

Baker

Baker Environmental, Inc.
 Airport Office Park, Building 3
 420 Rouser Road
 Coraopolis, Pennsylvania 15108

April 24, 1995

(412) 269-6000
 FAX (412) 269-2002

Commander
 Atlantic Division
 Naval Facilities Engineering Command
 1510 Gilbert Street (Building N-26)
 Norfolk, Virginia 23511-2699

Attn: Ms. Linda Saksvig, P.E.
 Code 1823

Re: Contract N62470-89-D-4814
 Navy CLEAN, District III
 Contract Task Order (CTO) 0259
 RAC Design for Operable Unit No. 1 - Soils
 MCB, Camp Lejeune, North Carolina
 Comments on OHM's Remedial Action Work Plan,
 Construction QA/QC Plan, and Site Health and Safety Plan

Dear Ms. Saksvig:

Baker Environmental, Inc. (Baker) has reviewed the above-referenced OHM submittal for Operable Unit No. 1 - Soils at Marine Corps Base, Camp Lejeune. Based on the review, Baker has prepared comments/revisions; none of which will affect the scope of the remedial action. Attachment A provides Baker's comments on the Work Plan and Construction QA/QC Plan. In addition, several marked-up pages from the Site Health and Safety Plan are attached.

If you have any questions regarding this submittal, please contact me at (412) 269-2023 or Mr. Matt Bartman (Activity Coordinator) at (412) 269-2053.

Sincerely,

BAKER ENVIRONMENTAL, INC.



Tammi Halapin
 Project Manager

TAH/lq

Attachments

cc: Ms. Lee Anne Rapp, Code 183 (w/o attachment)
 Ms. Beth Collier, Code 02115 (w/o attachment)



A Total Quality Corporation

ATTACHMENT A

Comments on the Remedial Action Work Plan Operable Unit No. 1 MCB, Camp Lejeune

Section 1.0

The site history for Site 78, AOC 4, is lacking. There are no specifics about Building 1502 including its historical use.

Section 2.0

1. The remediation goals were provided by Baker in Section 04130 of the Guideline Technical Specifications, not in the Basis of Design Report (as stated in the Work Plan).
2. Table 2.2. The excavation quantity estimation for AOC 4 is incorrect. The area of excavation should be 130 square feet and the volume estimate should be 5 cubic yards.

Comments on the Construction QA/QC Plan Operable Unit No. 1 MCB, Camp Lejeune

Sections 4.0 and 5.0

These two sections reference the Sampling and Analysis Plan (SAP) which tends to indicate that the SAP is a separate document. The text should indicate that the Field Sampling Plan is presented in Section 7.0 of the Remedial Action Work Plan.

Comments on the Site Health and Safety Plan Operable Unit No. 1 MCB, Camp Lejeune

See the set of marked-up pages attached for comments and revisions.



**OHM Remediation
Services Corp.**

**SITE-SPECIFIC HEALTH AND SAFETY PLAN
FOR
SOIL REMEDIATION
OPERABLE UNIT NO. 1
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA**

Prepared for:

DEPARTMENT OF THE NAVY
Contract No. N62470-93-D-3032
Delivery Order 0062

Prepared by

OHM Remediation Services Corp.
Norcross, Georgia

George E. Krauter, P.E.
Program Manager

James Dunn, P.E.
Project Manager

J. Angelo Liberatore, CIH
Southern Region Health and Safety Director

March 1995

OHM Project No. 16866

TABLE OF CONTENTS - CONTINUED

APPENDICES

- Appendix A Health and Safety Certification
- Appendix B OSM Hazard Communication Program
- Appendix C Site Material Safety Data Sheets
- Appendix D Health and Safety Forms

← ADD
Appendix E



Site 21 is located within the northwest section of Site 78. The site is bordered by Ash Street to the southwest, Center Road to the southeast, and a wooded area to the northwest. A dirt road surrounds most of the site along with surface drainage ditches. The southern and central portions of the site (approximately 220 feet by 900 feet) include several fenced-in areas, while the northern section (approximately 500 feet long) is an open area. A water tower is located in the fenced portion of the site. Surface cover within the site consists of gravel, sandy soil, and concrete with a few vegetated areas. The southern portion of the site is periodically utilized for storage by Marine Corps reserve units. Currently this portion of the site is being used for storage of military vehicles.

