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Baker

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(412) 269-6000
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July 9, 1992

Commanding Officer
Atlantic Division
Naval Facilities Engineering Command
Norfolk, Virginia 23511-6287

Attn: Mr. Byron Brant, P.E.
Code 1822

Re: Contract N62470-89-D-4814
CTO-0024 - Response to Comments on the Draft Final Health and Safety Plan for Sites 6, 9, 48, and 69, MCB Camp Lejeune, North Carolina; Submittal of Final HASP

Dear Mr. Brant:

Attached are responses to comments submitted by the North Carolina Superfund Section and The Navy Environmental Health Center. These comments address the Draft Final Remedial Investigation/Feasibility Study (RI/FS) Health and Safety Plan (HASP), Sites 6, 9, 48, and 69, MCB Camp Lejeune, North Carolina, submitted on April 17, 1992.

Responses to comments are provided on the attachments to this letter. A summary of these attachments is provided below.

- Attachment A - Response to Comments to the Draft Final RI/FS HASP for Sites 6, 9, 48, and 69, MCB Camp Lejeune, by the North Carolina Superfund Section, 05/18/92.

- Attachment B - Response to Comments to the Draft Final RI/FS HASP for Sites 6, 9, 48, and 69, MCB Camp Lejeune, by the Navy Environmental Health Center, 05/20/92 and 06/08/92.

- Attachment C - Copy of Comments received by the North Carolina Superfund Section and the Navy Environmental Health Center on the Draft Final RI/FS HASP for Sites 6, 9, 48, and 69, MCB Camp Lejeune.

Enclosed please find three (3) copies of the Final Health and Safety Plan (HASP), which has been revised in accordance with our response to comments. Copies of the Final HASP have been forwarded to Mr. George Radford (CLEJ), Ms. Michelle Glenn

(EPA, Region IV), Mr. Jack Butler (NCDEHNR), and to the members of the Technical Review Committee, in accordance with the Request for Proposal distribution list. If you have any questions or additional changes, please do not hesitate to contact me at (412) 269-2016, or Ms. Barbara Cummings at (412) 269-2029.

Sincerely,

BAKER ENVIRONMENTAL, INC.

Raymond P. Wattras

Raymond P. Wattras
Project Manager

RPW/nd

Enclosures (3)
Attachment A, Response to Comments submitted by the North Carolina DEHNR
Attachment B, Response to Comments submitted by the Navy Environmental Health Center
Attachment C, Comments on the Draft Final HASP

cc: Mr. Marc Lambert, P.E. (w/o attachments)
Mr. George Radford (with attachments)

ATTACHMENT A
RESPONSE TO COMMENTS SUBMITTED BY THE
NORTH CAROLINA SUPERFUND SECTION
LETTER DATED JUNE 24, 1992

Baker's responses to the North Carolina Superfund Section recommendations concerning the RI/FS HASP for Sites 6, 9, 48, and 69 are listed below. The responses coincide with the recommendations presented. In a few instances the Comments Section has also been addressed. See Attachment C for referenced comments.

1. Page 3 (formerly Page 1), Section 1.3

"Medically certified" was changed to read "deemed medically fit by a qualified physician to perform the tasks required".

2. Page 4 (formerly Page 3), last line of first paragraph

Level D protection is addressed in the 40-hour training, however, in the context of this statement, the reference pertains to practical field exercises for Levels A, B, and C with regard to donning, doffing, and working in PPE ensembles.

3. Page 35 (formerly page 34), under HNu/OVA

The cartridges selected during Level C activities for sites 6, 9, 48, and 69 represent the most comprehensive combinations available (e.g. organic vapor/acid gas/HEPA for various organic compounds, metals, and particulate; and, a Mercury Vapor/HEPA filter cartridge with a colorimetric end-of-life indicator for mercury vapor and particulate) based on the results of existing chemical data. For investigative activities that present a high potential for elevated exposure concentrations, Level B protection has been selected. Refer to Section 6.2 for a list of chemicals detected during preliminary monitoring, Section 7.2 for levels of respiratory protection, and Section 11.2 for air monitoring action levels.

4. Page 36 (formerly page 34) under Drager Tubes and Page 37 (formerly page 39)

The polytest drager tube provides a qualitative indication after five pump strokes as to the presence of essentially 15 hazardous constituents. The color of the tube begins as white then depending on the chemical(s) present, will change color to brown, green or violet (instructions are provided in the Drager tube box). It was originally intended as an aid in determining the presence of previously identified constituents (i.e., acetone, carbon disulfide, monostyrene (styrene), perchlorethylene, toluene/xylene) however, after further consideration, the tubes are no longer proposed for use.

5. Page 35 (formerly page 34), Combustible Gas Meter(CGM)

The HASP was modified to allow for continuous CGM monitoring when in the range of 10% to 20% of the lower explosive limit (LEL), and higher.

6. Page 36 (formerly page 39), Drum Sampling

Since drum sampling will be performed in Level B protection, the Hnu/OVA air monitoring for each drum will be performed initially, and periodically thereafter (as specified in the HASP). This is considered sufficient Hnu/OVA monitoring.

7. Page 36 (formerly page 39)

The HASP was modified to provide for Combustible Gas monitoring during groundwater sampling.

8. Page 38 (formerly page 41)

Mercury vapor badges are required for activities performed in Levels D, and D+. The monitoring well installation and soil boring-sampling will be performed in Level C using respiratory cartridges that have end of service life indicators. Therefore, mercury vapor badges will not be worn during Level C operations.

9. Page 39 (formerly page 42), footnote 2

The statement was modified to read; " The meter will be held at the survey location for 9 seconds for a complete meter response".

10. Page 40 (formerly page 43), Radiation Survey Meter

Levels C and B personal protective equipment (PPE) offer the same degree of protective covering, and a different level of respiratory protection. Using a 1 milliroentgen per hour (mR/hr) action level (a qualitative value for alpha and beta activity) for leaving the area, either protection level (both offering shielding) should be sufficient for protection. For a gamma source neither protective level would be sufficient. However, with an action level of 1mR/hr to commence leaving the area (reducing time and increasing distance), the exposure should be well below accepted values.

The section has been altered to read as follows:

- Background (typically 0.02 to 0.04 mR/hr) to 0.5 mR/hr = Continue work
- 0.5 mR/hr to 1 mR/hr = Continue work, monitor levels closely
- >1 mR/hr = Leave work area and consult PHSO

ATTACHMENT B
RESPONSE TO COMMENTS BY THE
NAVY ENVIRONMENTAL HEALTH CENTER
LETTER DATED JUNE 24, 1992

Baker's responses to the Navy Environmental Health Center (NEHC) recommendations concerning the RI/FS HASP for Sites 6, 9, 48, and 69 are listed below. The responses coincide with the recommendations presented. In a few instances the Comments Section has also been addressed. See Attachment C for referenced comments.

(1) Emergency Response Plan Review

GENERAL COMMENTS:

- No action required

SPECIFIC COMMENTS:

1. No action required

2. Page 9, Section 4.0

Points of contact are addressed in the revised Emergency Procedures Section (12.3 - Communication) and Site Organization and Coordination Section (4.0), as necessary. Protocol can be found in Section 12.1.

3(a). & 3(b). Pages 42-46 (formerly page 31 Section 11.3.1)

- Emergency medical information is addressed in Sections 12.1 and 12.6 in the revised Emergency Procedures Section, and provide the conditions under which the medical facilities are expected to respond to medical emergencies including points of contact.

- The Site Health and Safety Officer (SHSO) and/or Site Manager will apprise the medical facilities of the hazardous conditions that may occur on site during mobilization prior to the start of work activities (including chemical information for suspected contaminants and hazardous materials used on site, if requested). See Section 12.1 for a projected outline.

