

M00263.AR.000006
MCRD PARRIS ISLAND
5090.3a

FINAL HEALTH AND SAFETY PLAN MEDICAL MONITORING PROGRAM REMEDIAL
INVESTIGATION VERIFICATION STEP MCRD PARRIS ISLAND SC
3/1/1988
MCCLELLAND ENGINEERS

01.03.00.0002

FINAL
HEALTH AND SAFETY PLAN
MEDICAL MONITORING PROGRAM
REMEDIAL INVESTIGATION
VERIFICATION STEP
MARINE CORPS RECRUIT DEPOT
PARRIS ISLAND, SOUTH CAROLINA

Report to:

NAVAL FACILITIES
ENGINEERING COMMAND
Charleston, South Carolina

FINAL
HEALTH AND SAFETY PLAN
MEDICAL MONITORING PROGRAM
REMEDIAL INVESTIGATION
VERIFICATION STEP
MARINE CORPS RECRUIT DEPOT
PARRIS ISLAND, SOUTH CAROLINA

* * *

Prepared by:
McCLELLAND ENGINEERS, INC.
6100 Hillcroft
Houston, Texas 77081

Plan Preparation Team Members

Susan T. Litherland, Project Manager
Harry C. Day, Jr., Project Supervisor
Henry J. Smahlik, Industrial Hygienist
Kim M. Freeberg, Hydrogeologist
John A. Gunter, Geotechnical Engineer

* * *

SOUTHERN DIVISION NAVAL FACILITIES ENGINEERING COMMAND

Steve Wilson, Engineer in Charge

Prepared for:
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
2155 Eagle Drive
P. O. Box 10068
Charleston, South Carolina 29411-0068

March 1988

C O N T E N T S

	<u>Page</u>
HS1.0 SUMMARY	HS1-1
HS2.0 INTRODUCTION	HS2-1
HS3.0 IDENTIFICATION OF SUSPECTED HAZARDS	HS3-1
HS3.1 Chemical Hazards	HS3-1
HS3.2 Safety Procedures	HS3-1
HS3.2.1 Chemical Hazards	HS3-1
HS3.2.2 Other Hazards	HS3-2
HS3.3 General Procedures	HS3-2
HS3.3.1 Personnel Precautions	HS3-2
HS3.3.2 On-Site Regulations	HS3-2
HS4.0 SITE CONTROL	HS4-1
HS4.1 Security and Physical Barriers	HS4-1
HS4.2 Personnel and Equipment Minimization	HS4-1
HS4.3 Decontamination Procedures	HS4-1
HS5.0 OPERATING PROCEDURES AND FIRST AID	HS5-1
HS5.1 Inspection	HS5-1
HS5.2 Testing of Equipment	HS5-1
HS5.3 Water Supply	HS5-1
HS5.4 Fire Control	HS5-1
HS5.5 Emergency Communication	HS5-1
HS5.6 First Aid	HS5-2
HS5.6.1 Inhalation	HS5-2
HS5.6.2 Skin Exposure	HS5-2
HS5.6.3 Ingestion	HS5-2
HS5.6.4 Eye Contact	HS5-3
HS5.6.5 Cuts and Abrasions	HS5-3
HS5.6.6 Heat Overexposure	HS5-3
HS5.7 Evacuation	HS5-3
HS6.0 PERSONNEL PROTECTION EQUIPMENT	HS6-1
HS7.0 DESCRIPTION OF MONITORING	HS7-1
HS7.1 Volatile Organics	HS7-1
HS7.2 Heat Stress	HS7-1
HS8.0 ORGANIZATION OF HEALTH AND SAFETY ACTIVITIES	HS8-1
HS9.0 TRAINING PLAN	HS9-1
HS10.0 ACCIDENT REPORTING AND RECORD KEEPING PROCEDURES	HS10-1
HS10.1 Incident Reports	HS10-1
HS10.2 Penalties	HS10-1

C O N T E N T S (Contd)

	<u>Page</u>
HS11.0 MEDICAL MONITORING PROGRAM	HS11-1
HS12.0 REFERENCES	HS12-1

LIST OF TABLES

<u>Table</u>	<u>Page</u>
HS2-1 Site Descriptions and Summary of Planned Activities	HS2-2
HS3-1 Potential Chemical/Radiological Hazards Present and Major Exposure Pathway	HS3-3
HS4-1 Designated Work Areas	HS4-2
HS8-1 Personnel Protection and Safety Plan Checklist	HS8-3
HS9-1 Basic Hazardous Materials Health and Safety Course	HS9-2
HS10-1 Safety and Health Incident Report	HS10-2
HS10-2 Guidelines for Disciplinary Actions	HS10-3
HS11-1 Preemployment and Periodic Medical Examinations	HS11-2
HS11-2 Medical Examination Outline Descriptions	HS11-3

