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April 20, 1999

Project Number 7398

Mr. Jim Colter (Code 1823/JC)
Remedial Project Manager
Northern Division
Naval Facilities Engineering Command
10 Industrial Highway, MS#82
Lester, Pennsylvania 19113

Reference: Clean Contract No. N62472-90-D-1298,
Contract Task Order No. 0270

Subject: Site 7/10A – EVS Maps and RAB/TRC
Comment Response Letters for Sites 1, 2, and 7
Phase 2 RCRA Facility Investigation
NWIRP Calverton, New York

Dear Mr. Colter.

Please find enclosed two copies of the subject submittals. These submittals were distributed as per your attached letter.

If you have questions or need additional information, please call me at (412) 921- 8375.

Sincerely,

A handwritten signature in cursive script, appearing to read 'David D. Brayack'.

David D. Brayack
Project Manager

/DDB

cc: Mr. R. Boucher (Navy) w/o attachment
Mr. D. Rule (Navy) w/o attachment
Mr. M. Bartman (TtNUS)/file
Mr. J. Trepanowski (TtNUS)
Ms. M. Price (TtNUS) w/o attachment

NYSDEC Comments
Calverton – NWIRP Site #153136
Draft Phase 2 RCRA Facility Investigation Report (Sites 1, 2, and 7)

The Department has reviewed the Draft Phase 2 RCRA Facility Investigation report for the Calverton facility, dated January 1998, we have the following comments:

1. **Comment:** Page 1-5: Facility History: A brief description of the recently completed transfer of the facility to the Town of Riverhead needs to be included in this section.

Response: Agreed, discussion will be added. The property transfer had not yet occurred at the time that the report was prepared.

Site 1 – Northeast Pond Disposal Area

2. **Comment:** Page 2-27. The report indicates that the finding of thallium in groundwater samples may be naturally occurring and not a site contaminant. Note that thallium bromide and thallium iodide are used for infrared radiation transmitters in military detection devices. Due to the toxic nature of thallium it is advisable to do further records search to determine if this element was used at Calverton and to clarify if it is indeed a site contaminant.

Response: The Navy has contacted Northrop Grumman and inquired about the potential for thallium -based detectors to have been disposed of in the Northeast Pond area. To date, Northrop Grumman had not yet responded. Further discussions relating to this issue is required and will be discussed as part of a focused technical subcommittee meeting regarding future actions at Site 1.

However, based on the evaluation of the analytical results, the probability that thallium is site related is low. Two rounds of groundwater testing were conducted during each of two phases of investigation, for a total of four rounds. For the first two rounds, samples were collected using a bailer and sample results may be biased high because of fill intrusion into the wells. The second phase samples

were collected using low flow sample techniques. As a result, the Phase 2 results are considered more representative of site groundwater.

Thallium was detected in the upgradient monitoring well (NP-MW01) in two of the four rounds at concentrations of 4.0 and 4.1 ug/l, (MCL is 2.0 ug/l). Thallium was detected in more than half of the downgradient monitoring well samples, but at concentrations ranging from 3.3 to 6.7 ug/l. In addition, thallium was detected in 6 of 13 laboratory and field QA/QC data at concentrations ranging from 2.9 to 4.0 ug/l. Thallium was also detected in one QA/QC sample collected in August 1994 at a concentration of 12.4 ug/l. However this single data point was a duplicate of a sample with a non detected result. The poor comparison between original and duplicate result raises a concern about the accuracy of the result. In addition, the 1994 sample results may be biased high because of fill intrusion into the well.

The relative consistency between the upgradient and downgradient data and the finding of similar concentrations of thallium in blank samples is a general (although not conclusive) indication that the presence of thallium in the groundwater is not site related. In addition, thallium was not detected in the soil or waste samples from the site. However, long term monitoring may be required to resolve whether or not thallium is a site related contaminant.

3. **Comment:** Page 2-32. Table 2-3 indicates that semi-volatile tentatively identified compounds (SVOC TICS) were detected. The values of the detections should be included in Table 2-3, a finding of a significant level of SVOC TICS may require additional sampling or a further review of lab results to determine the compounds present.

Response: TIC results are presented in Appendix A of Volume II. TIC results are not presented in Table 2-3 because there is a low confidence as to the actual chemical identity of the TIC. In addition, TIC concentration values are not presented in the table because the reported laboratory results are not considered accurate and actual results can vary by one or more orders of magnitude.

