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LETTER AND U S NAVY RESPONSE TO RHODE ISLAND DEPARTMENT OF
ENVIRONMENTAL MANAGEMENT COMMENTS TO DRAFT SAMPLING AND ANALYSIS
PLAN TANK FARM 1 NS NEWPORT RI
11/15/2011
TETRA TECH NUS



C-NAVY-11-11-4676W

November 15, 2011

Project Number 112G02574

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Ms. Pamela Crump
Rhode Island Department of Environmental Management
235 Promenade St.
Providence RI 02908-5767

Reference: CLEAN Contract No. N62470-08-D-1001
Contract Task Order No. WE52

Subject: Transmittal of Response to Comments, Draft Sampling and Analysis Plan
Ethyl Blending Plant, Tank Farm 1
Naval Station Newport, Newport RI

Dear Ms. Keckler, Ms. Crump:

On behalf of Mr. Roberto Pagtalunan, U.S. Navy NAVFAC, I am providing to you enclosed a response to RIDEM comments dated October 13, 2011 on the Draft Sampling and Analysis Plan (SAP) for the site referenced above.

If necessary, a technical conference call can be scheduled to discuss any outstanding comments. These responses to comments will be incorporated into the Draft Final SAP which will be issued following any technical discussion of the comments.

If you have any questions regarding this material, please do not hesitate to contact me.

Very truly yours,

A handwritten signature in blue ink that reads 'Thomas Campbell'.

Thomas A. Campbell
Project Manager

TAC/lh

encl.

c: R. Pagtalunan, NAVFAC Mid-Atlantic (w/encl.)
D. Dorocz, NAVSTA (w/encl.)
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File G02574-3.2 (w/o encl.) File G02574-8.0 (w/encl.)

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**NAVY RESPONSES TO
RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (RIDEM)
COMMENTS DATED OCTOBER 13, 2011
ON THE DRAFT SAMPLING AND ANALYSIS PLAN (APRIL 2011)
FOR THE ETHYL BLENDING PLANT, TANK FARM 1 DATA GAPS ASSESSMENT
NAVAL STATION NEWPORT
NEWPORT, RHODE ISLAND**

Navy responses to the Rhode Island Department of Environmental Management (RIDEM) evaluation of response comments on the Navy's responses of July 28, 2011 to RIDEM's comments on the Draft Sampling and Analysis Plan dated April 2011 for the Ethyl Blending Plant, Tank Farm 1 Data Gaps Assessment Naval Station Newport, Newport, Rhode Island. The RIDEM comments are presented first (in italics) followed by Navy's responses.

Specific Comments:

Comment 2: Page 4, Executive Summary; 2nd paragraph, 2nd sentence:

"To date, the only area in Tank Farm 1 identified for further investigation as a Category 1 area are the AOCs associated with the former Ethyl Blending Plant due to suspected releases of hazardous materials."

According to the 1983 Initial Assessment Study, tank bottom sludge from each tank was placed in a pit approximately 20 feet long, 10 feet wide, and 4 feet deep, which was dug in the general vicinity of the tank being cleaned. These areas were marked with signs warning of tetraethyl lead contamination. These areas must be included as Category 1 AOCs under CERCLA. Also, the following areas exist on Tank Farm 1 which may contain CERCLA contaminants: an inactive fuel loading area (northeast portion); a former gasoline/water separator (west side); an oil/water separator located in the central portion of the site; and two transformer vaults.

Response:

1. Tank bottom sludge, disposed of in pits

Suspected sludge pits at Tank Farm 1 have been previously investigated. In 1992 TRC identified 5 potential sludge pits using historic aerial photographs which were subsequently sampled by Groundwater Technology. Analytical results are summarized in Appendix A-1 Table A-4 and pages 11 and 12 of the Tetra Tech 2010 Technical Memorandum. Soil and groundwater were analyzed for VOCs, SVOCs, Lead, TPH, Gasoline, and TVPH. The associated monitoring well with these areas, GZ-106, was gauged for the presence of NAPL, which was not detected.

