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RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT COMMENTS TO
DRAFT PHASE II REMEDIAL INVESTIGATION BASELINE ECOLOGICAL RISK
ASSESSMENT SITE 17 WITH TRANSMITTAL NS NEWPORT RI
02/14/2011
RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT



RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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File 660949-3.1

14 February 2011

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

Re: Draft Phase II Remedial Investigation, Baseline Ecological Risk Assessment,
Site 17, Building 32, Gould Island, NETC

Dear Ms. Montegross,

The Office of Waste Management at the Rhode Island Department of Environmental Management has conducted a review of the *Draft Phase II Remedial Investigation, Baseline Ecological Risk Assessment*, Site 17, dated December 29, 2010 for Building 32, Gould Island (Site 17), Naval Station Newport, located in Newport, RI. As a result of this review, this Office has generated the attached comments on the *Draft Phase II Remedial Investigation, Baseline Ecological Risk Assessment*.

If you have any questions, in regards to this letter, please contact me at (401) 222-2797, extension 7148 or by e-mail at gary.jablonski@dem.ri.gov.

Sincerely,

Gary Jablonski, Principal Engineer
Office of Waste Management

cc: Matthew DeStefano, DEM OWM
Richard Gottlieb, DEM OWM
Pamela Crump, DEM OWM
Deb Moore, NSN
Kymberlee Keckler, EPA Region I

**Comments on
Draft Phase II Remedial Investigation, Baseline Ecological Risk Assessment
Site 17, Building 32, Gould Island, NETC**

1. Page E-1, Executive Summary; Paragraph 3, 4th sentence.

"The concrete roadways were removed at that time, and polychlorinated biphenyl (PCB) releases were discovered near transformer buildings around Building 32."

PCBs were found at other structures, such as the Riggers Storage Building and in the roadway. Further, Transformer Buildings 61 & 62 are located at the end of the connecting pier close to Building 35. Please modify the above as follows and modify any other similar statements found elsewhere in the report: *"The concrete roadways were removed at that time, and polychlorinated biphenyl (PCB) releases were discovered near transformer buildings, other structures, and in the roadway."*

2. Page E-2, Executive Summary; Paragraph 2.

"The affected groundwater is limited to areas associated with the drainage systems outside the southwest corner of Building 32."

MCLs were also exceeded at the northeast corner of Building 32. Please remove this statement and any other similar statements from the report and modify the above to state that exceedances of MCLs were observed outside of the southwest and northeast corners of Building 32.

3. Page E-3, Executive Summary; Paragraph 1.

This paragraph states that the concentration of PCBs in the Stillwater Area is higher in the 6-24 inch interval and the contaminant distribution also points to the deposition of clean material over the contaminated sediments. A review of the data in Figures 4-6 through 4-10 reveals that this is not the case. It is also possible that the observed distribution of contaminants may have resulted in part due to groundwater upwelling. Please remove these statements from both this and any other section of the report and language discussing the actual observed depositional rate.

4. Page E-4, Executive Summary; Paragraph 1.

"Pesticides, PCBs and metals found in soils are stable and insoluble in water. However, through erosion and migration of contaminated soils, these compounds could be transported from soils to marine sediments, and could also migrate with sediment within the marine environment, particularly in disturbed or high energy areas at the shoreline."

Pesticides, PCBs, and metals have limited solubility and can be found in the groundwater. Please remove this statement and modify the above and any other similar statements in the

report as follows: "*Pesticides, PCBs and metals found in soil are stable and have limited solubility in water. Through erosion and migration of contaminated soils, as well as migration via groundwater, these compounds could be transported from soils to the marine environment and could also migrate with sediments within the marine environment particularly in the disturbed or high energy areas of the shoreline."*

5. Page E-5, Executive Summary; Paragraph 3.

The report notes that the site exceeds MCLs; however, groundwater is currently not used at the site. The report should note that the site is in a GA aquifer and in the past groundwater was used as a potable water supply. Please add the following to this section and any other similar section of the report: "*The site is located in a GA aquifer which has a remedial objective of MCLs. Though not in use today, historically groundwater was used on the site.*"

6. Page E-5, Executive Summary, Recommendations.

The report proposes a series of recommendations for the FS which are primarily based upon the results of the Phase II investigation. Please be advised that the data from the SASE, Phase I/II RI, and any other investigations and removal actions conducted at the site must be compiled and included in the evaluation of areas of concern for the site. This evaluation should include figures which delineate exceedances of criteria or regulations.

