohibits migration of contaminated dust to adjacent areas. The EZ/CRZ boundaries for transportation routes may be the road edges provided materials are transported in a covered container and spillage is cleaned up regularly.

5. All EZ/CRZ boundaries will be clearly marked on a site map in an easily accessible common area. EZ/CRZ boundaries adjacent to the primary SZ located on Hawthorne will be physically demarcated with fencing, tape, signs or barricades.

6. Zone designations for specific areas will be modified by the EEC HSO when conditions warrant. For example, the EZ/CRZ boundary may move along a particular road as post-excavation sampling verifies it to be below the specified remediation action level. The EZ/CRZ may be expanded if evidence of contamination becomes known, such as a large soil spill on a haul road, or air monitoring results exceed action levels in a SZ.

5.2 PERSONAL PROTECTIVE EQUIPMENT

5.2.1 General

The level of protection utilized by field personnel will be determined by the EEC HSO and enforced by the operations supervisor (Construction Superintendent, Subcontractor Supervisor). Levels of protection for general operations are provided below and are defined in this section. Levels of protection may be upgraded or downgraded with approval from the EEC HSO. This decision shall be based on real-time air monitoring, site history data, and prior site experience. When downgrading respiratory protection levels, the EEC HSO shall consult with the EEC HSM. Any changes in the level of protection shall be recorded in the Health and Safety Field Logbook.

5.2.2 Personal Protective Equipment Specifications

For tasks requiring Level B PPE, the following equipment shall be used:

- Cotton or cotton blend coveralls
- Disposable outer coveralls, Poly-coated or Saran-coated Tyvek
- Gloves, inner (latex)
- Gloves, outer (nitrile or neoprene)
- Chemical resistant safety boots (steel toe/shank)
- Hard hat

For tasks requiring Level C PPE, the following equipment shall be used:

- Cotton or Cotton blend coveralls
- Disposable outer coveralls, Poly-coated or uncoated Tyvek
- Gloves, inner (latex)
- Gloves, outer (latex)
- Chemical resistant safety boots (steel toe/shank) or safety boots with chemical resistant boot covers
- Hard hat

For tasks requiring Level D PPE, the following equipment shall be used:

- Cotton or cotton blend coveralls
- Hard hat
- Safety Glasses (ANSI Z87.1 approved w/side shields)
- Safety boots (steel toe/shank)

For tasks requiring respiratory protection, the following equipment shall be used:

Level D	•	No respiratory protective equipment
Level C	•	A full-face air purifying respirator (APR) equipped with HEPA cartridges
Level B	•	Pressure-demand, full-face self-contained breathing apparatus (SCBA) or pressure-demand supplied-air respirator with escape pack.

5.2.3 Initial Levels of Protection

The following are the initial levels of protection that shall be used for each planned field activity:

Activity	Level of Protection Respiratory / PPE
Remediation Workplan	
• Surveying operations in dioxin-contaminated areas	D/D*
• Surveying operations in dioxin-contaminated excavation/handling areas	C/C
• Clearing in dioxin-contaminated areas	D/D*
• Grubbing in dioxin-contaminated areas	C/C
• Excavation and handling of dioxin-contaminated soils	C/C
• Transportation of dioxin-contaminated soils	C/C
• Dumping/Handling of dioxin-contaminated materials in storage bldgs.	C/C
• Soil sampling	C/C
• Soil inversion of dioxin-contaminated soils	C/C
• Soil covering of dioxin-contaminated areas	D/D
• Decontamination of heavy equipment/vehicles	C/C
• Backfilling activities	D/D

* Chemical protective boots and gloves will be used due to dermal exposure potential.

Restoration Workplan	
• Restoration of remediated areas	D/D
• Restoration of other areas	D/D
• Demolition	D/D
• Demobilization	D/D

Thermal Treatment Facility Workplan

- The levels of protection that shall be used for the construction and operation activities involving the TTF will be described in the TTF subcontractor HASP. This HASP will be submitted to the EEC health and safety staff for review and comment.

5.3 SAFETY EQUIPMENT

The following safety and first-aid equipment will be accessible for field crews:

1. One fire extinguisher on each piece of equipment, rated at least 1A, 10BC
2. One industrial first aid kit, fully stocked, adequate for the crew size
3. One portable emergency eyewash unit
4. One portable radio communications device
5. One air horn

5.4 COMMUNICATIONS

5.4.1 Radio Communications

The primary form of communication between field groups in the EZ and the SZ will be radio communications, therefore, each field team within the EZ shall have a radio communications device.

5.4.2 Hand Signals

Hand signals shall be employed by field teams where necessary for communication. Hand signals shall be understood by field personnel before operations commence. Hand signals described below shall be used and reviewed during site-specific training.

Hand Signal	Meaning
Hand gripping throat	Out of air, can not breathe
Gripping partners wrist (or place both hands on waist)	Leave area immediately, no debate
Hands on top of head	Need assistance
Thumbs up	OK, I'm all right, I understand
Thumbs down	No, negative

5.4.3 Communications During Emergencies

Communications during emergency situations will involve the use of radio communications, air horns, hand signals and telephones. These are discussed in detail in the Emergency Response/Contingency Plan located in section 9.0 of this HASP.

6.0 AIR MONITORING

The purpose for conducting air monitoring is to ensure that the proposed level(s) of protection and procedures are adequate to protect the health and safety of on-site workers. This section describes the air monitoring that shall be conducted on-site. This will include real-time air monitoring, personal monitoring, heat stress monitoring, ambient air monitoring and monitoring of meteorological conditions.

6.1 REAL-TIME AIR MONITORING

The following monitoring instrument will be available for use during field operations as necessary:

- Dust Monitor - MIE Miniram or equivalent

Continuous air monitoring shall be conducted during the initiation of any activity that has the potential for worker exposure to airborne dioxin containing particulates. If level C respiratory protection is determined to be necessary, air monitoring frequency may be reduced. However, if the level of respiratory protection is downgraded to level D for a specific activity and there is still a potential for worker exposure to airborne dioxin containing particulates, continuous monitoring will be maintained until the completion of that activity or the EEC HSO, in conjunction with the EEC HSM, determines the exposure potential is low enough to reduce the air monitoring frequency. Routine air monitoring in a SZ adjacent to EZ/CRZ shall be conducted to verify the effectiveness of the control measures being utilized in that area.

Other real-time monitoring instruments may be utilized during the course of site operations depending upon the conditions that may be encountered. These instruments could include:

- Flame-ionization Detector (FID) or Photo-ionization Detector (PID), to monitor total organic vapors;
- Combustible Gas Indicator (CGI) / Oxygen Meter

Calibration records shall be documented, and included in the health and safety log book or instrument calibration log book. All instruments shall be calibrated in accordance with manufacturer's procedures.

6.1.1 Action Level Decision Logic

Table 6-1 lists the action levels that shall be used in determining the levels of protection according to the results of real-time air monitoring performed in the immediate work area which are representative of the worker's breathing zone. Air monitoring shall be focused on workers with the highest potential for exposure. This shall provide a representative exposure level for all workers involved in the same work area and assist in reducing the number of individual activities and personnel to be monitored.

The action levels for particulates are based upon the presence of dioxin. There is no OSHA PEL for dioxin. The workplans include recommended exposure limits for each level of protection based upon a peer review article published in the American Industrial Hygiene Association Journal in September of 1988. This article recommends a 200 picograms/m^3 as an 8-hour occupational exposure limit. The action levels determining the levels of protection listed in Table 6-1 are based upon the maximum average concentration of dioxin found on the Times Beach site, the inhalable portion of particulate depositing in the alveoli of the lungs, and conservative respiratory protection factors.

TABLE 6-1

ACTION LEVELS

Instrument	Reading	Level of Respiratory Protection
Dust Monitor	0 - 0.6 mg/m^3 15 minute average	D
Dust Monitor	> 0.6 - 6.0 mg/m^3 15 minute average	C
Dust Monitor	> 6.0 mg/m^3 15 minute average	B

6.2 PERSONAL MONITORING

Periodically, an assessment and evaluation of field personnel exposures to total airborne dust may be performed concurrent with activities which may generate particulate matter in excess of OSHA PEL of 15 mg/m^3.

Procedures to be followed include:

- Selection of high risk individuals who may be subject to contaminant exposure, based on job assignment and observations of the HSO.

- Air sampling pumps used to collect employee exposure samples shall be calibrated before each use and the calibration shall be checked after each use each day. Calibration shall be accomplished using a primary standard calibration system, e.g., the bubble tube method. Results of the calibrations shall be included in the health and safety field log book and with the exposure report.

- Analysis of samples collected for an assessment of employee exposures shall be performed by an analytical laboratory accredited by the American Industrial Hygiene Association or any other qualified laboratory approved by the EEC HSM.

- Results of the personal exposure assessment shall be provided to the individual, in writing, within fifteen (15) working days after receipt of laboratory reports if so requested. Reports to field personnel shall provide calculated time-weighted average exposures and shall provide comparative information relative to established permissible exposure limits. The air sampling data sheet and laboratory report are considered a part of the employee exposure report. A copy of the employee personal exposure assessment report shall also be included in the project file, and the employee's medical record for EEC employees. Reports for a subcontractor employee will be sent directly to the subcontract employer.

Personal monitoring that may be performed at this site includes the following contaminants and procedures:

- Nuisance Dust.....NIOSH Method No. 0500

6.3 HEAT STRESS MONITORING

A Wet Bulb Globe Temperature (WBGT) meter shall be used to monitor for conditions that contribute to heat stress. This monitoring will be conducted in the Support Zone. The monitoring results will be used to establish work/rest regimens as described in Section 2.2.2 for on-site workers. Periodic monitoring of temperature and pulse rate will be performed using Figure 6-1 to ensure work/rest regimens are effective. Workers will be provided heat stress training, shaded rest areas equipped with fluid replacement and first aid supplies, and sufficient acclimatization time when environmental conditions warrant.

6.4 AREA AIR MONITORING

When work is performed in dioxin-contaminated areas, area air monitoring at the perimeter of the work area (s) shall be performed. Ambient air monitoring shall be conducted for dioxin and for total suspended particulates. This air monitoring shall be the responsibility of air monitoring subcontractor.

The ambient air monitoring shall be conducted in accordance with the methods and procedures outlined in the site Area Air Monitoring Standard Operating Quality Assurance Plan (SOQAP).

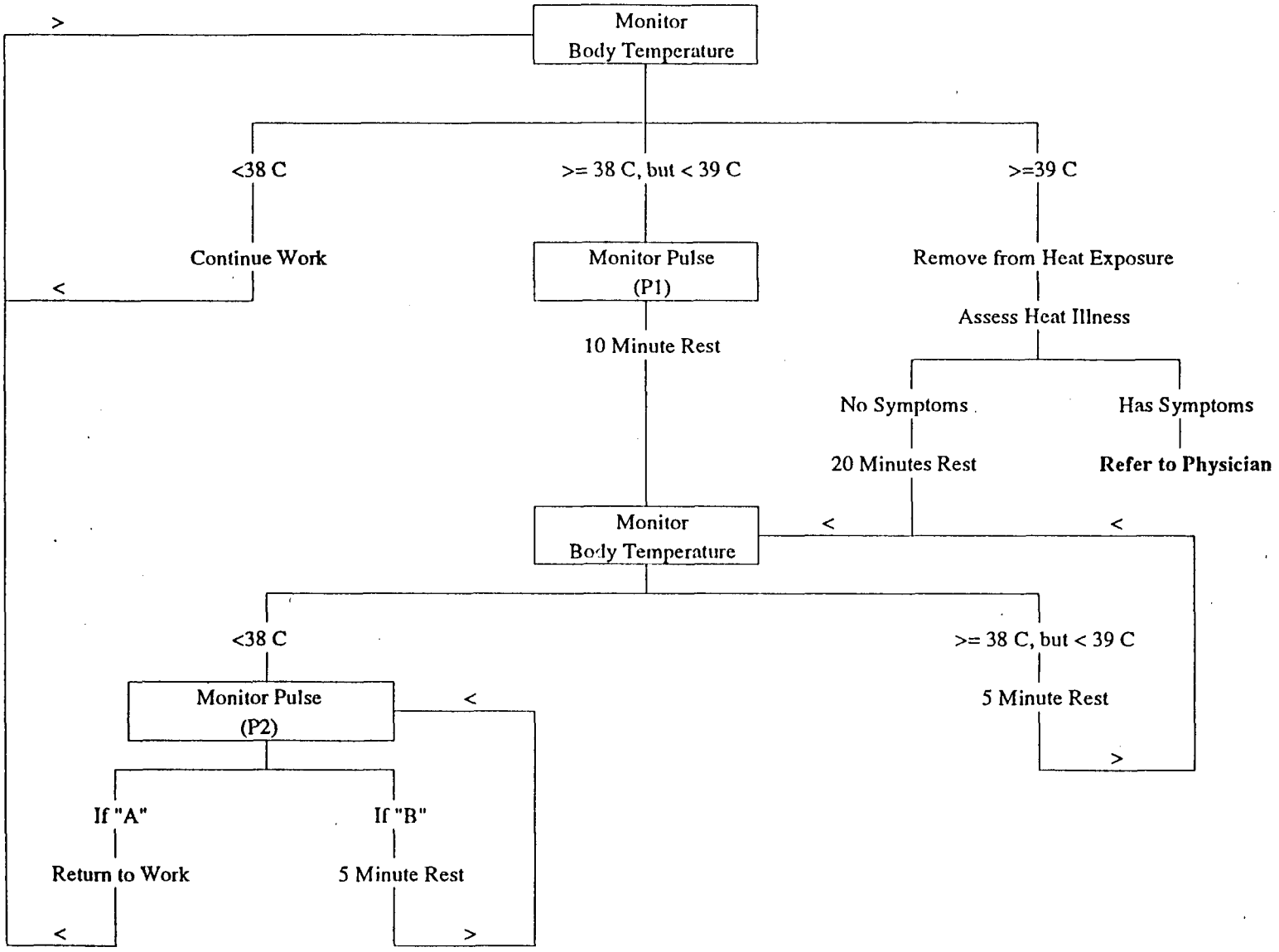
6.4.1 Action Level

If ambient air monitoring results yield a dioxin concentration above 200 pg/m^3, additional dust control measures will be required.

6.5 SITE PERIMETER AIR MONITORING

Air monitoring shall be conducted at various site perimeter locations for dioxin and also for respirable particulate matter (PM_{10}). This air monitoring shall be the responsibility of the air monitoring subcontractor.