3. Page 43 (formerly page 32 section 11.3.2)

Emergency phone numbers have been updated to include the Poison Control Center, Agency for Toxic Substances and Disease Registry, etc., in Section 12.3 - Communication.

4. Page 53 (formerly page 48 Section 14.0)

The Spill Containment Procedures Section has been modified to state that, "Appropriate Navy Activity Personnel including the Navy/Marine Corps On-Scene Coordinator/Commander will be notified, should a spill require additional measures beyond those already discussed".

SUMMARY COMMENTS:

1. As indicated in the response to comments submitted by the NEHC in November of 1991, specific information regarding emergency points-of-contact and coordination would be provided prior to project startup (during site mobilization). This information is presented in the revised Emergency Procedures Section (12.0) of the Final HASP.

2(a). The HASP includes procedures for integrating emergency medical personnel (see Section 12.1). Emergency procedures for decontaminating personnel are in Section 12.7, formerly Section 10.2.

(b). Per Section 12.1, the Navy On-Scene Coordinator will be contacted during site mobilization, whereby the Coordinator's procedures will be discussed to determine their applicability to this HASP. Should information be presented that is pertinent to the HASP, it will be amended at that time.

(c). A written description for a safe haven is provided in Section 12.4 which identifies the Site Trailer as the primary location and alternate upwind locations (designated at each site before operations commence) as the secondary locations, in the case of an emergency.

(d). Provisions for coordination between emergency response personnel are provided for in Section 12.1.

(e). Provisions for the frequency by which the emergency response procedures are to be rehearsed is provided under Section 12.13.

(f). Provisions for the frequency by which the emergency response procedures are to be reviewed is provided under Section 12.13.

(g). The HASP includes the street address of the Onslow County Memorial Hospital in Section 12.5.

(h). See 3(a). & 3(b). under SPECIFIC COMMENTS.

(i). Rapid identification of exposure to known hazardous materials brought to the site (i.e.,.gasoline) or labeled materials already present in concentrated forms (drummed materials), will be easily obtainable from labels and MSDSs. For constituents present in part per billion and part per million concentrations within the water and soil, identification will be accomplished through biological monitoring, should a worker become exposed.

3. Comments provided by the Navy Environmental Health Center in November of 1991 were addressed and presented to the Navy Engineer-In-Charge (EIC).

(2) Radiation Safety Plan Review

GENERAL COMMENTS

- No action required

SPECIFIC COMMENTS

1. No action required

1. Page 24 (formerly page 21), Section 6.4, "Radiation Hazard Analysis"

(a). No Action Required. Discussion related to specific radionuclides is not pertinent to these sites.

(b). Information provided in this paragraph and the corresponding tables on the frequency of radiation monitoring has been clarified.

3. Page 13, Section 6.2 (formerly page 34 Paragraph 11.3.4, "Substance-specific information")

No Action Required. Discussion related to specific radionuclides is not pertinent to these sites.

4. Page 35, Section 11.2.1 (formerly page 34 Paragraph 11.4.1, "Point Source")

(a). Since the meter is to be used as a general survey meter and not for identifying specific radionuclides the meter will not be replaced.

(b). Action Levels have been corrected to remain consistent throughout the HASP.

5. Page 40, Section 11.2.2 (formerly page 43 Paragraph 11.4.2, "Perimeter Monitoring")

This paragraph states: "The Radiation Survey Meter will be used to determine a safe distance from the source, if a radiation level exceeding 1 Mr/hr is detected".

6. Page 41, Section 11.3 (formerly page 44 Section 11.5, "Personal Monitoring")

Since radionuclides are not anticipated at these sites, personal monitoring is not specified. Provisions for working in and around radioactive material is not within Baker's Scope of Work, therefore, work will not continue if levels exceed 1 Mr/hr and personal monitoring will not be required.

7. Page 36 Table 11-1 (formerly page 39 Table 11-2, "Monitoring Equipment and Frequency for Site 6")

The statement will be modified to read; "The meter will be held at the survey location for 9 seconds for a complete meter response". Also, instruction manuals are provided with each piece of monitoring equipment and can be referenced at any time.

8. Pages 37-39, Tables 11-2, 11-3, 11-4 (formerly pages 40-42 Tables 11-3, 11-4, and 11-5)

See response to comment 7 above.

9. Attachment B, "OSHA Training History of Baker Project Personnel"

Radiation Safety Training, other than what is discussed in 40-hour Hazardous Waste Site Worker Training, 8-hour refresher training, and reviewed at the pre-entry briefing by the SHSO, is not required.

SUMMARY COMMENTS

1. Site-specific information is not required because there are no radiation hazards applicable to the site.

2. No action required.

3. See response to comment 6 above.

TELEPHONE COMMENTS:

Per a discussion with Commander Williams (on June 4, 1992), in which he was informed that there are no known radiation hazards at any of these sites and that it is Baker's policy to perform measurements using a radiation survey meter as a standard operating procedure during RI/FS studies involving hazardous materials, the following additional comments were addressed:

Comment: Delete the paragraphs in Section 6.4 that discuss alpha, beta, and gamma radiation.

Response: Although the presence of radiological wastes or naturally-occurring radioisotopes is not anticipated, the paragraphs will not be deleted because they provide valuable information to the site personnel.

Comment: Review with site personnel, the anticipated sampling methods/procedures (especially radiation measurements) prior to starting activities-refer to manufacturer's instructions.

Response: Site personnel will be provided with sampling methods and procedures information prior to starting activities. A statement has been included in the revised Section 1.5.

Comment: Explain Baker's approach to Emergency Response if it differs from the OSHA Standard.

Response: Baker's approach to Emergency Response preparedness is defined in Section 12.1.

(3) Medical Surveillance Plan Review

GENERAL COMMENTS:

- No Action Required

SPECIFIC COMMENTS:

1. Section 1.3

No action required.

2. Page 3 (formerly page 1), Section 1.3

Section 1.3 - Medical Surveillance Requirements, identifies the medical surveillance group required for site personnel including the procedures by which medical surveillance results are reviewed.

3. Page 3, Section 1.3

This section has been revised to clarify the requirements of subcontractor personnel.

4. Attachment A

Baker's medical surveillance program in under the direction of a Board Certified Occupational Health Physician and will not be altered without his approval. However, due to a recent change in Baker's Corporate Medical policy, the following changes have been made in the HASP:

- EKG's are given during the baseline exam and annually thereafter for individuals over 40 years of age. Spirometry is indicated for Group III individuals, with a chest x-ray given every 3 years.
- SMA 12 or 26 is the testing provided.
- Specific blood and urine tests will be dependent on field exposure.
- For asbestos examinations, according to 1910.1001(l)(2)(ii), chest x-rays will be performed initially and then adjusted to comply with the Table 2 in (3)(ii).

SUMMARY COMMENTS:

- No Action Required

<u>(4) Medical Review</u>

GENERAL COMMENTS:

- No Action Required

SPECIFIC COMMENTS:

1. Page 3 (Formerly Pages 1 and 2), Paragraph 1.3, "Medical Surveillance Requirements"

(a). Baker uses a Board Certified Occupational Health Physician to perform medical monitoring. This Occupational Physician is provided with information on the types of activities performed and has determined the medical surveillance testing requirements for Baker field personnel. Additional monitoring for these sites has not been specified, and therefore not identified in this HASP.

(b). Subcontractor's are required to submit medical clearance [meeting the requirements as stated under 29CFR 1910.120(f)] for their employees prior to entry onto the site.

