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PITT-07-1-055

August 3, 2001

Project 3939

Commander, Southern Division
Naval Facilities Engineering Command
Attn: Mr. Anthony Robinson
2155 Eagle Drive
North Charleston, South Carolina 29406

Reference: CLEAN Contract No. N62467-94-D-0888
Contract Task Order 0154

Subject: Final QAPP and Response to Comments
Naval Training Center Great Lakes
Great Lakes, Illinois

Dear Mr. Robinson:

Please find enclosed two (2) copies of the Final QAPP and the response to IEPA comments. Copies have also been distributed to the people below. The signed title page will be submitted when all signatures have been received.

If you have any questions, please contact me at (412) 921-7251.

Sincerely,

Robert F. Davis, Jr., P.E.
Task Order Manager

RFD/kf

Enclosure

cc: O. Thompson, EPA Region 5 (2 copies)
B. Conrath, IEPA (2 copies)
B. Holtrop, NTC Great Lakes (2 copies)
T. Goeks, NOAA (1 copy)
D. Wroblewski (Cover Letter Only)
M. Perry/File 3939

RESPONSE TO COMMENTS
Quality Assurance Project Plan
Site 7 - RTC Silk Screen Shop and Site 17 - Pettibone Creek and Boat Basin
Remedial Investigation and Risk Assessment
0971255048 -- Lake
Great Lakes Naval Station
Superfund/Technical Reports

- 1) Approval Page: Change Chris Hill to Brian A. Conrath.
Response: The document will be changed in accordance with the comment.
- 2) Table of Content ("T.o.C."): Text goes from A6 to A6.A.1 without an A6.A.
Response: The document will be revised to include "A6.A PROJECT PLANNING".
- 3) T.o.C.: A9 is missing in the text. The title that should be A9 is listed as A9.A.
Response: The document will be changed in accordance with the comment. "A9 DOCUMENTATION AND RECORDS" and "A9.A Documents and Records" titles will be added
- 4) T.o.C.: Tables and Figures are not paginated. Without this it is hard to determine whether they are in Section A-1 or Appendix A-1.
Response: The document will be changed in accordance with the comment. The sections of the QAPP will be A, B, C, and D to follow the U.S. EPA Region 5 guidance and the appendices will be changed to roman numerals (I, II, III, IV, V, VI, VII, and VIII).
- 5) T.o.C.: Section B8 has no page number.
Response: The document will be changed to include the page number.
- 6) T.o.C., Appendices: "DQOs" and "SOPs" should be written out to match the Title in the text.
Response: The document will be changed in accordance with the comment.
- 7) T.o.C.: Need to include a distribution list.
Response: The transmittal letter will be the distribution list. This will be indicated in Section A3.
- 8) Entire Document: Need to add a line for "Section # or letter" in header in upper right corner.
Response: The document will be changed in accordance with the comment.
- 9) Section A: Need to include a brief summary/overview of the activities to be conducted under this phase. (This phase will include installing monitoring wells, taking soil cores, etc...)
*Response: The document will be changed in accordance with the comment. The following sentences will be added after the 2nd sentence of the 1st paragraph in Section A5:
"Temporary monitoring wells will be installed for groundwater monitoring and soil samples will be collected using drilling equipment at the Site 7. Sediment and surface water samples will be collected at Site 17 in the Boat Basin and in Pettibone Creek. The sediment sample in the Boat Basin will be collected using drilling equipment and the samples in Pettibone Creek will be collected using hand tools."*
- 10) Section A: Need to include a brief statement of how the acquired data will be used. (For what and how?)
*Response: The document will be changed in accordance with the comment. The following paragraph will be added to Section A5:
"This investigation is intended to address the potential risks that are associated with Sites 7 and 17 only. The select organic and inorganic chemical data for the surface soils, subsurface soils, and ground water at Site 7 and sediment and surface water at Site 17 will be used to delineate the nature and extent of contamination believed to be related to a Navy source and/or the risk-based criteria. The chemical data*

will also used to implement a baseline human health risk assessment (see Appendix I), a screening-level ecological risk assessment, and Step 3A of the baseline ecological risk assessment (see Appendix II).”