HS1.0 SUMMARY

In this document, McClelland's Health and Safety Plan for fieldwork at the Marine Corps Recruit Depot, Parris Island (MCRD), South Carolina is presented. It provides both detailed and general policies, procedures, and guidance applicable to McClelland activities conducted during the planned site activities. Provided are general information on the project and facility, and specific information on the contaminants present or suspected. The chemical and physical hazards, and protective equipment and procedures required for personnel, are assessed. These policies and procedures are presented with the objective of successfully completing the project, while minimizing risks to workers and facility personnel. Specific project plans and requirements are addressed in the Work Plan for this site.

The Health and Safety Plan is presented in the following sections. Section HS2.0 provides background information concerning the Naval Installation Remediation Program (NIRP), as well as general information and discussion of the sites recommended for investigation activities under this Plan. More specific information of the activity, activity history, and the discussion of the sites to be evaluated at the activity are described in the Work Plan. The potential hazards associated with each site at MCRD Parris Island are described in Section HS3.0. Site control procedures are addressed in Section HS4.0. Section HS5.0 discusses operational procedures and first aid practices for the site activities. Required personnel protective equipment is presented in Section HS6.0. Section HS7.0 details the methodology used for monitoring the organic vapor content, radiation measurements of the working level environment, and heat stress. Section HS8.0 describes organizational health and safety activities. An example of the McClelland health and safety training course used to certify McClelland personnel are trained in accordance with 29 CFR 1910.120 is presented in Section HS9.0. Details concerning accident reporting and recordkeeping procedures are provided in Section HS10.0. Section HS11.0 presents the medical monitoring program. A list of references used in the preparation of this plan is included in Section HS12.0.

HS2.0 INTRODUCTION

The purpose of the Naval Installation Restoration Program (NIRP) is to investigate and remediate uncontrolled hazardous waste disposal sites located on Naval activities and related areas. It is designed to identify contamination resulting from past operations which may present a threat to human health or the environment and to institute remedial action as needed. The program consists of the following phases:

- o Preliminary Assessment (PA);
- o Site Inspection (SI);
- o Additional Sampling;
- o Remedial Investigation (RI);
- o Feasibility Study (FS); and
- o Remedial Action.

The sampling and analytical activities delineated in the Work Plan correspond to the Remedial Investigation phase of the NIRP program. A total of nine sites have been identified for sampling and analyses. Six sites were identified in the Initial Assessment Study (August 1986) for the MCRD activity and three other sites were subsequently identified by activity personnel. Site descriptions and a summary of planned field activities are listed in Table HS2-1.

TABLE HS2-1.
SITE DESCRIPTIONS AND SUMMARY OF PLANNED ACTIVITIES

<u>Site</u>	<u>Description</u>	<u>Wastes Potentially Identified or Expected</u>	<u>Summary of Planned Field Activities</u>
1-Incinerator Land-fill	Solid waste and residue, hazardous waste residue, incinerator ash	Solvents, fuels, ash, heavy metals, PCBs, PCP	Installation and sampling of monitor wells and wellpoints, sediment samples
2-Borrow Pit Land-fill	Solid waste, hazardous waste	Solvents, heavy metals, PCBs	Installation and sampling of monitor wells, surface water and sediment sample
3-Causeway Land-fill	Solid waste, hazardous waste	Solvents, heavy metals, PCB	Surface water and soil/sediment samples
4-Dredge Spoils Area Fire Training Pit	Fire fighter training	Oil, fuel, solvents	Installation and sampling of monitor wells, soil samples
6-Former Automotive Hobby Shop Spill Area	Waste Oil Spills	Oil, possibly solvents	Installation and sampling of monitor wells, soil samples
16-Pesticide Rin-sate Disposal Area	Rinsing of pesticide spray containers	Pesticides	Soil samples
17,18-Page Field AVGAS Tanks	Fuel storage tanks	Fuel	Installation and sampling of monitor wells, VZV Probe [®] survey
19-MCX Service Station	Closed gas station	Fuel, oil	Sample existing monitor wells, VZV Probe [®] survey

HS3.0 IDENTIFICATION OF SUSPECTED HAZARDS

In this section, the potential hazards at the MCRD Parris Island site are identified, and the safety procedures are described.