Heat Stress Monitoring Decision Flow Chart



"A" - P2 <= 100 BPM* or P1-P2 >= 10 BPM
"B" - P2 > 100 BPM or P1-P2 < 10 BPM

*BPM = beats per minute

The site perimeter air monitoring shall be conducted in accordance with the methods and procedures outlined in the site Perimeter Air Monitoring Quality Assurance Project Plan (QAPP).

6.5.1 Action levels

If site perimeter air monitoring results yield a dioxin concentration above 3 pg/m^3 and/or a PM_{10} concentration above 150 ug/m^3, additional dust control measures will be required.

If site perimeter air monitoring results yield a dioxin concentration above 5.5 pg/m^3, dust producing soil remediation activities will temporarily be **suspended** until such time as the EPA, MDNR, and EEC agree to the recommencement of such activities.

6.6 METEOROLOGICAL MONITORING

The following meteorological conditions shall be periodically monitored during site operations:

- Temperature
- Wind speed (estimated)
- Wind direction (visual assessment)

This information will be used to determine appropriate evacuation routes, dust control measures and air monitoring strategies.

7.0 ADDITIONAL SAFE WORK PRACTICES

In addition to the specific requirements of this HASP, general safety awareness should be used at all times. The following general safety rules and practices will be in effect at the site.

- Smoking and any other type of ignition source in the vicinity of flammable materials is prohibited. All vehicles and equipment shall be turned off while fueling.
- Approved and appropriate safety equipment (as specified in this HASP), such as eye protection, hard hats, foot protection, and respirators, must be utilized in areas where required. In addition, eye and hand protection must be worn when handling and packing soil samples for shipment.
- Beards or other facial hair that interfere with a proper respirator fit are not allowed within an EZ/CRZ where respiratory protection is required. For the same reason, normal prescription eye wear is not allowed with the use of an APR. Prescription inserts must be made available to any worker who requires them.
- Any individual taking prescription drugs shall inform the EEC HSO of the type of medication. The EEC HSO will review the matter with the EEC HSM and the Occupational Medical Consultant, who will determine if the employee can safely work on-site while taking the medication.
- No smoking, eating, or drinking will be allowed in the contaminated areas.
- Contaminated tools and hands must be kept away from the face.

- Personnel who enter the EZ/CRZ must shower before leaving the site.
- Each sample collected for laboratory analysis must be treated and handled as though it were contaminated.
- Horseplay is prohibited in the work area at all times.
- All personnel requiring transport from one location of the site to another will be provided a safe and secure mode of transportation.
- The maximum speed limit for all site traffic is **20 mph**.
- Work while under the influence of intoxicants, narcotics, or controlled substances is prohibited

8.0 DECONTAMINATION PROCEDURES

8.1 CONTAMINATION PREVENTION

One of the most important aspects of decontamination is the prevention of contamination. Good contamination prevention should minimize worker exposure to chemicals and help ensure valid sample results by precluding cross-contamination. Procedures for contamination avoidance include:

8.1.1 Personnel

- Do not walk through areas of obvious or known contamination.
- Do not directly handle or touch contaminated materials.
- Make sure that there are no cuts or tears on PPE.
- Fasten all closures in suit, covering with tape if necessary.
- Particular care should be taken to protect any skin injuries.
- Do not carry cigarettes, cosmetics, gum, etc., into contaminated areas.

8.1.2 Sampling

- Bag sample containers prior to placement of sample material.

8.2 PERSONNEL DECONTAMINATION

All personnel shall pass through a decontamination procedure when exiting an EZ. The procedure is outlined in Appendix G. The system will include a gross wash and rinse for all reusable gloves, hardhats and boots worn in the EZ and removal of disposable PPE. Upon exiting the EZ, all personnel shall wash their hands, arms, neck and face in the decontamination facilities provided before entering the SZ. All personnel who have entered the EZ shall be required to shower at the end of the work day before leaving the site.

8.3 EQUIPMENT DECONTAMINATION

Equipment that has been used in dioxin-contaminated areas may be contaminated with dioxin containing dust or soil. This equipment could include, but is not limited to, heavy equipment and trucks used for the handling and transportation of dioxin-contaminated soils, various small tools, and air monitoring instrumentation. Equipment that is dioxin-contaminated shall be decontaminated prior to a change in the use of the equipment in a non-contaminated area.

8.3.1 Heavy Equipment, Trucks and Other Materials

Heavy equipment and trucks used for the handling and transportation of dioxin-contaminated soils, and other materials that may have come in contact with dioxin-contaminated soils, including hand tools, shall be decontaminated by a pressure wash and (water) rinse. All equipment shall be decontaminated, if necessary, to a level below 100 ng of dioxin per square meter for reuse in non-contaminated work. All equipment shall be decontaminated, if necessary, to a level below 4 ng per square meter and a Record of Decontamination form provided in Figure 8-1 shall be submitted prior to removal from the site. These levels shall be verified by wipe sampling performed in accordance with the protocol in Appendix F.

8.3.2 Air Monitoring Instrumentation/Other Sensitive Equipment

Instrumentation and other sensitive equipment shall be decontaminated by a wet wipe method. Efforts will be made to minimize the potential for contamination through bagging or covering these items while they are utilized in the exclusion zone.

8.4 DISPOSAL PROCEDURES

All discarded materials, waste materials, or other objects shall be handles in such a way as to preclude the potential for spreading contamination, creating a sanitary hazard, or causing litter to be left on site. All potentially contaminated disposable materials, e.g. clothing, gloves, sampling implements, etc., will be bagged and/or drummed as necessary, labeled, and segregated for disposal. All potentially contaminated reusable clothing, e.g. coveralls, gloves, boot liners, etc., will be laundered on-site in the laundry facility provided. All non-contaminated materials shall be collected and bagged for appropriate disposal as normal domestic waste.

FIGURE 8-1

TIMES BEACH REMEDIATION PROJECT

RECORD OF DECONTAMINATION

The following heavy equipment, trucks, and/or other materials used on-site have been decontaminated and wipe sampled in accordance with the requirements of the Health and Safety Plan (HASP) prior to removal from the site. Attached are copies of the Chain-of-Custody and Laboratory Analytical Reports for each sample listed.

Sample No.	Description	Result (ng/m2)
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		

_____ _____

Authorized Signature **Date**

9.0 EMERGENCY RESPONSE/CONTINGENCY PLAN

The Emergency Response/Contingency Plan, outlined in this section, will be made known to all personnel prior to the start of work through site-specific health and safety training. The emergency plan will be available for use at all times during site work.

9.1 RESPONSIBILITIES

9.1.1 Health and Safety Manager

The HSM oversees and approves the Emergency Response/Contingency Plan and performs audits to determine that the plan is in effect and that all pre-emergency requirements are met. The HSM acts as a liaison to applicable regulatory agencies and notifies OSHA of reportable accidents and fatalities.

9.1.2 Health and Safety Officer

The HSO is responsible for seeing that all personnel are evacuated safely and that machinery and processes are shut down or stabilized in the event of a stop work order or evacuation. The HSO is required to immediately notify the HSM of any fatalities or catastrophes (5 or more workers injured and hospitalized) so that the HSM can notify OSHA within the required time frame. The HSO also serves as the alternate Emergency Coordinator.

9.1.3 Emergency Coordinator

The Emergency Coordinator is the Construction Supervisor. The Emergency Coordinator shall locate emergency phone numbers and identify hospital routes prior to beginning work on site. The Emergency Coordinator shall make necessary arrangements to be prepared for any emergencies that could occur. The Emergency Coordinator shall implement the Emergency Response/Contingency Plan whenever conditions at the site warrant such action. The coordinator will be responsible for prior coordination of the emergency treatment and emergency transport of site personnel as necessary, and notification of emergency response units and the appropriate management staff.

9.1.4 Site Personnel

Site personnel are responsible for knowing the Emergency Response/Contingency Plan and the procedures contained herein. Personnel are expected to notify the Emergency Coordinator of impending or actual emergencies, and to cooperate fully once the Plan is enacted. All information obtained about an emergency shall be immediately communicated to the Emergency Coordinator.

9.1.5 Security

Security is responsible for contacting outside emergency services when necessary during an emergency and for directing on-site communications. Once the Plan has been initiated, security will ensure that access to the site is restricted to emergency response agencies to the Emergency Coordinator.

9.2 EMERGENCY COORDINATOR/ALTERNATE COORDINATORS

1. **Primary**

Emergency Coordinator	Roy Mahon
Office Phone Number	(314) 938-3233
Home Phone Number	(314) 742-0914
Mobile Phone Number	(314) 560-3402
Office Address	97 North Outer Road
	Times Beach, Suite #3
	Eureka, Missouri 63025
Home Address	4065 Tower View Drive
	Pacific, MO. 63069

2. **1st Alternate**

Emergency Coordinator	Bruce Bennett
Office Phone Number	(314) 932-3233
Home Phone Number	(314) 458-6212
Mobile Phone Number	(314) 560-3401
Office Address	97 North Outer Road
	Times Beach, Suite #3
	Eureka, Missouri 63025
Home Address	2450 Maple Crossing
	Ellisville, Missouri 63011

3. **2nd Alternate**

Emergency Coordinator	Lonnie Wright
Office Phone Number	(314) 938-3233
Home Phone Number	(314) 441-8356
Mobile Phone Number	(314) 560-3403
Office Address	97 North Outer Road
	Times Beach, Suite #3
	Eureka, Missouri 63025
Home Address	5849 Walnut Creek Blvd.
	St. Charles, Missouri 63304

4. **3rd Alternate**

Emergency Coordinator	Gary Clark
Office Phone Number	(314) 938-3233
Home Phone Number	(314) 928-3073
Mobile Phone Number	(314) 560-3402 & 560-3407
Office Address	97 North Outer Road
	Times Beach, Suite #3
	Eureka, Missouri 63025
Home Address	3840 Silver Ridge Drive
	St. Peters, Missouri 63376

5. **4th Alternate**

Emergency Coordinator	Gary Stiles
Office Phone Number	(314) 938-3233
Home Phone Number	(314) 878-8419 or (417) 847-3078
Mobile Phone Number	(314) 560-340
Office Address	97 North Outer Road
	Times Beach, Suite #3
	Eureka, Missouri 63025
Home Address	7 Crestview Drive
	Cassville, Missouri 65625

9.3 POTENTIAL EMERGENCY SITUATIONS AND PROCEDURES

9.3.1 Potential or Actual Explosion

Immediate evacuation of site and notify local fire and police department, and other appropriate emergency response groups if an actual fire or explosion has taken place.

- Fire Department (314) 938-5505
- Police Department, Ambulance 911 or (314) 889-2301

9.3.2 Fire

Initial Detection of Fire: When a fire is detected, the individual shall immediately assess the situation to determine the extent of the fire. If the fire is in the incipient stage, immediately notify the security, and locate the nearest fire extinguisher. The portable fire extinguishers shall be used to combat fires that are in the incipient stage only. The security will immediately call 911 to mobilize St. Louis County Police and Eureka Fire Departments. The Emergency Coordinator shall be notified immediately (Section 9.2). If the fire has already been extinguished, inform the Emergency Coordinator and give the location of the fire. If the fire can not be extinguished, or it is beyond the incipient stage, evacuate the area immediately.

Evacuation: Emergency Coordinator in coordination with HSO shall ensure that the area has been evacuated of all non-essential personnel. Site personnel shall not re-enter the area until instructed to do so by the Emergency Coordinator. Escape route from the Support Zone is shown on Figure 1-1.

Police/Fire Department Arrival: The Emergency Coordinator shall brief the police and fire chief of the location and current situation of the fire, and provide assistance to their agencies to help bring the situation under control.

The security personnel shall act as the contacts for any emergency response teams called to the site until the Emergency Coordinator arrives.

9.3.3 Container Deterioration or Bulk Soil Stg./Threatening a Release

This occurrence should be detected during the regular inspection. The inspector shall note the deficiency on the inspection form and inform the security officer at the main security station. The security officer will notify the Emergency Coordinator who will coordinate a corrective action with the on-site HSO.

The HSO will assess the situation and shall inform the Emergency Coordinator of the appropriate corrective action that may include either over packing the deteriorating drum or transferring its contents to another drum. In either case, the level of personal protective equipment (PPE) shall be determined by the HSO. All PPE and Self Contained Breathing Apparatus (SCBA) are stored in the dress out trailer located in the Support Zone (Figure 1-1)

9.3.4 Personnel Injury

During site operations, there shall be a designated two-person team to respond to injuries. The members of the team will have current first aid and CPR training. The team will don the appropriate PPE for the work area where an injury has occurred. Emergency first aid shall be applied as deemed necessary, after which the injured will be decontaminated and transported to the nearest medical facility provided, if needed. The HSO or designated security personnel will supply medical data sheets (Figure 5-1) to the responding medical personnel upon their arrival. The HSO shall complete the accident/incident reports in accordance with Section 10.3 of the HASP.

The ambulance/rescue squad shall be contacted for transportation to the hospital as necessary in an emergency situation. However, since some situations may require transport of an injured party by other means, the hospital route is identified below. Only in **non-emergency** situations shall an injured person be transported to the hospital be means other than an ambulance.

Hospital Route:

St. Johns Mercy Medical Center
615 South New Ballas Road
St. Louis, Missouri 63141
(314) 569-6090 (Emergency Room)

Leave the site via Lewis Road and get on I-44 East. Take I-44 East for about 10 miles and get on I-270 North. Continue on I-270 North for 5 miles and get on Route 40 East and stay in the right lane. Get off at the first exit onto Ballas Road. Turn right at the first light onto South New Ballas Road. The hospital is 2 blocks on the left, follow signs to the emergency room.

9.3.5 Overt Personnel Exposure

Exposure	Emergency Response Procedure
Skin Contact:	Use copious amounts of soap and water. Wash/rinse affected area thoroughly, then provide appropriate medical attention. An emergency eyewash is located in the support vehicle. Eyes should be rinsed for 15 minutes upon chemical contamination.
Inhalation:	Move to fresh air and/or, if necessary, decontaminate/transport to hospital.
Ingestion:	Decontamination and transport to emergency medical facility.
Puncture/Laceration:	Decontaminate and transport to emergency medical facility.