In 2006 TtEC also used historic aerial photographs to identify potential sludge pits, among other areas, for investigation. In 2010 Shaw conducted an investigation of these areas which described in Summary Report included in Appendix A-3 of the Ethyl Blending Plant SAP. In addition, analytical results from this investigation are summarized in Appendix A-1 Table A-1 of the Ethyl Blending Plant SAP. Shaw screened soil samples with Petroflag™ test kits and, based on TPH concentration detected, subsequently analyzed samples for DRO, GRO, VOCs and/or SVOCs. Some areas were flagged by Shaw based on exceedances, although these areas are not necessarily located in suspected sludge pits. Further action at these areas is pending the completion of Shaw's investigation.

Sludge pits have been historically described as being '...dug in the general vicinity of the tank being cleaned'. Tetra Tech considered samples collected near the tanks, although potentially not specified as being collected to evaluate potential sludge pits, in the evaluation of suspected sludge pits at Tank Farm 1. Information regarding sampling adjacent to the tanks can be found in the tables in the Ethyl Blending Plant Appendix A-1 (Tetra Tech Technical Memorandum) and A-3 (Shaw Summary Report). Further action at these areas is pending the completion of Shaw's investigation.

Evaluation of Response:

The sludge pits cannot be ruled out as Category 1 Areas if we are still awaiting results of Shaw's investigation. These areas will require further investigation either as Category 1 or Category 2/3 Areas.

Response: Navy will defer investigation of the suspected tank bottom sludge pits until the completion of the Shaw investigation.

2. Inactive fuel loading area (northeast portion)

Analytical results from samples collected in the inactive fuel loading area are summarized in the Ethyl Blending Plant SAP, Appendix A-1, Table A-13 and the Tech Memo on page 16 (also found in Appendix A-1). Several rounds of sampling have been conducted in this areas beginning in 1994, with the most recent sampling occurring in 2010. Collectively, only one exceedance was detected in groundwater in 1994 for benzene. No exceedances of applicable standards have been detected since that time and LNAPL has not been detected in this area. See Table A-13 for a complete list of analytes, which includes VOCs, SVOCs, DRO, GRO, Lead, TPH and TVPH. This area has been investigated and results have shown no contamination above exceedances.

Evaluation of Response:

Fuel Loading Areas typically have measures to collect fuels in case of releases (culverts, drains, oil/water separators, etc.). In addition, the fuel loading system may contain product in the pipes, pumps, etc. Please be advised that any potential AOC will need to be addressed under Category 2 or 3.

Response: Navy will defer investigation of the suspected tank bottom sludge pits until the completion of the Shaw investigation.

3. Former gasoline/water separator (west side); oil/water separator (central)

A summary table of investigations conducted at the gasoline/water and oil/water separators is presented below. This investigation is described in the 2010 Shaw Summary Report. Investigations in these areas has shown none or limited contamination, which is why no further investigations are not recommended.

Sample Location / Identification	Analysis	Result
TF1-T13-OWS-S / TF1-T13-OWS-S (2.5'), TF1-T13-OWS-S (5')	Petroflag™ screening	No further action
TF1-T13-OWS-W / TF1-T13-OWS-W (2.5'), TF1-T13-OWS-W (5')	Petroflag™ screening	No further action
TF1-T13-OWS PIPE / TF1-T13 OWS PIPE 1 (2.5'), TF1-T13 OWS PIPE 2 (5'), TF1-T13 OWS PIPE 3 (5.5'), TF1-T13 OWS PIPE 4 (8'), TF1-T13 OWS PIPE 5 (9.5')	Petroflag™ screening, TPH, Gasoline	No further action
TF1-T13-OWS-NW / TF1-T13 OWS-NW1 (3'), TF1-T13 OWS-NW2 (5')	Petroflag™ screening, TPH, Gasoline	No further action
TF1-T13-OWS-NW RE-EX / TF1-Tank 14 (5'), TF1-Tank 14 (10'), TF1-Tank 14 (15'), TF1-Tank 14 (20')	Petroflag™ screening	No further action
TF1-Suspected OWS-E / TF1-Suspected OWS-E (2.5'), TF1-Suspected OWS-E (5')	Petroflag™ screening	No further action
TF1-Suspected OWS-W / TF1-Suspected OWS-W (2.5'), TF1-Suspected OWS-W (5')	Petroflag™ screening	No further action

Evaluation of Response:

Please be advised that any potential AOCs will need to be addressed under Category 2 or 3.