11) Table A-1: The phone number for Brian A. Conrath is (217) 557-8155.

Response: The document will be changed in accordance with the comment.

12) Section A: Section A starts with A4.A rather than with A1.

Response: The document will be changed in accordance with the comment. Sections A1, A2, and A3, the title page, table of contents, and distribution list will be added with a statement to see these items.

13) Section A4.D.1: Please include a reference to adherence to Good Laboratory Procedures (GLPs).

Response: The document will be changed in accordance with the comment. Another bullet will be added to the laboratory project managers responsibilities that will manager is responsible for adherence to GLPs (see Section A4.D.1).

14) Appendix C, pg. 1, next to last paragraph: Change Chris Hill to Brian A. Conrath.

Response: The document will be changed in accordance with the comment.

15) Section A9.A.2: The geologist mentioned in this section needs to be a Licensed Professional Geologist (LPG).

Response: The document will be changed to indicate that a LPG in the office will review the boring logs, etc. mentioned in this section. During a telephone conversation with IEPA, this was discussed. The geologist in the field will be the FOL who is supervised by the Project Manager, a Professional Engineer for this project and a LPG within the TtNUS corporation.

16) Section A9.A.4: Do all pieces of equipment have their own S.O.P.s and logbooks?

Response: The equipment will have their own instruction manuals. An equipment calibration log sheet will be completed for each piece of equipment that is calibrated. No change was made in the text of the QAPP.

17) Section A9.A.6: There is no specific space on the Chain of Custody Form requesting/documenting the condition of the samples being received. The temperature and state (cracked, broken, thawed, frozen, etc...) as well as other possible descriptions should be noted on this form.

Response: The Chain of Custody form is a multi-part, standardized form used to summarize and document pertinent sample information. However, the main purpose of the form, through the sequential signatures of various sample custodians, is to document sample custody and tracking. Unusual sample conditions will be written in the comment line of the Chain of Custody. STL Laboratory has a Condition Upon Receipt Variance form in the Sample Receiving and Chain of Custody SOP (see Appendix D) to document the descriptions (temperature, state, etc.). No change was made in the text of the QAPP.

18) Section B2.A.1, first bullet: This lists the boring depths to be 25 ft. Bullet 2 states that 7 soil borings will be converted to temporary wells after sampling. The monitoring wells, from Table B-3, are to be an estimated depth of only 20 ft. This should be corrected to match the actual boring depth of 25 ft.

Response: The document will be changed. The table and text will be changed to 20 feet since we anticipate the groundwater depth to be less than 10 feet below ground surface.

19) Section B2.A.3: The text states “Well screens will be approximately 10 feet in length, with exact lengths based on the geologist’s interpretation of the lithology. The well screens will have a slot size of 0.010 inch ...” The well screen slot size should be matched to the grain size of the formation to be tapped as determined from testing (sieve test, etc.).

Response: The geologist will identify the grain size/lithology of the formation based on visual examination and manual tests described in SOP CTO 154-13 in Appendix E. It is not practical (from a time standpoint) to send a soil sample to a laboratory for a sieve test and wait for results prior to construction

of the well. Based on the USCS classification from the visual examination and manual tests, the geologist and driller will construct the well. The well will be constructed with well screen as specified in the text and a sand pack (pack material) that meets the requirements of SOP CTO 154-7 in Appendix E (no more than 10% of the pack material or the in-situ aquifer material will pass the well screen and the screen slot size and sand pack will be compatible with the water bearing zone to minimize movement of fines into the well). No change was made in the text of the QAPP.

20) Section B2.A.10: The text states that "filtered and unfiltered surface water" samples "will be collected for metals analysis." There is no mention of the procedure for filtering the samples. Please address.

Response: The document will be changed in accordance with the comment. The procedure for filtering the samples will be referenced (SOP CTO 154-4 in Appendix E).

21) Section B3.B.2: Need to discuss in greater detail the procedure for reporting broken or compromised samples to the TOM. Specifically, discuss what the corrective action will be (i.e. additional sample collection, loss of sample data, etc...).