HS3.1 Hazards

There are two types of hazards that the field personnel may be exposed to during the fieldwork at MCRD Parris Island: chemical and safety. The potential chemical hazards at each site are presented in Table HS3-1, along with the human exposure pathway(s) possible during the site investigation activities. Safety hazards include items such as drilling into buried utilities, boom contact with an electric line or physical injury due to rig operation.

HS3.2 Site Specific Procedures

The potential hazards identified will be addressed by the following procedures.

HS3.2.1 Chemical Hazards. At sites where inhalation of volatile organics is a potential problem, breathing space will be monitored (see Section HS7.1). In the event that the organic vapors in the worker breathing space exceed 10 ppm, either the field activities will be discontinued until the level drops or respirators will be used. If dust is a problem, a dust mask or respirator with dust filters will be used. All field personnel will use disposable gloves when handling samples from any of the MCAS Beaufort sites.

HS3.2.2 Other Hazards. Prior to any drilling with the rig or probing with the Vadose Zone Vapor Probe/Cone Penetrometer, potential locations will be staked and flagged or marked with spray paint, and the activity personnel will be notified so that they can check the location for buried utilities and ultimately approve the locations selected. The Field Supervisor will be present during the boring location approval. Borehole locations in questionable areas will be moved.

Before the boom on the rig is raised at any location, the driller will check for overhead utilities or building overhangs. The boom will be lowered every time the rig is moved.

HS3.3 General Procedures

HS3.3.1 Personnel Precautions

- o Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-to-mouth transfer and ingestion of material is prohibited in any area designated as potentially contaminated.
- o Hands and face must be thoroughly washed upon leaving the work area and before eating, drinking, or any other nonwork activities.
- o When decontamination procedures for outer garments are in effect, the entire body should be thoroughly washed as soon as possible after the protective garment is removed.
- o No facial hair which might interfere with a satisfactory fit of the mask-to-face seal is allowed on personnel required to wear respirators.
- o Contact with contaminated or suspected contaminated surfaces should be avoided.

HS3.3.2 On-Site Regulations

- o Personnel will not be allowed onsite until adequately trained and thoroughly briefed on anticipated hazards, equipment to be worn, safety practices to be followed, emergency procedures, and communications.
- o Any required respiratory protective devices and clothing must be worn by all personnel going into areas designated for wearing protective equipment.
- o Personnel will practice unfamiliar operations prior to implementing the actual procedure.
- o Personnel must use the buddy system when wearing respiratory protective equipment.
- o During continual operations, on-site workers act as safety backup to each other; off-site personnel provide emergency assistance.
- o Communications capability must be maintained between team members at all times while on the work site.
- o Visual contact must be maintained between pairs onsite.
- o Entrance and exit locations will be designated and emergency escape routes delineated. Warning signals for evacuation will be established.
- o Ambient air will be monitored at regular intervals for total vapor readings.
- o Wind indicators visible to all personnel will be located at each site.

TABLE HS3-1

POTENTIAL CHEMICAL/RADIOLOGICAL HAZARDS PRESENT AND
MAJOR EXPOSURE PATHWAY

<u>Site</u>	<u>Potential Hazard</u>	<u>Exposure Pathway</u>
1-Incinerator Landfill	Solvents, fuels, heavy metals, PCBs,PCP	Skin contact, inhalation ingestion
2-Borrow Pit Land- fill	Solvents, heavy metals, PCBs	Skin contact, inhalation, ingestion
3-Causeway Land- fill	Solvents, heavy metals, PCBs	Skin contact, inhalation, ingestion
4-Dredge Spoils Area Fire Training Pit	Oil Fuel Solvents	Inhalation, skin contact
6-Former Automo- tive Hobby Shop Spill Area	Oil, possibly solvents	Inhalation, skin contact
16-Pesticide Rinsate Disposal Area	Pesticides	Skin contact, ingestion
17,18-Page Field AVGAS Tanks	Fuel	Inhalation, skin contact
19-MCX Service Station	Fuel Oil	Inhalation, skin contact

HS4.0 SITE CONTROL

To minimize the possibility of exposure or translocation of hazardous substances due to site activities, a number of contamination control procedures will be implemented and maintained by the Site Safety Officer. Planned procedures for MCRD Parris Island are described in the following subsections:

HS4.1 Security and Physical Barriers

Stakes and flagging will be used as needed to cordon off work areas and prevent unprotected and unauthorized personnel from contacting contaminated materials or moving machinery. At sites where drilling is performed, an area around the drilling rig will be cordoned off at each boring or monitoring well location. At sites where shallow soil sampling or sediment sampling is performed, areas will also be cordoned off to provide a secure work zone for handling samples and decontaminating equipment. Work areas designated at each site are listed on Table HS4-1.