Response: Navy will defer investigation of the suspected tank bottom sludge pits until the completion of the Shaw investigation.

4. Two transformer vaults

Shaw collected soil samples adjacent to the Tank Farm 1 transformers. The results presented in the Tetra Tech Technical Memorandum (Appendix A-1). Although PCBs were detected at one location above applicable standards, Navy is not conducting additional investigations because the transformers are part of the functioning infrastructure at Tank Farm 1.

Evaluation of Response:

Please include the investigation of potential PCB releases in this SAP.

Response: Navy agrees to conduct PCB sampling at the two transformer vault locations where PCBs have been previously detected during a 2010 Shaw sample event. Shaw sampling detected the presence of aroclor-1260 at transformer vaults 2 and 3 at concentrations of 24 mg/kg and 0.51 mg/kg, respectively.

Navy proposes to collect surface (0 to 1 foot) and subsurface (2 to 4 feet) soil samples in order to further characterize the extent of contamination. Soil sampling will be designed to confirm the PCBs in the two locations and to step out from each location in two horizontal directions and in the vertical (see attached figure). New soil boring locations will include one boring adjacent to the old location, and two borings 10 to 15 feet from the old locations with detections of PCBs. The sampling program has also been designed to determine if PCBs are present in subsurface soils by collecting subsurface soil samples from each location at the 2 to 4 foot below ground surface interval. Attached to this response to comment document is a proposed sample location map for transformer vaults 2 and 3 at Tank Farm 1.

Comment 3: Page 4, Executive Summary; 3rd paragraph, 2nd sentence:

"This analyte list covers potential constituents of ethyl fluid..."

Please add TPH and tetraethyl lead (TEL) to the analyte list in the above sentence and throughout the document since the ethyl fluid mainly consisted of TEL, was blended with the aviation fuel, and kerosene was used as a cleaning agent for any spills associated with the blending operations.

Response: Navy has not included tetraethyl lead (TEL) in the analyst list because the constituents of the ethyl fluid will be detected in the selected analyses (VOCs, SVOCs, and metals). In addition, there are no analytical laboratories that are ELAP certified for TEL analysis, which is a Navy requirement when procuring analytical services. Navy believes that lead analytical results can be used as a marker or indicator for the presence of TEL. Since this site is a Category I site, petroleum hydrocarbon analysis is not being conducted. Navy believes that the inclusion of kerosene constituents, such as BTEX compounds and naphthalene and paraffins will be sufficient to determine if a release occurred.

Evaluation of Response:

Since the purpose of the Ethyl Blending Plant was to mix fuels with TEL, sampling for TPH will indicate areas of potential releases and spills. If TEL is not included in the analyte list, the analytical results for lead will be assumed to be tetraethyl lead.

Response: Comment noted. The analytical results for tetraethyl lead constituents will be used as an indicator for the potential release of TEL.

Comment 4: Page 4, Executive Summary; 3rd paragraph, 3rd sentence:

"Soil samples will be collected using a soil drilling or direct-push methods..."

The Department recognizes the value of soil borings, however in this case it would seem appropriate to install a series of test pits. If test pits are not utilized, we reserve the right to require them at a later time should the borings not adequately characterize the area.

Response: Navy prefers to collect soil samples using soil borings as opposed to test pitting. Soil boring allow for the more accurate collection of samples from discrete sample interval and better retention of any potential volatile organic compounds in the sample collection process.

