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RESPONSES TO TECHNICAL COMMENTS ON THE RESPONSES TO COMMENTS
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION DRAFT SAMPLING AND
ANALYSIS PLAN WETLAND SEDIMENT SAMPLING OPERABLE UNIT 16 SITE 41 NAS
PENSACOLA FL
05/16/2013
NAVFAC SOUTHERN

**Responses to Technical Comments
on the Responses to Comments
Florida Department of Environmental Protection
Draft Sampling and Analysis Plan (SAP), Wetland Sediment Sampling,
Operable Unit 16, Site 41, Naval Air Station Pensacola, Pensacola, Florida**

The Department has reviewed the Navy's Responses to the Department's and the Department's contracted University of Florida risk assessors' Comments on the Draft Sampling and Analysis Plan (SAP), Wetland Sediment Sampling, Operable Unit 16, Site 41, Naval Air Station Pensacola, dated 22 February 2013 (received by e-mail on 22 February 2013), submitted by Resolutions Consultants. I have attached comments from the Department's University of Florida risk assessors on the responses to their previous comments on the Draft Wetlands Sediment Sampling and Analysis Plan to this letter. I have also attached Ligia Mora-Applegate's response memo.

As far as my comment on the Draft Sampling and Analysis Plan, the Navy has responded that:

The chronic tests recommended by the reviewer may be appropriate for sites in the initial phases of investigation, but since the RI has been completed and finalized using shorter durations (7 to 28 day toxicity tests), it is critical that the same test organisms and durations be used to ensure that consistent decisions be made during the FS process. The 14-day acute toxicity tests proposed for both test organisms will provide survival as an assessment endpoint, although with *Hyalella azteca*, growth will be measured and may be evaluated as a secondary sublethal assessment endpoint.

While the Department acknowledges the Navy's point about having consistent data that are comparable to each other with respect to species organism and length of the tests, the Department believes there is no reason that both acute and chronic toxicity testing, in accordance with our original request, cannot be conducted. The acute toxicity testing should be conducted to meet the Navy's criteria so as to provide data that can be directly compared with previous results in order to support decision-making with survival as a risk management criteria. Chronic toxicity testing needs to be conducted to fill a data gap from the original investigation and ecological risk assessment. That data gap is the evaluation of chronic toxicity that can determine other than lethal effects on organisms, such as reproduction, that may also be incorporated into risk management decisions.

Response:

The Navy agrees to perform chronic toxicity to assess survival, growth and reproduction endpoints if warranted based on comparison of sediment chemistry data to the criteria identified in the SAP (Background, PRGs, PELs) including number of samples with exceedances, number of chemicals that exceed, spatial distribution of samples with exceedances, and magnitude of exceedances. The sediment chemistry data will be presented to the Pensacola Partnering Team with proposed toxicity sample locations before collection. Final toxicity sample locations will be discussed and agreed upon by the Pensacola Team before collection. The decision rules for toxicity testing are presented on Worksheet #11 in the SAP.

Comments on the Responses to Technical Comments
Florida Department of Environmental Protection
provided by Ligia Mora-Applegate
Draft Sampling and Analysis Plan (SAP)
Wetland Sediment Sampling
Operable Unit 16, Site 41, Naval Air Station Pensacola, Pensacola, Florida
Site ID#: DOD 11 1852

At your request, I have reviewed the Responses to comments on the September 2012 Draft Sampling and Analysis Plan (SAP), for the Wetland Sediment Sampling, Operable Unit 16 Site 41, at the Naval Air Station in Pensacola. The responses were prepared by the Navy and are dated 22 February 13.

The Navy combined the Wetlands at the NAS Pensacola Facility into a single Operable Unit (OU 16), Site 41. Site 41 encompasses approximately 81 wetlands or wetland complexes, both tidal and nontidal, that are within the base boundary. These wetlands are either palustrine or estuarine and drain into Bayou Grande or Pensacola Bay.

In general I am in agreement with the Navy responses except that we strongly recommend once again that additional parameters such as iron in wetland 4D and DDT in wetland 6 need to be tested.

In addition and as previously discussed, I would like to emphasize that the Probable Effect Levels (PELs) should only be used as a not-to-exceed values, and delineation of contaminants in sediments in the wetlands must be done to the Threshold Effect levels (TELs) as applicable.

Response:

Because the Navy is currently preparing a Focused Feasibility Study Report and subsequently a Record of Decision Amendment for OU 1, The Navy proposes to transfer Wetlands 3, 4D, 15, 16, and 18 from OU 16 to OU 1. All investigations associated with these wetlands will now be performed as part of OU 1. The collection of surface water samples will be addressed in an update to the OU 1 UFP-SAP.