7. Page 1-14, Section 1.5.2, Site History; Paragraph 5.

The report states that PCBs were found in the shoreline near Building 54 but not extended out beyond the shoreline. Please be advised that PCBs up to 8800 ppb were found in sediment samples collected at this location. Elevated levels were also found on the shoreline. A series of removal actions were conducted in this area including the removal of contaminated soil, sediments and shoreline material. Please modify the report to state that PCBs were found in sediment and shoreline samples collected at the site and a removal action was conducted in this area for both soil and sediment.

8. Page 2-2, Section 2.2, Sediment Investigation; Whole Section.

Sediment samples were collected during the three different sampling rounds employing three different collection methods (divers, ponar, and tubes). Please include a discussion of the methods employed for each sampling event, and the procedures used to mark the locations of the samples in the field, including the plus or minus accuracy bars. As an illustration, the first sampling event employed divers. Was an underwater GPS unit employed? Was the location estimated from a surface craft using GPS? Were measurements made from fixed locations? etc. Please include this information in the response to comments.

9. Page 2-3, Section 2.1.2, Soil Boring Investigation, Field Measurements and Observations; Last Paragraph, Table 2-2.

The report notes that a number of the soil borings were designed to investigate potential petroleum sources of contamination in the area. The report does not present the information that was used to position the borings in the field. As an illustration, SB 407 is located in the general vicinity where underground storage tanks had been removed by the Navy, and free product was encountered on top of the water table after the removal action. The figure in the report does not depict the location of the underground storage tanks, and the report does not indicate how the location of the tanks was determined in the field (GPS coordinates from removal actions, measurements taken from field notes during removal action, engineering plans, etc). Please modify the figure to depict the location of these areas of concern, discuss in the report how the borings were located and include in an appendix the original sources of information which were used to locate the borings (i.e., a copy of the figure from the tank removal action depicting the location of the tank).

10. Page 2-3, Section 2.1.2, Soil Boring Investigation, Field Measurements and Observations; Last Paragraph, Table 2-2.

Soil borings were collected in the area of the drainage system in order to ascertain if there was a source. At Boring 402, the interval which exhibited the highest degree of field contaminant (333 or 129 ppm interval) was not tested. Instead, the interval with a headspace reading of 30 ppm was tested for laboratory analysis. Similarly, at boring 404, the interval with the highest degree of contaminant (800 ppm headspace reading) was not tested for lab analysis. Please explain why the intervals with the highest PID readings were not tested for lab analysis.

11. Page 2-4, Section 2.2, Sediment Investigation; Figure 2-2.

Please include a box around sample location SD-406 in the Stillwater Area labeled SD-501 indicating a 2010 BERA sediment sample location. Also, please depict the terminus of the discharge pipes based upon information from both engineering plans and field observations.

12. Page 2-4, Section 2.1.2, Soil Boring Investigation, Field Measurements and Observations; Paragraph 2.

The report notes that Soil Borings 410-415 were installed during the removal action associated with the Riggers Storage Building. Please include on the figure the outline of the area which was subject to the removal action. In addition, please include pertinent information in the report such as the depth for the removal action and the results of the confirmatory samples.

13. Page 4-1, Section 4.0, Nature and Extent of Contamination; whole section.

This section of the report deals with the nature and extent of contamination based upon information obtained from the Phase II Investigations. The report also includes tables and figures with the results of the Phase II Investigation. While this is acceptable, the Phase II Investigation, as noted in Section 1.0 of the report, was to provide additional information to access potential source areas and address extent issues. As such, the results of the Phase I

and previous studies must be included in the report, tables, and figures. Therefore, please modify Section 4.0 to include the results of the previous investigations and please produce tables and figures with this information. The figures should delineate sample locations which exceed criteria along with the concentrations observed and depth of samples.