Evaluation of Response:

There are a number of factors (poor recovery in split spoons, soil spoon compression, etc.) which will adversely affect the accurate collection from discrete sample locations in borings and as such it is erroneous to state that borings are more accurate than test pits. VOC loss in test pits can be minimized by collecting samples 6-10 inches deeper than the exposed sidewall or base sample of the test pit. Further, the use of test pits is of a greater advantage in being able to observe areas of staining, product, etc. which will indicate the best location for sampling. Therefore, the Office reiterates its position that test pit samples should be collected. As is being seen with Shaw's investigations, test pit results are showing exceedances near previous borings and monitoring wells.

Response: Shaw advanced approximately 15 test pits in the vicinity of the Ethyl Blending Plant as part of their 2010 investigation. Six of these test pits were located adjacent to the plant building. Navy will attempt to further characterize the area with borings and recognizes RIDEM's suggestion for another approach using test pits as future option dependent on sampling results.

Comment 5: Page 4, Executive Summary; 3rd paragraph, 3^d sentence:

"...at depths of 0 to 1 feet and 2 subsurface soil interval."

Please be advised that according to the State Site Remediation Regulations the surface soil depth should be 0-2 feet. Failure to collect samples from this zone will preclude the placement of an ELUR for industrial and commercial use in the future.

Response: Navy selected the 0-1 foot interval in accordance with EPA Region I guidance for conducting human health risk assessments.

Evaluation of Response:

RIDEM understands that the USEPA guidance defines surface soil as soil in the 0-1 foot interval. However, RIDEM regulations for industrial/commercial exposure define surface soil as 0-2 feet. Further, should the Navy propose an industrial commercial ELUR for the site, the 0-2 foot interval will have to be investigated. It is suggested that either samples be collected in the most contaminated interval in the 0-2 foot zone or additional samples be taken at each location to satisfy both regulatory agencies.

Response: Navy stands by its original response stating that the surface interval will be considered 0-1 feet in accordance with EPA Region I guidance. As RIDEM states in their evaluation of response, the 0-2 foot interval can be characterized in the future if an ELUR is proposed for the site.

Comment 8: Page 21, Section 10.2, Site History; 2nd paragraph, last sentence.

"If any spillage of ethyl fluid occurred, the spill was washed with kerosene and then sluiced with water. The destination of the wash is unknown".

It would seem prudent from the above statement to include investigations near outside doorways, dry wells, sumps, floor drains, and any discharge pipes from the building. Please add these investigations to this document, or clear justification as to why they are not warranted.

Response: The sample locations are based on a 15 foot by 15 foot grid system. Eight locations are adjacent to the ethyl blending plant building (SB1008 – SB1010, SB1013, SB1014, and SB1017 through SB1019). Locations can be adjusted during a field verification trip. There is no specific information on the building construction regarding dry wells, floor drains, and discharge pipes from the building.

Evaluation of Response:

In the response to comments, please provide a copy of any engineering plans which were obtained as part of this effort. Based upon the field photographs, it is clear that the ethyl blending plant contains a boiler, an unknown pit on the SE side of the building, and a tank vent pipe. Please include provisions in this SAP to investigate these areas with test pits. Further, the interior of the building must be inspected during these investigations for any drains or pipe penetrations and these areas must also be tracked and investigated. Finally, it appears that there may be releases of lead and/or PCBs along the perimeters of the building and at other locations. Please include provisions to take samples at these locations.

Finally, in regards to field efforts to locate potential discharge locations, RIDEM will be willing to participate in this effort.

Response: Any engineering plans obtained as part of the effort to complete the Draft SAP were provided to RIDEM as part of the July 28, 2011 Navy response to comment document. The 2010 Shaw investigation include six test pits adjacent to the Ethyl Blending Plant. Navy will also complete additional borings adjacent to the Ethyl Blending Plant and as suggested a site walk over to verify these locations. It is Navy's position that potential release points or sources within the Ethyl Blending Plant are being adequately investigated by the proposed SAP. Navy is not aware of any documentation of releases of PCBs at the Ethyl Blending Plant or any reason to suspect such releases. Sampling for PCBs is being proposed at Transformer Vaults 2 and 3.