4. **Comment:** Page 2-58: Conclusions pertaining to the NE Pond Disposal area appear to be contradictions. Item 5 indicates that the results of the benthic macrovertebrate investigation indicate a normally functioning ecological community in the pond. Item 6 indicates that eroding contaminated fill material and sediments adjacent to the fill are continuing to impact ecological receptors in the pond. Further clarification is required.

Response: Conclusion Number 6 will be revised as follows. “. . . contaminated fill material and sediments adjacent to the fill are continuing to erode creating unsafe conditions along the edge of the landfill. Also, continual erosion of fill material into the pond could impact ecological receptors in the future. For these reasons, it is imperative that the Navy implement, at a minimum, efforts to stabilize the bank to preclude further erosion of the fill material into the pond.”

Site 2 – Fire Training Area

5. **Comment:** Page 3-1: A statement needs to be added to this section indicating that this area is listed in the NYSDEC's Registry of Inactive Waste Disposal Sites as a Classification 2.

Response: Agreed. The statement will be added.

6. **Comment:** Page 3-16: The statement on this page that the results of Geoprobe sampling dictate that “. . . the extent of groundwater contamination is defined and does not extend off site” is questioned.

The report indicates that two methods of groundwater sampling were used. The appendices with sampling logs do not indicate the amount of water purged from the temporary wells prior to sampling. It is possible that not enough water was purged from the boring to pull in representative formation water. If water was used during drilling it is possible that the groundwater adjacent to the bore hold was diluted and not yield a true sample reflecting actual conditions.

Response: Water was only added as necessary during drilling to control running sands. For the wells in which a geoprobe was used (the majority of the Phase 2 tests), water was not added and a minimum of three well volumes of water were removed from the well prior to sampling.

For deeper wells, where hollow stem augers were used, if water was added, an equivalent volume of water, plus three well volumes were removed prior to sampling. The data is available in the field log books, (although in a rough form). If there are specific wells that concern the state, we can extract the information, and forward it to the state.

7. **Comment:** Temporary well FT-TW-03 revealed VOC contamination at a depth of 70 feet below the water table (1,1 DCA (31 ppb)), yet the temporary monitoring wells installed outside the fence line are only drilled to a depth of 40 feet below the water table. It would appear that the wells installed outside the fence are not deep enough to confirm to (or) deny the presence of VOC's at greater depths. This indicates the need to install vertical profile wells in this area.

Response: Monitoring well FT-TW02, which is hydraulically downgradient of FT-TW03 but inside the fence, was installed to a depth of 60 and 80 feet below the water table. Contamination was not detected at this location and depth, indicating that contamination from FR-TW03-70 has not yet reached the fence. Therefore, there was no need to investigate those depths outside the fence. The wells beyond the fence were installed to investigate more shallow contamination associated with FT-MW08.

Profiling of the existing data in three dimensions is currently underway and will be discussed at a future technical subcommittee meeting regarding future actions at Site 2. The figures that will be used will be similar to those submitted with this package for Site 7 and will hopefully help to visualize the response given above.

8. **Comment:** Figure 3-1: The individual compound and associated laboratory value should be listed on the Figure.

Response: The individual compounds and values are presented in Table 3-1. Figure 3-1 is presented as an overview of the data. Presenting individual data points of this figure would result in a very cluttered and confusing drawing.

9. **Comment:** Table 3-1: Values should be labeled as being reported in parts per billion.

Response: The units of ug/l will be added to the table.

Site 7- Fuel Depot Area

10. **Comment:** Figure 4-1: There is an inconsistency in presenting data on the various Figures in the report. Values of contaminants found in groundwater samples in this figure are reported down to 1 ppb, while in Figure 4-2 values are reported only if they exceeded MCL's. Individual compounds and their associated values should be listed in Figure 4-1.

Response: Data presentation is based a compromise between simple understandable summaries and rigid technical detail. Figures such as Figure 4-1 allow general trends to be observed and allow factors such as retardation factors and biodegradation rates to be simplified. As a result, all positive detections are presented and are grouped by chemical class (chlorinated VOCs or fuels). However, chemical specific details are presented in tables to allow a check of the data points.

Other figures such as for permanent monitoring wells, present only data exceeding a criteria (MCLs) because the initial analyte list consists of over 200 hundred chemicals. Most of these chemicals were not detected, however many wells contain detections of metals which does not necessarily indicate contamination. Showing the entire analyte list with the associated detection would result in a map that is difficult to read and would, therefore, reduce its usefulness..

However, the Navy does recognize the difficulties in reviewing numerous tables of results and at the same time, continuing to reference various maps and figures. That is way the Navy has been working on the graphical representation of all data collected to date utilizing a GIS-based software package. This package not only interprets data points horizontally, it also interprets the data in the vertical direction (or profile). A first attempt at this additional evaluation of data has been conducted for the Site 7/10A parcel and has been forwarded as part of this response.