2. Page 4, Section 1.5, "Pre-Entry Requirements"

Refer to third sentence of the first paragraph in Section 1.5 of the Final HASP which states: "Site-specific safety and health hazards, data obtained from a previous site reconnaissance, provisions outlined in this HASP, and appropriate safety and health related procedures/protocols will be reviewed by the SHSO".

The site-specific HASP has been developed based on all current and available information. The SHSO will review these items to verify the HASP accuracy.

3. Page 9, Section 4.0, "Site Organization and Coordination"

- Baker's Subcontractors will be chosen according to preestablished Basic Ordering Agreements (BOAs). This information will be included in the HASP as soon as it is known.

- Refer to the second and third sentences of the first paragraph in Section 1.2 of the Final HASP which states: "The HASP applies to activities performed by both Baker and Subcontractor personnel including compliance with the surveillance and training requirements as outlined in the following sections. However, the Subcontractor personnel are required to provide their own PPE that meets or exceeds the level of protection as outlined in this HASP".

4. Page 10 (and 11), Section 5.0, "Site Control"

The last sentence of 29 CFR 1910.120 (d) (3) states that, "Where these requirements are covered elsewhere they need not be repeated." Hence, the following information is provided:

- A site location map is included in Section 1.1 - Background, that defines where each site is located within MCB Camp Lejeune. Work zones will be developed when the exact sampling coordinates have been determined (after receiving geophysical information, etc.), referencing the site-specific maps provided in the Work Plan. These zones will be established according to the procedures outlined in Section 5.3.

- The "Buddy System" and Site Communication are addressed in Section 9.0 - Communication.

- Safe work practices are addressed in the last paragraph, last sentence of Section 6.3.4 - Site-Specific Safety Hazards where it states that, "All personnel are expected to adhere to all applicable compliance regulations such as, but not limited to, OSHA standards 29 CFR 1910 and 1926".

- The nearest medical facility is addressed in Section 12.6 - Emergency Medical Treatment.

5. Page 12, Section 5.4, "Sanitation/Site Precautions"

Specific information regarding the location of sanitary facilities has been included in Section 5.4. The remaining information within Attachment D is considered adequate for these sites.

6. Page 13, Section 6.2, "Chemical Hazard Analysis"

(a). The data provided in these tables defines the potential toxicological properties of the chemicals identified, therefore, the title will not be changed.

(b). The information presented in Table 6-3 (formerly 6-2) is for chemicals that are visible at Sites 6 (and 9), not substances detected during preliminary sampling as in Table 6-1. This is the reasoning for not presenting all the information in one table.

(c). Chemical/Material Safety Data Sheets are provided for the chemicals identified under Table 6-3, Toxicological Properties of Potential Hazardous Materials visible at Sites 6 and 9, and Table 6-4, Supplemental List of Chemicals (formerly Part B), not for the analytes identified in Table 6-1. Chemical/Material Safety Sheets are provided for those chemicals that have the potential to be present in a concentrated form as "pure" product, not for the chemicals listed under Table 6-1 which were found in ppb and ppm concentrations within the groundwater, soil, etc., during preliminary sampling.

7. Page 21 (Formerly Page 13), Section 6.3.2, "Heat Stress"

This section has been further developed in the Final HASP.

8. Page 20, Table 6-4 (Formerly Page 18, Table 6-3), "Supplemental List of Chemicals (not otherwise mentioned)"

Part A will be deleted. Part B will remain because it identifies chemicals that may have been disposed on site. However, Baker's Health and Safety Staff concludes that contact with these chemicals is remote since only offsite sampling is being conducted at Site 69.

9. Page 23 (Formerly Page 20), Section 6.3.3, "Explosion and Fire"

Section 11.2.1 of the HASP includes the use of a combustible gas meter to aid in fire and explosion prevention. In addition, utility checks and geophysics will be performed prior to conducting intrusive activities.

10. Page 23 (Formerly Page 21), Section 6.3.4, "Site-Specific Safety Hazards"

The Hazard Evaluation for the site work tasks is provided in Section 6.0. Should additional hazards become apparent they will be addressed by the SHSO.

11. Pages 27 and 28 (Formerly Pages 24 and 25), Section 7.1, "Levels of Protection"

The use of air monitoring results to determine protection levels is standard hazardous waste industry practice. Specific PPE used is based on compatibility with the chemicals of concern. Additionally, PPE is decontaminated and/or discarded various

times throughout the course of a work shift in an effort to prevent skin contact with the chemicals of concern.

12. Page 29 (Formerly Page 25), Section 7.2, "Respiratory Protection"

(a). The last sentence of Section 7.2 states that "Criteria for using this type of respiratory protection has been determined by qualified Baker personnel in compliance with Attachment D - Baker Safety SOPs". This sentence implies that the SOP is followed for each HASP.

(b). Section 11.2.1 provides for changes in levels of protection based on air concentrations in the breathing zone. The breakthrough concentration listed in Section 7.2 should have been 100 ppm not 1,000 ppm. This value is based on peak concentrations that could be associated with cartridge breakthrough, not sustained levels. Therefore, site personnel should be sufficiently protected according to the action levels provided in Section 11.2.1.

13. Page 31 (Formerly Page 27), Section 8.0, "Site Work Plans/Project Personnel"

A copy of the Work Plan accompanies the HASP. Specific descriptions of work parties is not described in the HASP. The Baker Site Manager will assign specific direction to site personnel, as necessary, to accomplish the goals of the Work Plan.
As stated in Section 12.8, formerly 11.2, first aid kits and eye wash bottles will be located in the Baker Field Vehicles (and Baker Site Trailer).

14. Page 33 (Formerly Page 29), Section 10.1, "Decontamination"

The SHSO will monitor the effectiveness of the decontamination, per 29 CFR 1910.120(k), as he/she is responsible for the safety requirements on the site. Section 10.1 provides for methods of decontamination for each level of protection.

15. Page 34 (Formerly Page 30), Section 10.3, "Equipment Decontamination"

This statement refers to the different tasks which require different types of equipment and is also dependent on the EPA Region in which the work is being performed. All this information is provided in the Field Sampling and Analysis Plan (FSAP) as stated in the HASP. A copy of the FSAP (and other project plans) will be located on the site and provided to the subcontractors.

16. Page 35 (Formerly Page 34, Section 11.4), Section 11.2, "Environmental Monitoring"

The Second Paragraph of Section 1.5 in the Final HASP states who will be conducting the monitoring.

17. Page 35, Section 11.2.1 (Formerly Page 34, Section 11.4.1), "Point Source"

(a). Other than vinylidene chloride (1,1 - dichloroethylene), all of the potential volatile contaminants identified in Table 6-1 have ionization potentials below 11.7eV and would be ionized by the HNu. Regarding the semivolatile and metal constituents, dust/particulate generation is expected to be low for the majority of site operations, therefore, skin absorption and ingestion are the remaining routes of entry for concern. These routes of entry addressed through the use of PPE and good sampling and hygienic practices. Keep in mind that these

constituents are in the ppb and ppm range within the various matrices (soil, groundwater, etc.), not concentrations in the air.

(b) As stated, the instrument(s) to be used will either be an Hnu with an 11.7eV bulb photoionization detector or a Foxboro OVA 128 flame ionization detector. These direct-reading instruments are very common and widely used in these types of investigations.

18. Page 41, Section 11.3 (Formerly Page 44, Section 11.5), "Personal Monitoring"

TWA monitoring is difficult to justify when most of the individual sampling events (no one event presents the same potential exposure as the other) extend over a 30 to 60 minute period not an 8-hour day; and, the results of which would not be available for a minimum of 72 hours. Therefore, the real-time instrumentation is our best indicator for airborne concentrations and instituting levels of respiratory protection. The types of activities performed do not typically generate high levels of dust, therefore, concern for metals or semi-volatiles (which could cling to particulate matter) is low. Protection strategies are based on skin contact, and high concentrations of volatiles that could remain in the breathing zone.