An approach similar to the 4-1 through 4-5 series in the Phase I RI should be employed (soil figures should also include any pertinent observations such as staining or product, sediment figures with analytical results should also include toxicity test results, ERQ and designation of samples which exceed ERLs, ERMs and are considered toxic). Tables should include colored codes exceedances, (as an illustration exceedance of ERL and ERM on the same table). The tables and figures must be submitted as part of the response to comments. Also, please include the results from the Phase I, II and other investigations into Section 5, 6 and 7 of the report.

14. Page 4-5, Section 4.1.1, Southwest Corner of Building 32; Paragraph 3.

The report notes that data from the Phase I & II RI was used to evaluate whether a release is present near the former locations of underground storage tanks at Building 33 (Power Plant) and other locations. Releases at these locations were discovered during the removal of the USTs, as well as during other removal actions conducted at the site. As these samples and observations (observations of product or contaminated soil) would have been taken when the releases were discovered, they must be included in the report and used as part of the overall evaluation. Please include figures and tables with this information (the figures should also include the Phase 2 sample locations as well as the historic locations), and include an appendix with the appropriate sections from the original reports.

15. Page 4-5, Section 4.1.1, Southwest Corner of Building 32; Tables 4-11/4-12.

These tables contain the analytical data from the soil samples collected at the site. Exceedances of regulatory criteria are shaded. A review of the tables reveals that all exceedances are not shaded, (i.e., TPH in TP-09, TP-10a, etc). Please review these tables and shade the areas which exceed criteria. Also, please produce a figure(s) which depicts the sample locations from the Phase I /II and other investigation/remedial actions which exceed criteria. The concentrations observed in the exceedance should be included in the figure. Please submit this figure as part of the response to comments.

16. Page 4-5, Section 4.1.1.1, Building 32 Coal Pile Area.

The report notes that due to the lower concentration of contaminants detected in the shallow soil samples, the street drain and not the coal pile is the source of TPH observed in the area. A review of the data reveals that elevated levels of TPH (up to 3500 ppm) were found in the 0-2 foot interval in test pits dug adjacent to the street on the west side of Building 32. TPH contaminated surface soil was also observed in this area during the previous removal actions. As such, it appears that there is a surface source of TPH which required remediation in this area. In regards to the storm drain system, it is acknowledged that elevated levels of TPH, which also require remediation, exist in this area. Both of the above should be noted in the

report. Finally, based upon the information presented, it does not appear that samples were collected from the coal pile. If this is the case, the report should refrain from making statements concerning the potential sources at the coal pile and simply state that samples were not collected from this area. Please modify the report to note the above.

17. Page 4-6, Section 4.1.1.2, Building 42, Former Riggers Storage Building.

Note the Riggers Storage Building is Building 52, please revise section heading.

The soil borings collected in this area were installed in the former footprint of Building 41, the former Torpedo Building. Soil borings were not located at the former location of Building 52. If the samples were not collected either through or on either side of the removal actions conducted at Building 52, the report should note this and state that additional samples will be collected in this area during predesign studies.

18. Page 4-10, Section 4.2, Sediments; Whole Section.

Please include large fold out figures similar to those in the Phase I RI in which all contaminants which exceed ERLs and ERMs are color coded (Phase I & II), and also include the toxicity test results, tissue sample results, and EQM. It is recommended that separate figures be created for each area, Stillwater Basin, Northeast Area, Northwest Area, and Reference Area (this will provide the needed space to accommodate the above information).

19. Page 4-11, Section 4.2, Sediments; Paragraph 3, Figures 2-2 and 4-3.

Sediment samples varied from approximately 0-4 feet across the site. As deep samples were not taken at all locations, please include a figure depicting sample locations and depths collected.