HS4.2 Personnel and Equipment Minimization

The number of personnel and equipment within designated work areas will be consistent with effective operations. Typically, personnel will be limited to a driller, driller's helper, field supervisor, and technician.

HS4.3 Decontamination Procedures

Prior to leaving the Work Zone, downhole drilling and sampling equipment will be decontaminated with a trisodium phosphate wash solution and potable water rinse. If necessary, boots and vehicle tires will be washed down to prevent tracking of contaminated soils to other locations. Nondisposable protective equipment will be decontaminated and reused. Disposable personal protective equipment will be sealed in plastic bags for proper handling and disposal. Drilling fluids, wash fluids and soil cuttings will be sealed in 55-gallon drums and transported to a secure on-site location for storage. Once all decontamination procedures are completed, the cordon will be removed.

TABLE HS4-1

DESIGNATED WORK ZONES

<u>Site</u>	<u>Field Activity</u>	<u>Work Zone</u>
1, 2, 4, 6, 17, 18	Well installation, boring	10-ft area around rig and machinery.
1	Wellpoint installation	10-ft area around rig and machinery.
All locations	Sampling	10-ft radius around sampling location.
17, 18, 19	VZV Probe® Survey	5-ft radius around sampling location.

HS5.0 OPERATING PROCEDURES AND FIRST AID

HS5.1 Inspection

All equipment will be inspected before, during, and after use. All deficiencies will be corrected. All deficiencies and remedial action will be recorded in the site log.

HS5.2 Testing of Equipment

All equipment will be tested prior to and after use. All batteries will be maintained in a proper operational condition with replacements readily available. All calibrations of instruments will be done by the Site Safety Officer where applicable and recorded in the site log.

HS5.3 Water Supply

A water truck will be used for drilling purposes. Sanitary water for drinking and cleaning purposes will be stored in several large insulated coolers. If temperatures exceed 75°F, all drinking water will be cooled. At least one portable pressurized eyewash station will be located near the drilling rig at all times.

HS5.4 Fire Control

The chemicals that may be involved in a fire are Class B liquids. Therefore, at each worksite, there will be at least two 20A80BC dry chemical fire extinguishers. Sources of ignition will be minimized while onsite. Smoking will be allowed only in clean areas (away from the sites and following decontamination). If a fire starts, the fire department will be notified at 525-3333.

HS5.5 Emergency Communication

The emergency telephone numbers which will be posted in the field vehicles are listed below.

Base Police	525-3444
Fire	525-3333

HS5.6.4 Eye Contact. Wash eyes with abundant amounts of clean water by holding eye open and flooding with water so that all surfaces are washed thoroughly. Continue washing for a least 15 minutes. Victim will receive immediate professional medical attention.

HS5.6.5 Cuts and Abrasions. Wash injured area with sterile water. Apply sterile dressings over wound. Secure with adhesive tape. Professional medical attention will be requested as needed.

HS5.6.6 Heat Overexposure. There are three different types of heat, overexposure or heat stress: heat cramps, heat exhaustion, and heat stroke.

Heat cramps involve muscular pains and spasms due to loss of salt from sweat, or inadequate intake of salts relative to needed intake amounts. Legs and arms are most likely affected. First aid treatment includes gentle massage of cramped tissue, and intake of salty water to re-establish salt balance.

Heat exhaustion is characterized by fatigue, weakness, and collapse due to inadequate water intake relative to sweating. Symptoms include approximately normal body temperature, pale, clammy skin, and profuse perspiration. First aid treatment includes cooling victim in shade and administering cool, salty fluids (e.g., Gatorade®), and rest.

Heat stroke is characterized by extremely hot inner body core (greater than 106°F) and the disturbance of the sweating mechanism for the body. HEAT STROKE IS AN IMMEDIATE AND LIFE THREATENING SITUATION. MEDICAL CARE IS IMMEDIATELY NEEDED.

Symptoms of heat stroke include high body temperature, red, hot and dry skin, rapid and strong pulse, possible unconsciousness. First aid treatment requires rapid and direct methods to cool the body. Cool the body with cool water, fans, air conditioner. Professional medical attention is needed immediately.