The Navy agrees to collect a sediment sample near the weir feature where Wetland 6 crosses under the road. The Navy will add two sediment samples to Wetland 7 where Wetland 6 and Wetland 7 are contiguous.

The RI report and risk assessment are complete; therefore, the screening level TELs are not appropriate for this phase of the investigation. In addition, as stated in Approach to the Assessment of Sediment Quality in Florida Coastal Waters, "These guidelines are intended to be used as one tool in a toolbox of companion interpretive approaches..." and that the TELs and PELs "should not be used in lieu of water quality criteria, nor should they be used as sediment quality criteria". Moreover, use of PELs as not-to-exceed values is not appropriate, since empirical data from the site has been and will be used to calculate PRGs, as recommended by the Florida Sediment Quality Guidance.

The Navy agrees to provide comparison of the detected concentrations to site-specific PRGs, PELs, and background concentrations for assessment and discussion by the Team. Final remedial goals for OU 16 will be based on the findings of this current investigation.

Comments on the Responses to Technical Comments
Florida Department of Environmental Protection
provided by University of Florida
Draft Sampling and Analysis Plan (SAP)
Wetland Sediment Sampling
Operable Unit 16, Site 41, Naval Air Station Pensacola, Pensacola
Site ID#: DOD 11 1852

We have reviewed at your request responses to our comments on the *Draft Sampling and Analysis Plan (SAP), Wetland Sediment Sampling, Operable Unit 16, Site 41, Naval Air Station Pensacola, Pensacola, Florida*. Our comments were provided to you in a letter dated 26 November 2012. The responses to these comments provided on behalf of the Navy are contained in document dated 22 February 2013.

To enable you to follow the discussion regarding our comments, we have reproduced each original comment and the Navy response below. Following each, we have made a follow-up comment.

Comment 1:

Original Comment: In the final Remedial Investigation (RI; August 2005), iron was listed as a contaminant of potential concern (COPC) in surface water and sediment for Wetland 4D. During a site visit on 20 September 2012, it was noted that iron continues to be a concern for this wetland. We recommend that proposed additional sampling in Wetland 40 include iron to better determine the extent of iron contamination in sediment and surface water.

Navy Response: The Navy agrees that iron floc is observed in Wetland 3; however, Wetland 3 is being addressed under OU 1 and Wetland 3 is not part of this investigation. Iron was not identified at Wetland 4D for further sampling in sediment in the SAP. This finding was based on the COC refinement presented as Appendix A in the Feasibility Study Report. A site-specific no observed effects concentration (NOEC) for freshwater wetlands of 246,000 milligrams per kilogram (mg/kg) was calculated for iron based on site-specific results in Wetland 3 (041M0302) at a location with no lethal or sublethal toxicity. The NOEC was discussed in the March 2012 meeting. Concentrations of iron reported in sediment are less than the NOECs, and therefore, iron was eliminated for further consideration. As discussed during partnering meetings, in the memorandum and in the response above, the scope of the memorandum was limited to sediment sampling, so surface water and other media were not discussed in the memorandum and are beyond the scope of this follow-up work for the Feasibility Study, unless information indicates that partnering team decisions regarding those media should be reconsidered.

If performed, toxicity testing will address the mixture of contaminants in the samples and would not exclude iron. Consequently, separately analyzing samples for iron was not proposed.

As discussed during partnering meetings and in the memorandum, the scope of the memorandum was limited to sediment sampling, so surface water and other media were not discussed in the memorandum and are beyond the scope of this follow-up work for the Feasibility Study.

Follow-up Comment: The intent of our comment was to encourage further evaluation of iron in Wetland 4D based upon observations during the September 2012 site visit, as well as the discussions held during the March 2012 meeting. Observations of iron floc in Wetland 4D appear to be inconsistent with a conclusion of no toxicity, at least in some areas. This could perhaps be addressed by toxicity testing if properly conducted and inclusive of samples from areas with the highest iron/iron floc.

Response:

Because the Navy is currently preparing a Focused Feasibility Study Report and subsequently a Record of Decision Amendment for OU 1, The Navy proposes to transfer Wetlands 3, 4D, 15, 16, and 18 from OU 16 to OU 1. All investigations associated with these wetlands will now be performed as part of OU 1. The collection of surface water samples and possible toxicity testing in Wetlands 3 and 4D will be addressed in an update to the OU 1 UFP-SAP.

Comment 2:

Original Comment: During a Partnering Meeting on 27-28 March 2012, field verification was proposed for Wetland 6 to determine if additional sampling for DDT is necessary (Appendix A). A site visit on 20 September 2012 verified fish and piscivorous birds are present in this wetland. Further sampling to delineate the extent of contamination appears necessary to determine whether DDT is of concern to higher trophic levels species foraging in Wetland 6.

