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LETTER AND RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT EVALUATION OF U S NAVY RESPONSE TO COMMENTS TO DRAFT SAMPLING AND ANALYSIS PLAN SITE 7 TANK FARM 1 NS NEWPORT RI
10/13/2011
RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
235 Promenade Street, Providence, RI 02908-5767 TDD 401-222-4462

13 October 2011

Roberto Pagtalunan, P.E.
NAVFAC MIDLANT (Code OPTE3)
Environmental Restoration
Building Z-144, Room 109
9742 Maryland Avenue
Norfolk, VA 23511-3095

Re: Navy's Responses to RIDEM's Comments on the
Draft Sampling and Analysis Plan for the Data Gaps Assessment
Ethyl Blending Plant, Site 07, Tank Farm 1, NETC

Dear Mr. Pagtalunan,

The Office of Waste Management at the Rhode Island Department of Environmental Management has conducted a review of the Navy's Responses dated July 28, 2011 to RIDEM's Comments dated June 6, 2011 on the *Draft Sampling and Analysis Plan for the Data Gaps Assessment*, dated April 2011 for the Ethyl Blending Plant at Tank Farm 1 (Site 07), Naval Station Newport, located in Portsmouth, RI. As a result of this review, this Office has generated the attached evaluation of responses.

If you have any questions in regards to this letter, please contact me at (401) 222-2797, extension 7020 or by e-mail at pamela.crump@dem.ri.gov.

Sincerely,

Pamela E. Crump, Sanitary Engineer
Office of Waste Management

cc: Matthew DeStefano, DEM OWM
Richard Gottlieb, DEM OWM
Gary Jablonski, DEM OWM
Darlene Ward, NSN
Kymberlee Keckler, EPA Region 1
Tom Campbell, Tetra Tech

Evaluation of Navy's Responses (7/28/11)
to RIDEM's Comments (6/6/11) on the
Sampling and Analysis Plan for the Data Gaps Assessment
Ethyl Blending Plant, Site 07, Tank Farm 1 (April 2011)

Specific Comments:

Comment 1: ***Page 4, Executive Summary; 2nd paragraph, 1st sentence:***

"...the USEPA as primary authority over the investigation and remediation."

Pursuant to the signed FFA by the Navy, USEPA, and RIDEM, the USEPA and RIDEM have equal regulatory authority. Please delete the above sentence from the document and add RIDEM to the document where necessary.

Response: The text "...the USEPA as primary authority over the investigation and remediation." will be deleted from Page 4 of the Executive Summary.

Evaluation of Response:

Comment has been addressed.

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.

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.

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.

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.

***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 analysis (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.

***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.

***Comment 5:* Page 4, Executive Summary; 3rd paragraph, 3rd 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.

***Comment 6:* Page 13, SAP Worksheet #6, Communication Pathways:** *Please state in this table that any change to the SAP will be submitted to the regulatory agencies for approval before the work is executed.*

Response: The intent of Worksheet #6 is to describe the communication pathways between Tetra Tech and Navy. Any changes to the SAP will be submitted to the regulatory agencies for approval as a new revision to the SAP before the work is executed.

Evaluation of Response:

Comment has been addressed.

***Comment 7:* Page 21, Section 10.2, Site History; 1st paragraph:** *Please provide a copy of the engineering report dated 1943 to RIDEM in the response to comments.*

Response: A copy of the 1943 engineering report will be provided to RIDEM.

Evaluation of Response:

Comment has been addressed.

***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.

***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.

***Comment 10:* Page 23, Section 10.4.2 Soil Testing; 1st paragraph, 2nd sentence.**

"The work by Shaw focused on removing residual petroleum..."

Please remove the word "removing" from the sentence in the document due to the fact that Shaw, to our knowledge to this point, has not removed any residual petroleum contamination even though it has been found onsite.

Response: The text will be edited to "investigating residual petroleum.."

Evaluation of Response:

Comment has been addressed.