Comment 9: Page 23, Section 10.4.1 Monitoring well installation and groundwater sampling; whole section: *Please add language to this section that free product has been observed in the onsite wells.*

Response: It should be noted that free product was not detected in groundwater monitoring wells associated with the Ethyl Blending Plant. The text will be edited to indicate that free product was detected in monitoring wells associated with Tanks 16 and 17.

Evaluation of Response:

Please indicate in the response to comments how it was determined that the free product was associated with Tanks 16 & 17 in lieu of the ethyl lead blending plant.

Response: A review of historic sampling has indicated that monitoring wells associated with Tanks 16 and 17 contained free product.

Comment 11: Page 30, Section 11.2.3, Project Screening Levels; bullets: *Please include the following in this section, throughout this document, and in Appendix B for the Project Screening Levels: RIDEM Residential Soil Direct Exposure Criteria; Leachability; TPH; and EPA PRGs for tetraethyl lead (human health and ecological); sediment; and surface water PSLs.*

Response: RIDEM criteria are not to be used in determining PSLs, but if a CERCLA risk is determined, RIDEM criteria will be considered potential ARARs. TPH is not included since this is a Category 1 site. It should be noted that TPH constituents will be included in the laboratory analytical list (i.e. BTEX compounds and SVOC constituents). Please see response to comment number 3 regarding the request to add TEL to the proposed analysis list.

Evaluation of Response:

According to the CERCLA Human Health Risk Assessment Process for Soil at NAVSTA Newport Navy Flow Chart, sent to Matthew DeStefano from Timothy Reisch on October 4, 2011, RIDEM's RDECs are risk-based standards which should be used as screening values to determine PSLs. The same applies for RIDEM's leachability criteria.

The purpose of the Ethyl Blending Plant was to mix fuels with additives. Therefore, sampling for TPH would provide indication of areas where releases to the environment may have occurred. If the Navy does not include sampling for TPH in this SAP, RIDEM will require additional sampling at a later date. Since tetraethyl lead was used at the site, the EPA PRGs for tetraethyl lead (human health and ecological); PSLs must be employed. Finally, as RIDEM's regulatory criteria are risk based values, any risk assessment conducted at the site for residential or industrial commercial criteria should at a minimum depict unacceptable risk if RIDEM's values are exceeded. If this is not the case, this brings into question the procedures used for the risk assessment. Be advised that inputs into the risk assessment in terms of averaging time, exposure areas, etc. must conform to RIDEM values (or USEPA if they are more conservative). Please review values and adjust them accordingly.

Response: The PSLs have been set to the lowest criteria that may be used at a later stage for risk determination. The Tank Farm 1 SAP has chosen for soil PSLs the lowest of the human health risk-screening criteria and the selected ecological soil screening levels (SSLs), as shown in Appendix B, Table B-2. A review of the soil and groundwater PSLs has shown that the laboratory LOQs are consistently more conservative than the RIDEM DEC and leachability criteria, with several exceptions.

Navy reiterates that the Ethyl Blending Plant is a Category 1 area and therefore samples will not be collected from TPH. Under the CERCLA program, sampling for TPH is not permissible. It is noted again that TPH constituents will be included in the analysis proposed for the Ethyl Blending Plant samples and these analytical results will be evaluated by the human health risk assessment.

The EPA PRGs for tetraethyl lead are not included as PSLs because this analysis is not being conducted. The constituents of tetraethyl lead are being analyzed for and the PSLs for these constituents are included in Worksheet 15.

Navy response to the comment regarding the use of RIDEM criteria in the risk assessment process will be deferred pending the conclusion of the Dispute Resolution requested by RIDEM on October 5, 2011.