Navy Response: As stated in the Final Remediation Investigation Report, November 2007, Wetland 6 was eliminated from further sampling during the Phase III investigation because it is a channelized ditch within the NAS Pensacola storm water drainage system which receives continual impacts from storm water and is actively maintained by base maintenance personnel. As shown on Figure 11-1 from the Remedial Investigation Report, storm water from across the southeastern portion of NAS Pensacola discharges to Wetland 6.

In the May 2012 Partnering meeting, a participant was concerned with the source of DDT. Total DDT was detected above its basewide concentration of 110 ppb at only 2 of 12 locations. The highest location was 260 ppb at 041M060101 and the second highest was 52 ppb at 041M060301. The fate and transport analysis for Wetland 6 did not indicate that OU 6 soil or groundwater was a source of the DDT in sediment. Detected DDT concentrations are not indicative of a spill and are likely from routine spraying of pesticides along the ditch. Food chain models do not indicate a risk to upper trophic level receptors from DDT.

The concern for sampling was to identify a source and evaluate potential migration rather than ecological risk. The Navy has cleared this partially lined and channelized ditch, and clearing activities to maintain the ditch will be performed by base personnel as needed to maintain flow in the future. Consequently, the Navy disagrees with adding Wetland 6 to the SAP.

Follow-up Comment: Based upon field observations during the September 2012 visit, Wetland 6 certainly *appears* to be habitat for a number of fish species and piscivorous birds. If it is considered viable habitat for management purposes, then we maintain that better characterization of contaminants in this wetland is needed. If not, then issue is moot.

Response:

The Navy agrees to collect a sediment sample near the weir feature where Wetland 6 crosses under the road. The Navy will add two sediment samples to Wetland 7 where the wetlands are contiguous.

Comment 3:

Original Comment: Worksheet 11 states that twice the mean detected concentration in the reference area will be utilized as an upper-end estimate of background concentrations at the site. The upper-end of the range of background concentrations is usually defined as the lower of twice the mean or the maximum detected concentration. This methodology prevents an overestimation of the upper limit of background that could result from a few elevated reference samples.

Navy Response: Background was established as part of the Final RI Report for NAS Pensacola wetlands, including substantial input from EPA, FDEP and other stakeholders as part of the partnering process with the Navy as well as the comment and response process typically used to finalize RI Reports. Consequently, revisiting background determinations and/or comparison methods as part of this sampling and analysis plan is beyond the scope of the memorandum.

Follow-up Comment: Our comment is a reiteration of one we have made previously that the method of determining the upper limit of background is inconsistent with the approach typically used by the FDEP.

Response:

The Navy acknowledges that this approach is not consistent with FDEP's current calculations of background. However, this approach was the agreed upon method with FDEP and U.S. EPA for determining reference concentrations or background in the RI report. Therefore, the Navy will continue to follow this method. Additional reference data will be collected during this investigation. If warranted by the chemistry results, background will be evaluated.

Comment 4:

Original Comment: The use of PALs in Sections 11.3 and 11.5 is unclear (Worksheet 11). The document states that site-specific preliminary remedial goals (PRGs) will be reassessed using chemistry and toxicity data collected during this sampling event. However, it also states that if a PRG was calculated as part of the feasibility study (FS), the PRG from the FS will be utilized as the PAL. The PALs are then utilized to determine the extent of contamination. At the March 2012 Partnering Meeting (Appendix A), both the University of Florida and the U.S. EPA expressed concern regarding the interpretation of toxicity testing and derivation of the PRGs in the FS. It was also agreed in a Partnering Meeting on 9 May 2012 (Appendix B) that the old toxicity testing data would not be utilized for determining ecological toxicity at the site. These values should not be proposed for determining the extent of contamination in the SAP.

Navy Response: The site-specific PRGs are the no-observed effects concentration (NOEC) or the lowest observed effects concentration (LOEC) based on site-specific conditions and detected concentrations. The PRGs, reference concentrations, and other available ecological criteria were evaluated for development of the current PALs. Based on the data collected during the proposed investigation, the site-specific PRGs may be updated. The Navy agrees that the old toxicity test data will not be used with the proposed data for determining ecological toxicity at the site. Worksheet #11 will be reworded to show that new PRGs will be calculated as new data is obtained throughout the investigation.

