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CERTIFIED MAIL RETURN RECEIPT REQUESTED

Waste Management Division
United States Environmental Protection Agency,
Region IV
Attn: Ms. Michelle Glenn
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Re: Meeting Minutes RI/FS for Operable Unit No. 2;
MCB Camp Lejeune, North Carolina

Dear Ms. Glenn:

Attached are the minutes for the June 30, 1993 meeting in Atlanta, Georgia. These minutes document the decisions and action items that were discussed between representatives of LANTDIV, Baker Environmental, Inc., EPA Region IV, and Dynamac Corporation.

Any questions concerning these responses should be directed to Ms. Linda Berry at (804) 322-4793.

Sincerely,

L. A. BOUCHER, P.E.
Head
Installation Restoration Section
(South)
Environmental Programs Branch
Environmental Quality Division
By direction of the Commander

Attachment:
Meeting Minutes RI/FS for Operable Unit No. 2,
MCB Camp Lejeune, North Carolina

Copy to:
NC DEHNR (Mr. Peter Burger w/o encl)
MCB Camp Lejeune (Mr. Neal Paul w/encl)
Baker Environmental (Mr. Ray Wattras)

Blind copy to:
1823 (LGB)(2 copies w/encls)
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LGB:minmem

MEETING MINUTES, JUNE 30, 1993
RI/FS REVIEW MEETING FOR OPERABLE UNIT NO. 2
MCB CAMP LEJEUNE, NORTH CAROLINA

A Remedial Investigation/Feasibility Study (RI/FS) review meeting was conducted on June 30, 1993 in Atlanta, Georgia.

The purpose of this meeting was: (1) to summarize the extent and nature of contamination at Sites 6, 9, and 82 (Operable Unit No. 2), (2) to discuss human health and environmental risks posed by contaminants of concern; and (3) to present the proposed remedial alternatives for groundwater and soil. The following personnel participated at this meeting:

Ms. Linda Berry, EIC, LANTDIV
Ms. Michelle Glenn, Project Manager, EPA Region IV
Mr. Kevin Koporec, Toxicologist, EPA Region IV
Ms. Jennifer Herndon, Geologist, EPA Region IV
Mr. Seth Bruckner, Legal Counsel, EPA Region IV
Mr. Jack Sulima, Project Manager, Dynamac
Mr. Ray Wattras, Project Manager, Baker
Mr. Rich Bonelli, Geologist, Baker
Ms. Tammi Halapin, Engineer, Baker
Mr. Matt Bartman, Risk Assessment Specialist, Baker
Mr. Thomas Biksey, Environmental Biologist, Baker

Due to previous committments, representatives from the State of North Carolina and Marine Corps Base Camp Lejuene were unable to attend the meeting.

Summarized below are the relevant issues pertaining to the nature and extent of contamination, human health and environmental risks, and proposed remedial alternatives.

Nature and Extent of Contamination

- With respect to surface water and sediment contamination in Wallace Creek, there appears to be an impact due to runoff from the ravine area of Site 82 and groundwater discharge. Surface water contaminant levels (primarily chlorinated halocarbons) were shown to increase at sampling stations adjacent to Site 82. Contaminant levels in sediment (PAHs and PCBs) increased at sampling stations downgradient from the ravine discharge area.

- Inorganic contaminants (mercury, zinc, silver) detected in sediment samples collected from Wallace Creek and Bear Head Creek exceeded EPA Region IV sediment screening values. However, upstream vackground levels as well as downstream sampling stations exhibited elevated inorganic levels. There was no pattern of inorganic sediment contamination solely adjacent to the sites.

- Low levels of TCE were detected in two sediment samples collected from Bear Head Creek. One sediment sampling station in which TCE was detected is located downstream

of the site. Ray Wattras indicated that the presence of TCE in sediment is unusual in that TCE is highly mobile in soil/sediment. In addition, both soil and groundwater near Bear Head Creek are not impacted by TCE contamination. Ray Wattras suggested that Baker resample these areas for VOC analysis.

- Groundwater quality has been impacted at several areas of the Operable Unit No. 2. The most contaminated area is at Site 82, where elevated levels of chlorinated halocarbons were found in both the shallow (less than 35 feet) and deep (greater than 100 feet) groundwater. The shallow and deep aquifers appear to be hydraulically interconnected. The levels of contaminants in the deeper portion of the aquifer were higher than the levels detected in the shallow portion of the aquifer.