Response: The Section B3.B.2 was modified and references the laboratory SOP (Sample Receiving and Chain of Custody SOP in Appendix D) and discusses the corrective action (use part of another sample bottle, if TtNUS is on-site the sample location resample, if TtNUS has demobilized the data will be lost). The laboratory Sample Receiving and Chain of Custody SOP (Section 4.3 and 4.9) in Appendix D provides additional detail on the procedure to report this information to the TtNUS project manager.

22) Section B6.B and B7: Be sure to update and or amend all information pertaining to the contract laboratory as soon as one is under contract.

Response: The document will be changed in accordance with the comment. The changes in these sections were submitted to IEPA for review and concurrence prior to finalizing the QAPP. These sections were submitted to IEPA on June 15, 2001.

23) Tables B12-24: Please be sure to include/complete Tables 12 through 24 when the laboratory has been procured.

Response: The document will be changed in accordance with the comment. The changes in these sections were submitted to IEPA for review and concurrence prior to finalizing the QAPP. These sections were submitted to IEPA on June 15, 2001.

24) Appendices: Field forms, sample labels, and records are shown by example. Please include examples of sample tags and seals, etc...

Response: During the March 13 and 14, 2001 meeting, sample tags were discussed and were not planned on being used. Since this investigation is not an enforcement sensitive sampling activity, the use of the chain of custody forms and express mail air bills will be used and retained for custody/tracking purposes. The chain of custody forms and express mail air bills will be retained for the Permanent Record File. Reference to sample tags were deleted from Section B and the Supplemental Field Sampling Plan and field SOPs in Appendix V.

25) Appendix A.2, Site 17, pg. 9, 2.1, next to last paragraph, last line: Reference should be made to Site 17, rather than Site 7.

Response: The document will be changed in accordance with the comment.

26) Appendix B, Site 17, 1.1.5.2 Sediment Screening Values: The text states "Sediment samples will not be sieved." It is IEPA's position and intent that sediment samples should be sieved. In his letter of March 22, 2001, to Bob Davis, Chris Hill stated that "The Agency recognizes the need for sediment samples from lotic environments to be subjected to processing for removal of sand and detritus which are irrelevant to the exposure of benthic organisms to sediment bound contaminants and which tend to confound the results. The exact procedures for this processing are flexible but should be consistent

with the objectives of the assessment and adequate ecological health.” He included in that letter a document entitled “Evaluation of Illinois Sieved Stream Sediment Data: 1982-1995.” The text in this Section states that “The primary reason for not sieving the sediment samples is that the sediment screening values (discussed below) are based on bulk sediments that are not sieved,” and mentions that the afore-mentioned document includes a table of unsieved sediment data. What was not in the letter was that the author of that document, Matthew Short, was contacted and asked about his intent. Mr. Short stated that he is very aware of the controversy regarding the need for sieving sediments and adds that Illinois is a leader in taking a stand on this issue. Sieving is a valuable practice because it normalizes the results by removing the inert pebbles and sand and organic detritus prior to analysis. Normalization allows for reliable comparisons such as is the goal in the Pettibone Creek background screening evaluation. Therefore, the IEPA retains its position that sediments should be sieved.

Response: TtNUS received the IEPA letter (dated June 13, 2001) that indicated the sieving of sediment samples was not necessary and additional language related to sample acquisition, reference data for comparison, and how the data will be compared. The location of the additional language that has been added to the QAPP and appendices is provided below as well as providing additional details on why the sediment sample should not be sieved.

- *Sample Acquisition – The sediment sample acquisition methods are described in Section B2.A.10 and in Appendix V, SOP CTO-154-5. The sediment acquisition will not include inert pebbles and organic detritus – these materials will be removed by hand before the sample bottle is sealed and shipped to the laboratory.*
- *The reference data for comparison is included in the Human Health Risk Assessment (Appendix I, Section 1.2.1) and the Ecological Risk Assessment (Appendix II, Section 1.1.5) Work Plans.*
- *The data will be compared in accordance with the Human Health Risk Assessment (Appendix I, Section 1.2) and the Ecological Risk Assessment (Appendix II, Sections 1.1.5, 1.1:6, and 1.2) Work Plans.*

The remedial investigation for Pettibone Creek and the Boat Basin is being conducted to determine the nature and extent of potential contamination and to provide data to perform risk assessments in accordance with U.S. EPA and Navy guidance. The DQOs prepared for this QAPP indicate that the end use of the data will be for a risk assessment. To conduct the risk assessment, several items are discussed below regarding the sieving of sediment samples.