HS5.7 Evacuation

In the event that site activities require evacuation, the Site Safety Officer will direct the immediate evacuation of the site. Evacuation may be required for fire, security purposes, personnel injury, excessive organic vapor or radiation levels, or lightning hazards. Evacuation will include the following procedures:

- a. From observation of the designated wind indicator, movement of smoke, or any other available means, determine the wind direction.
- b. Proceed upwind for a sufficient distance to be out of range of the effect of the incident.
- c. Remain upwind of the incident and assemble at a point established by the Site Safety Officer. Await further direction by the Site Safety Officer.

HS6.0 PERSONNEL PROTECTION EQUIPMENT

The work at MCRD Parris Island will be conducted in personnel protective equipment Level D. This includes:

- o hard hat;
- o leather steel-toed, high top boots;
- o long sleeved shirt;
- o goggles or safety glasses; and
- o rubber gloves.

If contaminated soil, water, or waste comes in contact with the hands or other skin, the area will be thoroughly washed with soap, such as Liquinox or Alquinox and water.

If elevated organic vapor levels (exceeding 10 ppm) are measured, or dust appears to be a problem, personnel protective equipment will be upgraded to Level C. This includes the addition of:

- o Tyvek disposable coveralls;
- o disposable rubber gloves and boots; and
- o full-face respirator with cartridges for organics vapors, acid gases, dusts, mists, and fumes.

Potable water will be available for washing and decontamination.

HS7.0 DESCRIPTION OF MONITORINGHS7.1 Volatile Organics

Concentrations of volatile organic compounds in the personnel breathing space will be monitored with either a Foxboro Organic Vapor Analyzer (OVA) or an A.I.D. Volatile Organic Meter (OVM). In the event that organics in the breathing space exceed 10 ppm above background level, drilling will either stop to allow dilution of the gases, or field activities will be upgraded to Level C. Work will continue in Class C protective equipment until the breathing zone levels drop below 10 ppm.

Although the chance of volatile organics reaching explosive levels in the open air is unlikely, the rig will be positioned upwind of the borehole, and the area near the borehole periodically monitored with an explosimeter.

HS7.2 Heat Stress

If outside temperature exceeds 70°F, heat stress will be self monitored using the "Bouha guideline" which is a method of measuring the effectiveness of the employee's rest-recovery regime by monitoring the heart rate. The Bouha guideline is described below:

- o Beginning with the first minute following the end of the work period, count the pulse rate for the last 30 seconds of the first minute of a three-minute period, the last 30 seconds of the second minute, and the last 30 seconds of the third minute.
- o Double each count to get beats/minute. If the recovery pulse rate during the last 30 seconds of the first minute is at 110 beats/minute or less and the deacceleration between the first, second and third minutes is at least 10 beats/minute, then the work-recovery regime is acceptable. If a worker's rate is above that specified, a longer rest period will be required accompanied by an increased intake of fluids.

Field workers are trained to monitor their own pulse. A rest area protected from direct sunlight will be provided. Workers will also be instructed to consume liquids before the work day begins (prehydration), during rest periods (rehydration), and after work ceases for the day (rehydration).

All workers will be instructed to refrain from the use of alcohol and other diuretics from the time they leave Houston until they return, and to get an adequate amount of sleep.

HS8.0 ORGANIZATION OF HEALTH AND SAFETY ACTIVITIES

The McClelland personnel involved in the successful completion of this project at MCRD Parris Island, and their role of involvement are indicated below:

Project Manager:	Susan Litherland
Project Supervisor:	Harry Day, Jr.
Corporate Health & Safety:	Henry Smahlik
Site Safety Officer:	John Byars
Driller:	Woody Lunsford

Mr. Henry Smahlik, a Certified Industrial Hygienist and Certified Safety Professional, will oversee all aspects of the Health and Safety Program and will serve as the Corporate Health and Safety Manager for the MCAS Beaufort work. He is in charge of McClelland Engineers' medical surveillance program and will provide the site specific safety training for the NIRP work.

It will be his responsibility to complete the Personnel Protection and Safety Plan Check List (Table HS8-1) prior to the initiation of field activities and to keep the list up-to-date.