20. Page 4-11, Section 4.2.1, Step 1 (2009) Sample Results; Table 4-4.

The report notes that the maximum values from the 2009 and 2010 reference samples are used in the comparison study. A review of the data reveals that the 2009 data employed the UCL in lieu of the max. Please revise the table to use the maximum observed concentration. Also, please include a table with the analytical results from the 2009 and 2010 data, and include an evaluation of the reference stations in the text (that is, note any difference between 2009 and 2010 data for the same reference locations, note any difference between sampling stations, etc).

21. Page 4-12, Section 4.2.1.1, Stillwater Basin PAHs; Paragraph 4.

The report notes that the potential source of PAHs observed in the Stillwater Basin would be the fuel transfer from barges on the north side of Building 32. The report should also note that the source of PAHs may be associated with the carrier oil used in the PCB transformers. In regards to fuel loading operations, there were piers located on the east and west side of Building 32 which could also have serviced fuel ships. Unless it is known that the fuel

transfer pipe is located on the north side of Building 32, the report should state that fuel off loading may have occurred at the north, west, and east side of Building 32.

22. Page 4-15, Section 4.2.1.2, Northeast Shoreline; Paragraph 4.

The report notes that elevated PAHs were found in a storm/parking lot drain found on the west side of Building 32. A parking lot is not depicted on the figure in this report. Please indicate the location of the parking lot and include the condition maps or other sources of information which indicated that the area in question was a parking lot. If this information is not available, please eliminate references to parking lots.

Be advised that Section 3.5 of the Phase I RI report notes that the system was a trench drain designed to collect road runoff and groundwater from the southwest corner of Building 32. As such, in this and any other section of the report which references this drain, please refer to this drain as an outfall for the trench drain which collected groundwater and road runoff.

23. Page 4-16, Section 4.2.1.2, Northeast Shoreline; Paragraph 4, Last Sentence.

The report notes that the difference observed between the Phase I and Phase II sample results is attributable to the fact that Phase I targeted source areas while Phase II was designed to determine the outer extent of contamination. In regards to samples which were designed to be collocated, the difference may be attributable to the difficulty in obtaining a sample from the same location during the different sampling events. Therefore, please add the following after the last sentence of this paragraph: *"The difference observed in samples which were designed to be collocated may be attributed to the difficulty in obtaining marine samples from the same location."* (Note: This comment also applies to the Stillwater and Northwest Areas).

24. Page 4-29, Section 4.2.2.5, Reference Locations (Potters Cove and Cranston Cove); Whole Section.

The report notes that the maximum detected PAHs occurred at JPC-02 (Potters Cove) and that all of the maximums for the PAHs also occurred at this location. Similarly, 16 of the maximum detected metals were also observed at JPC-02. Considering the observed distribution of contaminants and the fact that the maximum values were observed at one background station, the report must evaluate the suitability of this station and whether it should be retained as a reference station. Please include this evaluation in the response to comments.

25. Page 5-1, Section 5.1, Overview of Contaminants at Site 17; Whole Section.

This section of the report deals with the results of past investigations to discuss the nature and extent of contamination at the site. Please add sections discussing the findings of the previous investigations, remedial actions, and include corresponding figures and tables.

26. Page 5-2, Section 5.1.1, Summary of Phase I Contaminants at Site 17; Paragraph 1, Last Sentence.

This section of the report states that NAPL was not encountered in any of the monitoring wells or test pits at the site. The Phase 1 report notes that sheens and suspended product was found in the test pits. Further, product was also observed in the excavation associated with Transformer Vault 54, and the crushed stone with the perforated pit was installed for monitoring and potential future remediation. Therefore, please remove this statement from the report.

27. Page 4-38, Section 4.3, Biota; Paragraph 1, First Sentence, Tables 4-6 - 4-10.

This report compares the tissue concentrations to PALs. Please note in the report the basis for the PALs, and explain any difference that may be observed with the PALs and values used elsewhere in the report. As an illustration, in Section 6.42 the CTL for cadmium is listed as 0.15 ppm, while the PAL is listed as 1.79 ppm (the PALs appear to be applicable to food chain while the CTLs are applicable to impacts to shellfish). Finally, as CTLs are also PALs, the report should clearly state that CTLs and PALs are used in the COCs.