- *IEPA Evaluation of IL Sieved Stream Sediment Data – This document indicated that there was no statistical significant difference between sieved and unsieved for most parameters (see text page 16 last paragraph and Table 8, most unsieved means > sieved means) – only COD had a statistical significant difference and TtNUS is not analyzing for this parameter. This document categorizes sediments into 3 classifications, non-elevated, elevated, and highly elevated. The planned end use of the data is to compare the data with the Appendix A table in this document to classify the sediments as well as compare to other criteria/benchmarks (these other criteria/benchmarks are risk based criteria based on bulk sediment samples – See Appendices I and II) for human health and ecological risk assessment purposes. The concentrations from the sieved sample analysis are not truly representative of what the human and benthic communities are actually being exposed to in the real world. While sieving may have relevance for comparison to the IEPA Evaluation of IL Sieved Stream Sediment Data document (i.e. comparison of the concentrations in fines from the site sediments vs. the concentrations in fines in this document), a judgement of some kind will still have to be made on human health and ecological effects. It would not be correct to use other criteria/benchmarks to compare to sediments that have been physically separated because they no longer represent bulk sediment concentrations that the other criteria/benchmarks are based on. The work that is to be done is a remedial investigation and risk assessment and sieving the sediment samples would only allow comparison to the IEPA Evaluation of IL Sieved Stream Sediment Data. Using this comparison does not provide enough information to proceed into a risk assessment (i.e. just because concentrations are above IEPA Evaluation of IL Sieved Stream Sediment Data doesn't mean that the site concentrations potentially are causing an ecologically significant risk), the goal of this investigation. Comparisons between other criteria/benchmarks and site data, or between*

background data and site data, are valid when the data represent the same populations of material. Some judgment could be used to interpret the comparison results but sieving the sediments will not allow comparison to other criteria/benchmarks because the populations of material is different (and judgements would be difficult to do).

- Historical data – This site has 20 years of historical data. Previous sampling events have not sieved the sediment samples prior to analysis. Even the most recent sampling event (Report dated April 2001) conducted for/by EPA Region 5 performed analysis on bulk sediment samples from 0 to 6 inch deep. Evaluation of the concentrations over time are valid when the data represent the same populations of material. This evaluation could not be done if the samples are sieved since the populations of material would be different.
- Pettibone Creek – The creek sediments had few organics/detritus (organic muck) and consisted of mostly rock, sand, and silt based on the site visit during the March 2000 meeting.
- The laboratory SOPs in Appendix D (Extraction and Cleanup of Organic Compounds from waters and soil, Total Organic Carbon Analyses for Solid Matrices by Walkley Black, Determination of Inorganic Anions, and Analysis of Industrial Solvents) for preparation of the samples indicates that the laboratory homogenizes the sample by mixing and discards foreign objects such as sticks, leaves, and rocks (pebbles) unless extraction of this material is required. The preparation SOPs have paragraphs such as “Decant and discard any water layer on a sediment/soil sample. Homogenize the sample by mixing thoroughly. Discard any foreign objects such as sticks, leaves, and rocks, unless extraction of this material is required by the client. If the sample consists primarily of foreign materials consult with the client (via the Project Manager or Administrator). Document if a water layer was discarded.” For this investigation, the foreign objects (sticks, leaves, and rocks) will be discarded during the preparation of the samples for analysis by STL Laboratory..
- The Field Sampling Plan SOPs(SOP 154-5 in Appendix E) will be revised to indicate the standard operating practice of the TtNUS field crews will be to discard foreign objects during sediment sampling. During sample collection, rocks, pebbles, and sticks are not purposefully collected.
- The sample volume required for laboratory analysis will be 3 8-ounce jars of sediment for PAHs, pesticides and PCBs, and inorganics. Since the surface sediment samples are obtained from a depth of 0 to 4 centimeters, the area the sample will be collected from will be large in order to obtain enough sample volume. This would be impractical.

27) Appendix B, Attachment 1, second paragraph, last word: This should end with a closing parenthesis.
Response: The document will be changed in accordance with the comment.