9.3.6 Decontamination During Medical Emergencies

If emergency life-saving first aid and/or medical treatment is required, normal decontamination procedures may need to be abbreviated or omitted. The site HSO or designee will accompany contaminated victims to the medical facility to advise on matters involving decontamination, when necessary. The outer garments can be removed if they do not cause delays, interfere with treatment, or aggravate the problem. Respiratory equipment must always be removed. Protective clothing can be cut away. If the outer contaminated garments cannot be safely removed, a plastic barrier between the injured individual and clean surfaces should be used to help prevent contaminated the inside of ambulances and/or medical personnel. Outer garments may then be removed at the medical facility. No attempt will be made to wash or rinse the victim unless it is known that the individual has been contaminated with an extremely toxic or corrosive material which could also cause severe injury or loss of life to emergency response personnel. For minor medical problems or injuries, the normal decontamination procedures will be followed. Unless the victim is obviously contaminated, decontamination should be omitted or minimized and treatment begun immediately.

9.3.7 Adverse Weather Conditions

In the event of adverse weather conditions, the HSO or designee will determine if work can continue without jeopardizing the health and safety of all field workers. Some of the items to be considered prior to determining if work should continue are:

- Potential for heat stress and heat-related injuries
- Potential for cold stress and cold-related injuries
- Treacherous weather-related working conditions
- Limited visibility
- Potential for electrical storms

Site activities, other than those involving the incinerator, will be limited to daylight hours, unless proper artificial lighting is supplied. All site activities will be limited to acceptable weather conditions. Inclement working conditions include heavy rain, fog, high winds, and lightening. Observe daily weather reports and evacuate if necessary in case of inclement weather conditions.

Flood - EEC will utilize the U.S. Corps of Engineers HEC Model for the Meramec Basin to determine the potential for flooding at the site. The weather service will routinely be contacted to determine the potential for significant rainfall or actual rainfall may be measured. The weather service will also be contacted if suddenly developing situations indicate an increased risk of flooding. The information received will be entered into the HEC Model to predict the risk of flooding. If the risk of flooding is imminent, the Emergency Coordinator shall be notified. Emergency measures to be taken at the TTF will be in accordance with the procedures specified in the Hazardous Waste Management Permit. EEC and subcontractor personnel will move all equipment, vehicles, trailers, etc. as needed, to an area of sufficient elevation or other location that will minimize contact with flood waters and will protect active remediation areas from the effects of flooding in accordance with the Site Remediation Workplan. All personnel will then be instructed to leave the flood plain.

Storm - EEC will monitor weather service advisories to determine when other adverse weather conditions may develop. These conditions may include tornadoes, electrical storms. thunderstorms, and snowstorm. When it is indicated that the safety of personnel at the site may be at risk, all supervisory personnel shall be notified with instructions concerning the nature of the risk and the proper precautions to be taken.

9.4 COMMUNICATIONS

A variety of communication systems may be utilized during emergency situations. These will be discussed in this section.

9.4.1 Radio Communications

The primary form of communication during an emergency between field groups in the EZ and the Emergency Coordinator will be radio communications. Each field team within the EZ shall have a radio communications device. During an emergency situation, the lines will be kept clear so that instructions can be received by all field teams.

9.4.2 Air Horns

Air horns will be used for emergency signaling. The following signals shall be used:

- Continuous, 10-second blast - Evacuate immediately
- Three short blasts - Emergency situation exists

9.4.3 Hand Signals

Hand signals will be employed by down range field teams where necessary for communication during emergency situations. Hand signals shall be understood by field personnel before operations commence. Hand signals will be reviewed during site specific training. Hand signals to be used are found in Section 5.4.2.

9.5 EMERGENCY/SPILL CONTROL EQUIPMENT

9.5.1 Emergency Equipment

The following emergency equipment shall be kept and maintained on-site:

- Industrial first aid kit
- Stretcher
- Burn kit
- Fire blanket
- Portable eye washes (1 per field team)
- Air horns (1 per field team
- Fire extinguishers (1 per trailer or vehicle)
- PPE (poly- and uncoated tyvek, APR, SCBA, gloves and boots)

9.5.2 Spill Control Equipment

The following spill control equipment shall be kept and maintained on-site and used, if necessary, as specified:

Item	Quantity	Usage
Shovels (Long Handled)	2 Ea	To be used for spreading sand and building dikes (to guide/contain spill).
Sand	1 Cubic Yard	To be used as diking material in the event of a major spill.
Sorbent Granules*	22-18 lb bags (each bags holds 9-15 gallons)	To be used in cleanup.
Buckets	4 Ea	To be used in cleanup.
55 Gallon Drums	2 Ea	To be used in cleanup.
Wheelbarrow	1 Ea	To be used in cleanup.
Front End Loader	1 Ea	To be used in cleanup. Will be on-site and available.
Appropriate Decontamination Solutions	1 Lot	As required by type of material released.

* Sorbent inventory quantified to absorb a maximum of 200-gallons of waste that may breach the containment systems. Operating experience may result in the need for higher or lower inventory.

Note: Shovels, sand, sorbent granules bags, buckets, drums and wheelbarrows will be stored in an area available to spill cleanup personnel. Front end loader will be on-site and available on an emergency basis.

9.6 POSTINGS

The following information shall be posted in each trailer and at various, conspicuous locations throughout the site:

- Emergency telephone numbers
- Diagrams showing the location of fire extinguishers and emergency equipment
- Map showing emergency evacuation routes

9.7 EVACUATION

Under certain circumstances, it may become necessary for all personnel to leave the site for a time period. Such circumstances may include imminent flood, violent storms, explosions or fire. A map, outlining emergency evacuation routes shall be posted at various, conspicuous locations throughout the site. When it is determined that conditions warranting an evacuation exist, the Emergency Coordinator shall issue an evacuation watch.

Notice of the evacuation watch shall be communicated to all site personnel. At this point, preparations for evacuation may not necessarily commence, but site activities may be delayed or curtailed until the potential for evacuation no longer exists.

When it is determined that an evacuation is warranted, the Emergency Coordinator shall issue an evacuation command. An evacuation command may also be issued by the EPA of Missouri DNR Project Coordinator after conferring with the EEC Emergency Coordinator. The evacuation command shall be communicated to all site personnel. At this time, all site personnel shall terminate current operations in an orderly fashion as is practicable, perform decontamination procedures (if possible), and proceed to the entrance of the site or other designated emergency evacuation route where a head count will be taken. Site security will be maintained throughout the evacuation as practicable.

If it is determined that immediate evacuation of the site is necessary, the evacuation alarm will be sounded. At this time, all personnel shall proceed to the entrance of the site or other designated location via an emergency evacuation route where a head count will be taken.

When it is determined that there is no longer a need for evacuation, the Emergency Coordinator will issue an all clear signal, which will be communicated to all site personnel. At this time, personnel may reenter the site and resume operations.

9.8 RESTORATION AND SALVAGE

After an emergency, prompt restoration of utilities, fire protection equipment, medical supplies and other equipment will reduce the possibility of further losses. Some of the items that may need to be addressed are:

- Refilling fire extinguishers
- Refilling medical supplies

9.9 ACCIDENT/INCIDENT REPORTING

As soon as first aid and/or emergency response needs have been met, the following parties are to be contacted by telephone:

1. Mike McSherry, Project Health and Safety Manager - (609) 467-3891
2. Tom Granger, Project Manager - (201) 460-6197

Written confirmation of verbal reports are to be submitted within 24 hours. An Accident/Incident Report is to be used for this purpose and can be found in Appendix G. All EEC representatives contacted by telephone are to receive a copy of this report. For reporting purposes, the term accident refers to fatalities, recordable and lost time injuries, spill or exposure to hazardous materials (toxic materials, explosive or flammable materials), fire, explosion, property damage, or potential occurrence of the above.

Any information released from the health care provider, which is not deemed confidential patient information, is to be attached to the appropriate form. Any medical information which is released by patient consent is to be filed in the individuals medical records and treated as confidential.

Evacuation drills shall be conducted periodically.

10.0 LOGS, REPORTS AND RECORD KEEPING

The following is a summary of required health and safety logs, reports and record keeping for the Times Beach site project.

10.1 HASP CHANGE NOTICE

To be completed for initiating a change to the HASP. The HSM and Project Manager approval is required. The original will be kept in the project file. The HASP Change Notice Form can be found in Appendix A.

10.2 MEDICAL AND TRAINING RECORDS

Medical and training records are kept by the HSO. Verification of training and medical qualification must be provided to the HSO. The HSO will keep a log of personnel meeting appropriate training and medical qualifications for site work. The log will be kept in the project file. Medical records will be maintained in accordance with 29 CFR 1910.20 by the appropriate HSM.

10.3 ACCIDENT/INCIDENT REPORTS

The Construction Superintendent accident/incident report must be completed following procedures given in Section 9.8. The originals will be sent to the appropriate Regional records coordinator for maintenance by EEC. Copies will be distributed as stated. A copy of the forms will be kept in the project file.

10.4 HEALTH AND SAFETY FIELD LOG BOOKS

The HSO or designee will maintain the logbook in accordance with standard EEC procedures. Daily site conditions, activities, personnel, calibration records, monitoring results and significant events will be recorded. The original log books will become part of the exposure records file and will be maintained by the HSM.

10.5 OSHA FORM 200

An OSHA Form 200 (Log of Occupational Injuries and Illnesses) will be kept at the project site. All recordable injuries or illnesses will be recorded on this form. At the end of the project, the original will be sent to the HSM for maintenance. Subcontractor employers must also meet the requirements of maintaining an OSHA 200 form.

The EEC accident/incident report, which meets the requirements of the OSHA Form 101 (Supplemental Record) shall be maintained with the OSHA Form 200 for all recordable injuries or illnesses.

10.6 MATERIAL SAFETY DATA SHEETS

Material Safety Data Sheets (MSDS) will be obtained and kept on file at the project site for each hazardous chemical brought to, used, or stored at the site. The MSDS will be kept in the project file.

11.0 CONFINED SPACE ENTRY, DRUM HANDLING, AND SPILL CONTROL

11.1 CONFINED SPACE ENTRY

EEC does not anticipate entering any confined spaces during the scope of work outlined in Section 1.2 of this HASP. If a confined space must be entered, the EEC Corporate Program will be followed by EEC personnel. Subcontractors requiring entry into a confined space shall submit a confined space entry program to the EEC health and safety staff for review and comment prior to entry.

11.2 DRUM HANDLING

The scope of work outlined in Section 1.2 of this HASP does not include the handling of drums or other containers of hazardous waste. If, during remediation, drums or other containers are discovered they will be located out of the way by the excavation until a drum handling plan is developed and approved.

11.3 SPILL CONTROL

The spill control measures to be used on the project can be found in the Spill Control Plan.

12.0 FIELD TEAM REVIEW

Each field team member shall sign this section after site-specific training is completed and before being permitted to work on the site.

I have read or have been verbally advised of all aspects of the Site-Specific Health and Safety Plan for the Times Beach site project. I understand and will comply with the provisions contained therein.

Site/Project: Times Beach

Date	Name	Signature

APPENDIX A

HASP CHANGE NOTICE

Health & Safety Plan
Change Notice

PROJECT: TIMES BEACH H & S CN # ___

1) HASP VERSION: _____ SECTION: ___ PAGE: ___

RE: __ CHANGE TO EXISTING HASP ANTICIPATED REVISION DATE _____
__ ADDITION TO EXISTING HASP
__ OTHER: _____

2) PROPOSED CHANGE: _____

3) REASON FOR PROPOSED CHANGE (S)

__ REQUIRED BY SPEC OR CHANGE ORDER
__ DISPOSITION OF DEFICIENCY
__ CHANGE IN REGULATORY OR OTHER REQUIREMENTS
__ OPERATIONAL EXPERIENCE
__ OTHER: _____

4) EXHIBITS ATTACHED __NO __YES (IF YES, DESCRIBE) _____

5) EEC APPROVALS PROJ. MANAGER: _____ DATE: _____

CONST. MANAGER: _____ DATE: _____

H & S MANAGER: _____ DATE: _____

6) CLIENT APPROVAL __ **APPROVED** __ **REMANDED** __ **REJECTED**

COMMENTS: _____

CLIENT REPRESENTATIVE: _____ DATE: _____

7) DISTRIBUTION AFTER APPROVAL

__ HASP UPDATE LIST
__ CLIENT
__ PROJECT FILES
__ OTHER: _____

8) PREPARED BY: _____ DATE: _____

TITLE: _____

APPENDIX B

DIOXIN PUBLIC HEALTH STATEMENT

1.0 DIOXIN PUBLIC HEALTH STATEMENT

1.1 WHAT IS DIOXIN?

The chlorinated dibenzo-p-dioxins are a class of compounds that are loosely referred to as dioxins. There are 74 possible dioxins. The one with four chlorine atoms at positions 2, 3, 7 and 8 of the dibenzo-p-dioxin chemical structure is called 2, 3, 7, 8-tetrachlorodibenzo-p-dioxin (2, 3, 7, 8-TCDD). It is a colorless solid with no known odor. 2, 3, 7, 8-TCDD does not occur naturally nor is it intentionally manufactured by any industry, except as a reference standard. It can be inadvertently produced in very small amounts as an impurity during the manufacturing of certain herbicides and germicides and has been detected in products of incineration of municipal and industrial wastes. At the present time, 2, 3, 7, 8-TCDD is not used for any purpose other than scientific research.

1.2 HOW MIGHT I BE EXPOSED TO 2, 3, 7, 8-TCDD?

The main environmental sources of 2, 3, 7, 8-TCDD are:

- Use of herbicides containing 2, 4, 5-trichlorophenoxy acids (2, 4, 5-T)
- Production and use of 2, 4, 5-trichlorophenol in wood preservatives
- Production and use of hexachlorophene as a germicide
- Pulp and paper manufacturing plants
- Incineration of municipal and certain industrial wastes
- Small amounts formed during the burning of wood in the presence of chlorine
- Accidental transformer/capacitor fires involving chlorinated benzenes and biphenyls
- Exhaust from automobiles powered with leaded gasoline
- Improper disposal of certain chlorinated chemical wastes

Although 2, 4, 5-T, 2, 4, 5-trichlorophenol and hexachlorophene are no longer produced commercially (except for certain medical purposes) disposal sites of past production wastes are still sources of present exposure. 2, 3, 7, 8-TCDD has been found in at least 28 of 1,177 hazardous waste sites on the National Priorities List (NPL). Very low levels of TCDD in drinking water has not been reported. 2, 3, 7, 8-TCDD has not been detected in most rural soils examined, but it can be present at trace levels in urban soils. The highest concentration of 2, 3, 7, 8-TCDD was detected in waste oil-contaminated soil in Missouri that contained 2, 3, 7, 8-TCDD levels of more than one million times higher than soils from normal urban areas. 2, 3, 7, 8-TCDD was detected in fish obtained from the contaminated sections of Lake Ontario, Saginaw Bay, the Michigan rivers, and several watersheds including those from Maine, Wisconsin and Minnesota. In human milk, minute amounts of 2, 3, 7, 8-TCDD have been detected in the United States and in several European countries.