28. Page 4-38, Section 4.3, Biota; Paragraph 1, Last Sentence.

"PALs were converted from those presented in the SAP assuming a 85% moisture of the body tissue."

Based upon studies by Ricciardi & Bourget, 1998, an assumed moisture content of 5% for blue mussel (*Mytilus edulis*) and 14% for green crabs (*Carcinus maenas*) should be employed. Please incorporate these values into the report.

29. Page 4-45, Section 4.3.7, Stillwater Basin; Whole Section.

A review of the data indicates that the lipid concentration in the Stillwater Basin is 0.7-1%, which is lower than the lipid concentration (3-5%) found in other areas, such as the reference locations. This is indicative of potential stress on the organisms due to the presence of contaminants. This should be noted in this section of the report and factored into a weight-of-evidence approach for overall risk.

30. Page 5-2, Section 5.1.1, Summary of Phase I Contaminants at Site 17; Paragraph 2, 3rd, 4th and 5th Sentences.

"The PCB removals were conducted to address transformer buildings and former releases from those buildings; however, once the cleanup goals for that project were met, the efforts were terminated. The concentrations of PCBs detected in the soil were below the cleanup goals for the previous removal actions, and those actions did not pursue PCB contamination to the marine sediment. While PCBs were not detected in groundwater collected from monitoring wells, previous samples have noted low concentrations (less than 1.0 ppm) in pooled water in excavations conducted at PCB removal areas."

Please be advised that PCBs were found at other structures besides the transformer buildings. Further, it was anticipated that additional investigations or actions would be required at certain locations. As an illustration, at Building 56, TPH contaminated soil was observed and samples were collected from this area, as it was anticipated that additional action would be carried out at a future date. At Building 54, PCB sheens were observed in the northern side of the excavation. After the removal action was completed, a PVC pipe was installed in this area to allow for additional monitoring and/or removal. In regards to the sediments, a limited removal action of sediments was conducted and the cleanup objective was 1 ppm. Finally, 430,000 ppm of PCBs was found in an oil/water sample collected from groundwater during one of the removal actions. Therefore, please modify the above as follows:

“The PCB removals were conducted to address transformer buildings and other structures or locations where PCB releases were observed. The removal actions were terminated once the cleanup objective (10 ppm for soil/1 ppm for sediment) was obtained. Additional action was deemed necessary at certain sites such as Building 56, where TPH contamination was found and samples were collected in anticipation of future action. At Building 54, PCB sheen was observed flowing in at the northern side of the removal action. A PVC pipe was installed in order to facilitate additional investigation and/or action. While PCBs were not detected in groundwater collected from monitoring wells, previous samples have detected levels up to 430,000 ppm in groundwater samples containing free product collected during the removal action.”

31. Page 5-5, Section 5.3, Fate and Transport of Selected PAHs; Paragraph 1.

The report lists the potential source of PAHs found in the sediments. The focus appears to be on PAHs associated with fuel products from sumps or fueling operations via direct discharge or erosion/overland flow. The report should also note that PAHs may also be associated with release of PCBs. Further, as TPH/PCB contaminated groundwater has been found at the site, groundwater transport is also a possible mechanism; this should be noted in the report.

32. Page 5-5, Section 5.4, Fate and Transport of PCBs; Paragraph 3.

Elevated levels of PCBs were found in groundwater samples containing free product, which represent a potential migration pathway. This should be noted in the report

33. Page 5-5, Section 5.4, Fate and Transport of PCBs; Paragraph 6, 2nd sentence.

Please remove this sentence from the document. Please refer to comment #3 mentioned above.

34. Page 5-6, Section 5.5, Fate and Transport of Selected Metals; Paragraph 6, Last sentence.

The report notes that the metals concentration in the Stillwater Area increases with depth and those metals are becoming encapsulated by sediments. At other locations on the site, the

concentration of metals decreases with depth; therefore, the report should refrain from making general statements and simply note that the concentration of metals may increase or decrease with depth depending upon location. Further, the report must state that the majority of the deeper cores were collected in the Stillwater Area and there is limited data for the other areas.