Follow-up comment: The response indicates agreement with our (and U.S. EPA's) recommendation that the old toxicity data not be used in the development of site- specific PRGs. **This response is satisfactory.**

Comment 5:

Original Comment: The sediment screening level hierarchy (page WS 11-5) proposes to utilize the FDEP probable effect levels (PELs) for delineation purposes. Usually the threshold effect levels (TELs) are utilized for screening as well as delineation purposes. Use of the PEL for delineation could result in an average wetland contaminant concentration that exceeds the TEL.

Navy Response: An RI Report has already been developed for NAS Pensacola wetlands, including substantial input from EPA, FDEP and other stakeholders as part of the partnering process with the Navy as well as the comment and response process typically used to finalize RI Reports. Consequently, findings in the RI Report and subsequent discussions were integrated into the sampling and analysis memorandum. It was noted the TECs and TELs would not be used because this investigation is not a screening level assessment as the sites are past that stage in the risk assessment process. The sampling approach was discussed with the partnering team while the memorandum was being developed.

Follow-up Comment: Our comment was intended to address the use of the PEL for delineation purposes specifically. There are at least two potential problems with using the PEL for delineation: 1) Concentrations below the PEL can have negative impacts on benthic invertebrates, and consequently a wetland delineated using a PEL underestimates the size of the affected area; and 2) Delineation using the PEL can result in an average concentration within the delineated area that exceeds the TEL.

Response:

The RI report and risk assessment are complete; therefore, the screening level TELs are not appropriate for this phase of the investigation. In addition, as stated in Approach to the Assessment of Sediment Quality in Florida Coastal Waters, "These guidelines are intended to be used as one tool in a toolbox of companion interpretive approaches..." and that the TELs and PELs "should not be used in lieu of water quality criteria, nor should they be used as sediment quality criteria". Therefore use of PELs as not-to-exceed values is not appropriate, since empirical data from the site has been and will be used to calculate PRGs, as recommended by the Florida Sediment Quality Guidance.

The Navy agrees to provide comparison of the detected concentrations to site-specific PRGs, PELs, and background concentrations for assessment and discussion by the Team. Final remedial goals for OU 16 will be based on the findings of this current investigation.

Comment 6:

Original Comment: Only three samples are proposed per reference wetland for a total of six freshwater and six estuarine reference samples. Six samples are not adequate to determine upper background concentrations with any certainty. The small number of proposed background samples is likely to result in a data set that will overestimate upper background concentrations. We recommend two additional samples per wetland for a total of ten samples per environment.

Navy Response: Two additional samples per reference wetland will be added.

Follow-up Comment: **The response is satisfactory.**

Comment 7:

Original Comment: Sample 041M3306 in Wetland 33 (Figure 17-12) is the only sample proposed outside of a wetland boundary. It is unclear why a proposed reference sample does not actually lie within the boundaries of a wetland. Further explanation is necessary to clarify the placement of this sample.

Navy Response: Sample location will be changed to inside the Wetland 33 boundary.

Follow-up comment: **The response is satisfactory.**

Comment 8:

Original Comment: The duration of the proposed sediment toxicity tests is unclear. However, the draft Response to U.S. EPA Technical Comments (dated 30 July 2012) suggests the tests will be shortened to a 14-day exposure period for both *Leptocheirus* and *Hyaella*. It is important to note that 14-day toxicity testing for these species does not include reproduction. We recommend a chronic exposure period (28-60 days) to include reproductive endpoints as well as growth and survival. Reproductive endpoints may be more sensitive to some contaminants, and therefore contaminant concentrations protective of growth and mortality may not be protective of

reproductive effects. Chronic reproductive endpoints are indicative of population level effects and should be evaluated unless there is evidence that reproduction is not the most sensitive endpoint for the contaminants of concern.

Navy Response: The chronic tests recommended by the reviewer may be appropriate for sites in the initial phases of investigation, but since the RI has been completed and finalized using shorter durations (7 to 28 day toxicity tests), it is critical that the same test organism and duration be used to ensure that consistent decisions be made during the FS process. The 14-day acute toxicity tests proposed for both test organisms will provide survival as an assessment endpoint, although with *Hyalella azteca*, growth will be measured and may be evaluated as a secondary sublethal assessment endpoint.

Follow-up Comment: We understand the point regarding consistency. Using 28-day tests would be consistent with testing conducted during the RI and arguably better capture reproductive endpoints than the 14-day tests proposed.

Response:

The Navy agrees to perform chronic toxicity to assess survival, growth and reproduction endpoints if warranted based on comparison of sediment chemistry data to the criteria identified in the SAP (Background, PRGs, PELs) including number of samples with exceedances, number of chemicals that exceed, spatial distribution of samples with exceedances, and magnitude of exceedances. The sediment chemistry data will be presented to the Pensacola Partnering Team with proposed toxicity sample locations before collection. Final toxicity sample locations will be discussed and agreed upon by the Pensacola Team before collection. The decision rules for toxicity testing are presented on Worksheet #11 in the SAP.