The Navy hopes that these new figures will aid in the review of the Site 7 data which will be the topic of a near-future technical subcommittee meeting.

11. **Comment:** Figure 4-2: It would appear by the groundwater sampling results and construction details that FD-MW-07 possibly was not installed deep enough to intersect the plume. The underground storage tanks in this area were placed between 15 to 20 feet below the surface (page 4-20) but the total depth of FD-MW-07 was 21 feet, approximately 200+ feet down gradient of the tank area. This well appears to possibly be intersecting the upper fringe of down gradient contamination and may be indicated by the findings of 4.2 ppb of TCE and 2ppb of 1,1,1 TCA, in FD-MW-07.

Response: To clarify statements in the comment, the bottoms of the underground storage tanks were installed to a depth of 15 to 17 (not 20 feet) below ground surface. However, please note that these tanks were installed completely above the water table. Monitoring well FD-MW07 was installed to a depth of 8 feet below the water table. Since groundwater in this area flows in a direction from the fuel depot to this monitoring well, the bottom of FD-MW07 is at least 8 feet lower than the bottom of the underground storage tanks. The figures forwarded with this package showing the vertical profiling of this area will help to better illustrate the response given above.

Part of the confusion at this site appears to be related to the use of absolute elevations (e.g. above mean sea level (msl)), elevations relative to ground

surface (bgs), and elevations relative to the water table (bwt). The absolute elevations are based on surveyor data and are only available for permanent monitoring wells.

Since the groundwater at most the site is relatively flat (approximately 0.1 to 0.5 vertical feet over 100 horizontal feet) elevations relative to water table are similar to absolute elevations. That is why the temporary and permanent monitoring well data is referenced to feet below water table (bwt). This presentation also takes into account the change in groundwater elevation over distance.

Other data presented in the report references feet below ground surface (bgs). This data is generated by the field geologist for field documentation and should not be used as indicated in the comment. Even though the general area is relatively flat, the ground surface at NWIRP Calverton does vary by several feet over small distance (mounds for buildings, drainage ditches and marshes). In the case of the fuel depot pad versus FD-MW07, the difference in ground surface elevations is approximately 5 feet, (i.e. FD-MW07 is in a hole).

To further clarify the selection process for the depth of FD-MW07, the following factors were considered.

- Fuel type chemicals were detected in temporary well FDTW04, (which is the same well as FD-MW07), at depths of 3 to 5 and 18 to 20 feet below the water table, but not at a depth of 38 to 40 feet below the water table. See Table 4-1 and note that Figure 4-1 will be modified to incorporate the results from 38 to 40 feet interval at this location. Also, the finding of toluene in this well provides evidence of a connection between contaminated site groundwater and this well.
- The same chemicals were found at the same depths in both wells FDTW03 and FDTW04, but the concentration in FDTW03 was 40 times higher than in FDTW04. Also, the shallow groundwater sample at FDTW03 (3 to 5 feet BWT) is more contaminated than the deeper groundwater sample (18 to 20 feet BWT), indicating the contamination from the site is not sinking quickly. The finding of

the same chemicals at both depths indicates that the contaminated groundwater is at least 15 feet thick.

- Based on measured vertical and horizontal gradients and estimated conductivities, the vertical component to groundwater flow is less than 10%, meaning that over a horizontal run of 200 feet, the maximum vertical drop would be 20 feet. This estimate is consistent with finding of contamination in the 3 to 5 foot interval and the 18 to 20 foot interval, but not in the 38 to 40 foot interval.

Please note however, that as part of a remedy, additional deeper monitoring wells in this area may be considered.

Relative to the finding of chlorinated VOCs in FD-MW07, the suggestion that low detections of TCA and TCE (should be PCE) potentially being the upper fringe of a down gradient plume is without basis. This area is not a known or likely disposal area and the chemicals were found at concentrations below NYS drinking water standards. Also, the fuel depot is being investigated because of the former presence of leaking underground storage tanks. Contaminants associated with this operation are non chlorinated VOCs, (i.e. TCA and PCE are not fuel related concerns).

The additional figures forwarded as part of this package shows a profile of the data collected at Site 7 and may help to illustrate the response discussed above.

12. **Comment:** In general, the report would be enhanced if cross sectional view of each area were added, this would give a better overall picture as to the total extent of the contamination.

The aforementioned comments reflect the Departments major concerns regarding this report, additional comments, may be raised during future TRC and/or RAB meetings. If you have any questions, please call me at (518) 457-3976.