- With respect to groundwater contamination at Site 82, a discussion about the vertical extent of contamination was noted. The extent of groundwater contamination was evaluated down to approximately 230 feet, where an approximate 10-foot thick clay layer was encountered. The clay layer, however, is not believed to be laterally continuous across the operable unit based on existing potable water supply boring logs. The extent of contamination below the clay layer was a concern from EPA's standpoint if the underlying aquifer would be considered a Class I or II aquifer. Based on existing information, the underlying aquifer (Beaufort) is brackish due to saltwater intrusion. EPA inquired whether the TDS levels below the clay layer was known. Baker indicated that USGS report pertaining to Camp Lejeune hydrogeology may contain this information.

- A limited number of wells outside of Site 82 (i.e., at Site 6 and 9) exhibited low levels of volatile organic contamination (VOC) such as TCE and chlorobenzene. One well, 6GW16, is located in an area where numerous containers were uncovered during the test pit investigation. The contamination in this well is likely due to the wastes migrating from the containers. The presence of low levels of VOCs in the other wells is unexplainable from a standpoint of determining the source of contamination since soil data did not indicate volatile organic contamination. In addition, there was no apparent pattern with respect to defining a contaminant plume. Also, the background well (located east of Piney Green Road) exhibited low levels of VOC. This well is located in an area near the firing range east of Piney Green Road.

- VOC levels in shallow groundwater were generally higher in samples collected during the second round of sampling. The second round of samples were collected in April and May 1993. The first round of samples were collected in October - November, 1992. The higher VOC levels may be associate with a higher water table that was encountered in May 1993.

- A limited number of wells randomly located throughout Operable Unit No. 2 indicated the presence of lead and chromium above Federal and State drinking water standards. The source of this contamination is not apparent since soil analytical results did not reveal elevated lead or chromium levels that would be present due to disposal of wastes. No elevated levels of chromium or lead were observed in dissolved metals analyses. EPA

suggested that the elevated levels may be due to "military activities" (firing ranges, vehicles, equipment storage, etc.) as opposed to disposal activities.

- Based on the evaluation of soil analyses, six areas of concern were identified within Operable Unit No. 2. These areas include:

  - AOC No. 1: VOC contamination at Site 82
  - AOC No. 2: PAH contamination in the ravine area
  - AOC No. 3: PCB/PAH contaminated soil in Lot 203
  - AOC No. 4: PCB/PAH contaminated soil near the railroad spur, Lot 203
  - AOC No. 5: Pesticide contamination at Lot 201
  - AOC No. 6: PCB contamination in wooded area along Piney Green Road

- Pesticides were detected in over one-half of the surface soil samples collected throughout Operable Unit No. 2. Generally, the pesticide levels were below 100 ppb. The presence of pesticides throughout the operable unit is believed to be due to legally-applied applications to control pests (mosquitos, etc.). One area at Lot 201 (i.e., AOC No. 5) revealed elevated levels of DDT and DDE. It is apparent that pesticides may have been disposed of in this section of Lot 201. Elevated levels of total xylenes, ethylbenzene, and napthalenes were also detected in this area.

Human Health and Ecological Risks

- The fish population and diversity appears to be normal in both Bear Head Creek and Wallace Creek.

- Benthic macroinvertebrate studies revealed that downstream sampling stations did not contain many macroinvertebrates due primarily to a salt wedge encountered at the bottom portion of the streams. The salt wedge was identified via high specific conductivity readings and low dissolved oxygen readings near the bottom of each stream. The salt wedge was probably present due to high rainfalls experienced in the weeks prior to the study.

- None of the fish collected revealed any abnormalities that would be present due to surface water contamination.

- PCB-1260 was detected in five of seven fish samples collected from Wallace Creek. The maximum concentration of PCB (1 ppm) was detected in a fillet of striped mullet. PCB concentrations detected in other fish samples ranged from 0.051 ppm to 0.49 ppm. Because the striped mullet is migratory, the presence of PCB may not be due to contamination at the Operable Unit. The Food and Drug Administration has established a level of 2 ppm of PCB for "safe" consumption.

- Because Wallace Creek is used for recreational fishing, it was determined that additional studies are warranted before any decision is made with respect to banning fishing in the creek. The additional studies would focus on determining contaminant levels in fish that

are not known to migrate from the general area (e.g., sunfish). In addition, background data would be useful to determine "baseline" contaminant levels in fish.