Responsibility for the on-site safety activities will be divided between the Site Safety Officer and the Driller. The Driller will be responsible for addressing "nonchemical" hazards such as general rig operation and approval of boring locations. The Site Safety Officer will be responsible for all monitoring activities, emergency procedures, decontamination and record keeping. He will conduct initial site safety meetings, identify unsafe conditions, practices or procedures, prepare reports pertaining to incidents resulting in physical injury or exposure to hazardous materials, disseminate information from the Corporate Health and Safety Manager to on-site personnel, and oversee safety related activities at each site. The Site Safety Officer has the authority to stop work at the site for a health and safety violation or when an unanticipated hazard is encountered which requires significant revision to the Health and Safety Plan.

All field personnel are responsible for complying with the Health and Safety Plan and reporting to the Site Safety Officer all facts pertaining to incidents which result in physical injury or exposure to hazardous materials.

All personnel are further directed to bring to the attention of the most readily accessible supervisor any unsafe condition, practice, or circumstance associated with the site investigation. In such circumstances, the Site Safety Officer will take the necessary corrective measures to ensure that investigation can be completed safely.

TABLE HS8-1
PERSONNEL PROTECTION AND SAFETY PLAN CHECKLIST

PROJECT _____ PROJECT MANAGER _____

SITE LOCATION _____ HEALTH AND SAFETY MANAGER _____

SITE SAFETY PLAN BY _____ DATE _____

<u>INDIVIDUALS CLEARED FOR SITE WORK</u>	<u>TRAINING DATE</u>	<u>MEDICAL DATE</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

	<u>BY</u>	<u>APPROVED</u>	<u>DATE</u>
SITE CONTROL ZONES	_____	_____	_____
DECONTAMINATION LINE	_____	_____	_____
DECONTAMINATION PROCEDURE	_____	_____	_____

PREPARED BY _____ DATE _____

HS9.0 TRAINING PLAN

McClelland Engineers has an in-house training program that is required of all waste management personnel. The topics covered in the program are listed in Table HS9-1. Sessions are conducted periodically throughout the year.

In addition, prior to conducting any fieldwork at a potentially contaminated site, a site-specific safety plan is prepared along with the work plan. Copies of both the work and safety plans are issued to the field personnel and are used during site-specific training. All field personnel must satisfactorily complete the training prior to conducting work.

The above procedure has been used for NACIP work and will continue to be used for the NIRP work. Prior to departure to Parris Island, South Carolina, personnel training will be conducted by the Project Supervisor and the Corporate Health and Safety Officer. Items to be covered will include:

- o site history;
- o planned field activities;
- o chemicals known (or expected) to be present at the site;
- o the hazards that the chemicals pose to humans;
- o other hazards at the site;
- o how the workers will be protected;
- o monitoring and operating procedures;
- o personal protective equipment, use, and maintenance;
- o decontamination procedures;
- o emergency procedures; and
- o overall site operation.

A list of personnel completing the training and the training date(s) will be included in the final report.

After arrival at the site, the Site Safety Officer will review the safety items emphasizing:

- o identification of local authorities to contact in case of an emergency;
- o identification and delineation of work areas;
- o review of decontamination procedures; and
- o review of emergency procedures.

TABLE HS9-1

BASIC HAZARDOUS MATERIALS
HEALTH AND SAFETY TRAINING COURSE

I. LECTURE (Classroom - Total 20 hours)

Module 1: Hazard Recognition

- A. Hazard Recognition, Evaluation, and Control
- B. Toxicology
- C. Exposure Guidelines
- D. Sources of Information and Assistance

Module 2: Site Operations

- A. Field Monitoring Instruments
- B. Standard Operating Safety and Health Guidelines
- C. Site Entry and Control
- D. Respirator Fit Testing

Module 3: Personal Protection

- A. Levels of Protection
- B. Personnel Protection Clothing Selection and Use
- C. Personal Respiratory Protection Devices

Module 4: Site Emergency

- A. Medical Monitoring
- B. Heat Stress
- C. CPR and First Aid

II. FIELD EXERCISES (Total 20 hours)

Module 5: Site Entry and Control

Module 6: Level C Dressout and Exercises

- A. Personal Respiratory Protection Devices
- B. Decontamination
- C. Drilling and Sampling Field Exercises

Module 7: Level B Dressout and Exercises

- A. Personal Respiratory Protection Devices
- B. Decontamination
- C. Drilling and Sampling Field Exercises

Module 8: Level A Dressout and Exercises

- A. Personal Respiratory Protection Devices
- B. Decontamination
- C. Drilling and Sampling Field Exercises

III. REFRESHER COURSES (one per year)

Module 9: Refresher Courses

IV. SPECIALIZED AREAS

Module 10:

- A. H₂S
- B. Natural Gases
- C. Laboratory - Hazardous Materials
- D. Asbestos

HS10.0 ACCIDENT REPORTING AND RECORD KEEPING PROCEDURES

HS10.1 Incident Reports

In the event of any accident, injury, or incident that could have health repercussions (such as exposure to a potential carcinogen which is not acutely toxic), supervisory personnel shall complete an incident report (see Table HS10-1). The complete form shall be sent to the Corporate Health and Safety Manager within 48 hours of the incident. The Health and Safety Manager is required to follow up on treatment and recovery of the individual and report to the Project Manager. A copy of all incident reports will be included in the site log.