Response: As noted previously, the Navy is working on enhanced graphics to aid in the vertical interpretation of data and has submitted an example of these graphics for Sites 7 and 10A. The Navy believes that, with the aid of this GIS-based software, a better understanding of the data can be presented. The Navy will continue to work on similar packages for the remaining IR Parcels but will discuss each parcel at separate technical subcommittee meetings. The first of these meetings will discuss the Site 7/10A parcel and will be scheduled only after the regulatory community has had a chance to review the additional figures.

**Response to USEPA's Comment on the Phase 2 RFI Report
for Sites 1, 2 and 7**

The U.S. Environmental Protection Agency has reviewed the Phase 2 RCRA Facility Investigation Report for Sites 1, 2 and 7 of the former Naval Weapons Industrial Reserve Plant (NWIRP), in Calverton, New York. We offer the following comment:

1. **Comment:** Site 2 – Fire Training Area, The RFI Report concludes that the data indicates that there are not any off-site releases of groundwater contaminants from the Fire Training Area. However, as shown in Figure 3-1, on-site well FT-TW-02 (aka FTMW08) which is located at the site border, indicates a concentration of 218 ug/l for chlorinated VOCs at a depth of 28 feet. Although the data from the off-site wells do not show any noticeable contamination, it should be noted that none of the off-site readings were shown at a depth of 28 feet. The off-site groundwater samples were taken only at depths of 5-feet, 20 feet, and 40 feet. Thus, there is the possibility that contamination may exist off-site, but was not recorded due to the very wide depth intervals between which the off-site samples were taken. If readings taken at a depth of approximately 28 feet are not available for the off-site samples in Phase 2 investigation, then new off-site samples should be taken at closer intervals for the off-site wells, to provide more accurate justification that there is no off-site contamination.

If you should have any questions regarding this comment, please contact Ms. Carol Stein, P.E., of my staff, at (212) 637-4181.

Response: To evaluate the referenced data, please note that the depth below water table column presented in Figure 3-1 is the bottom of the screened interval. The length of a screened interval varies based on the type of well installed. For FT-TW-02 (FTMW08), the data presented in the tag map is a combination of temporary monitoring wells (with a 2-foot screened interval) and permanent monitoring wells (with a 10-foot screened interval). For the referenced sample depth at this location (with a VOC concentration of 218 ug/l), the sample was collected at a depth of 18 to 28 below the water table. The corresponding offsite temporary monitoring wells were sampled at a depth of 3 to 5 feet, 18 to 20 feet, and 38 to 40 feet below the water table. As a result, the onsite and mid-level offsite samples were collected from comparable sample intervals.

In addition, contamination was detected at a depth of 38 to 40 feet below the water table at FT-TW-02 (FTMW08). The finding of VOCs at this

depth indicates that the vertical extent of VOC contamination in this area is a minimum of 10 feet thick, and is likely to be in the range of 20 feet. Therefore, the 20 foot vertical interval selected for this area would be adequate to identify significant migration of contamination off site.

As with any program in which 100% coverage cannot be assured, the Navy acknowledges that there is a possibility of missing relatively small ribbons or pockets of VOC-contaminated groundwater. As a result, the basis for the Navy's investigation has been to identify contamination that would represent a significant threat to human health or the environment. The data collected to date for this site indicates that there are no significant threats to human health or the environment from the VOCs detected at the fence line; although it would be reasonable to assume that some VOCs have migrated beyond the fence.

During the development of the Corrective Measures Study (CMS) for this site, the Navy in cooperation with the EPA and other regulatory agencies will identify whether cleaning up groundwater at the fence line would be an objective. If chosen as an objective, then alternatives would be developed to address contamination at and beyond the fence. Part of a chosen remedy would include delineation of the future extent of the plume to ensure proper placement of extraction wells. Therefore, the Navy believes that further off site delineation of groundwater contamination is not required at this time. Rather the Navy would prefer to proceed with a CMS and then consider further offsite work in this area under a Remedial Design.

RAB Comments Dated January 31, 1999
NWIRP Calverton
Phase 2 RCRA Facility Investigation

Those members of the RAB that provided input to these comments include: Lou Cork, Lorraine Collins, Bill Gunther and myself. Anne Miloski reviewed the comments and supports them. The submission of these comments does not preclude RAB members from submitting additional comments.

General comments

1. **Comment:** There was discussion at the 12/15 Steering Committee meeting as to what standard should be achieved through remediation. It was agreed by those present (Collins, Cork, Gunther & Johnson) that the standard for residential use should be used as the clean-up goal for all sites.