Comment 9:

Original Comment: Page WS 11-4 states the PRGs in the FS were derived from the higher of the reference/background concentration, sediment screening levels, and sediment refinement levels. The PRGs were actually the higher of the reference/background, sediment screening levels, sediment refinement levels, and site-specific toxicity levels developed from sediment toxicity testing.

Navy Response: Section 11.3, page 11-4 will be reworded to state that PRGs were developed as part of the FS and the overall PRG was the highest value among the reference/background concentrations, sediment refinement levels, and site-specific NOEC or LOEC.

Follow-up Comment: **The response is satisfactory.**

Our comments above address the extent to which the proposed approach, as discussed in the responses to comments, are applicable to the problem being addressed. The document cited no references and contained no figures, tables, or numerical data or calculations. Conclusions and recommendations are implicit in the Navy responses to comments, and we have provided our comments and recommendations in the form of follow-up comments. Minor typographical errors in the presentation of our original comments and Navy responses have been corrected while reproducing them in the section above.

**RESPONSES TO TECHNICAL REVIEW OF THE 22 FEBRUARY 2013
RESPONSES TO EPA COMMENTS ON THE
DRAFT SAMPLING AND ANALYSIS PLAN
WETLAND SEDIMENT SAMPLING
OPERABLE UNIT 16 — SITE 41
DATED SEPTEMBER 2012**

ECOLOGICAL RISK REVIEW

**NAVAL AIR STATION PENSACOLA
ESCAMBIA COUNTY, PENSACOLA, FLORIDA
EPA ID NO. FL9170024567**

Brief Summary Directing the Justification for Additional Sampling

A scoping session was held on 27-28 March 2012¹ to provide an opportunity for the EPA and support contractors, Florida Department of Environmental Protection (FDEP) and their contractor, University of Florida (UF), to provide feedback on the Draft Feasibility Study Report (Draft FS)², and the Draft FS technical memorandum³ (FS Tech Memo). Based on the March 2012 meetings it was agreed that nature and extent sampling was required for those wetlands included in the FS (Wetlands 5A, 15, 18A, 18B, 48, and 64) and that Wetland 3 could potentially be used as a treatment wetland for the Operable Unit 1 landfill. In addition, it was agreed that Wetlands 1B, 4D, 6, 7, 8, and 12 be considered for further sampling because these wetlands may have been prematurely excluded from the Final Remedial Investigation Report (RI Report)⁴ based on limited information. During the review of the SAP, the EPA recommended Wetland W2 be included for further sampling since this area also may have been prematurely excluded from the FS based on limited data collected during the RI. Another scoping meeting occurred on 9 May 2012⁵ to discuss the approach for further sampling as presented in the April 2012 Sampling Approach memorandum⁶ with feedback focusing on sampling methodologies and the decision process for determining when higher trophic receptors would need to be evaluated. In addition, during the May 2012 meeting the concern was raised why Wetland 6 was not proposed for sampling when earlier scoping sessions had indicated that this wetland likely would require sampling if information on the source of total DDT (DDTx) could not be determined.

¹ Partnering Meeting in Jacksonville, FL on 27 March 2012 and 28 March 2012 attended by EPA, FDEP, NAVFAC, NAS Pensacola, Resolution Consultants, TetraTech, TechLaw

² Draft Feasibility Study Report, OU16, Site 41 Wetlands, Revision 1, December 2010.

³ Refined List of Chemicals of Concern for the Feasibility Study and Development of Preliminary Remediation Goals for Sediment, Site 41, Combined Wetlands, Naval Air Station Pensacola, dated 2010.

⁴ Final Remedial Investigation Report, Site 41 — Operable Unit 16 — NAS Pensacola Wetlands, dated August 2005, Revised November 2007.

⁵ Partnering Meeting via Teleconference, 9 May 2012 attended by EPA, FDEP, NAVFAC, NAS Pensacola, Resolution Consultants, TetraTech, University of Florida, TechLaw.

⁶ Technical Memorandum Sampling Approach for Collection of Additional Sediment Samples Operable Unit 16, Site 41 Combined Wetlands, sent April 2012.

Review Findings

Only those comments not adequately addressed by the responses have been included below. Overall, some of the agreements made and issues raised during scoping sessions appear to be addressed in the RTCs however; the final SAP will be reviewed to confirm the Navy's proposed revisions have been made. This applies to General Comments 3, 5, 7, 8 and 9, Specific Comments 1, 3, 4, 5, 7, 9, 10, and 11, Editorial Comments 1 through 4, and Quality Assurance Review.