Three primary AOCs were identified at Site 21. They are the Former PCB Transformer Disposal Area (AOC 1) and the Former Pesticide Mixing/Disposal Area (AOCs 2 and 3). Figure 1 shows the location of these three AOCs. The Former Transformer PCB Disposal Area is located in the northeastern portion of the site, and the Former Pesticide Mixing/Disposal Area is located in the southwestern portion of the site. With the exception of a small, slightly depressed area at the northern portion of the site, which may have been the former transformer oil disposal pit, there are no visual signs of waste disposal throughout the site. The contaminants of concern (COCs) at AOC 1 and AOC 2 are PCBs. The COCs at AOC 3 are pesticides, including 4,4'-DDD, 4,4'-DDT, and chlordane.

Site 78 encompasses the industrial area of MCB, Camp Lejeune and is bordered by Holcomb Boulevard, Sneads Ferry Road, Duncan Street, and Main Service Road. This area is comprised of maintenance shops, warehouses, painting shops, printing shops, automobile body shops, and other similar industrial facilities. Site 78 covers approximately 590 acres. With the exception of buildings, the majority of the site area is paved (e.g., roadways, parking lots, loading dock areas, and storage lots), however, there are many small lawn areas associated with individual buildings within the site and along lengthy stretches of roadways. In addition, there are several acres of woods in the southern portion of the site. Recreational ball fields and a parade ground are located in the southwest corner of the site.

One soil AOC has been identified within Site 78, a grassed area on the northeast side of Building 1502 (AOC 4).

1.2 SITE HISTORY

Site 21 has had a history of pesticide usage and reported transformer oil disposal. The site was used as a pesticide mixing area and as a cleaning area for pesticide application equipment from 1958 to 1977. This area, the Former Pesticide Mixing/Disposal Area, was reported to be located in the southeast corner of the lot (the exact location is not documented). Chemicals reportedly stored and handled at this site included diazinon, chlordane, lindane, DDT, malathion (46 percent solution), mirex, 2,4-D, silvex, dalapon and dursban. Small spills,

↑ what are the COCs for site 78 and what happened to site 21 -

3.0 JOB HAZARD ANALYSIS

This section outlines the potential chemical and physical hazards which workers may be exposed to during work on this project. Table 3.1 lists significant contaminants identified at the site and their respective published occupational exposure limits. The OSHA permissible exposure limits (PELs) and the ACGIH threshold limit values (TLVs) were reviewed for these contaminants, evaluated, and the more stringent value of the two selected as exposure guidelines. An MSDS list is included in Appendix C.

According to 29CFR 1910.1000 (Table Z-1), the PEL for DDT is 1 mg/m³

3.1 CHEMICAL HAZARDS

"skin" notation
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"skin" notation

Chemical Hazards			
Chemical	Exposure Routes	PEL/TLV	Symptoms of Overexposure
Chlordane	Inhalation; ingestion; dermal contact/absorption	0.5 mg/m ³	Tremors, excitement, loss of muscle control; gastritis; convulsions; and anorexia; liver and kidney damage
Chlorinated pesticides (DDT, DDE)	Inhalation, ingestion, dermal contact	0.05 mg/m ³ * (DDT)	Tremor, dizziness, confusion; headache, fatigue; convulsions; liver and kidney damage
PCBs (Arochlor 1254)	Inhalation, ingestion, dermal contact and absorption	0.5 mg/m ³	Irritation to the eyes; chlor acne; Dermatitis; Liver damage; Cancer

*In this instance, the OSHA PEL was selected as the more stringent guideline for exposure.