Response: The Navy understands and does recognize the community's desire to have property, that will someday be conveyed to the Town, to be remediated to the most stringent standards. However, the Navy also has a responsibility to achieve a level of remediation that would allow the most "reasonable" reuse of that property in a timely manner using taxpayer funding appropriated from Congress. In order to determine a reasonable reuse, the Navy turns to the entity that will ultimately be receiving the property, in this case the Town of Riverhead, to dictate what that reuse will be through their land reuse plan that is required as part of the Environmental Impact Statement (EIS) process. For Calverton, the preferred reuse, as described in Riverhead's Land Reuse Plan, called for an industrial park to be created along with various commercial-type uses. These "industrial" levels will be used during the Corrective Measures Study (CMS) phase to evaluate different cleanup technologies that will remediate the sites to those levels. Please understand that many times a "residential", or TAGM value is achieved indirectly, especially when excavation and disposal is the preferred method unless the additional volume required to reach the "residential" value becomes cost prohibitive.

The above explanation has been issued as the Navy's policy with regards to property that this to be transferred out of federal ownership. A copy of the policy can be forwarded to the RAB if desired.

In addition, the special legislation that was issued which allows the Navy to convey this property, without compensation, to the Town of Riverhead may have also contained a restriction that the property must be used for economic redevelopment. In such a case, a residential reuse would not seem to be consistent with this use restriction.

2. **Comment:** The sections were written differently and information given in some sections was more detailed than in other sections. This made review difficult. The format of each section should be the same with information presented by media (soil, sediment, groundwater), then health and ecological impacts for each given.

Response: The Navy will continue the IR Program by forwarding information on a site-by-site or parcel-by-parcel basis. The Navy will begin by breaking out those sections of the draft RFI reports that deal with Sites 7 and 10A which will be the focus of the first of several technical subcommittee meetings. It is hoped that by handling the information in this manner, a better understanding of the data can be achieved.

3. **Comment:** There should be a list of acronyms at the beginning of this, and future documents.

Response: A list of acronyms will be developed for use by the RAB.

Site 1 - Northeast Pond Disposal Area

4. **Comment:** Page 2-57, conclusion 2. It is stated in this conclusion that thallium may not be a site contaminant, however, it is also stated that thallium did exceed groundwater standards. It should be determined conclusively whether in fact

thallium occurs naturally at the site. In a preliminary data screening in 1992 (See attached Table 5-1, Draft Site Investigation Report, January 1992) no thallium was detected in soils. Why is it now showing up in groundwater?

If thallium is background, explain the reasons for the extreme variations in test results at contaminated sites -

NP-MW02, Aug 94, 12.4 ug/l

NP-MW04, Jun 97, 5.8

NP-MW05, Jun 97, 3.6

FT-MW02-S, Mar 95, 3.5

FT-MW02-I, Mar 95, 6.3

(Will be interested to see your response to the NYSDEC comment on Thallium.)

Response: The response presented here is identical to that for the state comment, as follows.

The Navy has contacted Northrop Grumman and inquired about the potential for thallium -based detectors to have been disposed of in the Northeast Pond area. To date, Northrop Grumman had not yet responded. Further discussions relating to this issue is required and will be discussed as part of a focused technical subcommittee meeting regarding future actions at Site 1.

However, based on the evaluation of the analytical results, the probability that thallium is site related is low. Two rounds of groundwater testing were conducted during each of two phases of investigation, for a total of four rounds. For the first two rounds, samples were collected using a bailer and sample results may be biased high because of fill intrusion into the wells. The second phase samples were collected using low flow sample techniques. As a result, the Phase 2 results are considered more representative of site groundwater.

Thallium was detected in the upgradient monitoring well (NP-MW01) in two of the four rounds at concentrations of 4.0 and 4.1 ug/l, (MCL is 2.0 ug/l). Thallium

was detected in more than half of the downgradient monitoring well samples, but at concentrations ranging from 3.3 to 6.7 ug/l. In addition, thallium was detected in 6 of 13 laboratory and field QA/QC data at concentrations ranging from 2.9 to 4.0 ug/l. Thallium was also detected in one QA/QC sample collected in August 1994 at a concentration of 12.4 ug/l. However this single data point was a duplicate of a sample with a non detected result. The poor comparison between original and duplicate result raises a concern about the accuracy of the result. In addition, the 1994 sample results may be biased high because of fill intrusion into the well.

The relative consistency between the upgradient and downgradient data and the finding of similar concentrations of thallium in blank samples is a general (although not conclusive) indication that the presence of thallium in the groundwater is not site related. In addition, thallium was not detected in the soil or waste samples from the site. However, long term monitoring may be required to resolve whether or not thallium is a site related contaminant.