Several outstanding issues still remain that do not appear to be addressed by the RTCs. Rather than repeat the same response for multiple comments, the issues that require further discussion/resolution are summarized below with the associated general and specific comments.

Comment 1:

Iron has been excluded from the SAP for all wetlands associated with OU1 Landfill:

The Final RI had identified iron exceeding the freshwater and marine surface water ARARs of 1,000 µg/L and 300 µg/L, respectively, as well as freshwater and marine reference concentrations of 2,360 µg/L and 1,352 µg/L, respectively at multiple wetlands after the refinement step. The concern that iron should be retained as a COC was confirmed at OU1 wetlands as a result of a field visit on 20 September 2012. While Wetland 3 is currently being considered as part of the treatment train for iron coming from the OU1 landfill, the conceptual site models for Wetlands 3, 4D, 18A, 18B, and 15 all include OU1 landfill as the potential source of contamination. This was most apparent during the September 2012 visit at Wetlands 3 and 4D. The EPA comments requested that not only surface water but also sediments be considered for sampling to include iron and pH since iron toxicity is a function of pH. The Navy responded by stating that the FS Tech Memo refined the list of chemicals of concern (COCs) which included elimination of iron in sediment based on a site-specific no observed effect concentration (NOEC) for freshwater and estuarine wetlands of 246,000 mg/kg and 20,800 mg/kg, respectively. The Navy's response also indicates that sampling surface water is beyond the scope of the FS unless information indicates that partnering team decisions need to be reconsidered.

Additional comment: EPA, UF and FDEP raised the concern that iron may be a COC in 4D based on field observations of orange floc at the area where Wetland 3 discharges to Wetland 4D and also in Wetland 18B. In addition, EPA as well as UF questioned the PRGs that are being used as a means to refine COCs because the site-specific toxicity tests were determined to be flawed. These concerns were reiterated again during scoping meetings. The Navy's response stated that "the PRGs will be evaluated based on the results of the proposed sampling event and the Team will

be consulted to determine whether toxicity tests will be performed" (Specific comment 6, RTC Page 15). However, the same PRGs are still being utilized to justify the elimination of contaminants. The EPA requests that the analytical results for iron in sediment be reported for all wetlands associated with the OU1 landfill since these wetlands already include an analysis of a subset of metals. Sampling and analysis of iron in sediment and surface water (see next comment) at all OU1 wetlands will address the potential impacts of OU1 discharges and allow for wetland to wetland comparisons of results.

Response:

The Navy does not agree that the toxicity tests are flawed. Because the Navy is currently preparing a Focused Feasibility Study Report and subsequently a Record of Decision Amendment for OU 1, The Navy proposes to transfer Wetlands 3, 4D, 15, 16, and 18 from OU 16 to OU 1. All investigations associated with these wetlands will now be performed as part of OU 1. COCs and the assessment methods will be addressed in an update to the OU 1 UFP-SAP.

Comments: General 1, 6. Specific 2, 6, 8.

Comment 2:

Surface water samples will not be collected for chemical analysis: EPA recommended sampling of iron in surface water at the OU1 wetlands. The Navy response stated that the focus has always been on sediment based on the conclusions of the Final RI.

Additional comment: Iron has exceeded the FDEP freshwater and marine surface water ARARs of 1,000 µg/L and 300 µg/L, respectively, as well as freshwater and marine reference concentrations of 2,360 µg/L and 1,352 µg/L used in the refinement step of the Final RI. In addition, based on visual observations of orange floc, it appears that iron is impacting Wetland 3, 4D and 18B. To confirm if the visual effects are actually having a toxic impact to these wetlands, the EPA requests that surface water samples be collected and analyzed for iron as well as for the target constituents in sediment.

Further, the response to General Comment 9 suggests that surface water data will be required at Wetland W2 to address the ground water to surface water migration pathway for this wetland. In general, most of the COCs are more likely associated with sediments (e.g., PAHs, and DDTx); however, where metals are COCs in sediment, at a minimum a subset of surface water samples

co-located with sediment locations at each wetland should be reported to confirm that sediment is the primary exposure medium of concern. Further during scoping sessions, the EPA raised the concern that the historic surface water data is dated and the validity of this data was uncertain (e.g., as far back as 1994). In addition, surface water is a component of food-chain model (FCM) as an exposure route to minimize uncertainty in the modeling of bioaccumulative metals and organic chemicals.