19. Page 41, Section 11.4 (Formerly Page 44, Section 11.6), "Equipment Maintenance and Calibration"

Baker's Standard Operating Procedures for Administrative, Field and Technical Activities Manual states that the instruments will be calibrated according to the manufacturer's recommendations.

20. Page 53, Section 13.0 (Formerly Page 48, Section 14.0), "Spill Containment Procedures"

(a). The information provided is sufficient to provide containment for the few drums of decontamination liquids and small volume of decontamination chemicals that will be found on site. The paragraph states that, "Spill containment materials will be located within close proximity to the storage area of the hazardous substances in a manner such that the pathway remains accessible and free of obstructions". This information will be conveyed to site personnel during the initial HASP training.

(b). In the Final HASP the sentence reads, "Appropriate Navy Activity Personnel including Navy/Marine Corps On-Scene Coordinator/Commander will be notified, should a spill require additional measures beyond those already discussed". The procedures for contacting the On-Scene Coordinator/Commander are discussed in Section 12.0 - Emergency Procedures.

21. Attachment A, "Medical Surveillance Testing Parameters"

Refer to comment 1(a).

22. Attachment B, "OSHA Training History of Project Personnel"

All site personnel are required to have up-to-date and sufficient training before personnel begin to work on site. These records are kept on site and reviewed during site health and safety audits.

23. Attachment D, Section 3.0, "Care and Cleaning of Personal Protective Equipment"

SOP has been revised to include Levels D through B equipment.

24. Attachment E, "Environmental Hazards Specialists International, Inc. (EHS) - Standard Operating Procedures"

This subcontractor is required to comply with the requirements of this HASP. The SOPs refer to specific operations in which Baker personnel are not directly involved. Refer to Section 7.1, subscript (1) and Table 11-1, under UXO Identification*.

SUMMARY COMMENTS:

- No Action Required

Attachment C
COMMENTS TO THE DRAFT FINAL HASP

State of North Carolina
Department of Environment, Health, and Natural Resources
Division of Solid Waste Management
P.O. Box 27687 · Raleigh, North Carolina 27611-7687

James G. Martin, Governor
William W. Cobey, Jr., Secretary

William L. Meyer
Director

May 6, 1992

Commander, Atlantic Division
Naval Facilities Engineering Command
Code 1822
Attention: MCB Camp Lejeune, RPM
Mr. Bryon Brant
Norfolk, Virginia 23511-6287

Commanding General
Attention: AC/S, Environmental Management
Building 1, Marine Corps Base
Camp Lejeune, North Carolina 28542-5001

Subject: Draft Final Health and Safety Plan - Sites 6,9,48, and 69
USMC Camp Lejeune Military Reservation
NC6 170 022 580
Jacksonville, Onslow County, North Carolina

Dear Sir and Madam:

The North Carolina Superfund Section has received and reviewed the Draft Final Health and Safety Plan for Sites 6, 9, 48, and 69. The following comments are offered on this document:

1. Page 1, Section 1.3: It is recommended the phrase "medically certified" be changed to something like: "determined medically fit by a qualified physician to do the tasks required".

2. Page 3, last line: Training in level D protection should be included in the 40 hour safety training.

3. Page 34, under HNU/OVA: How will respirator cartridges be selected? In order to properly select respirator cartridges, all airborne contaminants must be identified, selection cannot be based on selecting a few indicator chemicals.

4. Page 34 under Drager Tubes and page 39: For what do the polytest tubes test? See comment #3.

5. Page 34, Combustible Gas Meter: It is recommended continuous monitoring with the Combustible Gas Meter take place when CGM readings fall in the range of 10% to 20% of the LEL.

6. Page 39, "Drum Sampling": It is recommended the HNU or OVA be used to continuously sample breathing zone air.

7. Page 39: It is unclear to the reader why a Combustible Gas Meter will be used on a "reaction" basis while conducting surface soil sampling but not groundwater sampling. What if pure product is encountered?

8. Page 41: It is unclear to the reader why a mercury vapor badge will be used for continuously monitoring workers while performing surface soil sampling, an aquatic survey, groundwater sampling, and non-intrusive geophysics, but not during the only 2 forms of intrusive work to be done; monitoring well installation and subsurface (boring) soil sampling.

9. Page 42, footnote 2: The last sentence reads: "The meter must be placed at the survey location and held there until the instrument responds". How long do you wait? Some types of time limit is recommended.

10. Page 43, Radiation Survey Meter: How will level B offer more protection against radiation than level C? A distinction needs to be made here between the different types of radiation and the proper response to each.

If you have any questions please contact me at (919) 733-2801.

Sincerely,

Jack Butler

Jack Butler, Environmental Engineer
Superfund Section

cc: Michelle M. Glenn, EPA Region IV

DEPARTMENT OF THE NAVY
NAVY ENVIRONMENTAL HEALTH CENTER
2510 WALMER AVENUE
NORFOLK, VIRGINIA 23513-2617

5090
Ser 06/ 3567
MAY 18 1992

From: Commanding Officer, Navy Environmental Health Center
To: Commander, Atlantic Division, Naval Facilities Engineering Command, Code 1822, Norfolk, VA 23511-6287

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

Encl: (1) Emergency Response Plan Review
(2) Radiation Safety Plan Review
(3) Medical Surveillance Plan Review

1. Medical review of the emergency response, radiation safety, and medical surveillance sections for Draft Health and Safety Plan, Sites 6, 9, 48, and 69, Camp Lejeune, North Carolina has been completed. Our comments are provided in enclosures (1) through (3). Review of complete health and safety plan is being submitted under separate cover.

2. The technical points of contact for comments on the reviews are noted in the enclosures. 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 coordinate with Ms. Sheila Muschett, P.E., Head, Installation Restoration Program Support Department at 444-7575, extension 430.

G.E. Williams
G. E. WILLIAMS
By direction

Post-it™ brand fax transmittal memo 7671	# of pages ▸ 13
To Ray Watkins	From Lynn Brant
Co. Baker	Co. LANTDIV
Dept.	Phone # 804-445-2931
Fax # 1-412-269-2002	Fax # 444-6662

EMERGENCY RESPONSE PLAN REVIEW

GENERAL COMMENTS:

1. The "Draft Final Health and Safety Plan, Sites 6, 9, 48, and 69, Camp Lejeune, North Carolina" was prepared for Atlantic Division, Naval Facilities Engineering Command (LANTNAVFACENGCOM) and received directly by the Navy Environmental Health Center (NAVENVIRHLTHCEN) from the contractor on 6 May 1992. The document was prepared for LANTNAVFACENGCOM by Baker Environmental, Inc. and dated 10 April 1992.

2. This review addresses the emergency response sections of the plan. The radiation safety plan and medical surveillance plan reviews are provided as separate enclosures. Review of the complete health and safety plan is being submitted under separate cover.

3. The point of contact for review of the emergency response plan is Commander Gary E. Williams, MSC, USN, Deputy Director for Environmental Programs, who may be contacted at 444-7575, extension 399.

SPECIFIC COMMENTS:

1. Under Section 11.3, "Emergency Medical Care" is included most of the emergency response information. Other sections/paragraphs have pertinent information as indicated below. Comments and recommendations refer to the sections/paragraphs as noted.