***Excerpted from "Toxicological Profile for 2, 3, 7, 8-Tetrachlorodibenzo-p-dioxin", Agency for Toxic Substances and Disease Registry, U.S. Public Health Service, Publication ATSDR/TP-88/23, 1988.**

Consumer sources are:

- Skin contact with surfaces such as soil or vegetation contaminated by the chemical
- Skin contact and inhalation of wood dust from use of pentachlorophenol-treated woods
- Inhalation of air near improperly maintained dump sites or municipal incinerators
- Consumption of fish and cow's milk from contaminated areas
- Minute exposure from the use of paper towels, napkins, coffee filters, computer papers, and other contaminated paper products

Workers at risk of contacting 2, 3, 7, 8-TCDD are:

- Workers who have been involved in the production or use of trichlorophenol and salts, hexachlorophene, and 2, 4, 5-T or other herbicides containing this chemical. The production of 2, 4, 5-T and 2, 4, 5-trichlorophenol, however, has been discontinued in the United States.

- Workers in the pump and paper industry

- Workers at certain municipal and industrial incinerators

- Workers involved in the high-temperature/pressure treatment of woods with pentachlorophenol

- Workers at certain hazardous waste sites

- Workers involved in the cleanup of certain accidental capacitor/transformer fires and in the salvaging of transformers

- Workers who have been involved in spraying of phenoxy herbicides such as Agent Orange

1.3 HOW DOES 2, 3, 7, 8-TCDD GET INTO MY BODY?

- Absorption through skin from contaminated soils and other materials

- Ingestion of 2, 3, 7, 8-TCDD through the consumption of contaminated fish, cow's milk, foodstuffs, and in the case of small children, soil

- Breathing contaminated ambient air. This may contribute very small amounts to total body intake; however, particles such as fly ash from municipal and industrial incineration may constitute a major source of exposure

- Intake of 2, 3, 7, 8-TCDD from the consumption of drinking water should be negligible

- According to one estimate of ambient exposure, breathing air constitutes 2 percent, drinking water less than 0.01 percent, and consuming foods 98 percent of the total human exposure to 2, 3, 7, 8-TCDD. No estimate of relative intake of 2, 3, 7, 8-TCDD due to skin absorption is available

1.4 HOW CAN 2, 3, 7, 8-TCDD AFFECT MY HEALTH?

- In humans 2, 3, 7, 8-TCDD causes chloracne, a severe skin lesion that usually occurs on the head and upper body. Unlike common acne, chloracne is more disfiguring and often lasts for years after the initial exposure

- There is suggestive evidence that 2, 3, 7, 8-TCDD causes liver damage in humans, as indicated by an increase in levels of certain enzymes in the blood, although these effects might also have resulted from the concomitant exposure to the chemicals contaminated with 2, 3, 7, 8-TCDD or to the solvents in which these chemicals are usually dissolved. Animal studies have demonstrated severe liver damage in some species

- There is suggestive evidence that 2, 3, 7, 8-TCDD causes loss of appetite, weight loss, and digestive disorders in humans, although these effects might also have resulted from the concomitant exposure to the chemicals contaminated with 2, 3, 7, 8-TCDD or to the solvents in which these chemicals are usually dissolved. Animal exposure to 2, 3, 7, 8-TCDD results in severe loss of body weight prior to death

- Although not demonstrated in humans, in animal studies 2, 3, 7,8-TCDD produced toxicity to the immune system. This toxicity can result in greater susceptibility to infection

- Although not demonstrated in humans, in some animal species exposure to 2, 3, 7, 8-TCDD resulted in adverse reproductive effects including spontaneous abortions. The monkey is very sensitive to this toxic property of 2, 3, 7, 8-TCDD

- Although not demonstrated in humans, in some animal species exposure to 2, 3, 7, 8-TCDD during pregnancy resulted in malformations in the offspring. Low levels of 2, 3, 7, 8-TCDD have been detected in human milk, but the effects on infants and children are unknown

- The human evidence for 2, 3, 7, 8-TCDD alone is inadequate to demonstrate or reflect a carcinogenic hazard, although certain herbicide mixtures containing 2, 3, 7, 8-TCDD as an impurity provide limited evidence of causing cancer in exposed humans. Based on the positive evidence in animal studies, 2, 3, 7, 8-TCDD is probably carcinogenic in humans.

1.5 IS THERE A MEDICAL TEST TO DETERMINE IF I HAVE BEEN EXPOSED TO 2, 3, 7, 8-TCDD?

There is no common medical test available to demonstrate convincingly that you have been exposed to 2, 3, 7, 8-TCDD. It is believed that a blood test to detect certain enzymes indicating liver damage may be helpful in determining whether exposure has occurred. These tests do not indicate with certainty that you have been exposed to 2, 3, 7, 8-TCDD, since other chemicals, as well as drinking alcohol, can cause similar results. When tests for these enzymes have been performed, changes in these enzymes were demonstrated only on some of the people suspected of 2, 3, 7, 8-TCDD exposure.

Other tests are available that are not commonly conducted by a physician but appear to more adequately indicate that you have been exposed to 2, 3, 7, 8-TCDD. One test consists of removing a small piece of body fat by a simple surgical procedure; the fat is then analyzed for the presence of 2, 3, 7, 8-TCDD. In another recently developed test, blood serum is obtained and analyzed for the presence of 2, 3, 7, 8-TCDD. The initial study appears to indicate that the method is sensitive enough to detect extremely low levels of 2, 3, 7, 8-TCDD. If the levels of 2, 3, 7, 8-TCDD are higher than the determined background range for people in the United States, the test indicates that you have probably been exposed to more 2, 3, 7, 8-TCDD than the average population, or exposure has occurred more recently than that of the comparison group. In addition, detection of 2, 3, 7, 8-TCDD in mother's milk would also indicate exposure; the level of 2, 3, 7, 8-TCDD in the milk may provide some indication of whether exposure was due to background levels or if additional exposure had occurred. This method has not been used widely to evaluate human exposure.

1.6 WHAT LEVELS OF EXPOSURE HAVE RESULTED IN HARMFUL HEALTH EFFECTS?

The graphs on the following pages show the relationship between exposure to 2, 3, 7, 8-TCDD and known health effects. In the first set of graphs labeled "Health Effects from Ingesting 2, 3, 7, 8-TCDD" (Fig. 1.1), exposure is measured in milligrams of 2, 3, 7, 8-TCDD per kilogram of body weight (mg/kg). In the second set of graphs (Fig. 1.2), the same relationship is represented for the known "Health effects from skin contact with products containing 2, 3, 7, 8-TCDD". Exposures are again measured in milligrams of 2, 3, 7, 8-TCDD per kilogram of body weight (mg/kg). In all graphs, effects in animals are shown on the left side and effects in humans on the right side.

The levels marked on Fig. 1.1, which are dose estimates associated with minimal risk for health effects other than cancer in humans, are based on information from animal studies; therefore, some uncertainty still exists. For cancer, the U.S. Environmental Protection Agency (EPA) has estimated that lifetime exposure to 1 nanogram (one nanogram is one-billionth of a gram) of 2, 3, 7, 8-TCDD per kilogram per day would result in 1,560 or 1,560,000 additional cases of cancer in a population of 10,000 of 10,000,000 people, respectively. It should be noted that these risk values are plausible upper-limit estimates. Actual risk levels are unlikely to be higher and may be lower. The EPA is in the process of reviewing its risk assessment of 2, 3, 7, 8-TCDD.

There was not enough information to prepare a graph for exposure by breathing.

APPENDIX C

HEARING CONSERVATION PROGRAM

HEARING CONSERVATION PROGRAM

The following program has been prepared in accordance with the OSHA regulation for occupational noise exposure (29 CFR 1910.95). It addresses written standard operating procedures to be followed by all employees. This hearing conservation program and guidelines will be followed when engineering and/or administrative controls are not feasible and hearing protection devices are being relied upon to protect the employees.

I. Action Levels

Hearing protection will be provided when employees are exposed to a Time Weighted Average (TWA) of 85 decibels (dBA). In this case, use of the protection is optional unless the employee experiences a permanent, significant shift in his or her hearing level. Hearing protection is mandatory for employees exposed to TWA greater than or equal to 90 dBA.

II. Exposure Monitoring

Sound level measurements will be conducted when information indicates that an employee's exposure may be greater than a TWA of 85 dBA.

Monitoring Considerations:

1. Identify employees that may be exposed to the TWA action level or above;
2. Use area monitoring or representative personal monitoring;
3. Include all continuous, intermittent and impulsive sound levels between 80-130 dBA.;
4. Calibrate instrument properly;
5. Repeat monitoring whenever a production, process, controls or equipment change occurs which may involve additional personnel or render protective equipment inadequate;
6. Employees must be notified if they are exposed at or above the action level;
7. Employees affected shall be provided an opportunity to observe measurements.

III. Audiometric Testing Program

Audiometric testing will be made available to employees exposed to a TWA greater than or equal to 85 dBA. This program will be of no charge to the employee.

A. Baseline Audiogram:

1. Established within six months of exposure;

2. A baseline audiogram is included within the employees initial medical examination for work at the site;

B. Annual Audiogram:

1. The audiometric test will be repeated at the annual medical exam required of all site personnel;

2. The annual test will be compared to the baseline to determine any shifts in the hearing level.

C. Procedure to follow when an audiogram shows a significant threshold shift:

1. Retesting will be performed with 30 days to be used as the annual audiogram;

2. Review by an audiologist, otolaryngologist or physician to determine if further evaluation is needed;

3. Inform employee within 21 days;

4. Unless not aggravated by the job, employee is trained in use and care of hearing protective devices, fitted for a pair and required to use them. If he/she already wear protective devices, he/she will be retrained, refitted and if necessary provided with a more efficient device;

5. Additional testing may be advised if a medical pathology of the ear is suspected of being caused or aggravated by wearing hearing protection;

6. Additional testing may also be advised for any medical pathology of the ear unrelated to wearing hearing protection;

7. An annual audiogram may be substituted for the baseline when a threshold shift is persistent or there is significant hearing improvement.

D. Standard threshold shift - A change in the hearing threshold relative to the baseline audiogram of an average of 10 dBA or more at 2000, 3000 and 4000 Hz in either ear.

E. Audiometric test requirements (condensed from OSHA 1910.96):

1. Pure tone;

2. Air conduction;

3. Hearing threshold;

4. Test frequencies including at least 500, 1000, 2000, 3000, 4000, and 6000 Hz;

5. Tests at each frequency conducted for each ear;

6. Equipment used in accordance with ANSI standard 53.6-1969;

7. If a pulsed tone audiometer is used, it shall have a tone on time of at least 200 milliseconds;

8. For a self-recording audiometer the following shall be complied with:

a) The chart will have lines corresponding to multiples of 10 dBA, equally spaced at least 1/4 inch apart and pen tracings will not exceed 2 dBA widths;

b) It will be possible to manually set the stylus at 10 dBA increments;

c) The slewing rate will not exceed 6 dBA per second, except at the beginning of a new test frequency;

d) Each frequency shall be tested for 30 seconds plus 3 seconds;

e) It shall be possible to place a horizontal line segment parallel to the time axis such that the tracing crosses the line segment no less than six times. The threshold value will be the average of the midpoints of the tracing excursions.

9. A room meeting the requirements of Appendix D, OSHA 1910.96 will be used to administer audiometric tests.

IV. EMPLOYEE TRAINING

A. Training will consist of initial and annual programs.

B. Training shall consist of the following:

1. Effects of noise on hearing;

2. Purpose of hearing protectors;

3. Advantages and disadvantages and attenuation of various types;

4. Instructions for selecting, fitting, using and caring for protective devices;

5. Purpose of audiometric testing;

6. Explanation of test procedures.

V. RECORD KEEPING

A. A record of monitoring measurements will be maintained;

B. Audiometric tests will be maintained with and in accordance with each employees' medical monitoring file.

APPENDIX D

ACGIH TLV'S FOR HEAT STRESS/COLD STRESS

ACGIH TLV'S FOR HEAT STRESS/COLD STRESS

ADOPTED THRESHOLD LIMIT VALUES

These Threshold Limit Values (TLVs) refer to heat stress conditions under which it is believed that nearly all workers may be repeatedly exposed without adverse health effects. The TLVs shown in Table 1 are based on the assumption that nearly all acclimatized, fully clothed workers with adequate water and salt intake should be able to function effectively under the given working conditions without exceeding a deep body temperature of 38° C.

Heat produced by the body and the environmental heat together determine the total heat load. Therefore, if work is to be performed under hot environmental conditions, the workload category of each job shall be established and the heat exposure limit pertinent to the workload evaluated against the applicable standard in order to protect the worker exposure beyond the permissible limit.

The work load category may be established by ranking each job into light, medium, and heavy categories on the basis of the type of operation, where the work load is ranked into one of said three categories, i.e.,

1) light work (up to 200 kcal/hr or 800 Btu/hr): e.g., sitting or standing to control machines, performing light hand or arm work;

2) moderate work (200-350 kcal/hr or 800-1400 Btu/hr): e.g., walking about with moderate lifting and pushing, or;

3) heavy work (350-500 kcal/hr or 1400-2000 Btu/hr): e.g., pick and shovel work.

The permissible heat exposure limit for that workload shall be determined from Table 1. The permissible exposure limits specified in Table 2-2 are based on the assumption that the WBGT value of the resting place is the same of very close to that of the work place. The permissible exposure limits for continuous work are applicable where there is a work-rest regimen of a 5-day work week and an 8-hour work day with a short morning and afternoon break (approximately 30 minutes). Higher exposure limits are permitted if additional resting time is allowed. All breaks, including unscheduled pauses and administrative or operational waiting periods during work, may be counted as rest time when additional rest allowance must be given because of high environmental temperatures.