- Although the FDA established level for allowable PCB in fish was not exceeded, the estimated human health risk associated with fish ingestion (by humans) exceeded the lower range of 10-6 carcinogenic risk. The risk calculated used conservative assumptions and default variables in accordance with EPA guidance.

- The baseline human health risk assessment evaluated the Operable Unit from a standpoint of current and future potential use. With respect to contaminated soil, sediment, and surface water, there is no significant risk to human health. However, groundwater ingestion would result in unacceptable human health risks.

Soil and Groundwater Remediation Goals

- Groundwater action levels were based on either Federal or State drinking water standards, or risk-based action levels when no drinking water standard was available.

- PCB action levels were set at 10 mg/kg (ppm). This level is the lower range for "industrial" land use. Ray Wattras indicated that based on the MCB Camp Lejeune Master Plan (a planning document), the area of the base at Operable Unit No. 2 will be used for open storage.

- Soil action levels were established to represent a 10-4 carcinogenic risk. This risk level was chosen since it is highly unlikely that the area would be utilized for residential housing. Michelle Glenn commented that land use restrictions would have to be included in any remedial alternative.

Soil Remediation Alternatives

- A critical-time removal action is proposed to address buried containers/drums that were encountered during the RI in the southeast corner of Site 82, and in the wooded area just south of Lot 203. The containers/drums that were encountered during trenching investigations may be impacting groundwater quality.

- Tammi Halapin presented and discussed the alternatives developed to address the 6 soil AOCs. Tammi explained that numerous alternative combinations could be developed since there are six AOC and various treatment/disposal options could be applied to each AOC. In addition, Tammi Halapin noted that three alternatives were recently developed that were not included in the Draft FS. The three alternatives were presented at the meeting.

- Baker proposed to EPA that Alternative No. 7 (Onsite Treatment of AOC No. 1 and Offsite Disposal of Remaining AOC) be selected since it is both protective of human health and the environment, and is cost effective. AOC No. 1 would be treated in place (in situ) via vapor extraction. All other AOCs would be remediated via excavation of

contaminated soil and offsite disposal at a RCRA Subtitle C landfill. Since the soil is not hazardous (by definition), and is not contaminated with PCBs above 49 ppm, a RCRA Subtitle C landfill would be suitable. Baker expressed that the volume of contaminated soil and the level of contamination is not cost effective to treat. EPA did not indicate any opposition to the selected alternative.

- Tammi Halapin and Ray Wattras presented and discussed the various remedial alternatives for addressing groundwater. It was explained that only contaminated groundwater at Site 82 would be remediated. Other areas of the operable unit with low levels of organic and inorganic contamination in groundwater would be monitored. Treatment of groundwater at every area where groundwater ARARs are exceeded would not be practical since there is no apparent pattern to the contamination, especially inorganic contamination. Michelle Glenn indicated that a waiver would be required.

- The preferred alternative for addressing groundwater involves: collection of shallow and deep groundwater within the most contaminated area of Site 82; treatment via metals removal, air stripping, and carbon adsorption; and discharge to Wallace Creek.

- A discussion regarding the wetland along Wallace Creek and the discharge of treated groundwater noted the following:

  - Michelle Glenn asked whether prolonged pumping of the shallow and deep aquifers may have an impact on Wallace Creek and the wetland area.

  - Baker indicated that pumping of the shallow aquifer (at a proposed rate of approximately 20 to 25 gpm) would not likely have any impact on the wetland since the pumping wells are topographically upgradient (approximately 15 to 20 feet) and will be located approximately 500 feet from the wetland.

  - Pumping of the deep aquifer should not impact either Wallace Creek or the wetland since supply wells in the area are operating with no impact to either Wallace Creek or the wetland.

  - Discharge of treated groundwater to Wallace Creek should not present any long-term impacts since the water will be cleaner than the present surface water quality.

  - Discharge via infiltration galleries is not believed to be feasible due to poor drainage conditions.

  - Discharge to the HPIA sewage treatment plant (STP) is not believed to be feasible due to the capacity of the STP, the condition/capacity of the sewer lines; and cost.

- The proposed alternative for addressing groundwater did not receive opposition from EPA.

- No remedial action is being considered for surface water and sediment. Based on the level of contamination, there is no significant human health risk. Remediation of contaminated sediments may result in a greater risk to the environment than the no action alternative. Surface water would be remediated to some degree indirectly via the remediation of the shallow aquifer. Michelle Glenn indicated that a waiver may be required for not remediating surface water or sediment if promulgated health-based ARARs are not met.