5. **Comment:** Page 2-58, conclusion 7. This conclusion, that the chemicals in soil and sediment are not adversely impacting groundwater quality, is not supported by statements within the section. On page 2-11, it is stated that **State groundwater quality standards have been exceeded** by 10 chemicals. On page 2-13 it is stated that federal and state **drinking water standards have been exceeded** by the same 10 "chemical concentrations," and that "the risk assessment has identified the soils and groundwater at the **Northeast Pond Disposal Area site to pose unacceptable human health risks...**"

Given the extent of the contamination at this site, particularly the concentrations of PCBs listed in the sediments in Figure 2-4, a remediation solution that calls only for groundwater monitoring is not acceptable. The Corrective Measures Study for this site must consider excavation and removal of the contaminated soil for the disposal offsite and should also include the evaluation of active groundwater treatment alternatives.

Response: The statements made regarding that the soils and groundwater may pose unacceptable risks to human health were based solely on Phase I RFI data which did appear to be valid until the Navy conducted low flow sampling of the same wells during the Phase 2 RFI. When lower concentrations were found during the Phase 2, it was concluded that the higher values found in the Phase 1 may have been caused by fill intrusion into the well and the samples may not have been a true representation of groundwater, hence the need for low-flow sampling techniques.

This above concern was specifically addressed in the Phase 2 Investigation as identified under the Data Gap section (page 2-16). "The actual presence of relatively non-mobile constituents (PCBs, pesticides, and metals) in groundwater. " To address this concern, low flow sample techniques were used to collect Phase 2 groundwater samples.

With regards to remedial alternatives for soil, various alternatives, including full excavation of the landfill, will be evaluated during the Corrective Measures Study (CMS) for this site. The main focus of the alternative analysis will center around the cost of each alternative versus how much more protection to human health can be achieved.

However, the Navy is hesitant to proceed to the CMS until the regulatory community becomes comfortable that the Navy has collected sufficient data at this site to proceed with alternative analysis. This decision will be the focus of a future technical subcommittee meeting to discuss Site 1.

Site 2 - Fire Training Area

6. **Comment:** Page 3-1, paragraph 3. It is stated that the water table is located 10 - 15 feet below grade. It should be noted that in Table 3-2 the depth to water in MW08 was less than 8 feet. While most of the wells did show a depth to within this distance, further work is necessary to obtain accurate, detailed information.

This discrepancy and the notoriously variable water table across the entire area supports the need for a dependable, current groundwater map.

Response: The reference on Page 3-1 is a range for most of the wells at the site and in particular for wells in the vicinity of the fire training ring. In general the water table is very flat at the fire training area. However, what does vary by several feet is the ground surface elevation. Monitoring Well MW08 happens to be located within a small depression, which accounts for the difference in depths to water table.

Note that all permanent monitoring wells have been accurately located both horizontally and vertically by licensed surveyors. Several local and groundwater contours maps have been developed and submitted to the RAB for review. These maps have consistently demonstrated a relatively simple groundwater flow pattern at the site.

7. **Comment:** Page 3-2, first paragraph. The statements in this paragraph are somewhat confusing "... A free product recovery system operated until 1993 when the system was shut down. Then, it is stated that free product recovery has continued from the shallow monitoring wells until 1996. Finally, it is stated that 270 gallons of petroleum product was recovered as of December 1993..." Is this an error? Should it be December 1996? Or was the amount recovered from the shallow monitoring wells too insignificant to be measured?

Response: To clarify the operation, the paragraph will be revised as follows.

A groundwater recovery system was installed in December 1987. This system consisted both of an active and a passive recovery system. The active recovery system included a groundwater pumping well, an oil recovery well, and an oil water separator tank. The passive recovery system consisted of hydrophobic filters located in shallow wells. The active recovery system was shut down in 1993 due to concerns with the quality of the discharged water. Passive free product recovery continued until 1996. As of December 1996, approximately 325 gallons of petroleum product have been removed from this site.

Please note that the Navy will be installing a new "active" free product recovery system this summer to continue the efforts of Northrop Grumman and will continue to operate the system to address free product at Site 2.

8. **Comment:** Page 3-3, paragraph 4. It is stated that there is no information available on the irrigation well, yet statements about that well were made at our November meeting. If information is available, it should be added to the report.

Response: The referenced statement will be deleted. Data on the irrigation wells is provided in Appendix A, but is not discussed in the text. The following statement will be added to Page 3-25. "VOCs were not detected in the Golf Course irrigation well."