Clothing:

The permissible heat exposure TLVs are valid for light summer clothing as is customarily worn by workers when working under hot environmental conditions. If special clothing is required for performing a particular job and this clothing is heavier or it impedes sweat evaporation or has a higher insulation value, the workers heat tolerance is reduced, and the permissible heat exposure limits indicated in Table 2-2 apply. For each job category where special clothing is required, the permissible heat exposure limit shall be established by an expert.

Acclimatization and Fitness:

Acclimatization to heat involves a series of physiological and psychological adjustments that occur in an individual during this first week of exposure to hot environmental conditions. They recommended heat stress TLVs are valid for acclimated workers who are physically fit. Extra caution must be employed when unacclimated or physically unfit workers must be exposed to heat stress conditions.

HEAT STRESS

Preventive Management

Adverse weather conditions are important considerations in planning and conducting site operations. Hot or cold weather can cause physical discomfort, loss of efficiency, and personal injury. Of particular importance is heat stress resulting when protective clothing decreases natural body ventilation.

Provide plenty of liquids. To replace body fluids (water and electrolytes) lost because of sweating, use a 0.1 percent saltwater solution, more heavily salted foods, or commercial mixes. The commercial mixes may be preferable for those employees on a low-sodium diet.

Body water loss (BWL) due to sweating should be measured by weighing the worker in the morning and in the evening. The clothing worn should be similar at both weighings; preferably the worker should be nude. The scale should be accurate to plus or minus 1/4 pound. BWL should not exceed 1.5 percent of the total body weight. If it does, the worker should be instructed to increase his daily intake of fluids by the weight lost. Ideally, body fluids should be maintained at a constant level during the work day. This requires replacement of salt lost in sweat as well.

Have workers drink 16 ounces of water before beginning work, such as in the morning or after lunch. Provide disposable 4 ounce cups and water that is maintained at 50° - 60° F. Urge workers to drink 1 to 2 of these cups of water every 20 minutes for a total of 1 to 2 gallons per day. Provide a cool, preferably air conditioned area for rest breaks. Discourage the use of alcohol during non-working hours, and discourage the intake of coffee during working hours. Monitor for signs of heat stress.

Monitoring of personnel wearing impervious clothing should commence when the ambient temperature is 70° F or above. Frequency of monitoring should increase as the ambient temperature increases or as slow recovery rates are indicated. When temperatures exceed 80° F, workers should be monitored for heat stress after every work period. The following are important considerations:

> Heart rate (HR) should be measured by the radial pulse for 30 seconds as early as possible in the resting period. The HR at the beginning of the rest period should not exceed 110 beats per minute. If the HR is higher, the next work period should be shortened by 10 minutes (or 33 percent), while the length of the rest period stays the same. If the pulse rate is 100 beats per minute at the beginning of the next rest period, the following work cycles should be shortened by 10 minutes (or 33 percent).

Body temperature should be measured orally with a clinical thermometer as early as possible in the resting period. Oral temperature (OT) at the beginning of the rest period should not exceed 99° F. If it does, the next work period should be shortened by 10 minutes (or 33 percent), while the length of the rest period stays the same.

However, if the OT exceeds 99.7° F at the beginning of the next period, the following work cycle should be further shortened by 10 minutes (or 33 percent). OT should be measured again at the end of the rest period to make sure that it has dropped below 99° F.

Acclimate workers to site work conditions by slowly increasing workloads, i.e., do not begin site work activities with extremely demanding activities.

Provide cooling devices to aid natural body ventilation. These devices, however, add weight and their use should be balanced against worker efficiency. Long cotton underwear acts as a wick to help absorb moisture and protect the skin from direct contact with heat-absorbing protective clothing. It should be the minimum undergarment worn.

Install mobile showers and/or hose-down facilities to reduce body temperature and cool protective clothing.

In extremely hot weather, conduct non-emergency response operations in the early morning or evening.

Ensure that adequate shelter is available to protect personnel against heat, cold, rain, snow, etc., which can decrease physical efficiency and increase the probability of accidents.

In hot weather, rotate shifts of workers wearing impervious clothing.

Good hygienic standards must be maintained by frequent changes of clothing and daily showering. Clothing should be permitted to dry during rest periods. Persons who notice skin problems should immediately consult medical personnel.

HEAT STRESS CONDITIONS

Heat Cramps

Heat cramps are caused by perspiration that is not balanced by adequate fluid intake. Heat cramps are often the first sign of a condition that can lead to heat stroke.

Symptoms: Acute painful spasms of voluntary muscles, e.g., abdomen and extremities.

Treatment: Remove victim to a cool area and loosen clothing. Have patient drink 1 to 2 cups of water immediately, and every 20 minutes thereafter until symptoms subside. Total water consumption should be 1 to 2 gallons per day. Consult with physician.

Heat Rash

Heat rash is caused by continuous exposure to heat and humid air and aggravated by chafing clothes. The condition decreases ability to tolerate heat.

Symptoms: Mild red rash, especially in areas of the body in contact with protective gear.

Treatment: Decrease amount of time in protective gear and provide powder to help absorb moisture and decrease chafing.

Heat Stroke

Heat stroke is an acute and dangerous reaction to heat stress caused by a failure of heat regulating mechanisms of the body, that is, the individual's temperature control system that causes sweating stops working correctly. Body temperature rises so high that brain damage and death will result if the person is not cooled quickly.

Symptoms: Red, hot, dry skin, although the person may have been sweating earlier; nausea; dizziness; confusion; extremely high body temperature; rapid respiratory and pulse rate; unconsciousness or coma.

Treatment: Cool the victim quickly. If the body temperature is not brought down fast, permanent brain damage or death will result. Soak the victim in cool, but not cold, water; sponge the body with cool water or pour water on the body to reduce the temperature to a safe level (102 degrees F). Observe the victim and obtain medical help. Do not give coffee, tea, or alcoholic beverages.

Heat Exhaustion

Heat exhaustion is a state of very definite weakness or exhaustion caused by the loss of fluids from the body. The condition is much less dangerous than heat stroke, but it nonetheless must be treated.

Symptoms: Pale, clammy, moist skin; profuse perspiration and extreme weakness. Body temperature is normal, pulse is weak and rapid, breathing is shallow. The person may have a headache, may vomit, and may be dizzy.

Treatment: Remove the person to a cool, air conditioned place, loosen clothing, place in a head-low position and provide bed rest. Consult a physician, especially in severe cases. The normal thirst mechanism is not sensitive enough to ensure body fluid replacement. Have patient drink one to two cups of water immediately, and every 20 minutes thereafter until symptoms subside. Total water consumption should be about one to two gallons per day.

These Threshold Limit Values (TLVs) are intended to protect workers from the severest effects of cold stress (hypothermia) and cold injury and to describe exposures to cold working conditions under which it is believed that nearly all workers can be repeatedly exposed without adverse health effects. The TLV objective is to prevent the deep body core temperature from falling below 36° C and to prevent cold injury to body extremities. Deep body temperature is the core temperature of the body as determined by rectal temperature measurements. For a single, occasional exposure to a cold environment, a drop in core temperature to no lower than 35° C should be permitted. In addition to provisions for total body protection, the TLV objective is to protect all parts of the body with emphasis on hands, feet and head from cold injury. The single most important aspect of life-threatening hypothermia is the fall in the deep core temperature of the body.

Systemic hypothermia is caused by exposure to freezing or rapidly dropping temperature. Its' symptoms are usually exhibited in five stages: 1) shivering, 2) apathy, listlessness, sleepiness, and rapid cooling of the body to less than 95 degrees F, 3) unconsciousness, glassy stare, slow pulse and slow respiratory rate, 4) freezing of the extremities, and, finally, 5) death.

Workmen should be protected from exposure to cold so that the deep core temperature does not fall below 36° C (96.8° F); lower body temperatures will result in various behaviors such as reduced mental alertness, reduction of rational decision making, or loss of consciousness with the threat of fatal consequences.

Pain in the extremities may be the first early warning of danger to cold stress. During exposure to cold, maximum severe shivering develops when the body temperature has fallen to 35° C (95° F). This must be taken as a sign of danger to the workers and exposure to cold should be immediately terminated for any workers when severe shivering becomes evident. Useful physical or mental work is limited when severe shivering occurs.

Since prolonged exposure to cold air or to immersion in cold water at temperatures well above freezing can lead to dangerous hypothermia, whole body protection must be provided.

Adequate insulated clothing to maintain core temperatures above 36° C must be provided to workers if work is performed in air temperatures below 4° C (40° F). Wind chill factor or the cooling power of the air is a critical factor. The higher the wind speed and the lower the temperature in the work area, the greater the insulation value of the protective clothing required. An equivalent chill temperature chart relating the actual dry bulb air temperature and the wind velocity is presented in the Wind Chill Chart. The equivalent chill temperature should be used when estimating the combined cooling effect of wind and low air temperatures on exposed skin or when determining clothing insulation requirements to maintain the deep body core temperature.

Unless there are unusual or extenuating circumstances, cold injury to other than hands, feet, and head is not likely to occur without the development of the initial signs of hypothermia. Older workers or workers with circulatory problems require special precautionary protection against cold injury. The use of extra insulating clothing and/or a reduction in the duration of the exposure period are among the special precautions which should be considered.

The precautionary actions to be taken will depend upon the physical condition of the worker and should be determined with the advice of a physician with knowledge of the cold stress factors and the medical condition of the worker.

Employees shall be excluded from work in cold at -1° C (-3° F) or below if they are suffering from diseases or taking medication which interferes with normal body temperature regulation or reduces tolerance to work in cold environments. Workers who are routinely exposed to temperatures below -24° C (-10° F) with wind speeds of less than five miles per hour, or air temperatures below -18° C (0° F) with wind speeds above five miles per hour should be medically certified as suitable for such exposures.

Trauma sustained in freezing or subzero conditions requires special attention because an injured worker is predisposed to secondary cold injury. Special provisions must be made to prevent hypothermia and secondary freezing of damaged tissues, in addition to providing for first aid treatment.

In cold environments, wind-chill temperature is a better description of thermal conditions than the ambient temperature alone. The wind adds to the rate of cooling and it is the combination of wind speed and air temperature that is most important. In the Wind Chill Chart, arbitrary risks of frostbite are given for short exposure periods. For example, at a wind chill temperature of -25° (from a 5° F temperature and 15 MPH wind) exposed flesh may freeze within one minute.

However, fingers, toes, nose tips, ears or cheeks may become frostbitten at ambient temperatures as high as 32° F with high winds. This is approximately the freezing point of skin in the absence of subcooling.

Hypothermia (general lowering of body temperature) can occur from exposure to conditions well above freezing. The lethal deep body temperature is placed at about 78° F. This condition can occur when a worker is immersed in cold water, exposed to cool, high winds, in a state of physical exhaustion, or has had insufficient food intake. Alcohol should not be consumed in cold environments because the resultant dilation of blood vessels can permit a rapid loss of body heat increasing the risk of hypothermia. For warming purposes, liquid intake should be hot, non-alcoholic beverages or soups.

The work shall be arranged in such a way that sitting still or standing still for long periods is minimized. Unprotected metal chair seats shall not be used. The worker should be protected from drafts to the greatest extent possible;

The workers shall be instructed in safety and health procedures. The training program shall include as a minimum instruction in the following:

- Proper rewarming procedures and appropriate first aid treatment;
- Proper clothing practices;

- Proper eating and drinking habits;
- Recognition of impending frostbite;
- Recognition of signs and symptoms of impending hypothermia or excessive cooling of the body even when shivering does not occur;
- Safe work practices.

Special caution shall be exercised when working with toxic substances and when workers are exposed to vibration. Cold exposure may require reduced exposure limits.

Eye protection for workers employed out-of-doors in a snow and/or ice covered terrain shall be supplied. Special safety goggles to protect against ultraviolet light and glare (which can produce temporary conjunctivitis and/or temporary loss of vision) and blowing ice crystals is required when there is an expanse of snow coverage causing a potential eye exposure hazard.

Workplace Monitoring is Required as Follows:

Suitable thermometry should be arranged at any workplace where the environmental temperature is below 16° C (60° F) to enable overall compliance with the requirements of the TLV to be maintained.

In outdoor situations, the windspeed should be measured and recorded at least every four hours, together with the air temperature whenever the air temperature is below -1° C (30° F).

For exposed skin, continuous exposure should not be permitted when the air speed results in an equivalent chill temperature of -32° C (-25° F). Superficial or deep local tissue freezing will occur at temperatures below -1° C regardless of windspeed.

Frost Bite

Frost nip or incipient frostbite: The condition is characterized by sudden blanching or whitening of skin;

Superficial frostbite: Skin has a waxy or white appearance and is firm to the touch, but tissue beneath is resilient;

Deep frostbite: Tissues are cold, pale and solid; extremely serious injury.

Frostbite may be either superficial, involving only the skin, or deep, extending below the skin. Frostbite may be considered to be superficial if exposure time was short.

Otherwise assume the injury to be deep and, therefore, serious, in which case it should be treated at a hospital rather than in the field. Superficial frostbite can be treated by doing the following:

- Covering the cheeks with warm hands until pain returns;
- Placing uncovered frostbitten fingers under the opposing armpit next to the skin;
- Placing bare frostbitten feet under the clothing against the skin of a companion;
- Never rewarm a frostbitten part by massage, exposure to open fire, cold water soaks or rubbing with snow. Gradual rewarming against the skin is always preferred. It is important to know that pain will occur when thawing has occurred;
- Where deep frostbite exists, it is essential to get the patient to the hospital as quickly as possible. Frozen parts should be protected from additional cold injury, but no attempts should be made to thaw them in the field. The patient should also be kept warm.

For work practices at or below -12° C (10° F) ECT (Equivalent Chill Temperature) the following shall apply:

The worker shall be under constant protective observation (buddy system or supervision);

The work rate should not be so high as to cause heavy sweating that will result in wet clothing; if heavy work must be done, rest periods must be taken in heated shelters and the opportunity for changing into dry clothing shall be provided;

New employees shall not be required to work full time in cold in the first days until they become accustomed to the working conditions and required protective clothing;

The weight and bulkiness of clothing shall be included in estimating the required work performance and weight to be lifted by the worker;

Work-Warming Regimen

If work is performed continuously in the cold at an equivalent chill temperature of below -7° C (20° F), heated warming shelters (tents, cabins, rest rooms, etc.) shall be made available nearby and the workers should be encouraged to use these shelters at regular intervals, the frequency depending on the severity of the environmental exposure. The onset of heavy shivering, frostnip, the feeling of excessive fatigue, drowsiness, irritability, or euphoria, are indications for immediate return to the shelter. When entering the heated shelter, the outer layer of clothing shall be removed and the remainder of the clothing loosened to permit sweat evaporation, or a change of dry work clothing provided.