Chlorinated pesticides (DDT, DDD, DDE), chlordane and polychlorinated byphenyls (PCBs) have been identified in soils at Sites 21 and 78. Soil concentrations of these contaminants were generally in ppb concentrations. The maximum soil concentration for specific contaminants were as follows:

- DDE at 36 ppm
- DDT at 16 ppm
- Chlordane at 2.2 ppm
- PCBs at 4.8 ppm

Considering the low concentration of contaminants in soil, the potential for personnel exposure during site activities is correspondingly low. Personnel will initially wear Level C protection during excavation/load-out operations and downgrade to Modified Level D based on airborne particulate air monitoring results obtained in personnel breathing using a direct reading aerosol monitor (i.e., Miniram).

zone

Chlorinated Pesticides (DDT, DDD) were identified in soils at AOCs 3 and 4. DDT has an OSHA Permissible Exposure Limit (PEL) of 0.5 mg/m³. DDT is a poison by ingestion and is known to cause cancer in humans. It can also be absorbed through skin. Symptoms of

5.0 PROTECTIVE EQUIPMENT

This section addresses the various levels of personal protective equipment (PPE) which are or may be required at this job site. OHM personnel are trained in the use of all PPE utilized.

5.1 ANTICIPATED PROTECTION LEVELS

Task	Protection Level	Comments/Modifications
Site Preparation and Mobilization	Level D	
Multi-Media Sampling	Modified Level D/ Level C with tyvek	
Access Clearance, Utility Verification, Site Survey	Modified Level D/C with tyvek	
Soil Excavation/Direct Loadout	Level C/Modified Level D with tyvek	Potential for downgrade to Modified Level D with adequate air monitoring documentation
Equipment Decontamination	Level C with sarans	Pressure washing requires face shield and hearing protection
Demobilization	Level D	

5.2 PROTECTION LEVEL DESCRIPTIONS

confusing!

This sections lists the minimum requirements for each protection level. Modification to these requirements will be noted above.

5.2.1 Level D

Level D consists of the following:

- Safety glasses with side shields
- Hard hat
- Steel-toed work boots
- Work clothing as prescribed by weather

5.2.2 Modified Level D

Modified Level D consists of the following:

- Safety glasses with side shields
- Hard hat
- Steel-toed work boots

6.0 DECONTAMINATION PROCEDURES

This section describes the procedures necessary to ensure that both personnel and equipment are free from contamination when they leave the work site.

6.1 PERSONNEL DECONTAMINATION

Decontamination procedures will ensure that material which workers may have contacted in the EZ does not result in personal exposure and is not spread to clean areas of the site. This sequence describes the general decontamination procedure. The specific stages will vary depending on the work area, the task, the protection level, etc.

1. Go to end of EZ
2. Wash outer boots and gloves in detergent solution
3. Rinse outer boots and gloves in water
4. Remove outer boots and let dry
5. Remove outer gloves and let dry
6. Cross into CRZ
7. Remove first pair sample gloves
8. Remove outer saran or tyvek
9. Remove and wash respirator
10. Rinse respirator and hang to dry
11. Remove second pair sample gloves and discard

6.1.1 Suspected Contamination

Any employee suspected of sustaining skin contact with chemical materials will first use the emergency shower. Following a thorough drenching, the worker will proceed to the decontamination facility. Here the worker will remove clothing, shower, don clean clothing, and immediately be taken to the first-aid station. Medical attention will be provided as determined by the degree of injury.

6.1.2 Personal Hygiene

Before any eating, smoking, or drinking, personnel will wash hands, arms, neck and face. A personnel decontamination facility will be provided for site operations consisting of showers, change rooms, and separate lockers for street clothes and work clothes. Site personnel are required to shower daily at the completion of that day's work. Also, eye wash facilities and emergency showers will be provided at personnel decontamination facilities and at the water treatment system where hazardous chemicals are handled.

what exactly is this used for?

7.0 AIR MONITORING

Air monitoring will be conducted in order to determine airborne contamination levels. This ensures that respiratory protection is adequate to protect personnel against the chemicals that are encountered. The following air monitoring efforts will be used at this site. Additional air monitoring may be conducted at the discretion of the SSO.

The following chart describes the air monitoring required and appropriate action levels.

Monitoring Device	Action Level	Action
LEL/O ₂ (work area) To be performed during soil excavation and direct loadout operations	>10% LEL <20.8% O ₂	Evacuate area, ventilate to less than 10% LEL before continuing
PID (Breathing Zone) To be performed during soil excavation and direct loadout operations	1-5 ppm for 5 min. >5 ppm for 5 min.	Level C Stop operations and allow vapors to dissipate to less than 5 ppm
Mini-Ram (Breathing Zone) To be performed during soil excavation and direct loadout operations	>2.5 mg/m ³ for 5 min. >5.0 mg/m ³ for 5 min	Level C Stop operations and institute dust control measures

7.1 LOWER EXPLOSIVE LIMIT/OXYGEN (LEL/O₂) METER

Prior to entering a confined-space area or performing hot work involving welding, cutting, or other high heat-producing operations where flammable or combustible vapors may be present, LEL/O₂ measurements will be taken.