9. **Comment:** Page 3-4, first paragraph. It is stated that "25,000 pounds of organics have been destroyed through biodegradation." Additional information on how this estimate was obtained should be included. If the estimate is supported by testing or analyses, that too should be included. And, if there are supporting analyses, why such a wide variable in the reduction of VOC concentrations (70 to 95 percent)?

Response: The destruction of organics is presented in the Phase 2 Air Sparging/ Soil Vapor Extraction Pilot Study Report dated December 1996. The value is based on the calculation method presented in Summary Results Report of Pilot Study Air Sparging/Soil Vapor Extraction System dated June 1996. Both of these reports have been forwarded to the RAB. The following statement will be added to the report.

"The range of VOC reductions is based on individual chemicals, not variability in the data. Some chemicals are more biodegradable and/or volatile than others. Measured removals for these chemicals were in the 95% range. Other less volatile and biodegradable chemicals averaged closer to 70% reduction."

10. **Comment:** Page 3-6, fifth bullet. Sorry, can't help noting that "one" drum was found at this site, too. Just out of curiosity, are there records that show that chemicals or hazardous wastes were stored in drums anywhere onsite, and how if they were, are there documents showing proper disposal?

Response: Records for storage and disposal of hazardous waste were kept by Northrop Grumman and submitted to the state in accordance with the specific regulations. The appropriate areas of drum storage were identified in Northrop Grumman's Site Assessment effort and summarized in the Navy's EBS documents during the closure process for the Calverton facility. As explained in the reports, these potential AOCs were identified, sampled and remediated, if required, by Northrop Grumman to the satisfaction of the NYSDEC Regional offices in Stony Brook, NY.

11. **Comment:** Page 3-16, paragraph 3. It is stated that soil sample results are "included in Appendix C." There is no Appendix C (or any other appendices referenced) in the document, nor are any appendices listed in the Table of Contents. This made it rather difficult to review sample results.

Response: Appendix C is in Volume II of the document submitted to the RAB. The appendices will be added to the Table of Contents.

12. **Comment:** Page 3-16, paragraph 4. It isn't clear that the statement "the extent of groundwater contamination is defined and currently does not extend off site" is a reliable conclusion (Also conclusion #1, page 3-30). The EPA was justified in their comment that the offsite sampling conducted was not adequate. In fact, it is somewhat ironic that the Navy response to the EPA claims that "...missing small ribbons or pockets of contaminated groundwater..." is unavoidable, after making the acknowledgment in conclusion #2 on page 3-30, that the contamination at this site is "...not contiguous, but pockets of discrete contamination..." This is all the more reason that additional offsite sampling at closer intervals with wells located closer together is needed.

Response: This specific concern along with the need for additional off site testing will be the focus of an upcoming technical subcommittee meeting to discuss Site 2 and its off-site component. A data package similar to the one forwarded for Sites 7 and 10a will be forwarded for review prior to the meeting. Decisions made between the Navy and the Calverton regulatory community will then be presented to the community during subsequent RAB meetings.

13. **Comment:** It should be noted that Figure 3-1 is not to scale, therefore, it is difficult to determine exactly where the GC-TWs are located in relation to the permanent monitoring wells at the FT site.

Response: Figure 3-1 is to scale and all temporary and permanent monitoring wells are shown on this map. A scale is provided on the figure.

14. **Comment:** Page 3-21. Reference is made to additional appendices that have not been included with this document.

Response: The Appendices are in Volume II of the document submitted to the RAB. The appendices will be added to the Table of Contents.

15. **Comment:** Page 3-30, Conclusions. Soil and groundwater pollution at the FT area and vicinity is well documented. Among the contaminants found, high levels of VOCs (particularly solvents) were detected in FT-MWs 05-S and 08-I, which are located at the fenceline, in 1994, '95 and '97. It is stated on page 3-7 that "...VOC contamination to the south (offsite) and east is not completely characterized..." In order to address this data gap 4 temporary monitoring wells were drilled.

Given the extent of the contamination at this site, the previous comments on the Draft RCRA Facility Investigation Report from regulators including the NYSDOH and EPA regarding offsite testing, the Navy's position that "...contamination is likely to exist offsite..." stated in a response to EPA comments (See attached), and EPA and NYSDEC comments on this report, it seems that concluding that "...groundwater contamination does not extend offsite..." based on one-time

testing of 4 wells drilled and sampled at questionable depths is in itself a highly questionable conclusion. I reiterate the comment made above, additional offsite testing needs to be done.