A change of dry work clothing shall be provided as necessary to prevent workers from returning to their work with wet clothing. Dehydration, or the loss of body fluids, occurs insidiously in the cold environment and may increase the susceptibility of the worker to cold injury due to a significant change in blood flow to the extremities. Warm sweet drinks and soups should be provided at the work site to provide caloric intake and fluid volume. The intake of coffee should be limited because of a diuretic and circulatory effect.

Protective Clothing

Clothing for both cold/wet (moderately cold weather above 14° F) and cold/dry (temperatures below 14° F) should be available;

Clothing worn loosely and in layers provides maximum protection because the trapped layers of warm air are more effective insulators than the cloth itself;

Clothing must be kept dry. If not, the exposure to cold must be altered with periods of rewarming and drying of clothes;

Moisture should be kept off of clothes by brushing or shaking snow from it prior to entering heated shelters;

Means of evaporating perspiration should be encouraged by opening the neck, waist, arm sleeves and ankle fasteners as needed to provide periodic fresh air circulation;

During severe wind chill conditions, a cold weather mask or wool scarf should also be worn;

When wearing face protectors they need to be removed periodically to check for frost bite;

Skin on the hands can freeze easily, therefore, cold metal should never be touched with bare hands. Special protection of the hands is required to maintain manual dexterity for the prevention of accidents. If the air temperature is -17.5° C (0° F), the hands should be protected by mittens;

Pants should be tucked in and lapped over boot tops to prevent the entry of snow and cold water into the boot;

The foot wear for outdoor work in wet snow should be waterproof and reach well up on the leg. The soles and upper part of the boot should provide good insulation as well. A combination of working boots and rubber overboots provides this insulation;

Socks should be fairly heavy and reach well up on the leg to encourage wicking and evaporation of sweat.

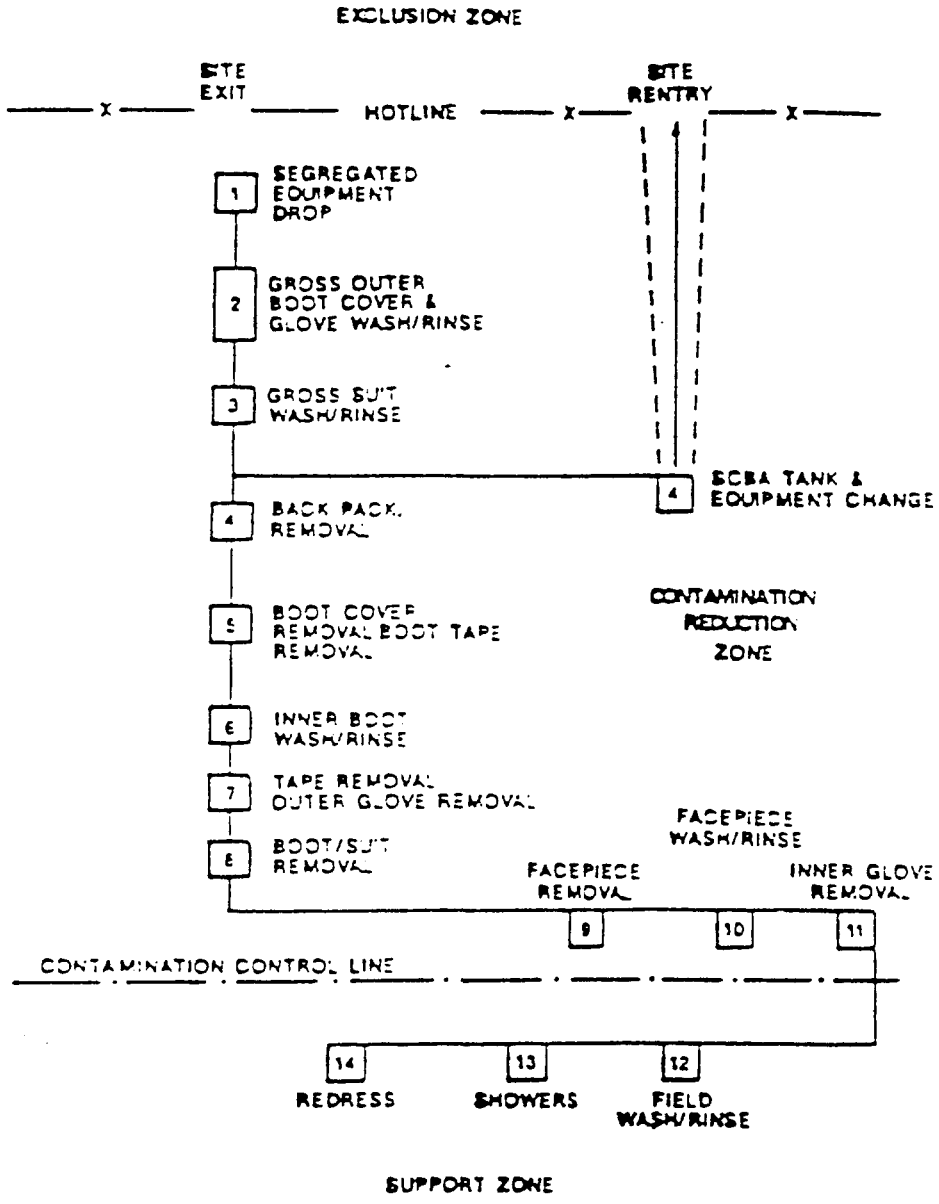
Other Precautions:

Balanced meals and adequate liquid intake are essential to body heat production and the prevention of dehydration. Dehydration is as prevalent in cold regions as it is in hot, dry areas. Warm liquids (hot soup or tea) are obviously preferable since they do not have to be warmed by the body after consumption. Cold foods and drinks should only be eaten as a matter of necessity. Hair should be cut and beards shaven or clipped closely. Long hair or a beard add very little in insulation value and natural hair oils soil the clothing. In the open, a beard serves as a base for ice build-up and will mask the appearance of frostbite. Electric razors are preferable since they do not remove protective oils from the face.

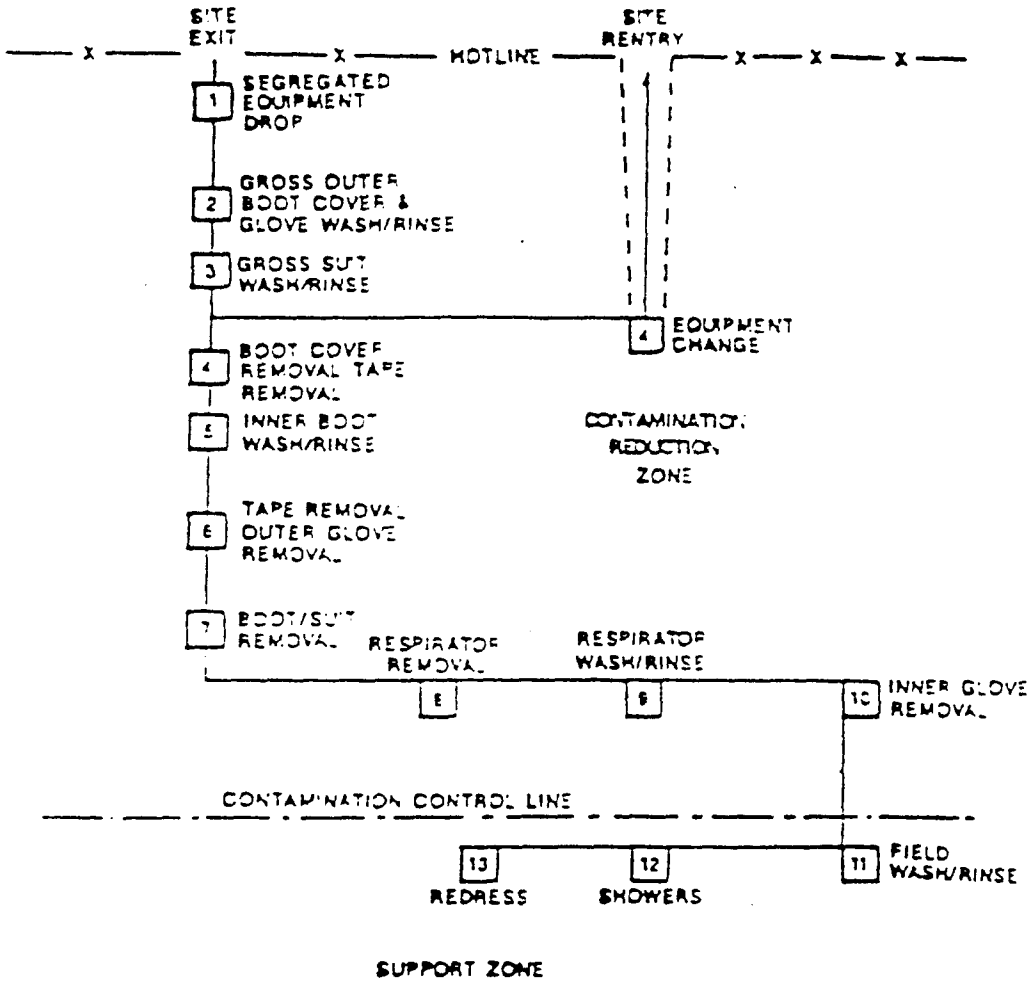
APPENDIX E

PERSONNEL DECONTAMINATION PROCEDURES

LEVEL B DECONTAMINATION PROCEDURES

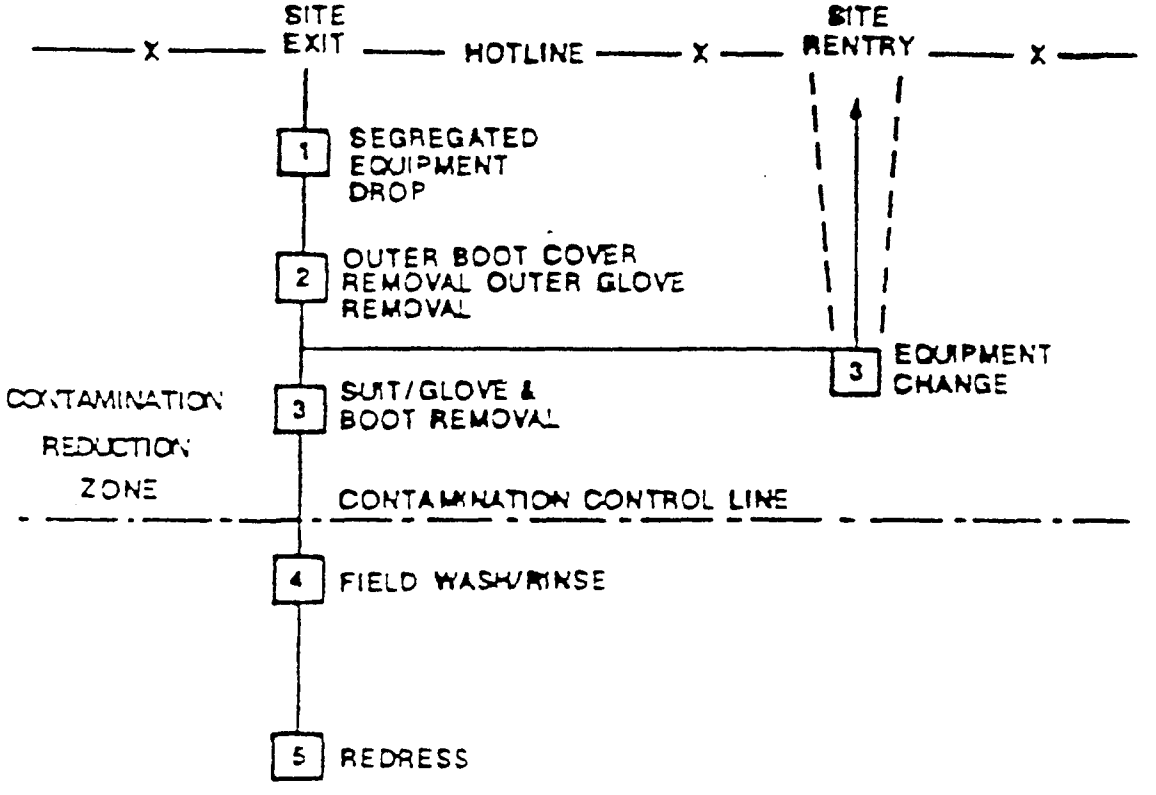


LEVEL C DECONTAMINATION PROCEDURES



LEVEL D DECONTAMINATION PROCEDURES

EXCLUSION ZONE



SUPPORT ZONE

Chart 1. Guide to recordability of cases under the Occupational Safety and Health Act