Response:

Because the Navy is currently preparing a Focused Feasibility Study Report and subsequently a Record of Decision Amendment for OU 1, The Navy proposes to transfer Wetlands 3, 4D, 15, 16, and 18 from OU 16 to OU 1. All investigations associated with these wetlands will now be performed as part of OU 1. The collection of surface water samples will be addressed in an update to the OU 1 UFP-SAP.

Comments: General 1, 2, 6, 9. Specific 2, 8.

Comment 3:

Wetland 6 is excluded from the SAP: The EPA, FDEP and UF had recommended sampling at Wetland 6 during scoping meetings and confirmed this concern during the September 2012 site visit when wading birds and songbirds, fish, and crustaceans were observed among other organisms. Elevated concentrations of DDTx were detected in two samples from Wetland 6 (samples 041M060301 and 041M060101) above the reference concentration of 110 ppb with the maximum concentration of total DDTx of 393 ppb in 041M060101. Consequently EPA recommended sampling this area since this wetland discharges to the Wetland 64 complex. The Navy had acknowledged this concern during scoping meetings and the field visit and indicated they would consider sampling this area pending field verification of potential sources. The Navy RTCs have now concluded that sampling in this wetland is not required because this wetland was eliminated during the RI, and because it is a channelized ditch within the NAS Pensacola storm water drainage system which receives continual impacts from storm water and is actively maintained by base maintenance personnel.

Additional comment: EPA requests that a description of the activities associated with ditch maintenance be provided to include the frequency of these activities, when the last maintenance event occurred, and when the next event is scheduled. Further, describe whether samples are collected for analysis prior to disposing any sediment that is removed as part of the maintenance activity. Finally, EPA requests that at a minimum that a sediment sample be collected

in the vicinity of the weir feature where Wetland 6 crosses under the road as this appears to be an area where wildlife was observed and may represent an area that is not disturbed by maintenance activities.

Furthermore, Wetland 7 has only one proposed sample station near Wetland 8, so EPA requests additional samples closer to Wetland 6 to evaluate the impact of the influence of Wetland 6 on Wetland 7.

Response:

Ditch maintenance is performed on an as needed basis. The maintenance includes vegetation removal and removal of sediment to maintain the grade of the ditch. The last maintenance event on Wetland 6 was performed in 2008.

The Navy agrees to collect a sediment sample near the weir feature where Wetland 6 crosses under the road. The Navy will add two sediment samples to where Wetland 6 and Wetland 7 are contiguous.

Comments: General 4.

Comment 4:

Usefulness of acid volatile sulfide and simultaneously extracted metals (AVS/SEM):

EPA raised the concern that the Navy will use the AVS/SEM analysis as a means to justify whether toxicity test are needed or not. Further, EPA had requested clarification on how the AVS/SEM data will be used in support of the risk assessment. The Navy response indicates that the AVS/SEM data will be used to assess bioavailability of some metals; however, the utility of this method to the site COCs appears limited since the method only applies to the divalent metals cadmium, nickel, copper, lead, silver and zinc. As a result, the results will not be useful in interpreting the potential toxicity of other site metal COCs that are not included in this list. In other words, AVS/SEM conclusions should not be used as a surrogate for understanding the bioavailability of other metals not addressed by this method. In addition, the Navy has not specifically explained how the AVS/SEM will be conducted. For example, the season for conducting this method is important (e.g., late winter to early spring), samples need to be collected from the anoxic portion of sediments, and collection of pH and ORP are also warranted.

It should also be noted that due to the variability of results obtained from the use of AVS/SEM, the results should not be used as a decision point for determining the need for toxicity tests.

EPA's experience in the field has shown that field conditions are too variable to obtain a true value of bioavailability using AVS/SEM. EPA requests running both toxicity tests and AVS/SEM as the AVS/SEM may help explain the results of the toxicity tests. A number of references are available that caution the use of AVS/SEM in decision-making. For example, according to EPA's Framework for Metals in Risk Assessment, EPA 120/R-07/001, dated March 2007, AVS/SEM can be used as a screening-level tool to assess the acute toxicity of anoxic sediments and cautions risk assessors to be aware that some questions remain about the applicability of the approach to all benthic organisms because it is based on the chemistry of bulk anoxic sediment, and many organisms live in oxygenated burrows.

Additional comment: The EPA requests that toxicity tests are run in conjunction with analysis of AVS/SEM in order to interpret the results of the toxicity tests. Further, for metal COCs that are not addressed by the AVS/SEM, a decision rule is warranted that describes how the need for toxicity tests will be established. Further, additional detail is warranted on specifically how the AVS/SEM will be conducted. Finally when using the AVS/SEM model in exposure estimations, ensure that its shortcomings are acknowledged appropriately and uncertainties are recorded in the Risk Characterization phase of the assessment.