Comment 18: Page 53, SAP Worksheet #17, Sampling Design and Rationale; whole section: *The rationale and grid on Figure 5 do not appear to catch the known AOC but seem to try to catch the outskirts of the AOCs. For example, the long AOC listed as TF1-004 has no boring inside the known AOC. Please position the soil sampling location both inside and outside the known AOCs.*

Response: The photo interpretation of the AOCs associated with the Ethyl Blending Plant reviewed aerial photos from 1951, 1962, and 1972. This report is included in Appendix A-2 of the SAP. The size and dimensions of AOCs 4, 5, and 18 differed slightly in different years. Therefore, a grid system was incorporated to place sample locations. Figure 5 is based on the 1962 aerial photograph. Navy believes that samples are properly positioned to characterize the AOCs. Figure 5 has been revised to include the AOC polygons from each year and will be included with this response to comments document.

Evaluation of Response:

The updated figure does not include the test pit designations, and therefore it is not possible to determine whether RIDEM's comment concerning TF1-004 has been addressed.

Based upon the information provided in the figure, please make the following adjustments: move SB1002 so that it intersects to the intersection of the red and blue lines, move SB1006 north so that it is within the middle of the red and blue lines, move SB1013 south east in-between the red and blue lines, move

SB1017 south east so that it is within the middle of the red, blue and orange line. Please include a provision to modify the locations of the samples based upon field observations.

Response: The suggested adjustments can be made if it is agreeable with EPA. As stated in a previous comment, sample locations will be field verified with regulators. A figure from Shaw will be provided with this response document that includes labeled test pit sample locations.

Comment 20: Page 54, SAP Worksheet #17, Sampling Design and Rationale; 2nd paragraph, 2nd sentence:

*“...one or two soil samples will be collected from each boring.”
It would seem prudent to collect the same number and locations of soil samples from the new monitoring well locations as you are proposing for the soil boring locations (3 soil samples). Please change the above sentence to include the same soil sampling strategy to the monitoring well locations as proposed for the soil borings.*

Response: The soil boring locations are designed to collect data in areas where potential releases occurred. Therefore, the three intervals are appropriate to characterize any potential releases. The monitoring well locations are not in areas where releases to the ground surface are suspected. Therefore, the two soil sample intervals are appropriate to characterize the overburden layer.

Evaluation of Response:

The Navy has noted that the monitoring wells are to be placed outside of known surface releases. Please in the response to comments overlay the known groundwater contours over the submitted figure. Be advised that based upon the information presented it appears that MW1001 needs to be located closer to the site, MW 1000 may also need adjustment. In regards to the monitoring well designation, similar to the borings they should include the EBP suffix, i.e. MW EBP xxx. Finally, please include a provision to collect a third sample from the monitoring well locations if evidence of contamination is observed. Three soil samples should be taken for consistency.

Response: A revised Figure 3 with groundwater contour lines has been drafted and will be included with this response to comments document and inserted into the SAP. Monitoring well MW1001 is an upgradient location and its position reflects this goal. Subsurface soil samples will be collected from an interval exhibiting evidence of contamination based on field screening instrumentation or visual observations.

Comment 22: Figure 5: Please provide Figure 5 on a larger fold out paper with the Shaw test pits labeled on the figure and include any laboratory test results in boxes along with the identified Shaw test pit locations. Please provide this revised Figure 5 in the response to comments.

Response: The Shaw Summary Report includes sample location maps and analytical results tables. Tetra Tech will draft a table that summarizes the Shaw samples collected in the vicinity of the Ethyl Blending Plant. The table will be included in Worksheet #10 of the Ethyl Blending Plant SAP. Please note that locations are depicted on the Shaw Summary Report Sample Location figure included in Attachment A-3 of the Ethyl Blending Plant SAP.

Evaluation of Response:

It is assumed that during the creation of the work plan in order to ascertain where samples should be collected the Navy constructed a figure depicting sample results. The comment was simply to include this figure in the work plan. If the Navy did not create this figure, it is recommended that it do so and submit it in the response to comments.

Response: A copy of the Shaw sample location figure and the analytical results table mentioned in the original Navy response will be provided with this response to comment document.