HS10.2 Penalties

When established safety rules and work practices are violated, appropriate penalties will be imposed. A report of the incident will be filed with the Corporate Health and Safety Manager by the Site Safety Officer. An investigation of the incident will then be carried out by the Project Manager, if necessary, and the responsible supervisor to determine the degree of the safety infraction.

Examples to types of infractions include, but are not limited to, the following:

- (1) Causing injury to self and/or others;
- (2) Misuse of vehicles and failure to adhere to the applicable state vehicle code;
- (3) Failure to heed posted caution and warning signs;
- (4) Failure to report accidents or unsafe conditions; and
- (5) Any other action deemed detrimental to the health and well-being of on-site personnel.

Table HS10-2 presents guidelines for disciplinary actions that shall apply to employees involved in all safety and health infractions.

TABLE HS10-1
SAFETY AND HEALTH INCIDENT REPORT

NAME _____

PROJECT _____ HEALTH AND SAFETY MANAGER _____

SITE LOCATION _____ PROJECT _____

DATE _____

INCIDENT SUMMARY _____

TIME OF INCIDENT _____

EXPOSED _____

EXPOSED TO _____

EXPOSURE TIME _____

ACTIONS:

FIRST AID ADMINISTERED _____

DOCTOR EXAMINATION _____

WORK STATUS _____

SIGNED _____

DATE _____

TABLE HS10-2
GUIDELINES FOR DISCIPLINARY ACTIONS

MINOR

MAJOR

FIRST OFFENSE

Verbal warning to be noted in Supervisor's file.

FIRST OFFENSE

Written reprimand to be entered in employee's personnel file and one or more days off without pay.

SECOND OFFENSE

Verbal warning with written reprimand to be entered in employee's personnel file.

SECOND OFFENSE

Written documentation and
(1) appropriate suspension or
(2) possibility of recommendations for termination.

THIRD OFFENSE

One or more days off without pay and an entry in employees personnel

HS11.1 MEDICAL MONITORING PROGRAM

All personnel participating in the MCAS, Beaufort, South Carolina remedial investigation field activities will be included in McClelland Engineers' Medical Monitoring Program. The purpose of this program is to medically monitor the health status of each employee involved in work at a site where toxic and/or hazardous substances may be encountered. It involves a series of health examinations conducted by qualified licensed physicians who monitor the physical fitness of each employee. The series of tests are listed in Table HS11-1 and include a baseline (preemployment) physical examination and periodic (every six months) surveillance examinations. The baseline physical exam provides a history of previous exposure and general health status, and serves as the standard for comparative purposes. The periodic surveillance examinations are designed to identify any deterioration in the worker's health that might be job-related. Additional details concerning the examination are shown in Table HS11-2. The periodic exam can be administered at times other than the standard six-month interval on request of the employee, the corporate safety officer, or the project manager, if a potential exposure has occurred. Special tests may be included in periodic examinations based on injury, illness, or suspected exposure to particular chemicals.

Although no tests in addition to those shown on Table 1 are anticipated for the planned MCAS, Beaufort site work, additional tests may be included at the discretion of the industrial physician if specific site conditions warrant them.

Medical records for each employee involved with waste site investigations are maintained and updated by McClelland Engineers' personnel department, and retained as confidential for a period of thirty (30) years past employment.