Response:

AVS/SEM provides an additional line of evidence for assessing divalent cation toxicity. As stated in the text, additional sampling locations and the need for toxicity tests will be determined by the Team.

Comment: General 5.

Comment 5:

Conceptual site models and food-chain: EPA raised the concern that the CSMs established for each wetland are incomplete because they only depict benthic invertebrates as the only receptors at risk. However, if bioaccumulative compounds are detected at the wetlands which are being sampled for pesticides, higher trophic organisms should be represented in the preliminary CSMs in the SAP. If the results of the sampling indicate that bioaccumulative compounds are not present or below levels detected in the Final RI, then the CSM can be refined at that time.

Additional comment: EPA requests that higher trophic organisms are included as potential receptors in the CSMs for sites being sampled for pesticides (e.g., Wetlands 4D, 15, 18A, 18B, 5A, 64 complex, 12, and W2) and not just limit to Wetland 48.

Response:

The food chain models were conducted in the RI and they did not show a risk from bioaccumulative compounds. The Navy has agreed that if concentrations in sediment are greater than the detected concentrations in the RI, then the data will be evaluated by the Team. If food chain models are needed, the CSMs can be evaluated and updated at that time.

Comments: General 6.

Comment 6:

Use of existing PRGs: Many of the Navy's responses that defend the sampling approach as well as eliminating chemicals from further evaluation relies on the use of site-specific PRGs. While the Navy acknowledges that the site-specific PRGs will be reassessed using chemistry and toxicity data collected during this sampling event, the Navy still utilizes the PRGs to determine the extent of contamination, or as a basis for running AVS/SEM as well as determining whether chemicals are retained or eliminated as COCs. At the March 2012 Partnering Meeting, both UF and the EPA expressed concerns regarding the interpretation of previous toxicity testing and derivation of the PRGs in the FS. It was also agreed in a Partnering Meeting on 9 May 2012 that the toxicity tests data would not be utilized for calculating PRGs. As a result, the PRGs should not be used for determining acceptable risk levels for the various chemicals.

Additional comment: The EPA requests that project action levels be used to include TELs for delineation and PELs only as not-to-exceed values or other values suggested by the EPA during scoping sessions in place of PRGs that are not clearly supported by the historical site-specific toxicity test. It should be noted that EPA concurs with the use of the base-wide level of 0.110 mg/kg for DDTx as the SAP project action level for sediment.

Response:

The RI report and risk assessment are complete; therefore, the screening level TELs are not appropriate for this phase of the investigation. In addition, as stated in Approach to the Assessment of Sediment Quality in Florida Coastal Waters, "These guidelines are

intended to be used as one tool in a toolbox of companion interpretive approaches...” and that the TELs and PELs “should not be used in lieu of water quality criteria, nor should they be used as sediment quality criteria”. Moreover, use of PELs as not-to-exceed values is not appropriate, since empirical data from the site has been and will be used to calculate PRGs, as recommended by the Florida Sediment Quality Guidance. The Navy agrees to provide comparison of the detected concentrations to site-specific PRGs, PELs, and background concentrations for assessment and discussion by the Team. Final remedial goals for OU 16 will be based on the findings of this current investigation.

Comments: General 5. Specific 2, 6.

Comment 7:

Fish sampling: EPA raised the concern that fish tissue analyses had previously been performed at the site (i.e., Wetland 64) and PCB1260 was detected in the tissues at concentrations which exceeded recommended Canadian tissue guidelines, and the EPA recommended that the SAP include fish sampling, if it is determined that fish are present in the wetlands where fish sampling was previously performed. The Navy disagrees since the scope of the sampling and analysis memorandum was specifically limited to sediment and was coordinated with the partnering team.

Additional comment: The EPA requests that the SAP include the sampling of fish tissue as a second phase of the SAP contingent on the results of sediment sampling. For example, if elevated concentrations of bioaccumulative compounds are detected in sediment and FCM indicate a potential risk, then fish sampling may be warranted to demonstrate whether bioaccumulation is actually occurring.

Response:

A recent study in the Pensacola Bay System by the Florida Department of Health (2009) showed an average total PCB concentration in edible tissue of mullet to be 19 ± 3 parts per billion (ppb). The total PCB concentrations for each fish ranged from 12 to 48 ppb. Most of the wetlands where fish are present are directly connected to the Bayou Grande; therefore, attribution to a particular wetland would be difficult if not impossible.

In the unlikely event that the detected concentrations in sediment are higher than the concentrations in the RI, and food chain models show a potential risk, fish sampling may be considered. At that time, an addendum would be prepared for the SAP to include fish samples.