2. Page 9, Section 4.0 "Site Organization and Coordination":

COMMENT: The listed points of contact do not include a representative from the Navy Medical Department, the Navy/Marine Corps On-Scene Coordinator/Commander, the Hazardous Materials Team, the civilian hospital and ambulance service, and the local and/or state agencies for emergency response such as the Local Emergency Planning Committee established under SARA Title III.

RECOMMENDATION: Revise the section to clearly list points of contact for emergency response. Ensure the Department of the Navy chain of command under the Navy/Marine Corps On-Scene Coordinator/ Commander, the Navy Medical Department, and/or the local base Hazardous Materials Team are listed. Ensure that points of contact for state and local agencies for emergency response are included. Ensure that the civilian hospital and ambulance service points of contact are included.

3. Page 31, Paragraph 11.3.1 "Emergency Facilities":

COMMENTS:

a. The Navy Medical Department is listed as providing ambulance and medical treatment facility support without indication of the level of care available at the military hospital. The section indicates that "contact should be made...prior to the start of the activities" with the emergency response personnel. A civilian hospital and ambulance service are listed. The basis under which the Navy Medical Department is to provide medical care is not stated, that is, whether or not contractor personnel are to be rendered assistance under civilian humanitarian or by other agreement. No indication is provided that the military ambulance crew has been trained to respond to potential hazardous waste site emergencies or that a point of contact within the Navy Medical Department has been provided technical information about the potential chemical hazards.

b. A telephone conversation with the civilian hospital Emergency Department charge nurse indicated that, while the department had a plan for response to contaminated patients, she was not aware of any specific chemical hazards information which might have been provided by the contractor.

c. A telephone conversation with a qualified ambulance crew member from Naval Hospital, Camp Lejeune indicated that the ambulance crews did not have any specific orientation, equipment, and/or training for response to the sites beyond that received in basic emergency medicine technician training. The corpsman did indicate that the federal fire department functioned as first responders and had generic technical information about hazardous materials. Also, the corpsman indicated that the hospital emergency service was contractor operated and he was not aware of any specific procedures for contaminated patients which are used at the hospital.

RECOMMENDATIONS:

a. Clarify emergency response procedures. Provide a plan, as needed, for trauma patients. Note in the plan under what circumstances civilian vice military medical support should be requested. The procedures by which the contractor is to notify the ambulance crew that their response is to a hazardous waste site should be noted. The specific arrangements for medical support by the Navy Medical Department should be delineated. A Navy Medical Department point of contact should be listed and that point of contact should be noted as having been provided technical information about the potential chemical hazards. Ensure that the civilian hospital and ambulance service have been provided technical information about the potential chemical hazards.

b. Ensure emergency response personnel and facilities are trained and equipped to respond to contaminated patients.

3. Page 32, Section 11.3.2, "Emergency Phone Numbers":

COMMENT: A nationally recognized agency for additional support such as a regional poison control center or the Agency for Toxic Substances and Disease Registry is not listed.

RECOMMENDATION: Revise the section to include appropriate telephone numbers to include nationally recognized agencies for additional support.

4. Page 48, Section 14.0, "Spill Containment Procedures":

COMMENT: The section indicates that in the event of a spill "appropriate Navy Activity Personnel will be notified.."

RECOMMENDATION: Revise the section include specific procedures to follow in the event of a spill to include coordination with the Navy/Marine Corps On-Scene Coordinator/Commander.

SUMMARY COMMENTS:

1. The plan has limited information and is not judged to provide adequate site-specific information appropriate to protection of the worker's health in an emergent situation. The plan does not include all information required for an emergency response plan. The lack of coordination with the Navy/Marine Corps On-Scene Coordinator/Commander chain of command and the Navy Medical Department indicates that the contractor has not thoroughly evaluated site-specific requirements prior to submission of the plan to the Department of the Navy.

2. The plan should be rewritten to ensure consistency with 29 CFR 1910.120 and the Navy/Marine Corps Installation Restoration Manual (February 1992) and to provide site-specific information. The various sections in the Health and Safety Plan which have emergency response information should be combined into one comprehensive plan. In addition to the comments above, the rewrite should include the following:

a. Indication that military and civilian medical treatment facilities and ambulance services have been specifically integrated into the contractor's emergency response plan. A description of the administrative arrangements for accepting patients. A listing of the procedures to prevent contamination of medical personnel, equipment, and facilities.

b. Indication that the Navy/Marine Corps On-Scene Coordinator/Commander procedures have been incorporated into the site-specific contractor plans.

c. Indication by specific maps and written descriptions that safe distances and places of safe haven have been identified.

d. Indication that the emergency response plan has been coordinated with state and local disaster authorities and/or emergency response personnel.

e. Listing of the procedures and frequency by which the contractor intends to rehearse the emergency response plan.

f. Listing of the procedures and frequency by which the contractor intends to review the emergency plan.

g. Name, *street address*, and telephone number for the supporting medical treatment facilities.

h. An assessment of the medical treatment facilities ability to provide care and treatment of personnel exposed and/or suspected of being exposed to toxic substances.

i. A description of procedures for the rapid identification of the substance to which a worker may have been exposed.

3. Comments provided by the NAVENVIRHLTHCEN in November 1991 about the preliminary draft plan were not reflected in this draft final plan.

RADIATION SAFETY PLAN REVIEW

GENERAL COMMENTS:

1. The "Draft Final Health and Safety Plan, Sites 6, 9, 48, and 69, Camp Lejeune, North Carolina" was prepared for Atlantic Division, Naval Facilities Engineering Command (LANTNAVFACENGCOM) and received directly by the Navy Environmental Health Center from the contractor on 6 May 1992. The document was prepared for LANTNAVFACENGCOM by Baker Environmental, Inc. and dated 10 April 1992.

2. This review addresses the radiation safety sections of the plan. The emergency response plan and the medical surveillance plan reviews are provided as separate enclosures. Review of the complete health and safety plan is being submitted under separate cover.

3. The point of contact for review of the radiation safety plan is Commander Gary E. Williams, MSC, USN, Deputy Director for Environmental Programs, who may be contacted at 444-7575, extension 399.

SPECIFIC COMMENTS:

1. Under Section 6.4, "Radiation Hazard Analysis" is included a discussion about radiation protection. Other sections have pertinent information as indicated below. Comments and recommendations refer to the sections/paragraphs as noted.

1. Page 21, Section 6.4, "Radiation Hazard Analysis":

COMMENTS:

a. The section does not provide site-specific information about potential radiation sources or radioactivity; rather, the section gives a generic discussion of different types of ionizing radiation. Without a specific discussion of the previously identified and/or suspected radionuclides, a radiation hazard analysis is not feasible.

b. As an example, consider possible health-related concerns for uranium which can be considered either a chemical or radiologic hazard depending on its isotopic composition and radiation history. In acute or sub-acute uranium poisoning, the kidney is the first organ to show biological effects in the form of nephritis and proteinuria (kidney-related medical problems). These effects are from the chemical hazard and not from a

potential radiation hazard. Also, the chemical form and solubility of radionuclides has a significant influence on the efficacy of possible medical treatments in a contamination situation. [See National Council on Radiation Protection and Measurements Report Number 65 "Management of Persons Accidently Contaminated with Radionuclides" for additional technical information.]

c. The third paragraph is not consistent with other portions of the document in that "intermittent monitoring" is discussed as a control measure while in following sections such as Table 11.2, "intermittent and continuous monitoring" are indicated as requirements. The paragraph does not provide adequate distinction between the use of protective clothing to reduce potential radioactive contamination and the use of other protective measures to reduce potential external radiation exposure.

