03.01-11/08/94-01352

**DEPARTMENT OF THE NAVY**
NAVY ENVIRONMENTAL HEALTH CENTER
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Ser 61:198/03852
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From: Commanding Officer, Navy Environmental Health Center
To: Commander, Atlantic Division, Naval Facilities Engineering Command, 1510 Gilbert Street, Norfolk, VA 23511-2699

Subj: MEDICAL REVIEW OF INSTALLATION RESTORATION PROGRAM DOCUMENTS FOR MARINE CORPS BASE, CAMP LEJEUNE, NC

Ref: (a) Baker Enviromental transmittal ltr of 23 Sept 94, Contract N62470-89-D-4814, CTO 0246

Encl: (1) Health and Safety Plan Review

1. As you requested in reference (a), we completed a medical review of the "Draft Health and Safety Plan for Remedial Investigation/Feasibility Study of Operable Unit No. 6, Sites 36, 43, 44, 54, and 86, Marine Corps Base, Camp Lejeune, North Carolina." Our comments are provided in enclosure (1).

2. We are available to discuss the enclosed information by telephone with you and, if necessary, with you and your contractor. If you require additional assistance, please call Ms. Mary Ann Simmons at (804) 444-7575 or DSN 564-7575, extension 477.

W. P. THOMAS
By direction

Blind copy to:
CNO (N-453)
CMS (LFL)
COMNAVFACENGCOM (41)
BUMED (MED-24)

# HEALTH AND SAFETY PLAN REVIEW

Ref : (a) 29 CFR 1910.120
(b) Navy/Marine Corps Installation Restoration Manual (February 1992)

General Comments:

1. The "Draft Final, Health and Safety Plan, for Remedial Investigation/Feasibility Study of Operable Unit No.6, Sites 36, 43, 44, 54, and 86, Marine Corps Base Camp LeJeune, North Carolina, Contract N62470-89-D-4814, CTO 0246" was prepared for LANTNAVFACENGCOM by Baker Environmental, Inc., and forwarded to the Navy Environmental Health Center on 28 September 1994. The document was dated 23 September 1994.

2. This review addresses both health and safety and emergency response sections of the plan.

3. The method used for this review is to compare the health and safety plan to the federal requirements under OSHA regulations (29 CFR 1910.120) and to Department of the Navy requirements under the "Navy/Marine Corps Installation Restoration Manual." See references (a) and (b) above. Deviations and/or differences in the plan from these two primary references are noted. A list of acronyms used in our comments is included as Attachment (1). Specific comments are noted below.

4. The point of contact for review of the health and safety plan is Ms. Mary Ann Simmons, Industrial Hygienist, who may be contacted at (804) 444-7575, or DSN 564-7575, extension 477.

Specific Comments:

1. Section 3.0, "Site Characterization":

a. Table 3-1, "Chemical/Physical Properties of Constituents Detected During Previous Sampling at Sites 36, 43, 44, 54, and 86": The PEL for cadmium is 0.002 mg/$M^3$, vice 0.005 mg/$M^3$. Also, indicate how airborne exposure limits relate to contaminants detected in sediment, soil, or water.

b. Sub-Section 3.3.2.3, "Noise": This section says that elevated noise levels may be present due to drilling and other heavy equipment operations. A hearing conservation SOP should be included if this is found for this site.

c. Sub-Section 3.3.3, "Radiation Hazards": This section states that the potential for exposure to radiological wastes at OU No. 6 is low. There either is or is not a radiological

hazard at these sites. We recommend determining the naturally occurring radiation prior to starting work. If subsequent measurements indicate site radiation levels exceed background levels then the site should be evacuated until the situation is thoroughly investigated by a radiation expert.

d. Sub-Section 3.3.5.8, "Test Pit/Trenching (Site 36, 43, and 44): The physical hazard of "explosion from contact with explosive/ignitable materials" is listed. This is the first indication that explosive hazards are anticipated. If this is actually anticipated for this site, include additional information about the potential explosive hazards in the HASP.

2. Section 5.0, "Environmental Monitoring":

a. Sub-Section 5.1, "Personal Monitoring":

(1) Consider basing the action level for the Miniram results on cadmium since its PEL is lower (0.005 $mg/M^3$) than that of arsenic (0.01 $mg/M^3$).

(2) Since arsenic does not have an ionization potential, according to data in this plan and that found in the NIOSH *Pocket Guide to Chemical Hazards*, its presence cannot be detected by the PID. It would be more appropriate to base the action level for PID readings on a volatile organic compound with an ionization potential that is measurable by the PID.

b. Table 5-4, "Monitoring Equipment and Frequency for Each Field Activity Conducted at OU No.6": In the "Note" below the table it states that ". . . as concentrations are measured, they should be documented . . . " We recommend changing "should" to "shall."

c. Sub-Section 5.5, "Equipment Calibration and Maintenance" states that equipment is to be calibrated daily. Standard industrial hygiene practice is to calibrate instruments before and after each period of use.

d. Sub-Section 5.6, "Monitoring Documentation": We recommend including the method to be used to notify employees of air monitoring results.