7.2 PHOTOIONIZATION DETECTOR (PID)

A PID will be used to monitor total ionizable organic content of the ambient air. A PID will prove useful as a direct reading instrument to aid in determining if respiratory protection needs to be upgraded and to define the EZ.

For known contaminants only, to determine a protection level from PID data, the SSO will multiply the TLV of the known compound by 25. This will be the limit for Level C protection for that compound. If PID readings exceed 25 times the TLV, Level B protection will be required. Also, regardless of the TLV, a PID reading of 1,000 ppm or more will indicate that



the GMC-H cartridges may become overloaded and will necessitate Level B protection. (Note: PID readings do not always indicate the actual air concentration of a compound. Consult the manual, HNU, or the CIH for clarification.)

The SSO will take measurements before operations begin in an area to determine the amount of organic compounds naturally occurring in the air. This is referred to as a background level.

Levels of volatile organic compounds will be measured in the air at active work sites once every hour and at the support zone once every hour when levels are detected above background in the exclusion zone. If levels exceed background at any time in the support zone, work in the exclusion zone will cease and corrective actions will be taken, e.g., cover soil with polyethylene sheeting. Work will not resume until levels reach background in the support zone.

7.3 REAL-TIME AEROSOL MONITOR (MINIRAM)

A real-time aerosol monitor (miniram) will be used to measure airborne particulate in personnel breathing zones and site work area locations. A breathing zone action level has been specified that requires upgrading to Level C protection based on sustained (5-minute average) miniram results of 2.5 mg/m³. The miniram will also be used to monitor personnel breathing zone when wearing Modified Level D protection and to determine when an upgrade to Level C is warranted.

how was this action level determined?

7.4 AIR MONITORING LOG

The SSO will ensure that all air-monitoring data is logged into a monitoring notebook. Data will include all information identified in Procedure 12 of the ER Safety Procedures Manual. The Project CIH will periodically review this data

7.5 CALIBRATION REQUIREMENTS

The PID, LEL/O₂ meter and sampling pumps required with fixed-media air sampling will be calibrated daily prior to and after each use. A separate log will be kept detailing date, time, span gas, or other standard, and name of person performing the calibration.

not identified for use at this O.U.

7.6 AIR MONITORING RESULTS

Air monitoring results will be posted for personnel inspection, and will be discussed during morning safety meetings.



Table 8.1 Emergency Telephone Numbers	
<u>Local Agencies</u> All services	
Police Dept.	911 on-base (910) 451-3855 (off-base)
Fire Department	911 on-base
Ambulance	911 on-base (910) 455-9119 (off-base)
Hospital	
Onslow County Hospital	(910) 577-2240
On-Base Facilities	
USMC Hospital	(910) 451-4840
Regional Poison Control Center	800-382-9097
<u>Federal Agencies</u>	
EPA Region Branch Response Center	(404) 347-3931
National Response Center	800-424-8802
Agency for Toxic Substances and Disease Registry	(404) 639-0615 (24 HR)
<u>Navy ROICC / NTR</u>	
National Response Center	800-424-8802
Project Manager	
James Dunn	(404) 453-8072
Director, Health and Safety, Angelo Liberatore, CIH	(404) 453-7671
OHM Corporation (24 hour)	800-537-9540
Note: Additional Phone Nos's in Section 2.0 this HASP	

Routes to Hospital:

On-Base

1. Proceed north on Holcomb Boulevard and turn left onto Brewster Boulevard.
2. Base hospital is approximately 1/2 mile ahead on right.
3. Follow signs to the emergency room entrance.

Off-Base

1. Proceed north on Holcomb Boulevard and exit MCB Camp Lejeune through the main gate.
2. Follow Highway 24 West (approximately 2.5 miles) to Western Boulevard and turn right (north).
3. Continue on Western Boulevard (approximately 1.5 miles) to the fifth stoplight and the hospital is on the left side of the street.
4. Follow signs to the emergency room entrance.