RECOMMENDATIONS:

a. Rewrite the section to clearly describe site-specific hazardous analysis for potential radiation sources and/or radioactivity. Information should include, but not be limited to, the following: specific radionuclide(s), chemical form and solubility, expected and/or potential external exposure rates, expected and/or potential radionuclide activity, and usual radionuclide(s) and their activity found in the environment.

b. Revise the third paragraph as indicated.

3. Page 34, Paragraph 11.3.4, "Substance-Specific Information":

COMMENT: The paragraph indicates that emergency medical information for substances "observed or detected" at the sites is provided in Table 11-1. The table does not include information on potential radiation sources and/or radioactivity.

RECOMMENDATION: Revise the table to include information for potential radiation sources and/or radioactivity.

4. Page 34, Paragraph 11.4.1, "Point Source":

COMMENTS:

a. The paragraph provides information on equipment for environmental monitoring with following tables indicating monitoring frequency at specific sites.

b. The radiation survey meter is listed as a Victoreen Model 450. This meter provides readings as subunits of R and the contractor plans to use the meter for monitoring alpha, beta, and gamma radiation. Usual health physics practice and contamination

control procedures is to evaluate alpha and beta radioactivity in the contamination units of disintegrations per minute (dpm). Measurement of contamination in dpm is possible at significantly lower levels than measurement of contamination in subunits of R.

c. The apparent control measurements listed under the heading for the survey meter are not consistent with the "Radiation Hazard Analysis" section. A reading of 1 mR/hr to 2 mR/hr is indicated as a basis to leave the area whereas Section 6.4 indicated that readings above 1 mR/hr were an indication to stop work. The lower action levels which have associated requirements for wearing protective equipment are not consistent with the As Low As Reasonable Achievable or ALARA concept since the levels are not related to an evaluation of site-specific potential radiation levels and do not provide for contamination measurements in appropriate units of dpm.

RECOMMENDATIONS:

a. Revise the radiation survey equipment to include a survey meter for external radiation exposure levels in subunits of R and a contamination survey meter in units of dpm.

b. Establish action limits based on site-specific conditions. Ensure the action levels are consistent throughout the plan and reflect the ALARA concept.

5. Page 43, Paragraph 11.4.2, "Perimeter Monitoring"

COMMENT: The survey meter is indicated as being used for establishing the boundaries of radioactivity if a point source is identified. Since the Victoreen survey meter is required to be within 3 mm of the source to evaluate alpha contamination, the use of the listed meter is not practical for area surveys. Also, the paragraph does not indicate the basis for establishing boundaries.

RECOMMENDATION: Revise the section to include appropriate survey meters for area alpha surveys in contamination units of dpm. Determine acceptable criteria for establishing radiation area boundaries in contamination units of dpm and radiation exposure levels in subunits of R.

6. Page 44, Section 11.5, "Personal Monitoring":

COMMENT: The section does not discuss possible monitoring for external radiation exposure.

RECOMMENDATION: Include in the "Radiation Hazard Analysis" section a discussion of possible personal monitoring for external

radiation exposure. [Note: Dosimetry for external radiation exposure is most likely not indicated by the potential for radiation exposure.]

7. Page 39, Table 11.2, "Monitoring Equipment and Frequency For Site 6":

COMMENT: The table lists survey frequency for various job tasks. The requirements for radiation surveys appear to be related to environmental radioactivity (or naturally occurring radioactive material) during subsurface operations. The third sentence in Note (2) indicates that, while using the radiation survey meter, the instrument should be held at the survey point until the instrument responds. For surveys at non-contaminated locations, the surveyor might have a rather long wait.

RECOMMENDATION: Ensure the "Radiation Hazards Analysis" sections includes a discussion about the technical basis for survey requirements including pre-established action levels for survey results. Change Note (2) to caution the surveyor to follow the manufacturer's instructions for using the survey equipment with particular emphasis on the "time constant" for meter response.

8. Pages 40-42, Tables 11.3, 11.4, and 11.5:

COMMENT: See Comment 7 above.

RECOMMENDATION: See Recommendation 7 above.

9. Attachment B, "OSHA Training History of Baker Project Personnel":

COMMENT: Radiation safety training is not included for site workers.

RECOMMENDATION: Evaluate the need for radiation safety training for site workers in the "Radiation Hazards Analysis". Consider sending selected personnel to the Environmental Protection Agency course "Radiation Safety for Superfund Sites" (165.11).

SUMMARY COMMENTS:

1. The plan does not include site-specific information about potential and/or actual radiation hazards. The section for "Radiation Hazards Analysis" should be extensively revised to address issues noted above.

2. The radiation safety sections are not considered adequate to provide for site-specific health physics standards of practice

and protection of the worker's health and safety. The plan does not include sufficient information for informed judgements by the reviewer about the radiation safety sections. The use of inappropriate survey equipment and terminology indicates a lack of understanding of radiation safety issues.

3. The plan should be rewritten to ensure consistency with 29 CFR 1910.96 and health physics standards of practice and to provide site-specific information.

MEDICAL SURVEILLANCE PLAN REVIEW

GENERAL COMMENTS:

1. The "Draft Final Health and Safety Plan, Sites 6, 9, 48, and 69, Camp Lejeune, North Carolina" was prepared for Atlantic Division, Naval Facilities Engineering Command (LANTNAVFACENGCOM) and received directly by the Navy Environmental Health Center from the contractor on 6 May 1992. The document was prepared for LANTNAVFACENGCOM by Baker Environmental, Inc. and dated 10 April 1992.

2. This review addresses the medical surveillance sections of the plan. The emergency response plan and radiation safety plan reviews are provided as separate enclosures. Review of the complete health and safety plan is being submitted under separate cover.

3. The point of contact for review of the medical surveillance plan is Commander Gary E. Williams, MSC, USN, Deputy Director for Environmental Programs, who may be contacted at 444-7575, extension 399.

SPECIFIC COMMENTS:

1. Section 1.3 "Medical Surveillance Requirements" provides information and guidelines for medical surveillance. Attachment A "Medical Surveillance Testing Parameters" provides a matrix for medical surveillance procedures for various worker categories. Comments and recommendations refer to the sections/paragraphs as noted.

2. Page 1, Section 1.3, "Medical Surveillance Requirements", first and second paragraphs:

COMMENT: The first paragraph indicates that medical surveillance is for "project personnel". The paragraphs do not establish site-specific plans for medical surveillance rather the information is generic in nature. The discussion does not indicate a method by which workers are to be placed into categories for medical surveillance or how the on-site management staff is to verify worker examination results and, most importantly, the examining physicians written opinion about any recommended work limitations.

RECOMMENDATION: Ensure the requirements of 29 CFR 1910.120(f) are addressed. Revise the section to require the on-site management staff to identify workers engaged in site activities by medical surveillance category and to then verify that the contractor's records and/or examining physician's

SUMMARY COMMENTS:

1. While 29 CFR 1910.120(f) allows for the "attending physician" to determine the content of the medical surveillance examination, the proposed medical surveillance program appears to be inordinately comprehensive. The scope of the recommended examinations and tests exceeds the guidelines followed in the medical surveillance of Department of the Navy active duty and civilian personnel performing identical job taskings.

2. Current Navy Medical Department occupational health surveillance is comprised of targeted medical history and physical examinations performed on workers with specifically identified job taskings and exposures. These guidelines are supported by experience and scientific review; deviation from these targeted protocols add little to the overall assessment of the worker's health. The guidelines provide for cost effective, complete medical surveillance and are considered to be consistent with 29 CFR 1910.120(f).

3. The contractor's medical surveillance guidelines and procedures should be revised to ensure consistency with 29 CFR 1910.120(f) and to conform to cost effective, targeted examinations.