3. Section 6.0, "Personal Protective Equipment":

a. Sub-Section 6.2, "Site-Specific Levels of Protection":

(1) Level B PPE is specified for the "Test Pit/Trenching" task for Sites 36, 43, and 44. Earlier in the plan, Section 3.3.2.6, "Heavy Equipment," states that personnel are specifically prohibited from entering into trenches and instructed to avoid walking within 2 feet of an open excavation. Based on this direction, the reason for using Level B PPE for

this task is not clear. While it is important to protect the employee from chemical hazards, it is also important not to expose them to addition physical hazards such as heat stress.

(2) Include PPE requirements for personnel performing equipment decontamination.

b. Sub-Section 6.3.2, "Level C": Include a requirement to change respirator cartridges daily.

4. Section 8.0, "Emergency Procedures":

a. Sub-Section 8.3, "Emergency Coordinator": Inform on-site personnel of their responsibilities in case of an emergency before starting site work and provide them with any necessary additional training based on their anticipated levels of response. Also, include methods to critique incidents and to periodically exercise and critique the emergency response plan.

b. Sub-Section 8.8.1, "Physical Injury": It is important to coordinate with local emergency medical personnel before starting work so that any necessary training and medical surveillance requirements can be met.

c. Sub-Section 8.11, "Notification": This section and Table 8-1 both say that the fire chief is the Navy On-Scene Coordinator. In Sub-Section 8.16, "Spill Containment" the Navy On-Scene Commander is referred to. Since the NOSC and the NOSCDR are usually different individuals it is not clear who the emergency coordinator is. Use consistent terms in the final HASP.

5. Section 9.0, "Training Requirements": Ensure copies of training certificates for on-site personnel are made available on-site.

6. Section 10.0, "Medical Surveillance Requirements":

a. Sub-Section 10.1, "General":

(1) Define the term "thermally-stressed environments" and describe how they might influence a person's ability to wear respiratory protective equipment.

(2) Clarify the relationship between the occupational health physician and the examining physician. Both are noted in the text; it is not clear if this is the same individual.

b. Table 10-1, "Medical Surveillance Testing Parameters": The first footnote at the bottom of the page says that "the attending physician has the right to reduce or expand the medical monitoring on an annual basis as he/she deems necessary." If the occupational medicine physician and the examining physician are <u>not</u> the same person, it is not advisable

to change the examination contents, since they apparently have been established by the occupational medicine physician. If the examining physician feels the medical monitoring should be altered, he/she should consult with the occupational medicine physician before acting.

c. Include provisions for having copies of medical clearance certificates for all on-site personnel available on-site.

7. Attachment A, "Baker Environmental Inc., Safety Standard Operating Procedures":

a. If hazardous noise levels are expected during the site work, include a hearing conservation SOP.

b. SOP 2.0, "Respiratory Protection Program," Sub-Section 2.11, "Medical Surveillance": Employees should be medically evaluated before being fit tested and issued negative pressure air-purifying respirators.

c. SOP 6.0, "Cold Stress": This SOP does not include information regarding work-rest cycles, fluid replacement protocols, types of beverages to avoid, or a description of "latent (delayed)" symptoms of hypothermia.

## ACRONYMS

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| ACGIH: | American Conference of Governmental Industrial Hygienists |
| AG: | Acid Gas |
| ATSDR: | Agency for Toxic Substances and Disease Registry |
| BBP: | Bloodborne Pathogen Program |
| CPR: | Cardiopulmonary Resuscitation |
| CRZ: | Contamination Reduction Zone |
| EIC: | Engineer-in-Charge |
| EMS: | Emergency Medical Service |
| EPA: | Environmental Protection Agency |
| EZ: | Exclusion Zone |
| HASP: | Health and Safety Plan |
| HBV: | Hepatitis B Virus |
| HIV: | Human Immunodeficiency Virus |
| IDLH: | Immediately Dangerous to Life and Health |
| IPA: | Isopropyl Alcohol |
| LEPC: | Local Emergency Planning Committee |
| MSDS: | Material Safety Data Sheet |
| NIOSH: | National Institute for Occupational Safety and Health |
| NOSC: | Navy On-Scene Coordinator |
| NOSCDR: | Navy On-Scene Commander |
| OSHA: | Occupational Safety and Health Administration |
| OV: | Organic Vapor |
| PCB: | Polychlorinated Biphenyl |
| PEL: | Permissible Exposure Limit |
| PPE: | Personal Protective Equipment |
| PPM: | Parts per million |
| SOP: | Standard Operating Procedure |
| STEL: | Short Term Exposure Limit |
| TLV: | Threshold Limit Value |