TABLE HS11-1

TYPES OF PREEMPLOYMENT & PERIODIC MEDICAL EXAMINATIONS
FOR HAZARDOUS MATERIALS PERSONNEL

Hazardous Materials Preemployment
Medical Examination

History and Physical
EKG (resting)
Urinalysis (Dipstick)
Drug Screen (Urine)
SMAC-20
CBC
Methemoglobin
Serum Cholinesterase (Pseudo or RBC)

Whole Blood Lead
Serum PCB (Qualitative)
Eye Exam (Titmus)
Pulmonary Function Test
Chest X-ray (PA only)
Hearing Test (250HZ - 80000HZ)
Back X-rays (4 views)

Hazardous Materials Periodic
Medical Examination

History and Physical
EKG (resting)
Urinalysis (Dipstick)
Drug Screen (Urine)
SMAC-20
CBC
Methemoglobin
Serum Cholinesterase (Pseudo
or RBC)

Whole Blood Lead
Serum PCB (Qualitative)(only
if exposure is suspected)
Pulmonary Function Test
Chest X-ray (PA annually
only)

TABLE HS11-2

MEDICAL EXAMINATION OUTLINE DESCRIPTIONS

- o Medical Health History (self-administered - physician reviewed) - A record is made of past health history, hazardous occupational chemical exposures, personal profile, acute infectious disease, current medications, allergies, immunization history, a review of systems (skin, head, eyes, ears, nose, teeth, throat, neck, breast, lungs, heart, G.I., and bones and joints), emotions, and family history.
- o Vital Signs and Physical Examinations Screen - A record is made of body frame, height, weight, blood pressure (supine and standing), pulse rate (supine and standing), respiratory rate, and oral temperature. A complete assessment is made of skin, extremities, head/neck, EENT (eye, ear, nose, throat). The musculoskeletal, and neurological systems are evaluated. If any abnormalities are noted, completed comments are provided.
- o EKG - resting is standard. A Maximal Stress Treadmill Exercise Test with 12 Point Lead EKG may be requested if physician deems it necessary. The individual's overall physical work capacity should be assessed.
- o Pulmonary Functions - Tests include FVC, FEV3, FEV1, and Residual Volume for detection of restrictive and obstructive lung diseases and chronic disorders, such as emphysema, bronchitis, and pericarditis.
- o Chest X-ray (P-A View and annually only) - Posterior/anterior (P/A) are performed during the baseline examination and repeated every year, or as recommended by the physician. A lateral chest x-ray is only recommended if the monitoring physician deems it necessary
- o Audiometry (250-8000 Hz) - Only on Preemployment Physical
- o Vision Screening (using a battery, Titmus, instrument) - Only on Preemployment Physical. The patient's ability to see test targets well at 13-16 in. and at 20 ft are assessed. Tests include an assessment of muscle balance, eye coordination, depth perception, peripheral vision, color discrimination, and tonometry.
- o Drug Screening - Urine test using "chain of custody" include tests for the following: Amphetamines, Barbituates, Cocaine, Propoxyphene (Darvon), Opiates, Phencyclidine, Benzodiazepines and Cannabinoids. Urine tests for alcohol are optional.
- o Back X-rays - (only on Preemployment Physical) Include the following: PA, Lateral, Right and Left Obliques, and a cone view of L/S joint, if necessary.

- o Hematology Survey - This includes an assessment of hemoglobin, hematocrit, red cell count, white cell count, methemoglobin, Serum cholinesterase, Serum PCB (Serum PCB is required during Preemployment Physical but only in Periodic Physical when exposure is suspected), and microscopic review. This survey is used to screen for blood disorder, such as anemia, polycythemia, and leukemia.
- o Urinalysis - This includes a chemical analysis for albumin, glucose, bilirubin, ketones, and occult blood; measurement pH, specific gravity, color and character; and microscopic review.
- o Heavy Metal Screen - This includes an analysis of blood for the presence and quantity of lead. (Cadmium, mercury, strontium, and arsenic should be assessed through the urine sample only when exposure is suspected.)
- o Blood Chemistry Screen - This includes an analysis of blood for the following:

sodium	total bilirubin	alkaline phosphatase
chloride	potassium	SGOT
iron	uric acid	SGPT
phosphorous	creatinine	carbon dioxide
glucose	albumin	blood urea nitrogen
total protein	cholesterol	triglycerides

HA12.0 REFERENCES

Dames and Moore, 1986, Initial Assessment Study of Marine Corps Reruit Depot, Parris Island, South Carolina, UIC: M00263. Prepared for Environmental Restoration department, Naval Energy and Environmental Support Activity, Port Hueneme, California. Contact No. N62474-84-C-3385.

Kearney, A.T., Inc., RCRA Facility Assessment Report, Contract No. 68-01-7038, Work Assignment No. R04-01-83.

NIOSH, "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities," prepared by NIOSH, OSHA, USCG, and EPA, October 1985.

Voytek, John E., Jr., "Safety at Hazardous Materials Sites: an Intensive, Two-part, Hands-on Workshop," short course held at Ohio State University, Columbus, Ohio, May 13-17, 1985.