DEPARTMENT OF THE NAVY
NAVY ENVIRONMENTAL HEALTH CENTER
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JUN 03 1992

From: Commanding Officer, Navy Environmental Health Center
To: Commander, Atlantic Division, Naval Facilities Engineering Command, Code 1822, Norfolk, VA 23511-6287

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

Ref: (a) NAVENVIRHLTHCEN ltr 5090 Ser 06/3567 of 18 May 92

Encl: (1) Health and Safety Plan Review

1. Medical review of the Draft Final Health and Safety Plan, Sites 6, 9, 48, and 69, Camp Lejeune, North Carolina, has been completed. Our comments on the health and safety plan portions are provided in enclosure (1). Our comments pertaining to emergency response, radiation safety and medical surveillance were previously forwarded by reference (a).

2. The technical point of contact for comments on the review is noted in the enclosure. 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 coordinate with Ms. Sheila Muschett, P.E., Head, Installation Restoration Program Support Department at 444-7575, extension 430.

W. P. THOMAS
By direction

HEALTH AND SAFETY PLAN REVIEW

GENERAL COMMENTS:

1. The "Draft Health and Safety Plan, Sites 6, 9, 48, and 69, Camp Lejeune, North Carolina" was provided by Atlantic Division, Naval Facilities Engineering Command (LANTNAVFACENGCOM) for review. The document was prepared for LANTNAVFACENGCOM by Baker Environmental Inc., and was dated 10 April 1992.

2. These comments address the health and safety plan (HASP) section of the document. Comments for the emergency response, radiation safety, and medical surveillance sections were provided under separate correspondence.

3. The point of contact for this review is Ms. Mary Ann Simmons, Site Support Department, who may be contacted at 444-7575, extension 477.

SPECIFIC COMMENTS:

1. Pages 1 and 2, Paragraph 1.3, "Medical Surveillance Requirements":

Comments:

(a) The second paragraph states that all individuals engaged in site activities will receive a physical examination and the content of the exam is described. The OSHA standard, 29 CFR 1910.120 (b)(4)(ii)(D), requires that the physician be provided site-specific information in order to determine the content of the examination.

(b) The last sentence on the page states that subcontractors will be required to meet all applicable medical monitoring requirements identified by OSHA. There is no description of how Baker will ensure that this actually occurs. Additionally, subcontractors have to comply will all applicable OSHA regulations, not just those for medical surveillance.

Recommendations:

(a) Revise section to state that the examining physician will be provided site-specific information and that the employees will be given examinations based on the site-specific information.

(b) Revise section to describe how Baker will monitor subcontractor compliance with OSHA requirements.

written opinion about the individual worker is consistent with the identified site activities. Include in the paragraph a more specific delineation of personnel who are required to be under medical surveillance.

3. Page 3, Section 1.3, "Medical Surveillance Requirements," third paragraph:

COMMENT: The paragraph discusses requirements for subcontractor personnel. These requirements do not appear to be different from those discussed in the first paragraph. Since the first paragraph indicates that "project personnel" are included in medical surveillance, the purpose of the second and third paragraphs is not clear.

RECOMMENDATION: Ensure the requirements of 29 CFR 1910.120(f) are addressed. Clarify the purpose of the paragraph. See Comment 1 above.

4. Attachment A, "Medical Surveillance Testing Parameters":

COMMENTS:

a. General: The EKG requirement is listed for workers over age 30 while the usual age listed in occupational medicine is over age 34. Pulmonary function is not noted to be limited to spirometry while the usual practice is to indicate "spirometry only, unless otherwise indicated." Chest radiography is not indicated to be age related but is listed for biannual while usual practice is to perform chest radiography based on age and at a lesser frequency, unless clinically indicated.

b. Group II: The SMA 20 or 24 is considered to be too comprehensive; liver enzymes evaluation, CR, and BUN are the usual laboratory tests.

c. Group III: Although biological monitoring is a useful adjunct, the tests to be completed should be specific and exposure related.

d. Group IV: Chest radiography is usually age related unless the worker have had a long exposure history (> 20 years) and then frequency is usually annual.

RECOMMENDATION: Revise medical surveillance testing parameters to ensure that medical histories/examinations are "targeted" with biological monitoring based on documented, preset field exposure to hazardous materials. Revise chest radiography, spirometry, and other tests as indicated.

2. Page 4, Section 1.5, "Pre-Entry Requirements":

Comment: The statement is made that site-specific safety and health hazard information will be obtained from daily site reconnaissance. While this should be done, enough information already exists to develop a site-specific HASP with the expectation that the HASP may have to be revised as more or different information is made available.

Recommendation: The HASP should be as site-specific as possible at all times. Revise HASP to be site-specific based on information available at the time.

3. Page 9, Section 4.0, "Site Organization and Coordination":

Comment: The Contractors are yet to be determined.

Recommendation: Fill in these blanks as soon as this information is known. Additionally, will the contractors be required to provide their own HASP, PPE, and medical surveillance examinations, or will they be required to follow Baker's procedures and be provided services and equipment as necessary?

4. Page 10, Section 5.0, "Site Control":

Comment: This section is too generic. A site map is not included, nor is use of the "buddy system", site communications, safe work practices or a description of the nearest medical assistance been addressed.

Recommendation: Revise this section to be site-specific as required by 29 CFR 1910.120 (b)(4)(ii)(F).

5. Page 12, Section 5.4, "Sanitation/Site Precautions":

Comment: This section states that sanitation and site precautions to be followed are found in Attachment D. Attachment D information is not site-specific.

Recommendation: Revise this section to be site-specific.

6. Page 13, Section 6.2, "Chemical Hazard Analysis":

Comments:

(a) It is stated that "toxicological properties" are identified in Tables 6-1, 6-2, and 6-3. Information in these tables is not toxicological in nature, but more in the line of exposure limits and chemical information.

(b) Some information for site 6 is in Table 6-1 and some in Table 6-2. Why is this information presented in separate tables?

(c) The last sentence of this section states that "Chemical Safety Data Sheets are available for these contaminants" in Attachment C. Sheets are available for some of the chemicals in Attachment C, some are not. At least one of the chemicals for which there is a sheet in Attachment C is not found in any of the tables.

Recommendations:

(a) Revise section to either include toxicological information or omit the term "toxicological". The same comment applies to the titles of the tables.

(b) For the sake of clarity, either combine this information in one table or provide explanation of why this is not possible.

(c) Provide all the Chemical Data Sheets in Attachment C, as stated, or state exactly which of these sheets will be included.

7. Page 13, Section 6.3.2, "Heat Stress":

Comment: The section on heat stress is very generic. Nothing is included concerning monitoring or by what guidelines heat stress will be measured. Since, due to the location, heat stress may well be a serious problem, it is important that appropriate information is provided.

Recommendation: Revise section to be site-specific. ACGIH and NIOSH both have guidelines which can be used for heat stress evaluation and control. Include limitations in the use of PPE due to heat stress in accordance with 29 CFR 1910.120 (b)(4)(ii)(C).

8. Page 18, Table 6-3, "Supplemental List of Chemicals (not otherwise mentioned)"

Comment: This is confusing information. In part A, why are these materials not otherwise mentioned? The footnote in part B states that contact with these chemicals are not anticipated. Why is this information included in the plan?

Recommendation: Clarify this table.

9. Page 20, Section 6.3.3, "Explosion and Fire":

Comment: A list of explosion and fire hazards is presented, but there is no discussion of preventive measures other than they be "closely monitored." Naturally it is important to closely monitor the work, but other precautions are also effective and should be considered. These may include: preventive maintenance,

prior coordination with Navy/Marine Corps officials to determine if under-ground utility lines may exist in the areas being surveyed and their locations, use of non-sparking tools and so on.