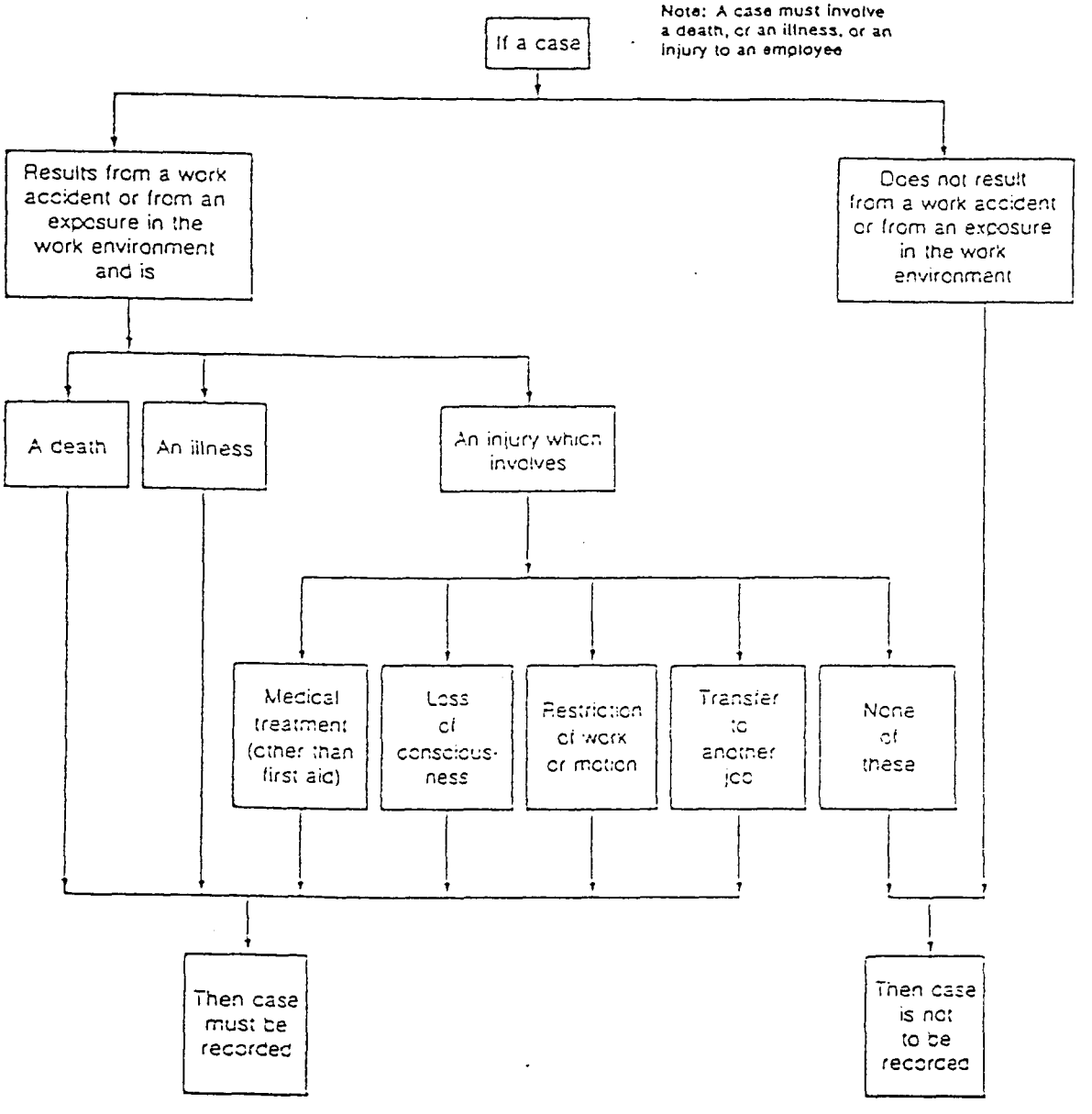
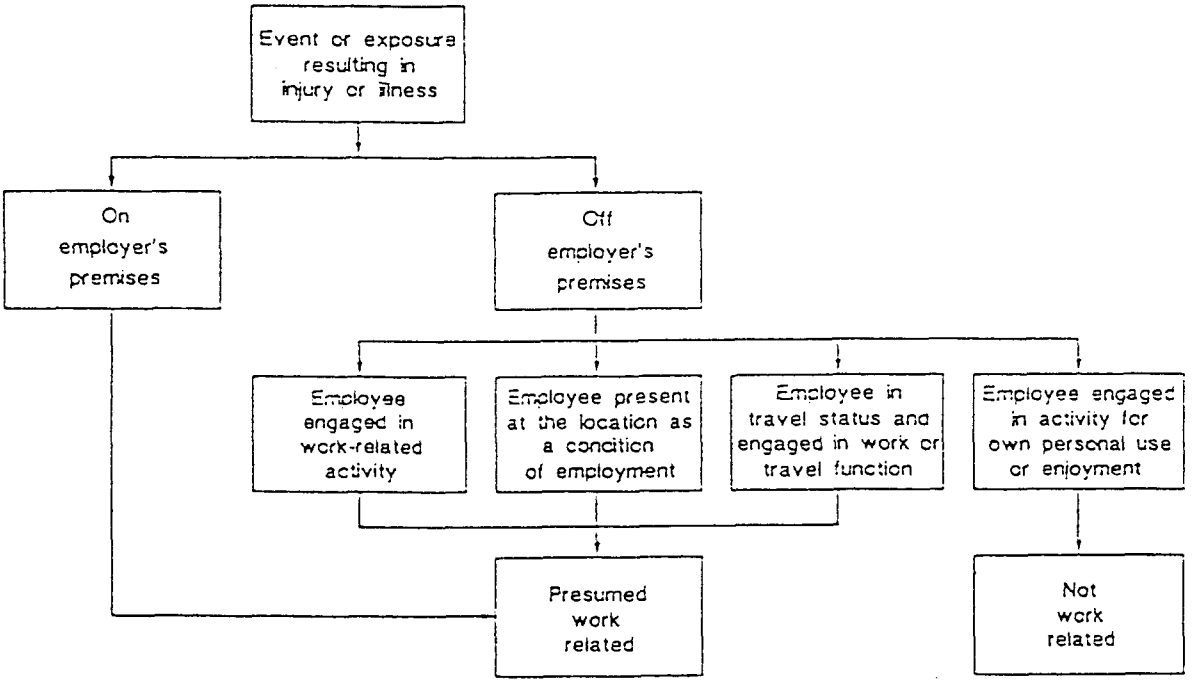


Chart 2. Guidelines for establishing work relationship



APPENDIX F

WIPE SAMPLING PROTOCOL

1.0 WIPE SAMPLING PROTOCOL

1.1 GENERAL

After trucks, equipment, or material have been decontaminated using a pressure detergent wash and water rinse, wipe sampling shall be conducted prior to reuse of the equipment in non-contaminated work or prior to removal from the site.

The general wipe sampling procedure will involve rubbing an absorbent material over an area of known size. The material will be analyzed for dioxin content, and the analytical result will be used to calculate the amount of dioxin per unit of surface area.

2.0 WIPE SAMPLE MEDIA

2.1 Media

A variety of absorbent materials may be used for collection of wipe samples. these include, but are not limited to filter paper, fiberglass cloth, or other fabric agreed upon by EEC.

The sampling media shall be of sufficient strength to allow rubbing with moderate pressure without damaging the material in a manner that would bias the sample.

2.2 Treatment

The sampling media shall be treated with 1,1,1-trichloroethane. The sampling media shall be moistened, but not saturated.

3.0 DETERMINATION OF WIPE SAMPLING AREA

A wipe sample will be collected from an area that is the greater of three square feet (3 ft^2), if feasible to establish, or approximately one percent (1 %) of the total area to the nearest square foot, unless the total area is less than 3 ft^2 to the nearest square foot. If the area is less than 3 ft^2, the sample will be one-half of the surface area. EEC may require that wipe samples be collected more or less frequently for surfaces considerably larger than 300 ft^2.

The subcontractor shall determine the total area to be tested (Surface Area), to the extent feasible, and the area that will be sampled within the Surface Area (Sampling Area). If the Surface Area is large, or if it is believed that contamination is not distributed uniformly, EEC may require that the Sampling Area be divided into several, distinct randomly placed regions, of similar area within the Surface Area. In the alternative, EEC may require wipe sampling of those areas deemed to be high contact areas.

4.0 WIPE SAMPLING PROCEDURE

The sampling media will be wiped across the Sampling Area; this wiping shall be done in a uniform manner.

A region of the Sampling Area shall be wiped by making parallel strokes that partially overlap using moderate, steady pressure along the length of the Sampling Area. These strokes shall be repeated until the entire width of the Sampling Area has been wiped.

The wipe sampling procedure shall be repeated with strokes that are perpendicular to those of the original traverse.

The configuration of the sample media may be changed (folded or bent) during the wipe sampling procedure in an attempt to utilize as much of the sample media as practicable.

Once the Sample Area has been wiped, the sample media shall be placed in a glass sample container with an PTFE lined closure.

5.0 SAMPLE ANALYSIS

5.1 Analytical Method

Wipe samples shall be analyzed for dioxin using either of the two following methods:

1. SW-846 Method 8280 from, Test Methods for Evaluating Solid Waste/Physical Chemical Methods, USEPA, SW-846, Fourth Edition, November, 1990; and

2. EPA Contract Laboratory Program Statement of Work for Rapid Turnaround Dioxin Analysis, USEPA SOW, August, 1988.

5.2 Analytical Laboratory

All analytical support shall be provided by laboratories that meet or exceed the minimum technical qualifications and standards of performance for participation in the EPA's Contract Laboratory Program (CLP). The Subcontractor shall provide lists of laboratory analytical instrumentation (manufacturer, model) and complete chronological resumes for supervisors, quality control personnel, chemists, and analysts listing all appropriate education and experience. Any changes in laboratory, instrumentation, personnel, or delegation of laboratory work from those specified by the Subcontractor must be accepted by EEC.

The qualifications of each laboratory proposed by the Subcontractor for inclusion in the analysis program will be reviewed by EEC. Written acceptance of laboratory qualifications is required prior to that laboratory participating in the chemical analysis support program.

APPENDIX G

ACCIDENT/INCIDENT REPORT

☐ Recordable ☐ Non-Recordable

ACCIDENT/INCIDENT REPORT

☐ Original Submittal ☐ Correction Submittal	Report Prepared By (please print):	Date Prepared:
Project:	Project Location (Address, City, State, Zip):	

Involved Employee Name (Last, First, M.I.):			Social Security No.:		Severity of Injury/Illness 0 First Aid 1 Medical 2 Lost Time 3 Fatal 4 Non-Industrial	Lost Work Days: Est.: Actual: Restricted Work Days: Est.: Actual:
Sex: M or F	Age:	Date Reported:	Accident Date:	Accident Time (Military):		
Home Address: _____ Street _____ Phone: ( ) City State Zip						

Company Name:	Department:	Work Phone: ( )
Regular Job Title:	Supervisor:	

Time on Job: Years: Months	Time Employed: Years: Months:	Experience: Years: Months:

Witnesses to Incident:

1. Name: _____ Company: _____
   Address: _____
   Home Phone: ( ) _____ Work Phone: ( ) _____
2. Name: _____ Company: _____
   Address: _____
   Home Phone: ( ) _____ Work Phone: ( ) _____

If Hospitalized:

Name of Hospital: _____ Phone: ( ) _____
Address: _____
Street City State Zip

Physician's Name: _____ Phone: ( ) _____
Address: _____
Street City State Zip

Property Damage (describe property damaged and dollar estimate of damage):

_____
_____
_____
_____

Narrative Report of Accident/Incident (include date, time, location, etc.):

Causative Factors of Accident/Incident (i.e., training, carelessness, faulty equipment, weather conditions, etc.):

Use Space Below to Map Location of Accident/Incident (include landmarks such as well number, borehole number, cross street names, section number, etc.):

Additional Information:

Report Prepared By: _____ Date: _____
Signature

Accident/Incident Investigation Participants:

1. Name: _____ Date: _____
Print Signature

2. Name: _____ Date: _____
Print Signature

3. Name: _____ Date: _____
Print Signature

Incident Analysis (circle one from each category):

Worker Class
1 technician
2 assistant
3 associate
4 engineer
5 other

Craft
01 administration
02 driller
03 laborer
04 electrician
05 engineer
06 technician
07 welder
08 geologist/hydrogeologist
09 health and safety
10 biologist
11 meteorologist
12 air quality
13 QA/QC
14 other

Work Phase
01 excavation
02 construction
03 general labor
04 mechanical
05 office
06 warehouse
07 welding
08 drilling
09 sampling (specify)
_____
_____
10 other

Employment Period
01 1 week or less
02 2–4 weeks
03 1–2 months
04 2–6 months
05 6–12 months
06 1–2 years
07 2–5 years
08 5–10 years
09 over 10 years
10 unknown

Approximate Age
01 under 20
02 20–30
03 31–40
04 41–50
05 51–60
06 over 61
07 unknown

Time of Accident
01 0801–1000
02 1001–1200
03 1201–1400
04 1401–1600
05 1601–1800
06 1801–2000
07 2001–2200
08 2201–2400
09 0001–0200
10 0201–0400
11 0401–0600
12 0601–0800

Injury Type
01 amputation
02 strain/sprain
03 crush/mash/smash
04 fracture
05 cut/puncture/laceration
06 burn
07 contusion/abrasions
08 foreign body/eye injury
09 faint/dizziness
10 bruises
11 blisters
12 hearing loss
13 none—refer to illness code
14 other

Body Part
01 head/face
02 eye
03 ear
04 neck/shoulders
05 arm/elbow
06 wrist/hand
07 thumb/finger
08 back
09 chest/lower trunk
10 ribs
11 hip
12 leg/knee
13 foot/ankle
14 toe
15 hernia/rupture
16 heart attack
17 internal
18 death
19 other

Injury Cause
Struck by Tool or Object
01 hand tool or machine in use
02 falling or flying objects
03 tipping, sliding, or rolling objects
04 object handled by others
05 moving parts of machine
06 object being lifted or handled
07 motor vehicle

Strain or Overexertion
10 lifting
11 using tool or machine
12 pushing or pulling
13 holding or carrying
14 reaching

Cut, Puncture, Scrape Injury by
15 hand tool/not powered
16 powered hand tool/appliance
17 object being lifted/handled
18 broken glass

Fall or Slip
21 on same level
22 from different level
23 slipped, but not fall

Striking Against
31 object being handled
32 stepping on sharp objects
33 stationary object
34 moving parts of machine
35 moving object

Motor Vehicle Injuries
41 collision with another vehicle
42 collision with a fixed object
43 vehicle upset

Caught On, In, or Between
51 machine or machine parts
52 mechanical apparatus
53 object handled/other object

Burn or Heat–Cold Exposure
61 steam or hot fluids
62 welding operatios
63 fire or flame
64 contact with hot object
65 acids–chemicals
66 heat exhaustion
67 heat stroke
68 hyperthermia
69 frostbite

Miscellaneous Causes
71 contact with electrical current
72 suffocation
73 explosion or flashback
74 by animal or insect
75 foreign body in eye
76 miscellaneous describe

Illness
91 skin disease
92 respiratory disease
93 accidental poisoning
94 systemic effects
95 disorders due to physical agents
96 repetitive trauma disorders
97 other describe

ACCIDENT/INCIDENT REPORT FOLLOW-UP

Date: _____

Name of Involved Employee:

_____
First Middle Last

Date of Accident/Incident: _____ Project: _____

Actions Taken to Prevent Recurrence:

_____

_____

_____

_____

_____

Outcome of Incident:

_____

_____

_____

_____

_____

_____

_____

Physician's Recommendations (attach return-to-work form if available):

_____

_____

_____

_____

Follow-up Report Prepared By:

_____ _____
Print Clearly Signature

Attach any additional information to this form.