***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.

***Comment 12:* Page 29, Section 11.2.3, Project Screening Levels; last paragraph.**

"The background dataset for PAHs (see section 11.4.2) will be used to determine whether PAHs present onsite are site-related or not."

Please note that RIDEM does not accept background comparisons for PAHs. Only concentrations of metals may be compared to background levels. Please delete this sentence and all others in the document that reference this.

Response: The Ethyl Blending Plant SAP will be revised to remove references to the background dataset comparison. Data will be screened against the PSLs discussed in Section 11.2.3

Evaluation of Response:

Comment has been addressed.

***Comment 13:* Page 30, Section 11.3.1 Category 1 boundaries; whole section:** *Please refer to Comment 2 and 6 mentioned above.*

Response: See responses to comments 2 and 6.

Evaluation of Response:

Please note that this comment should reference comment 5 instead of 6. Please see evaluation of responses for comments 2 and 5.

***Comment 14:* Page 32, Section 11.4.2, Background Comparisons; whole section:** *Please refer to Comment 13 mentioned above. Also, the background dataset presented in Appendix A-4 is not acceptable for this site.*

Response: The Ethyl Blending Plant SAP will be revised to remove references to the background dataset comparison. Data will be screened against the PSLs discussed in Section 11.2.3
See response to comments 2 and 6.

Evaluation of Response:

Comment has been addressed.

***Comment 15:* Page 32, Section 11.5, Specify Performance Criteria; 1st paragraph, 2nd sentence:**

"The data collected under this SAP are anticipated to be sufficient to achieve these goals and support a risk assessment for the Site."

Please verify what the "Site" is in the above sentence in the document. If the data collected under this SAP is used to support a risk assessment for the entire Site (Tank Farm 1), all areas of possible contamination of CERCLA contaminants should be investigated, including the sludge pits, oil/water separators, transformers, etc.

Response: The Site is defined as the Ethyl Blending Plant in this SAP. The data to be collected will used to support the goals of the SAP, which include supporting a risk assessment of the Ethyl Blending Plant.

Evaluation of Response:

According to this response, any COPCs identified in the risk assessment will apply to the Ethyl Blending Plant only.

***Comment 16:* Pages 40-51, Worksheets 15a-15b, Reference Limits and Evaluation Tables (Soil & Groundwater):** *As stated in comment #4, please include tetraethyl lead and TPH in these analyte lists.*

Response: Please see response to comment 3.

Evaluation of Response:

See comment 3.

Comment 17: ***Page 52, SAP Worksheet #16, Project Schedule/Timeline Table:*** *Please add the following language to the worksheet: "The regulatory agencies will be provided with a weekly schedule of upcoming field work, a weekly summary of work completed or ongoing, and must provide 48 hours notice for any field work cancellations."*

Response: The recommended text will be added to the SAP.

Evaluation of Response:

Comment has been addressed.

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.

Comment 19: ***Page 54, SAP Worksheet #17, Sampling Design and Rationale; 1st paragraph, 2nd sentence:***

"Soil samples will be collected from 3 intervals, one surface interval (0-1 ft bgs)..."

Please refer to Comment 6 mentioned above.

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

Evaluation of Response:

See response to comment 5.

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, ie 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.

Comment 21: ***Page 54, SAP Worksheet #17, Sampling Design and Rationale; 3rd paragraph:*** *This section deals with the collection of groundwater samples. Since Tank Farm 1 has a history of known NAPL found at the site, please add the following provisions to the sampling protocol: "The wells will be inspected for NAPLs prior to purging. If NAPLs are present, samples of the NAPL will be collected for analysis of the parameters listed for the groundwater sample. During well development, the intake for the purge pump will be raised through the length of the well screen and the PID readings will be recorded. The intake for the low flow sample will be placed at the interval which exhibits the highest PID reading. If LNAPL is present, the intake will be placed at the top of the water table."*

Response: Groundwater monitoring wells will be inspected for NAPL prior to sampling. If NAPL is present, a sample will be collected of the product layer.

Evaluation of Response:

Please include the requested text in the revised SAP.

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.