A map depicting the route to the Onslow County Memorial Hospital and the Base Naval Hospital will be posted in each trailer.



- Notify the NOSC/NOSCDR if outside emergency response help is necessary to control the incident. Table 8.1 provides telephone numbers for emergency assistance. *Table 8.1 does not provide these phone nos.*
- Direct on-site personnel to control the incident until, if necessary, outside help arrives.
- Ensure that the building or area where the incident occurred and the surrounding area are evacuated and shut off possible ignition sources, if appropriate. The Emergency Response Team is responsible for directing site personnel such that they avoid the area of the incident and leave emergency control procedures unobstructed.
- If fire or explosion is involved, notify Base Fire Department.
- Notify LANTDIV ROICC
- Notify OHM Project Manager
- Have protected personnel, in appropriate PPE, on standby for rescue.

If the incident may threaten human health or the environment outside of the site, the emergency coordinator should immediately determine whether evacuation of area outside of the site may be necessary and, if so, notify the Police Department and the Office of Emergency Management.

When required (as determined by the NOSC/NOSCDR), notify the National Response Center. The following information should be provided to the National Response Center:

- Name and telephone number
- Name and address of facility
- Time and type of incident
- Name and quantity of materials involved, if known
- Extent of injuries
- Possible hazards to human health or the environment outside of the facility.

The emergency telephone number for the National Response Center is 800-424-8802.

If hazardous waste has been released or produced through control of the incident, ensure that:

- Waste is collected and contained.
- Containers of waste are removed or isolated from the immediate site of the emergency.



- Treatment or storage of the recovered waste, contaminated soil or surface water, or any other material that results from the incident or its control is provided.
- Ensure that no waste that is incompatible with released material is treated or stored in the facility until cleanup procedures are completed.
- Ensure that all emergency equipment used is decontaminated, recharged, and fit for its intended use before operations are resumed.
- Notify the USEPA Regional Administrator that cleanup procedures have been completed and that all emergency equipment is fit for its intended use before resuming operations in the affected area of the facility. The USEPA Regional Administrator's telephone number is included in the Emergency Contacts.
phone no. not on Table B.1
- Record time, date, and details of the incident, and submit a written report to the USEPA Regional Administrator. Report is due to USEPA within 15 days of the incident.
- Perform post incident evaluation and response critique and submit a written report to the Regional Health and Safety Director within 30 days of the incident conclusion.

8.4 SAFE DISTANCES AND PLACES OF REFUGE

The emergency coordinator for all activities will be the SS. No single recommendation can be made for evacuation or safe distances because of the wide variety of emergencies which could occur. Safe distances can only be determined at the time of an emergency based on a combination of site and incident-specific criteria. However, the following measures are established to serve as general guidelines.

In the event of minor hazardous materials releases (small spills of low toxicity), workers in the affected area will report initially to the contamination reduction zone. Small spills or leaks (generally less than 55 gallons) will require initial evacuation of at least 50 feet in all directions to allow for cleanup and to prevent exposure. After initial assessment of the extent of the release and potential hazards, the emergency coordinator or his designee will determine the specific boundaries for evacuation. Appropriate steps such as caution tape, rope, traffic cones, barricades, or personal monitors will be used to secure the boundaries.

In the event of a major hazardous material release (large spills of high toxicity/greater than 55 gallons), workers will be evacuated from the building/site. Workers will assemble at the entrance to the site for a head count by their foremen and to await further instruction.



- Place all small quantities of recovered liquid wastes (55 gallons or less) and contaminated soil into drums for incineration or removal to an approved disposal site.
- Spray the spill area with foam, if available, if volatile emissions may occur.
- Apply appropriate spill control media (e.g. clay, sand, lime, etc.) to absorb discharged liquids.
- For large spills, establish diking around leading edge of spill using booms, sand, clay or other appropriate material. If possible, use diaphragm pump to transfer discharged liquid to drums or holding tank.