Health & Safety Plan
Change Notice

PROJECT: TIMES BEACH H & S CN # ___

1) HASP VERSION: VI.REV1 SECTION: 7.0 PAGE: 27

RE: ___ CHANGE TO EXISTING HASP ANTICIPATED REVISION DATE _____
X ADDITION TO EXISTING HASP
___ OTHER: _____

2) PROPOSED CHANGE: To add guidelines for activities involved in cleaning up the roadside of I-44 adopted by ATI under the "Adopt a Highway" program as Section 7.1. The guidelines provided by the Highway Department attached will be as Appendix H.

3) REASON FOR PROPOSED CHANGE (S)

___ REQUIRED BY SPEC OR CHANGE ORDER
___ DISPOSITION OF DEFICIENCY
___ CHANGE IN REGULATORY OR OTHER REQUIREMENTS
___ OPERATIONAL EXPERIENCE
X OTHER: To provide safety guidelines not addressed in the current HASP for work along a public highway.

4) EXHIBITS ATTACHED ___NO X YES (IF YES, DESCRIBE) Appendix H "Safety Tips" for working on Missouri roadside provided by the Missouri Highway and Transportation Department and additional project specific guidelines.

5) EEC APPROVALS

PROJ. MANAGER: _____ DATE: 1-9-95

CONST. MANAGER: _____ DATE: 12-14-94

H & S MANAGER: _____ DATE: 12/30/94

6) CLIENT APPROVAL ___ APPROVED ___ REMANDED ___ REJECTED

COMMENTS: _____

CLIENT REPRESENTATIVE: _____ DATE: _____

7) DISTRIBUTION AFTER APPROVAL

XX HASP UPDATE LIST
XX CLIENT
XX PROJECT FILES
X OTHER: T.H. Stevenson (Subcontractor)

8) PREPARED BY: Lonnie R. Wright DATE: 12/12/94

TITLE: HSO

APPENDIX H

SAFETY TIPS FOR WORKING ON MISSOURI ROADSIDES

7.1 INTERSTATE 44 ROADSIDE CLEANUP

The section of Interstate 44 (I-44) between the Lewis Road overpass and the Burlington Northern railroad tracks will be cleared of trash and other debris along the roadside periodically throughout the remainder of the project. Personnel involved in these activities will be required to follow the guidelines listed in the "Safety Tips for Working on Missouri Roadsides," attached as Appendix H. In addition to these guidelines, the following rules and practices shall be followed:

1. Drums, barrels, etc. shall not be handled by cleanup crew. These items shall be marked and reported immediately to the Foster Wheeler HSO.

2. Pesticides containers (except small aerosol cans) shall not be handled by the cleanup crew. These items shall be marked and reported immediately to the Foster Wheeler HSO.

3. Batteries can be handled for the purpose of making them accessible for pickup by the Highway Department. However, chemical resistant gloves (i.e.. nitrile or equivalent) shall be utilized when handling batteries.

4. "Pick-up Sticks" shall be used whenever possible to pick up debris in order to reduce the potential of bending at the waist.

5. Proper lifting techniques shall be used whenever lifting heavy items. Bending at the knees while maintaining a straight back should be exercised as a proper lifting technique. Two or more workers shall be teamed together when possible to eliminate excessive strain.

Even beautification involves a need for caution

- Always face oncoming traffic
- Leave no holes or depressions in the roadside following any portion of work
- Remove all excess material after planting trees and shrubs

Always be prepared for an emergency

- Every crew should have a first-aid kit
- Have transportation available at all times
- Know the location of the nearest hospital or emergency room

Missouri Highway and Transportation Department

Main Office
Capitol and Jefferson
Jefferson City
(314) 751-2551

Northwest Area
St. Joseph
3602 N. Belt Highway
(816) 387-2350

North Central Area
Macon
Route 63
(816) 385-3176

Northeast Area
Hannibal
Highway 61 South
(314) 248-2490

Kansas City Area
Kansas City
5117 E. 31st St.
(816) 889-3350

Central Area
Jefferson City
1511 Missouri Blvd.
(314) 751-3322

St. Louis Area
Chesterfield
1590 Woodlake
(314) 340-4100

Southwest Area
Joplin
3901 East 32nd St.
(417) 629-3300

Springfield Area
Springfield
3025 East Kearney St.
(417) 866-3576

South Central Area
Willow Springs
Bus. Route 63 North
(417) 469-3134

Southeast Area
Sikeston
Route 61
(314) 472-5333

Be Careful and Thank You for Improving our Environment

prepared by the Public Affairs Division
MHTD-6/93-20M

printed on recycled paper

Safety Tips

for Working on Missouri Roadsides

Missouri Highway and Transportation Department

Remember

You are working in a dangerous environment... A Public Highway

Protect yourself and others

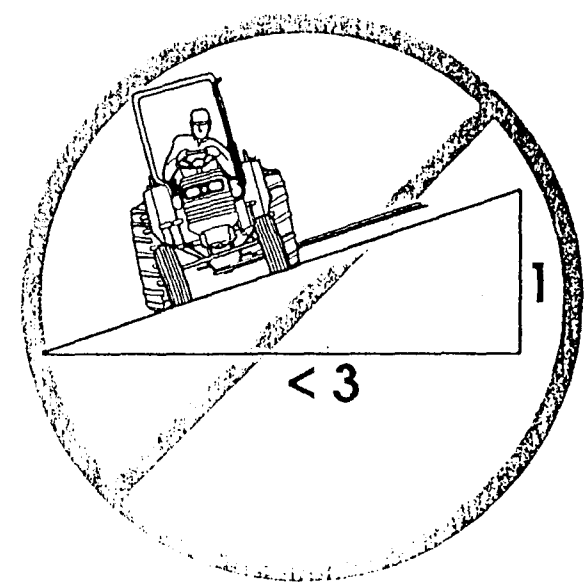
- Wear light colored clothing
- Wear a hat, long sleeves and a safety vest
- Park all vehicles off the roadway and shoulders
- Wherever possible, unload work crews on the roadsides rather than on the shoulder or highway
- Stay well clear of any construction projects
- Stop work during bad weather
- Watch footing when walking on slopes
- Be alert for holes and obstacles
- Be alert for snakes
- Avoid overexertion
- Provide water for workers
- Every time you work, ask department personnel where herbicides have recently been applied — avoid these areas of noxious weeds

Picking up litter requires some special precautions

- Always face oncoming traffic
- Wear heavy gloves
- Have at least one adult supervisor for every four children — keep children in sight at *ALL* times
- Do not remove hazardous substances — when in doubt, contact department personnel
- Be careful when using a litter pickup stick — wear leather boots or shoes
- Do not pick up litter in narrow medians

Mowing requires other precautions

- Remove litter before mowing
- Do not mow straight up or straight down slopes
- Look over the entire area for dropoffs, obstacles or hazards prior to mowing
- Stay off steep slopes of three to one or steeper when using a riding mower
- All riding mowers should have roll bars and seat belts
- Mowing equipment should not be operated on the roadway or shoulders
- Do not throw debris onto roadway or shoulders



Health & Safety Plan
Change Notice

PROJECT: TIMES BEACH H & S CN # 002

1) HASP VERSION: VI REV1 SECTION: 1.4 PAGE: 4

RE: X CHANGE TO EXISTING HASP ANTICIPATED REVISION DATE _____
___ ADDITION TO EXISTING HASP
___ OTHER: _____

2) PROPOSED CHANGE: EMERGENCY PHONE NUMBERS WERE CORRECTED FOR LOCAL RESPONDS. FWENC CONSTRUCTION SUPERVISOR ELIMINATED FROM LIST.

3) REASON FOR PROPOSED CHANGE (S)

___ REQUIRED BY SPEC OR CHANGE ORDER X OTHER: CHANGE OF PHONE NUMBERS AND SITE PERSONNEL.
___ DISPOSITION OF DEFICIENCY
___ CHANGE IN REGULATORY OR OTHER REQUIREMENTS
___ OPERATIONAL EXPERIENCE

4) EXHIBITS ATTACHED ___NO X YES (IF YES, DESCRIBE) SECTION 1.4 EMERGENCY/IMPORTANT PHONE NUMBERS.

5) EEC APPROVALS PROJ. MANAGER: _____ DATE: 1-30-95
CONST. MANAGER: _____ DATE: 1-27-95
H & S MANAGER: _____ DATE: 2/1/95

6) CLIENT APPROVAL ___ APPROVED ___ REMANDED ___ REJECTED

COMMENTS: _____

CLIENT REPRESENTATIVE: _____ DATE: _____

7) DISTRIBUTION AFTER APPROVAL

X HASP UPDATE LIST X OTHER: SUBCONTRACTORS
X CLIENT
X PROJECT FILES

8) PREPARED BY: LONNIE R. WRIGHT LRW DATE: 1/25/95

TITLE: HSO

1.4 EMERGENCY/IMPORTANT PHONE NUMBERS

The following is a list of emergency and other important phone numbers for the Times Beach site.

Emergency Phone Numbers	Contact	Phone Number
Ambulance	Eureka Fire & Ambulance	911 or 314-394-2212
Police	St. Louis County PD	911 or 314-889-2341
Fire	Eureka Fire Department	911 or 314-394-2212
Hospital	St. Johns Mercy Medical	314-569-6090
USEPA National Response Center		800-424-8802
Poison Control Center	Cardinal Glennon Hospital	314-772-5200
Chemtrec		800-424-9300

EEC Project Management/Health and Safety Numbers		Phone Number
Project Manager	Tom Granger	206-688-3901
Construction Manager	Gary Stiles	314-938-3233
Construction Superintendent	Bruce Bennett	314-560-3401
Health and Safety Manager	Mike McMcSherry	609-467-3891
Health and Safety Officer	Lonnie Wright	314-560-3403

Other Important Phone Numbers		
ATI Project Director	Gary Pendergrass	417-866-4050
ATI Project Manager	Rob Kain	314-938-9520
ATI Assistant Project Manager	Jim Whitehead	314-938-9520
MDNR On Site Coordinator	Jim Silver	314-938-9150
USEPA On Site Coordinator	Jim MacDonald	314-938-9870

HOSPITAL ROUTE

Directions to Hospital

St. Johns Mercy Medical Center
615 South New Ballas Road
St. Louis, Missouri 63141
314-569-6090 (Emergency Room)

Leave the site via Lewis Road and get on I-44 east. Take I-44 east for about 10 miles and get on I-270 North. Continue on I-270 for 5 miles and get on Route 40 East and stay in the right lane. Get off at the first exit onto Ballas Road. Turn right at the first light onto South New Ballas Road. The hospital is 2 blocks on the left, follow signs to the emergency room.

The hospital route is provided for **non-emergency** purposes only. Under no circumstances should an injured worker requiring **emergency** medical treatment, be driven to the hospital by site personnel. Both ambulance and med-evac helicopter are available to transport an injured worker, the dispatcher will determine what is appropriate depending upon the nature and extent of the injury.

Health & Safety Plan
Change Notice

PROJECT: TIMES BEACH H & S CN # 003

1) HASP VERSION: VI REV1 SECTION: 9.2 PAGE: 32

RE: X CHANGE TO EXISTING HASP ANTICIPATED REVISION DATE _____
__ ADDITION TO EXISTING HASP
__ OTHER: _____

2) PROPOSED CHANGE: CHANGE IN THE EMERGENCY COORDINATOR AND ALTERNATES.

3) REASON FOR PROPOSED CHANGE (S)

__ REQUIRED BY SPEC OR CHANGE ORDER X OTHER: CHANGE OF SITE PERSONNEL.
__ DISPOSITION OF DEFICIENCY
__ CHANGE IN REGULATORY OR OTHER REQUIREMENTS
__ OPERATIONAL EXPERIENCE

4) EXHIBITS ATTACHED __NO X YES (IF YES, DESCRIBE) SECTION 9.2 EMERGENCY COORDINATOR/ALTERNATE COORDINATORS.

5) EEC APPROVALS PROJ. MANAGER: _____ DATE: 1-30-95
CONST. MANAGER: _____ DATE: 1-27-95
H & S MANAGER: _____ DATE: 2/1/95

6) CLIENT APPROVAL __ APPROVED __ REMANDED __ REJECTED

COMMENTS: _____

CLIENT REPRESENTATIVE: _____ DATE: _____

7) DISTRIBUTION AFTER APPROVAL

X HASP UPDATE LIST X OTHER: SUBCONTRACTORS
X CLIENT
X PROJECT FILES

8) PREPARED BY: LONNIE R. WRIGHT LRW DATE: 1/25/95

TITLE: HSO

9.2 EMERGENCY COORDINATOR/ALTERNATE COORDINATORS

1. **Primary**

Emergency Coordinator	Bruce Bennett
Office Phone Number	(314) 932-3233
Home Phone Number	(314) 458-6212
Mobile Phone Number	(314) 560-3401
Office Address	97 North Outer Road
	Times Beach, Suite #3
	Eureka, Missouri 63025
Home Address	2450 Maple Crossing
	Ellisville, Missouri 63011

2. **1st Alternate**

Emergency Coordinator	Gary Stiles
Office Phone Number	(314) 938-3233
Home Phone Number	(314) 878-8419 or (417) 847-3078
Mobile Phone Number	(314) 560-3406 or 960-3005
Office Address	97 North Outer Road
	Times Beach, Suite #3
	Eureka, Missouri 63025
Home Address	12406 Lighthouse Way
	Creve Coeur, Missouri

3. **2nd Alternate**

Emergency Coordinator	Lonnie Wright
Office Phone Number	(314) 938-3233
Home Phone Number	(314) 441-8356
Mobile Phone Number	(314) 560-3403
Office Address	97 North Outer Road
	Times Beach, Suite #3
	Eureka, Missouri 63025
Home Address	5849 Walnut Creek Blvd.
	St. Charles, Missouri 63304

4. **3rd Alternate**

Emergency Coordinator	Gary Clark
Office Phone Number	(314) 938-3233
Home Phone Number	(314) 928-3073
Mobile Phone Number	(314) 960-1903 & 560-3407
Office Address	97 North Outer Road
	Times Beach, Suite #3
	Eureka, Missouri 63025
Home Address	3840 Silver Ridge Drive
	St. Peters, Missouri 63376

5. **4th Alternate**

Emergency Coordinator	Rick Davidson
Office Phone Number	(314) 938-3233
Home Phone Number	(314) 458-5559
Mobile Phone Number	(314) 960-9562
Office Address	97 North Outer Road
	Times Beach, Suite #3
	Eureka, Missouri 63025
Home Address	16564 Hunters Crossing Dr.
	Grover, Missouri 63040