



Ground Water

Hydrocarbon

Remediation

Education

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VIA FEDERAL EXPRESS

James Colter
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 Department of the Navy, Northern Division
 Naval Facilities Engineering Command
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Subject: Comments on Draft Phase 2 Remedial Investigation Report for NWIRP,
 Bethpage, New York - 5090 Ser 1909/1821/JLC

Dear Mr. Colter:

As requested in your July 21, 1993 letter, enclosed are written comments on the referenced report. The comments were prepared and submitted by Geraghty & Miller, Inc. on behalf of the Grumman Aerospace Corporation. Our comments are divided into two types, general comments and page/site-specific comments. Because of the overlapping report style used, our comments may address several sections of the report. For this reason, specific references (i.e., page and paragraph) are not provided for each comment; however, the report should be revised where applicable.

Please call if you have any questions.

Sincerely,

GERAGHTY & MILLER, INC.

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cc: J. Ohlmann - Grumman
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NY0008.036/9N:Ph2Comm.ltr

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[unclear]
100-0105*

**COMMENTS ON DRAFT PHASE 2
REMEDIAL INVESTIGATION REPORT
FOR NWIRP, BETHPAGE, NEW YORK**

General Comments

1. The overall objective of the Phase 2 Remedial Investigation (RI) is to characterize the nature and extent of environmental contamination. This objective was not fully achieved. The horizontal and vertical extent of contamination detected in Well Clusters HN-24 and HN-29, as well as the vertical extent of contamination detected in the off-site residential area was not defined. As stated in the report, the presence of solvents in production wells beneath the NWIRP site indicates deep (300 to 700 feet) groundwater contamination; the extent of this contamination must be determined. Page 6-1 indicates that groundwater quality data collected during Phase 2 has only defined the aerial (or horizontal) extent of contamination.
2. More detailed site maps and tables are needed to assist in the review/understanding of the data presented in the report. Figures should be provided that identify site features, such as the northern (cinder-covered) former drum marshalling area (page 4-4). In addition, summary tables (for Phase 1 and 2 data) should be provided for well completion details and analytical (soil and groundwater) results. Furthermore, the U.S. Navy should consider the possibility that sporadic detections of inorganic compounds in groundwater samples may be the result of sediment in preserved metal samples. A review of the Phase 2 sample logs indicate that turbidity may have been a problem in groundwater samples collected.
3. In various sections of the report, the recharge basins are identified as a secondary source of VOC contamination. The language used on page 1-9, paragraph 4 to qualify this statement should be used consistently throughout the report. The report should also mention that Grumman has been required (under a SPDES permit) to bring recharge basin discharges into compliance with drinking water standards, and discharges to the on-site recharge basin should meet drinking water standards by the end of the year. Furthermore, the report should state that current and past pumpage and recharge practices have resulted in hydraulic control (containment) of the groundwater contaminants.
4. The last sentence of the first paragraph on page 2-4 should be deleted.
5. Page 1-17 should be revised to reflect that treatment is currently being designed for Bethpage Water District Well 4-1.
6. The last sentence in paragraph 2 on page 1-18 should be revised as follows: This data indicates that a deep solvent contaminant plume exists beneath the Grumman and NWIRP sites.



7. Many of the assumptions made during model construction do not correspond to the conceptual framework of Long Island hydrogeology that has been established through previous investigations. Some of these assumptions make the reliability of the model as a predictive tool questionable. The fact that simulated heads match observed heads does not guarantee that the model reproduces real world conditions. The head distribution in the deeper layers should be provided to better document three-dimensional flow patterns. Justification should be provided for the following assumptions to help in our evaluation of whether particle tracking simulations accurately depict advective movement of contaminants.
- a. Why is it assumed that a recharge basin is active near GM-15S? This appears to be a residential area yet the model incorporates a year round recharge rate of 308 gallons per minute (gpm).
 - b. What are the recharge rates to Hooker-RUCO basins based on? The model simulates a total of over 2,500 gpm going to the Hooker-RUCO basins during high pumping conditions. Where is this water coming from? Are there production wells on Hooker-RUCO property? If this assumption is incorrect and the mounding is due to hydrogeologic factors, then the particle tracking simulations could be misrepresentative.
 - c. The north and south constant head boundaries are a major controlling factor on the head distribution in areas away from pumping and recharge. Observed data from nearby well clusters should be cited to justify the change in head with depth that occurs in these areas. The values input at constant head nodes do not fit the conceptual model of the head distribution in the area. What is the justification for the large decline in head (about 4 ft) between Model Layers 2 and 3 at the northern constant head boundary? The thickest sequence of Magothy deposits are in Model Layers 3, 4, and 5, yet the change in head between Layers 3 and 5 is only 0.2 ft. Setting up vertical gradients with unrealistic constant head boundaries will greatly influence the particle tracking analysis of the source of water to the production wells.
 - d. The hydraulic conductivity values and distribution used in the model should be justified since it is contrary to previous investigations on Long Island. Figure 6-20 shows that a value of 57 ft/day was used for glacial outwash deposits, when an average value of 270 ft/day is the generally accepted estimate. The vertical hydraulic conductivity of the Magothy aquifer is much higher than estimates from previous investigations on Long Island.