35. Page 5-9, Section 5.5.4, Lead.

The concentration of lead observed at sampling station 304 F (and its equivalent) during the Phase I and Phase II investigations was 21,200 and 21 ppm respectively. Exceedances of the ERL for lead occur at several locations (SD517, SD304, SD438, and SD531) that are within 60-170 ft from the "hotspot". Exceedances of ERL and ERMs were also observed at other locations at the site. Further, toxicity was evident at certain locations. Therefore, lead should be retained as a COPC for the FS.

36. Page 6-1, Section 6.1, Introduction; Paragraph 2.

The report notes that COPCs were identified in the Phase I report. Please attach a table with the list of COPCs. The report should also include a table with the final list of COPCs and justification statements for any contaminants which were deleted or added to the COPCs from the Phase I report. In addition, please add the following to this section of the report: *"Based upon the results of the BERA, the list of COPCs could be expanded or reduced."*

37. Page 6-7, Section 6.3.1.1, Sediment; Paragraph 2.

Please note that the Buchman (2006) tabulated sediment screening level reference has a newer version (2008). Please review and incorporate into the report as necessary.

38. Page 6-17, Section 6.4.1.1, Summary of Sediment Toxicity Testing; Paragraph 3, Appendix G.5.

Appendix G.5 contains the results of the toxicity tests. The appendix notes that an evaluation of normality will be conducted and either a parametric or a non-parametric test will be employed. However, based upon the information presented, it does not appear that the critical values for all tests were incorporated into the tables and the tables themselves require some clarification in the footnotes. As an illustration, for the Sharpio Wilkes Test for normality, the test stat is provided (assumed to be the site specific results); however, the critical value is not. Also, the p value is noted but not explained. In regards to the final statistical test which was employed, the report must clearly state whether the test was either a parametric or a non-parametric test, the critical values for the test, the critical value obtained from the analysis of the site samples and any limitations associated with the test (minimum number of samples, etc). Please add the appropriate information to the text and appendix.

39. Page 6-17, Section 6.4.1.1, Summary of Sediment Toxicity Testing; Paragraph 3, Appendix G.5.

In the ANOVA, it is not clear whether the site sample locations which were less toxic than the background were incorporated into the overall data set of site samples when assigning toxicity for an individual site sample station. Please note whether this was done. It is recommended by the State that these sample locations not be employed as part of the overall site sample data set.

40. Page 6-17, Section 6.4.1.1, Summary of Sediment Toxicity Testing; Paragraph 5.

The report notes that an ANOVA was used to compare the site sample group to the reference group in order to assign toxicity to a particular sample location. There are a number of concerns associated with the toxicity results, such as the observed variance of the toxicity test in the triplicate analysis, combining results from less contaminated areas with more contaminated areas, etc. An approach which would resolve many of these issues would be to state that an affect of 25% on the endpoint would indicate positive toxicity (as an illustration, in terms of survival, samples with survival of 75% or lower would be considered toxic).

41. Page 6-20, Section 6.4.1.2, Development of Dose-response Plots; Paragraph 2, Table 6-16.

This section of the report deals with the development of the ERM-Q. These quotients are based upon ERMs, which translates into areas with a high risk. Values in-between ERLs and ERMs are considered intermediate risk. As such, ERL-Qs should be developed using the same protocols used for ERMs and incorporated into the overall risk assessment.

42. Page 6-21, Section 6.4.1.3, Development of NOECs and LOECs; Paragraph 1.

The report states that contaminants which exceeded ERLs in one or more sample stations selected for toxicity were evaluated in the NOEC and LOEC process. A review of the information provided in the tables indicates that a number of contaminants which met these criteria were excluded. As an illustration, individual PAHs which exceeded the criteria and had toxicity tests were not included in the evaluation. These and any other contaminants must be included in the evaluation. Please modify the report accordingly.

43. Page 6-21, Section 6.4.1.3, Development of NOECs and LOECs; Paragraph 4.

The report notes that NOECs and LOECs were not developed for metals where toxicity tests were conducted due to the limited number of sampling stations. These sampling or distribution limitations should not be used to state that values will not be generated for these contaminants. Therefore, please propose values for these contaminants.