8.6.3 Emergency Response Equipment

The following equipment will be staged in the support zone and throughout the site, as needed, to provide for safety and first aid during emergency responses:

- ABC-type fire extinguisher ← what size?
- First-aid kit, industrial size
- Eyewash/safety shower (This equipment will be in conformance with ANSI Z358.1-1990.)
- Emergency oxygen unit
- Emergency signal horn
- Self contained breathing apparatus (two)
- Stretcher/backboard

In addition to the equipment listed above, OHM maintains direct reading instrumentation that may be used in emergency situations to assess the degree of environmental hazard. This equipment will only be used by the Site Safety Officer or other specially trained personnel. This equipment will be stored, charged and ready for immediate use in evaluating hazardous chemical concentrations. The equipment will be located at the OHM office trailer.

EQUIPMENT NAME	APPLICATION
Portable H-NU Photoionization Meter	Measures selected inorganic and organic chemical concentrations
MSA Oxygen and Combustible Gas Meter	Measures oxygen and combustible gas levels
Drager Detector Tubes	Assorted detector tubes to measure specific chemical concentrations



8.6.4 Personal Protective Equipment

A supply of two (minimum) SCBAs will be located in the support zone for use in emergency response to hazardous materials releases. They will be inspected at least monthly, according to OSHA requirements. In addition, all emergency response personnel will have respirators available for use with cartridge selection determined by the Site Safety Officer based on the results of direct reading instruments. Emergency response personnel will also be provided with protective clothing as warranted by the nature of the hazardous material and as directed by the Site Safety Officer. All OHM personnel who may be expected to wear SCBAs are trained at assignment and annually thereafter on the proper use and maintenance of SCBAs and airline respirators.

8.6.5 Emergency Spill Response Clean-Up Materials and Equipment

A sufficient supply of appropriate emergency response clean-up and personal protective equipment will be inventoried and inspected, visually, on a weekly basis.

The materials listed below will be kept on site for spill control, depending on the types of hazardous materials present on site. The majority of this material will be located in the support zone, in a supply trailer or storage area. Small amounts will be placed on pallets and located in the active work areas.

- Sand or clay to solidify/absorb liquid spills.
- Lime (calcium oxide), soda ash (sodium carbonate), or baking soda (sodium bicarbonate) for neutralizing acid (pH <7) spills.
- Activated charcoal (carbon) to adsorb organic solvents (hydrocarbons) and to reduce flammable vapors.
- Citric acid for neutralizing caustic (pH >7) spills.
- Vapor-suppressing foam, if required by the Client, for controlling the release of volatile organic compounds.
- Appropriate solvents e.g. CITRIKLEEN, for decontamination of structures or equipment.

Will MSDSS
be available
at the
TRAILER
for the
chemical
Also?

The following equipment will be kept on site and dedicated for spill cleanup:

- Plastic shovels for recovering corrosive and flammable materials.
- Sausage-shaped absorbent booms for diking liquid spills, drains, or sewers.
- Sorbent sheets (diapers) for absorbing liquid spills.



A list of emergency telephone numbers is given in Table 8.1.

8.7.1.2 Notification

The following personnel/agencies will be notified in the event of a medical emergency:

- Local Fire Department or EMS
- On-site Emergency Coordinator
- Workers in the affected areas
- Client Representative

8.7.1.3 Directions To Hospital

Written directions to the hospital and a map will be posted in all trailers in the staging area.

8.7.2 Fire Contingency Measures

OHM personnel and subcontractors are not trained professional firefighters. Therefore, if there is any doubt that a fire can be quickly contained and extinguished, personnel will notify the emergency coordinator by radio and vacate the structure or area. The emergency coordinator will immediately notify the local Fire Department.

The following procedures will be used to prevent the possibility of fires and resulting injuries:

- Sources of ignition will be kept away from where flammable materials are handled or stored.
- The air will be monitored for explosivity before and during hot work and periodically where flammable materials are present. Hot work permits will be required for all such work.
- "No smoking" signs will be conspicuously posted in areas where flammable materials are present.
- Fire extinguishers will be placed in all areas where a fire hazard may exist.
- Before workers begin operations in an area the foreman will give instruction on egress procedures and assembly points. Egress routes will be posted in work areas and exit points clearly marked.

need to comply w/ MCB
Camp Lejeune Guidelines
Contact
Fire
Dept.
for
details

The following procedures will be used in the event of a fire: