

April 29, 2009

Winoma Johnson  
NAVFAC MIDLANT (Code OPNEEV)  
Environmental Restoration  
Building Z 144, Room 109  
9742 Maryland Avenue  
Norfolk, VA 23511-3095

RE: Draft Study Area Screening Evaluation Report Former Melville Navy Water Tower,  
Portsmouth, Rhode Island

Dear Ms Johnson,

The Rhode Island Department of Environmental Management, Office of Waste Management (RIDEM) has reviewed the Navy Response to comments on the Draft Study Area Screening Evaluation (SASE) Report Former Melville Navy Water Tower, dated March 11, 2009 and the revised responses dated April 9, 2009. Attached are comments generated as a result of this review.

The report deals with the remaining contamination at the former Navy Water Tower located at the Melville Elementary School. In general the report concludes that although concentration of lead above RIDEM regulatory standards exist at the site, the observed distribution does not exceed EPA guidance. This assessment however, is also limited and it did not address contamination north of water tower. In regards to arsenic the screening background analysis is inconclusive indicating that the site may or may not be above background. As indicated in the attached comments the Office of Waste Management has a number of concerns with respect to the screening background study and it appears that the concentration of arsenic at the site is above background. Conducting a background study in lieu of the screening evaluation would entail the collection of samples.

Based upon information provided in the SASE and the response to comments it appears that the majority of the contaminated soil has been removed and a soil and/or asphalt cover is present at the site. In light of current conditions, and the concerns associated with the SASE the Navy may wish to evaluate placing an Environmental Land Use Restriction on the site. Placing this restriction on the site under the umbrella of the State Program would allow the site to be brought into compliance with the State Regulations while at the same time allowing for Close Out under the Superfund process and avoiding the need to conduct a background study or address the other concerns noted in the SASE comments...

If the Navy has any questions please contact this office at (401) 222-2797, extension 7111.

Sincerely,

Paul Kulpa  
Office of Waste Management

cc: Mathew DeStefano, DEM OWM  
Richard Gottlieb, DEM OWM  
Cornelia Mueller, NSN  
Ginny Lombardo, EPA Region I

**Evaluation of Response to  
Comments on the  
Draft Study Area Screening Evaluation Report  
Former Melville Navy Water Tower**

**1 Section 2.0, Previous Studies  
Page 2-2,**

This section of the report summarizes the results of the previous investigations conducted at the site. The report does not include a discussion of the collection of soil samples west of the tower by the United States Navy, which was the first investigation conducted at the site. Please include a discussion of this investigation in this section of the report.

*Evaluation of Response to Comments*

*Comment has been addressed/*

**2 Section 2.3.2, Paint Chip Sampling  
Page 2-5, 2nd Paragraph**

The report states that the concentration of PCBs found in the sample from the drum was due to incidental presence of PCBs and not due to its presence in paint. As this is a public document please expound on the incidental presence of PCBs, (that is whether the observed concentration represents what is typically found in soil, is a contaminant that was in the drum from another location, represents PCBs from a non paint source at the water tower, etc). If the source of the PCBs is not known this should be clearly stated in the report.

*Evaluation of Response to Comments*

*Comment has been addressed/*

**3 Section 2.3.2, Paint Chip Sampling  
Page 2-5, 4 th Paragraph**

This section of the report includes a discussion of the lead and arsenic results found in the paint and in the soil. Please add the following to this section of the report:

Elevated levels of arsenic were found in paint chips samples collected at the site. In addition, one soil sample collected immediately adjacent to the tower had an arsenic concentration of 1311 ppm. This is the highest concentration of arsenic observed in a soil sample collected from any site located in the State of Rhode Island. The

distribution of arsenic at the site was similar to lead with the highest concentrations being found in the immediate vicinity of the tower.

#### *Evaluation of Response to Comments*

*The Navy has stated the data collected via the XRF in general are not reliable. Further, the highest concentration found in a paint chip sample analyzed at the lab was 75 ppm. In regards to the reliability of the XRF, be advised that QA/QC protocols were employed during the XRF analysis and that the results were within acceptable limits. The concentration of arsenic detected via XRF in the paint chip sample was similar to that reported via laboratory analysis (the correlation was better than that observed in many of laboratory split samples). In addition, the distribution and concentrations of contaminants were similar for the XRF analysis and the laboratory analysis. Further, during a subsequent investigation performed using the XRF, the Navy collect splits and reported that the XRF results were within acceptable limits when compared to the laboratory analysis. In regards to samples being damp, EPA guidance state that moisture levels below 20 % are not expected to be significant, levels above 20 % may dilute the sample and the result would be biased low. In regards to the source of the arsenic, it may have come from the paint, application of pesticides, etc.*

*The Navy has also noted that when the water tower was constructed in the 1940s a large quantity of blast stone and rock was used as fill underneath the water tower. Bedrock in the Newport area is known to contain elevated arsenic up to 78 ppm. This would account for the elevated levels observed under the tower.*

*Be advised that the fill beneath the water tower was not composed of blast rock and stone from Newport shale. The fill was typical construction fill (sand and some gravel). The rest of the site where the concentration of arsenic was considerable lower then near the water tower, was composed of native soils. In addition, some of these soils contained a considerable amount of broken shale as the bedrock was relatively shallow.*

*The Navy has noted that bedrock in Newport contains up to 78 ppm arsenic and this could be the source of the arsenic observed in the soil. Be advised that the soil in western section of Areas D contained a large amount of broken bedrock, far more then the soils found elsewhere at the site. Further, the bedrock was found near the surface. The concentration of arsenic observed in this area was low, (well below the regulatory standards and lower then the concentrations found close to the Water Tower).*

*Finally, the Navy noted that since the surface soils are composed of loam they are not comparable with the fill directly beneath the tower. Be advised that the State was simply noting the observed distribution of arsenic at the site.*

*Therefore, please modify the report to simply state that distribution of arsenic at the site was similar to lead with the highest concentration being found in the immediate vicinity of the water tower.*

**4 Section 2.3.3, Soil Sampling**  
**Page 2-7, 3 rd Paragraph**

The report notes that paint chips were not evident in the soil samples indicating that that potential source of contamination may have been associated with sand blasting. Please be advised that the investigations and actions conducted at this site were prompted when a child brought home a paint chip containing lead. The Navy subsequently engaged in a daily activity of removing paint chips from the grassed and gravel areas surrounding the tower. This daily activity was deemed necessary as paint chips continued to peel off the tower and land in the surrounding play areas. Despite this effort paint chips still were found scattered throughout the site during the investigation conducted by RIDEM. The Office of Waste Management agrees that sand blasting operations may have been a source of the lead found in the area. Another clear source (which is known to the public) would have been peeling paint. Therefore, the report must note that the known source of lead observed at the site is peeling paint and a potential source is sand blasting operations.

*Evaluation of Response to Comments*

*Comment has been addressed*

**5 Section 2.3.3, Soil Sampling**  
**Page 2-8, 3 rd Paragraph**

The report notes that the elevated levels of lead found adjacent to the fence is more likely a results of traffic from the adjacent road. Please be advised that prior to the removal action blue paint chips were found in this area. Further, elevated levels of lead were typically not found in soil sample collected elsewhere adjacent to the road. Therefore, please remove this statement and simply note that as paint chips were found in this area the elevated levels of lead may have come from the tower.

*Evaluation of Response to Comments*

*In the response the Navy has stated that the comment is noted, however the text is correct and will not be changed. The observations at this site are that paint chips were observed in the vicinity of the fence and elevated levels of lead were found at these locations. Where paint chips were not present and along other location on the road, elevated levels of lead were not found in the soil samples. Therefore, the statement attributing the observed lead concentration to road traffic must be removed, (unless the Navy has performed an investigation to ascertain lead levels in soil samples along West Main to support their position).*

**6 Section 2.4.1, Valve Chamber Excavation**  
**Page 2-10, Whole Section**

Please include a figure demarcating the location of the investigation and confirmatory samples taken at this location, as well as, the approximate location where elevated levels of lead contaminated soils were left in place.

*Evaluation of Response to Comments*

*Comment has been addressed.*

**7 Section 2.4.1, Valve Chamber Excavation**  
**Page 2-9, 6 th Paragraph**

“It was recognized that at removal action goal for the site had not been determined...”

Please be advised that at the time of the construction of the valve chamber the remedial action goal had been established at 150 ppm. The Navy was actively removing all soils which exceeded this standard. Therefore, please remove the above statement from this section of the report.

*Evaluation of Response to Comments*

*Comment has been addressed*

**8 Section 2.4.1, Valve Chamber Excavation**  
**Page 2-9, 6 th Paragraph**

This section of the report indicates that per RIDEM requests soils was placed south of the valve building in order to facilitate its removal in the future. Please be advised that prior to the construction of the valve building sampling results revealed that soils exceeded RIDEM standards. Unfortunately, the roll off which the Navy was placing contaminated soils in had already been taken off site. Accordingly, the Navy, without consulting RIDEM, elected to place the contaminated soils south of the valve building (RIDEM was informed of the Navy's action after the Navy had placed the soils in the aforementioned location). Subsequent to the Navy's action RIDEM allowed these soils to remain in place with the understanding that they would be addressed by a RIDEM approved remedial action at a later date, such as removal, maintained of cap, etc. Please modify the report accordingly.

*Evaluation of Response to Comments*

*The Navy has stated that the text is correct as written. Please be advised that representatives from the US Navy provided this information directly to RIDEM during a field inspection. Therefore, please modify the section as requested.*

**9 Section 2.4.1, Valve Chamber Excavation**  
**Page 2-10, 1 st Paragraph**

The report notes that the elevated levels of lead observed next to the fence are from road run off. Please remove this statement and any other similar statements from this section and other sections of the report.

*Evaluation of Response to Comments*

*See previous response.*

**10 Section 2.4.2, Demolition of Water Tower**  
**Page 2-10, 2 nd Paragraph**

“Demolition of Tower was conducted in August of 2006.”

Please change 2006 to 2007.

*Evaluation of Response to Comments*

*Comment has been addressed*

**11 Section 2.4.3, Soil Excavation**  
**Page 2-10, Whole Section**

Soils at and in the vicinity of the present day valve building was removed as part of this effort. Please include a discussion of this removal and the approximate yards taken off site.

*Evaluation of Response to Comments*

*The function of the SASE is to identify potential source areas and ascertain whether additional investigation and/or remediation are required. Therefore, please provide the requested information.*

**12 Section 4.1, Evaluation of Lead Concentrations and Human Health,**  
**Page 4-1.**

Please be advised that all of the locations where elevated levels of lead were observed, including those taken adjacent to the fence and those collected by RIDEM must be included in this assessment. Please revise accordingly.

*Evaluation of Response to Comments*

*Based upon information presented in Table 4-1 it does not appear that all areas were included. Please incorporate the data from all samples.*

**13 Section 4.1, Evaluation of Lead Concentrations and Human Health,  
Page 4-1.**

Please include a figure demarcating the sampling locations which were used in the lead evaluation.

*Evaluation of Response to Comments*

*See comment 12.*

*Also, in response to concerns broached by the USEPA the Navy has run a lead model following EPA guidance. The results of this model indicate that exceedances of the State's regulatory standards do not represent a risk. Please be advised that independent of EPA guidance, the Navy must meet State regulatory standards, and as such any exceedances of standards must be addressed. Please modify the report accordingly.*

*It is also evident that the soil beneath the paved area located immediately north of the water tower has probably been impacted by releases of lead. As this portion of the school yard is paved it was not investigated, as a potential alternative for this area is maintenance of the asphalt cover. The SASE report should discuss the contamination in this area, as well as, potential remedial alternatives.*

**14 Section 4.2, Evaluation of Arsenic  
Page 4-5.**

The report proposes using soil types SE and NE in the assessment. Please be advised that in order to use these soils types the following information must be included in the report: A US Soil Survey map depicting the soil types in the immediate vicinity of the water tower. A map depicting the location of the soil types which were used in comparison.

*Evaluation of Response to Comments*

*Based upon information presented in the response to comments, it is now evident that the NP soil type is found immediately adjacent to the site (it is found along the entire southern portion of the site). Accordingly, in order to conduct a background analysis, this soil type must be included in the assessment (please modify accordingly, and submit proposed background sample locations for approval).*

*The background location for a portion of the NE soil type is close to the site. The background location for the SE soil type is not (it is over 5 miles away). Further, the data group used for the SE soil type was found to be unacceptable unless outliers were removed. Therefore, in order to conduct a background assessment an SE location close to the site would have to be employed. Be advised that based upon the*

*information presented in the response to comments suitable locations are found near the site.*

**15 Section 5.2, Presence of Arsenic**  
**Page 5-3.**

“The distribution of samples at the site with elevated arsenic concentrations suggests no pattern associated with the water tower as does the lead concentrations.”

The arsenic distribution was similar to the lead distribution with the highest concentrations being found in and adjacent to the water tower. Therefore please modify the above as follows:

The distribution of samples at the site with elevated arsenic concentrations suggest a pattern associated with the water tower similar to the lead concentrations.

*Evaluation of Response to Comments*

*See comment 3.*

**16 Section 5.2, Presence of Arsenic**  
**Page 5-3.**

Please include a statement noting that prior to the removal action one soil sample had an arsenic concentration of 1311 ppm.

*Evaluation of Response to Comments*

*See comment 3.*

**17 Section 5.2, Presence of Arsenic**  
**Page 5-3.**

“Analysis of the paint chip samples shows that arsenic was not a primary ingredient of the paint on the tower suggesting that arsenic was not associated with the paint.”

Arsenic was typically used in paint as a pigment, anti fouling agent, fungicide, etc. Elevated levels of arsenic were found in two paint chips samples. Therefore, please remove this statement from the report.

*Evaluation of Response to Comments*

*The Navy has stated that it is not possible for all of the arsenic observed at the site to come from the paint. It is agreed that the arsenic at that site may have come from the paint, application of pesticides or a combination of sources. The intent of the comment was merely to state that the observed arsenic may have come from the paint,*

*application of pesticides or other tower related sources. Therefore, please modify the text to reflect this.*

**18 Section 5.2, Presence of Arsenic**  
**Page 5-3.**

*“Overall soil concentrations are within the range of background concentrations”*

A report states in Appendix G that the following areas A, B and C are elevated with respect to background; Areas D is not elevated with respect to background. Therefore, please removed the quoted statement and simply state that Areas A, B and C are elevated with respect to background and Area D is not.

*Evaluation of Response to Comments*

*The Navy refers to Attachment C which contains a significant rewrite of Appendix G.*

*Please revise the modified Appendix G as follows:*

*Section 3.2, Background Soil*  
*Page C-2*

*Bullet 1*

*The report states that NE soils about the site to the south and east and SE soils about the site to the west. Please modify the report to state that NP soils about the site to the south. SE soils do not about the site, however they do about the UD designation for the general area. NE soils about the site to the east.*

*Bullet 2*

*The report notes that soils from the reservoir may have been used to fill in the area of the water tower. Further, the soils which about the reservoir are SE and therefore SE soils may have been used as fill.*

*The soils which about the reservoir are not limited to SE (MA and NE soil types also about the reservoir). Therefore, using this line of reasoning the report would have to state that SE, NE and MA soils may have been used as fill.*

*Be advised, however, that construction fill sand and gravel was found beneath the water tower (not SE, NE or MA soil). In regards to the rest of the site, it is at the same elevations as the undisturbed wooded areas to the south, and based upon the depth to bedrock and the observations made at the site it is unlikely that fill was brought in. Please modify the report to reflect these facts.*

*3 rd paragraph*

*Please note that NP Soils were found immediately adjacent to the site and that a background investigation using these soils must also be performed.*

*Section 4.1, Exploratory Data Evaluation*

*Page C-3.*

*The report noted that due to the scarcity of suitable background sampling locations results from the SE soil type for the background study for the NUSC Disposal Area was used in the background assessment for the Melville Water Tower. Please be advised that based upon the information presented in the response to comments, suitable background sampling locations are present near the Melville Water Tower site, and as such site specific background samples should have been collected. Further, the background assessment for NUSC was found to be unacceptable in that it included outliers. If the Navy was to use this data these outliers would have to be removed.*

*In light of the above, be advised that if it is the Navy's intent to perform a background study, site specific background locations must be employed. If it is the Navy's intent to perform a preliminary background screening then data from the NUSC Disposal site, without the outliers, could be used. Please modify the report accordingly*

*Section 4.2, Statistical Methods*

*Page C-4.*

*The report notes that parametric and non parametric analysis was performed on the data sets. A review of the information provided in the response to comments indicates that non normality was detected in some of the data sets. This would limit the analysis to parametric or non parametric tests as applicable. Please insure that these restrictions were applied.*

**19 Section 5.2, Presence of Arsenic**

**Page 5-3.**

The report does not recommend any further action with respect to arsenic. The site has been used by the school as a playground. Evidence of a release of arsenic was found during the initial investigations. The current concentrations observed at the site are elevated with respect to regulatory limits. A review of the background study reveals that, at a minimum, site samples in Areas A, B and C are elevated with respect to background. In light of the above the report should recommend further action under CERCLA.

*Evaluation of Response to Comments*

*In Attachment D the Navy has indicated that the concentration of arsenic observed at the site is not due to paint. The Navy questions the validity of the XRF analysis, the probability of the arsenic coming from the paint and the likelihood that the observed arsenic is from native bedrock.*

*See comment 3 concerning the validity of the XRF analysis. In regards to the source of arsenic at the site, it may have come from the paint, application of pesticides or other tower related sources. In either case the distribution of lead and arsenic at the site is similar. In regards to the background study, as indicated in the attached comments, there are a number of problems with the validity of the study. The study itself conclude that depending upon the soil type which was assumed to be at the site the observed concentrations may or may not be above background.*

*Lead is still present at the site at concentrations above regulatory levels. Therefore, at a minimum an ELUR to address lead will be required for the site. In lieu of performing a site specific background study and addressing the other concerns noted in this comment package the Navy may elect to employ the ELUR for arsenic as well as lead.*

**20 Appendix G,  
Page 1.**

Please include a figure depicting current arsenic distribution at the site.

*Evaluation of Response to Comments*

*The Navy has not provided the requested figure. Please be advised that this figure is typically provided as it offers information concerning the present distribution of arsenic at the site.*

**21 Appendix G,  
Page 1.**

Background studies are site specific. As such they must contain all of the information associated with the background sampling stations including a map depicting the locations of the stations, a table listing the concentrations observed in the background stations and descriptive statistics for the background stations. As this is a stand alone document this information must be included in the Appendix (a reference to a previous study is not sufficient).

*Evaluation of Response to Comments*

*The Navy has indicated that due to the scarcity of suitable background sampling locations it is not possible to perform a site specific background analysis. As such it is necessary to use background sample locations from other sites, such as the one employed for SE (this background location is five miles away). A review of the*

*information presented in the response to comments reveals that suitable background sampling locations are present near the site (i.e. the Melville Camp Grounds). Therefore, as suitable locations near the site are present, please submit a background sample work plan.*

**22 Appendix G, Section 4-1, Exploratory Data Evaluation  
Page 3.**

The report notes that outliers were present in the SeSS data set. As noted in previous correspondence these points cannot be used in a background evaluation. Therefore, please conduct the assessment without the use of these outliers.

*Evaluation of Response to Comments*

*Please be advised that the Office of Waste Management position concerning these outliers had not changed and if this data set was to be used the outliers should not be employed.*

**23 Appendix G, Section 4-1, Exploratory Data Evaluation  
Page 3, Paragraph 3.**

Distribution analysis was conducted to ascertain the distribution of the site data set. Please include the results of the same distribution test for the background data sets.

*Evaluation of Response to Comments*

*Comment has been addressed.*

**24 Appendix G, Section 4-2, Statistical Methods  
Page 3.**

Please include descriptive statistics, (range, average, medium, mode, kurtosis, etc) and list data in ascending concentrations for both the site and background samples.

*Evaluation of Response to Comments*

*Comment has been addressed.*

**25 Appendix G, Section 4-2, Statistical Methods  
Page 3.**

The report list a series of test, Student t test, Mann Whitney test, etc. As this is a public document the report should indicate which tests are parametric and which test are non parametric.

*Evaluation of Response to Comments*

*Please indicate which page contains the requested information.*

**26 Appendix G, Section 4-2, Statistical Methods**  
**Page 3.**

Please provide additional information concerning the upper ranks test, including but not limited to a literature citation for the test employed, the equations used in the test and an example calculation.

*Evaluation of Response to Comments*

*Comment has been addressed.*