Concurrent with drafting a CMS to address overall soil and groundwater remediation, additional offsite testing should be conducted, and free-product recovery should resume immediately.

Response: The need for additional off site testing will be determined during an upcoming detailed re-evaluation of the site data. Construction of a free product recovery system is underway and is scheduled for installation in the summer of 1999.

Site 7 - Fuel Depot

16. **Comment:** Page 4-2, paragraph 2. Several storage tanks are described. Are the remaining tanks scheduled for removal? If so, when? If not, do they meet Suffolk County Health Codes (Articles 6 and 12)?

Response: The remaining tanks were removed after preparation of the report. As of spring of 1998, all tanks have been removed from the Fuel Depot. The text will be revised.

17. **Comment:** paragraph 4. This paragraph is very confusing. Certainly wells have been installed since May of 1989, and while maybe there was no direct remediation of soils or groundwater, 114 gallons of petroleum were removed from this site as of December 1993, which counts for something -- unless it was simply pumped out of the storage tanks and "removed." Please clarify.

Response: The paragraph is accurate as stated. Free product is a separate media and removal of free product does not directly clean up either soils or groundwater.

18. **Comment:** Page 4-3, last paragraph. It is stated that spills have been documented at the fuel depot. Information (at least a total figure) on these spills should be given.

Response: This information is in the IAS, which has been provided to the RAB.

19. **Comment:** Page 4-4, bullet 5. How much additional free-product was recovered between 1993 and 1996?

Response: Based on Grumman records, 60 gallons of free product were removed from December 1993 to December 1996. The text will be revised to reflect this update.

20 **Comment:** Page 4-6, first bullet. In 1992, the results of the analysis on lead were 11.8 to 692 ug/l and 25 ug/l was detected in FDMW -06 during testing in Mar '95. The effort should be made to get a good sample and evaluate the risk.

Response: The Navy will conduct the modeling with all data currently available.

21. **Comment:** Page 4-13. Can't review soil samples because there's no Appendix C.

Response: Soil sample results are presented in Table 4-3 of Volume I and Appendix C of Volume II. Both volumes have been provided to the RAB.

22. **Comment:** Page 4-16, Table 4-2. Site 7 is not the Fuel Calibration Area, this title should be corrected.

Response: Agreed.

23. **Comment:** Concur with the NYSDEC comment that well #FDMW-07 may not be deep enough to intersect contamination.

Response: The need for deeper monitoring wells will be considered and discussed at an upcoming technical subcommittee meeting.

24. **Comment:** Page 4-19, paragraph 3. The very last sentence states that "... based on the data collected...the extent of the groundwater contamination is adequately defined..." however, the sentence directly above states that "...Figure 4-2 depicts the estimated extent of groundwater contamination..." If the results in Figure 4-2 only show an estimate, then clearly additional sampling is required.

Response: The Navy agrees that additional sampling is needed at this site. The question is when and for what purpose. The Navy believes that sufficient information is available to proceed from the study phase to the alternative analysis phase. The primary reason for identifying the extent of contamination at this time is to generate a reasonably accurate cost estimate in the corrective measure study.

During the design of a remedy, additional characterization and delineation is normally conducted in accordance with site specific remediation goals to ensure that a remedy is properly designed. Monitoring is also conducted overtime to check the effectiveness of the remedy. This evaluation is particularly needed for groundwater at the fuel depot, because the contaminants are fuels that can both migrate and biodegrade.

To help clarify this approach, the following text will be added to the end of Page 4-19: "... to proceed from the study phase to the alternative analysis phase."

25. **Comment:** Page 4-24. Conclusion 1 is not supported given the depth of monitoring well 07. Additional testing is necessary to determine the extent of groundwater contamination.

Response: Conclusion 1 is supported based on the finding of no contamination in groundwater samples collected at three different depths at this location. Monitoring Well 07 was placed based on the finding of trace fuels in the shallow

groundwater (5 feet and 20 feet below the water table) and no fuels in the deeper groundwater.

Please refer to the handouts provided to Sherry Johnson which are part of this response document. The handouts show the vertical profile of this site based on data collected to date. These figures will be focus of the first of several technical subcommittee meetings which will be required in order to make specific decisions on a site-by-site or parcel-by-parcel basis.

26. **Comment:** Recovery of the free-product should resume immediately.

Response: Discussion on free product at Site 7 is provided in the EECA – September 1998 that was distributed to the RAB. In overview, there is no recoverable free product remaining at Site 7. However, as part of a remedy, the potential presence of free product will continue to be investigated. If detected, an evaluation of options would be conducted to ensure that the presence of any free product won't interfere with the effectiveness of a groundwater remedy.