44. Page 6-22, Section 6.4.1.3, Development of NOECs and LOECs; Whole Page.

The report notes that there were a number of problems associated with the development of dose response curves (in a number of cases, curves could not be developed and/or the results were inconsistent) and the associated of LOELs and NOELs. Based upon the proposed values and the elimination of certain contaminant types and/or contaminants, it is apparent

that additional evaluation is needed. Perhaps a risk ranking, weight of evidence, or similar system could be employed. Please evaluate this option and implement the suggestion made in the other comments and submit new values as part of the response to comments.

45. Page 6-23, Section 6.4.2, Biota; Whole Section, Table 6-6.

It appears that certain contaminants, such as the majority of PAHs detected in tissue samples were not retained due to their low frequency of detection. In the Stillwater Area, the frequency of detection is 1 out of 1. Further, the majority of PAHs were detected in this sample. The limited sampling that was conducted in that area shouldn't be considered as grounds for rejection. Therefore, please retain PAHs for samples collected in the Stillwater Basin.

46. Page 6-23, Section 6.4.2, Biota; Whole Section, and Table 6-6.

PCBs were detected in high frequencies and were retained as COCs for biota samples. This section of the report however does not include a discussion of PCBs. Please modify the report to include a discussion of PCBs. In regards to Table 6-6, it appears that the CTL employed for PCBs was based upon guidance from the Oregon Department of Environmental Quality. The value employed (930 ppb), which applies to both fin fish and shellfish, was obtained by multiplying the ambient water quality criteria by a bioconcentration factor. The discussion in the text should state why this value was employed in lieu of values that were obtained from literature studies similar to that performed for the other COCs. Please include this discussion in the response to comments.

47. Page 6-24, Section 6.4.2, Biota; Paragraph 1, Last Sentence.

This sentence notes that CTLs were not available for the listed organics and inorganics. It is not clear why this subset of contaminants is listed. That is, does this represent all of the contaminants found above CTL and/or reference concentrations? Please explain. The report should include a table with a list of all contaminants in tissue samples which exceed reference concentrations (including contaminants not tested for in reference) by location, Northeast, Northwest, Stillwater Area, etc. The range, max and average concentration should be included. The table should also include the species specific tissue residual value and if one is not available the surrogate value (the max and average value should be included). In the case of surrogates, in order to gauge applicability, the report should compare the sensitivity of the surrogate to the site-specific organism (that is comparing the values for contaminants in common between the site-specific species and the surrogate to see if they are similar). Contaminants with tissue concentrations above, species specific, similar sensitive surrogate species, and reference (for contaminants with no TRV), should be considered indicative of impact and carried forth in the evaluation. All of the above should be discussed in the text. Please include this information in the response to comments.

48. Page 6-24, Section 6.4.2, Biota; Paragraph 2.

The report notes that tissue residual values were not found for a number of contaminants using the two cited references. Please indicate whether the EPA-cited reference is ECOTOX (integrates AQUIRE, PHYTOTOX, TERRETOX). If not, perhaps this reference can be of use. http://www.epa.gov/med/Prods_Pubs/ecotox.htm

49. Page 6-24, Section 6.4.2, Biota; Paragraph 4.

The report should include a discussion of 2-methyl phenol which was detected in a number of samples. The discussion should note whether this is a metabolite of PAHs, note it observed site concentrations with respect to background and the applicability of CTLs. The report should consider retaining this compound for the overall risk evaluation along with the associated uncertainty.

50. Page 6-24, Section 6.4.2, Biota; Paragraph 4.

The report notes that benzaldehyde in tissues samples is not a contaminant of concern as it is not found in sediment samples. Please note whether this compound is a metabolite of PAHs. If it is, this should be noted in the report as a possible source of the observed concentrations and benzaldehyde should be retained as an indicator COC for PAHs.

51. Page 6-24, Section 6.4.2, Biota; Paragraph 4.

Benzaldehyde was not analyzed for in the reference samples but it was in the site samples. Please explain why this PAH and the others were not analyzed in the reference samples.