Recommendation: Revise this section to include more thorough preventive measures than that simply of "close monitoring."

10. Page 21, Section 6.3.4, "Site-Specific Safety Hazards":

Comment: A risk analysis and methods to deal with the site-specific hazards as required by 29 CFR 1910.120 (b)(4)(ii)(A) is not included for most of these items.

Recommendation: Include methods to deal with the potential hazards and include a risk analysis for each site task and operation.

11. Pages 24 and 25, Section 7.1, "Levels of Protection":

Comment: An HNu and Calorimetric Tubes will be used to evaluate levels of protection. Neither of these monitoring devices will evaluate skin absorption nor many of the chemicals of concern. They are not able to determine if the PPE is being protective.

Recommendation: Revise to include a more detailed, appropriate method, to determine the adequacy of the levels of protection.

12. Page 25, Section 7.2, "Respiratory Protection":

Comments:

(a) OSHA requirements dictate that people using respiratory protective equipment be trained, fitted and medically evaluated. The Respiratory SOP (Attachment D) gives details on the respiratory protection program, yet nothing is stated in the plan about the field personnel working this job having received the training, fitting and medical tests.

(b) Under the Level C paragraph, it is stated that cartridge changeover or protection upgrade will occur under a variety of circumstances, one of which is when the PID/FID concentrations are greater than or equal to 1000 ppm for vapor/gas cartridges. The NIOSH assigned protection factor for these types of cartridges in a full face piece respirator is 50. Since a couple of the contaminants of concern have PELs of 1 ppm, this is potentially allowing for employees to be overexposed to certain chemicals.

Recommendations:

(a) Address this requirement, 29 CFR 1910.120 (b)(4)(ii)(C), in the site-specific plan.

(b) Revise the upgrade criteria so that the employees will be sufficiently protected.

13. Page 27, Section 8.0, "Site Work Plans/Project Personnel":

Comment: It is stated that the tasks to be performed at each site will be immediately attached to the HASP. These were not found to be attached to the HASP. What is the difference between the information in this table and Section 4.0? It appears that there will be several work parties performing tasks simultaneously. If this is so, who will be the SHSO for each party? Will each team have adequate first aid and monitoring equipment available?

Recommendation: Include the work plans as stated. Consider combining this information with Section 4. Include specific descriptions of the work parties.

14. Page 29, Section 10.1, "Decontamination":

Comment: This section is generic.

Recommendation: Revise section to be site-specific as required by 29 CFR 1910.120(k). Consider site conditions and contaminants during the revision. Include the method for monitoring the effectiveness of the decontamination. Include methods for decontamination for each level of protection that is anticipated to be worn while performing the sampling.

15. Page 30, Section 10.3, "Equipment Decontamination":

Comment: This is a generic statement. While not all types of equipment to be used may be known at this time, it is probably not much different than that used on similar jobs.

Recommendation: Revise to be site-specific as required by 29 CFR 1910.120(k). Include all pertinent decontamination procedures in the HASP.

16. Page 34, Section 11.4, "Environmental Monitoring":

Comment: Nothing is mentioned as to who will be conducting the monitoring and what training is required prior to operating the instruments.

Recommendation: State this information is this section.

17. Page 34, Section 11.4.1, "Point Source":

Comments:

(a) Point source monitoring is defined as monitoring performed at the source of the activity within the breathing zone of the worker. These are two separate types of samples. When levels of protection are assigned, the worker's exposure must be evaluated. The selection of the types of monitoring equipment is interesting since many of the chemicals of concern would not show a response on an Hnu. Many non-volatile liquids, toxic solids, particulates and other toxic gases and vapors cannot be detected. The instrument is non-specific. Another problem to consider when using the HNu is the effect of high humidity which can effect the response by about 50%. High temperatures and humidity can also affect detector tube readings.

(b) The particular type of direct reading instrument, HNu or OVA, is not specified. Which will be used? What is an OVA 128?

Recommendations:

(a) Separate area sampling requirements from personal sampling requirements. Include in this section a discussion on the limitations of the specified sampling equipment and what will be done to compensate. Include a discussion on how other chemicals of concern will be monitored.

(b) Specify the type of instrument to be used.

18. Page 44, Section 11.5, "Personal Monitoring":

Comment: The statement is made that personal sampling done in accordance with Section 11.4.1 should be sufficient. This is not sufficient for several reasons. First, the vast majority of OSHA standards are based on an 8-hour time weighted average. To evaluate exposures, 8-hour samples, or something close to 8-hours, must be taken. Secondly, as mentioned previously, the types of equipment to be used do not measure many of the chemicals of concern on these sites. Finally, nothing is mentioned about monitoring for skin absorption hazards.

Recommendation: Revise section to be consistent with the OSHA standards. Broaden the types of sampling instruments so additional chemicals can be detected, or state why this will not be done.

19. Page 44, Section 11.6, "Equipment Maintenance and Calibration":

Comment: This section states that equipment will be

calibrated daily and by methods found in Baker's Standard Operating Procedures for Administrative, Field and Technical Activities Manual.

Recommendation: Equipment must be calibrated before and after each day's use and in accordance with the manufacturer's recommendations.

20. Page 48, Section 14.0, "Spill Containment Procedures":

Comments:

(a) This is not site-specific information.

(b) The last sentence states that "appropriate Navy Activity Personnel will be..." Specific names and phone numbers need to be included here.

Recommendations:

(a) Revise section to be site-specific. Items to address are found in 29 CFR 1910.120(j). State where the containment materials can be found and how this will be communicated to the site employees.

(b) Revise to include site-specific information.

21. Attachment A, "Medical Surveillance Testing Parameters":

Comment: This is not site-specific as required by 29 CFR 1910.120 (b)(4)(ii)(D). The examining physician is supposed to be provided the site-specific information and then decide on the content of the examinations. While these examinations appear to be comprehensive, there is no indication that they are based upon anticipated site conditions.

Recommendation: Revise section to be site-specific.

22. Attachment B, "OSHA Training History of Project Personnel":

Comment: The 8-Hour refresher course for Mr. Wattras is outdated. Mr. Tepsic must have the training before he works on the site.

Recommendation: Ensure the employees on site have the required training as detailed in 29 CFR 1910.120(b)(4)(ii)(B).

23. Attachment D, Section 3.0, "Care and Cleaning of Personal Protective Equipment":

Comment: Although stated in the first paragraph that this section applies to Levels C and D, nothing was found for Level D,

nor was anything included for Level B.

Recommendation: Revise to include information for Levels B and D equipment.

24. Attachment E, "Environmental Hazards Specialists International, Inc. (EHS) - Standard Operating Procedures":

Comment: This is good and interesting information concerning the subcontractor EHS, however it is not sufficient for a HASP.

Recommendation: Ensure that all subcontractors have an acceptable HASP prior to working on the sites.

SUMMARY COMMENTS:

1. This HASP is generic and does not provide adequate site-specific information. While it is realized that not all the information is known about the site, enough is known to be able to develop a much more site-specific document than is presented here. It is felt that, as written, the requirements of 29 CFR 1910.120 are not fulfilled.

2. In general, inadequate information was provided to determine that site employees would be protected by hazards anticipated to be found on the sites. Very little mention was made of monitoring the effectiveness of the plan. Site tasks were not described, nor was a risk analysis accomplished for each task.

3. It is recommended that when the plan is finalized all sections containing similar subject matter be combined in that particular section. This would make the plan much easier to read and comprehend. While not mandatory, it is recommended that the OSHA standard, 29 CFR 1910.120(b)(4)(ii) be used as a guideline for topics and order of presentation.