Justification should be provided for the vertical hydraulic conductivity zonation illustrated on Figures 6-22 and 6-23.



Previous hydrogeologic investigations have shown that the basal Magothy aquifer is about 75 ft thick and has a hydraulic conductivity much lower than the 200 ft/day used in the model. In addition, Model Layer 5 is about 220 ft thick, which would mean that the basal Magothy comprises about 1/3 of this layer. The anisotropy ratio of about 4 to 1 is unrealistically high for this unit.

- e. The simulated water-table contours depicted on Figures 6-6 and 6-7 suggest that there are problems with the model construction. Why are there two 62 ft contours at the southern boundary in Figure 6-6? How can you infer the 64 ft and 62 ft contours when there is no observed data?

Figure 6-7 suggests that water may be entering the model through the southern constant head boundary.

8. The aquifer tests could not be properly evaluated because documentation was incomplete. The pumping rates of the production wells during the tests should be provided, and any changes in the pumping rates of these wells during the test should be documented. The trend data suggest that steady-state conditions did not exist when the test was initiated.

Curve matching of the Neuman-type curve with the observed time-drawdown data should be provided on the figures so that the application of the method can be evaluated.

Page/Site-Specific Comments

1. Site 1: Statements made on page 4-4 about the hydraulic locations of Wells HN-27S2 and HN-27S3 contradict the locations shown on Figure 2-6. Based on Figure 2-6 and the reported south/southwesterly direction of groundwater flow, Well HN-27S2 is upgradient of Well HN-27S3. This would make the upgradient well (HN-27S2) more contaminated than the downgradient well (HN-27S3).

The horizontal and vertical extent of groundwater contamination south and west of Well Cluster HN-29 (the most contaminated well in Site 1) is not defined.

It is unclear why two separate parameter lists were used to report the HNUS and Geraghty & Miller data that is summarized on Figures 4-4 and 4-5.



Analytical results for some of the soil samples (see Appendix H) collected from Sites 1 and 2 are quantified as unreliable. Geraghty & Miller is not familiar with this notation, but if it corresponds to USEPA's notation for "rejected" data, then the data cannot be used for assessing site impacts. Furthermore, the report lacks a statement indicating if data completeness criteria have been met and, if not, whether resampling will be conducted.

2. Site 2: What is the reference (source) for the statement made on page 4-12 that "Oil, potentially used for dust control, is a potential mechanism for spreading PCBs along the earthen roads."
3. HN-24 Area: What is the reference (source) for the statement made on page 1-11 that "Solvents may have been applied to the coal."

HNUS should investigate the DNAPL theory presented on page 1-11 by looking for a separate (sinking) phase of product in Well HN-24I or the adjacent production wells.

In several places in the report, it is stated that TCE detected in Well HN-24I was "associated" with a 10-foot thick clay layer. However, since TCE was detected in the clay 2 to 3 orders of magnitude below that detected in the groundwater sample, it does not appear that the presence of the clay is related to the detection of TCE in the groundwater. In addition, TCE was detected at a similar concentration in Well HN-24I2 and the clay layer was not encountered at this location.

The vertical extent of the contamination detected at Well HN-24I was not determined.

The location of Well HN-24I3 is not shown on Figure 2-6.

4. The constant head boundary on page 4-7 was initially determined from a water-table map in Smolensky and Feldman (1990). However, the southern boundary was 55 ft in the above referenced report, not the value of 62 ft used in the model.
5. One-half of the average annual precipitation is 22.29 in/yr, not the 24.34 in/yr that was cited in the report on page 4-8.
6. On page 7-1, the model validation with a data set from the month previous to the calibration data set does not demonstrate the effectiveness of the model as a predictive tool.



7. Much of the text (for example, page 8-4) evaluates particle movement in terms of the percent of particles that reach the various discharge points. What is the significance of this if it does not correlate to the percentage of flow reaching the discharge points?
8. Table 8-3 indicates that particles released from the basins do not terminate at BWD wells during current conditions. However, Figure 8-3 shows that they either terminate, or are strongly influenced by BWD wells.





ENVIRONMENTAL

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REMARKS:

COMMENTS ON DRAFT RE FROM G+M.
THESE WILL PROBABLY BE THE MOST EXTENSIVE COMMENTS FROM TRC.
THOUGHT YOU MIGHT LIKE TO GET A JUMP ON ADDRESSING THEM.

Jim.

DEX TRANSMITTED

BY: _____
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