52. Page 6-24, Section 6.4.2, Biota; Paragraph 4.

It is noted that the highest concentration of benzaldehyde was detected in the South Area. Please note in the report the range that was observed in the Northwest, Northeast and Stillwater Areas.

53. Page 6-25, Section 6.4.2, Biota; Bullet 2, Last Sentence.

Considering the limited TLV value for chromium (one surrogate species study) and the concentration observed at the site with respect to both the NOEL/ LOEL and background, the report should remove the last sentence and note that there are impacts with respect to chromium and carry this forth through the evaluation process.

54. Page 7-1, Section 7.0, Summary and Conclusions; Whole Section.

As noted in the comments above, there are a number of concerns with respect to the nature and extent of contamination, associated risk, areas of concern, and COCs. As such, changes are expected with respect to the conclusions and recommendations in this section. RIDEM requests that the associated changes in this section be submitted as part of the response to comments.

55. Page 7-8, Section 7.1.7, Human Health Risk Assessment; Paragraph 5.

The report states that the human health risk assessment from the Phase I RI was not revised based upon the findings of the Phase II RI. The report notes that samples collected during the Phase II RI, depending upon location, were either above, below or equivalent to the results of the Phase I RI. The report should state whether the observed difference would change the conclusion of the human health risk assessment of the Phase I RI. It is recommended that a table be created for soil, groundwater and sediment which compares the maximum, range and average concentrations observed in the Phase II RI compared to the results of the Phase I RI.

56. Page 7-8, Section 7.1.7, Human Health Risk Assessment; Paragraph 5.

The report discusses the human health risk assessment results for the site. The report should note that exceedances of the RIDEM residential criteria were observed in soils (note: criteria also includes TPH), exceedances of MCLs were also observed in groundwater at the site. Further, RIDEM Regulations, including the Remediation Regulations, are ARARs for the Site (this should also be noted in the report). Therefore, these exceedances must be carried forth to the FS as they must be evaluated as part of the remedy for the site.

57. Page 7-14, Section 7.4, Soil; Whole Section.

The report notes that there are exceedances of TPH, organics and inorganics in sumps and vaults which are easily addressed via removal actions. The report also notes other areas where exceedances were observed. Additional areas of concern were also found in the Phase I RI and other studies, as noted in the comments above (areas which exceed RIDEM criteria and/or risk assessment values). The report should also note that the other areas with elevated levels could also be addressed via removal actions or other remedial measures. Please revise the report accordingly.

58. Page 7-16, Section 7.4, Groundwater; Paragraph 1.

This section deals with groundwater use at the site. Please add the following after sentence 2: *"Groundwater has been used as potable water at the site in the past. The site lies within a state classified GA aquifer and the cleanup objective under State regulations is MCLs."*

59. Page 7-16, Section 7.4, Sediment & Shellfish; Whole Sections.

As noted in the previous comments, there are concerns with respect to the risk evaluations which were performed, contaminants of concern, and potential areas of concern, which may necessitate changes in these two sections.

60. Page 7-17, Section 7.5, Recommendations.

Please add the following to the potential human health risks:

- Residential groundwater consumption (see comment #5)
- TPH in soil/sediment (see comment #16)

Please revise the potential for ecological risk from “*total PAHs in sediment*” to “*total and individual PAHs in sediment*”. (see comment #39)

Please revise “*ERMQ from arsenic, cadmium, chromium, nickel, zinc, PAHs, and PCBs in sediment*” to “*ERML and ERMQ from arsenic, cadmium, chromium, nickel, zinc, PAHs, PCBs, and other individual PAHs in sediment.*”

61. Page 7-18, Section 7.5, Recommendations; 4th paragraph.

The PAHs in sediment should be addressed individually as well as a group (Total PAHs). See comment #39 mentioned above.

62. Page 7-18, Section 7.5, Recommendations.

As indicated in the previous comments, there are additional contaminants of concern and therefore additional areas of potential concern, such as evaluating individual PAHs as well as total PAHs. Please revise the text in paragraphs 2-6 to reflect the modifications to the bullets as noted in comment #57.