28) Section A5.A and Appendix A, Section 2.1.1: The presence of a petroleum-like product described as a “green viscous material of unknown nature and extent” is mentioned in the text and is apparently located within the proposed Site 7 boundary, the Agency believes that this Remedial Investigation should include a plan to determine the nature, extent, and possible risks associated with this apparent contamination.

Response: The QAPP for this remedial investigation includes four soil borings and associated samples for analysis in this area shown on Figure B-1. 07SB13 is in the area of the green viscous material to determine the nature and vertical extent, and 07SB09 (west) and 07SB11 and 07SB12 (south) to determine the horizontal extent. The area to the north and east of this product consists of physical structures (concrete vault for the steam lines and former concrete drum accumulation area). No change was made to the text of the QAPP.

29) Appendix C, DQO, Site 17, pg. 2,Top: Change Chris Hill to Brian A. Conrath.
Response: The document will be changed in accordance with the comment.

30) Appendix C, DQO Site 17: There are additional data that needs to be added to Steps 6 and 7. This is mentioned in the text. These need to be added prior to finalizing the QAPP.

Response: The document will be changed in accordance with the comment. The calculation of the number of samples was completed during the review of the draft QAPP and this information will be added to the DQO for Site 17 (see Appendix III). The information in Steps 6 was modified to indicate that the

error tolerances were developed (these are in Step 7) and the following information for Step 7 will be added to the DQOs:

"By considering project objectives and site-specific factors such as spatial coverage and forensic engineering needs, forty-four sediment sampling locations were originally identified for Pettibone Creek and its tributaries. Twelve sediment sampling locations were identified for the Boat Basin with four samples collected at each location for a total of 48 samples. These numbers, 44 and 48, were then evaluated for their expected ability to support decision making with regard to risk evaluation. These evaluations were performed by using EPA Decision Error Feasibility Trial Software (DEFT beta version 1.0).

The DEFT software takes as inputs the following data:

- expected variability of data for each analyte (in this case, based as much as possible on past site data),
- the tolerance for making Type I and Type II decision errors (generated during DQO meetings), and
- the concentration difference between the Action Level and the decision making Gray Region boundary (Also generated during DQO meetings. See the DEFT User's Manual for details).

The Boat Basin was treated separately from Pettibone Creek because of its unique features. Pettibone Creek and tributaries within the Site 17 limits were treated two different ways in an attempt to maximize potential stratification of contaminants within the creek branches. First the entire creek within Site 17 limits was treated as a single unit. Then it was treated as two subsets – the North Pettibone Creek branch and the South Pettibone Creek branch. Thus, four different situations were considered. The number of samples was computed for each target analyte for each of the four scenarios.

In most of the scenarios for the analytes, the computed number of samples was significantly less than 44 samples, and was almost always less than 10 samples. This indicates that the 44 and 48 sediment samples planned for collection in Pettibone Creek and the Boat Basin, respectively, are more than sufficient to evaluate risk for most analytes. However, there were some analytes for which the required numbers of samples were in the hundreds to thousands. This is partially attributed to an artifact of the DEFT software, as explained below.

The DEFT software is set up to compute the number of samples required to discriminate between a Gray Region boundary and an action level. Let this be known as the Gray Region Delta (GRD). In principle, the narrower this difference, the greater the number of samples will be required to discriminate between the two limits. The DEFT software is a variation on a standard statistical power calculation that is designed to discriminate between the mean concentration of a parameter (not the Gray Region boundary) and a constant value (the equivalent of an action level). Let this standard difference be known as the Standard Power Delta (SPD). Again the smaller the SPD, the greater the number of samples required to detect a difference equal to the SPD.

Occasionally, the Gray Region boundary is close to the Action Level even when the true analyte concentration is far from the action level. That is, the GRD is much smaller than the SPD. In that case, the number of samples needed to establish the GRD would be greater than what is needed to establish the SPD, because the GRD is smaller than the SPD. Sometimes, the discrepancy is huge. Because the SPD is more representative of site conditions (i.e., what will be found when sampling is actually implemented), the DEFT software was abandoned in favor of the standard statistical power calculation when this situation occurred

For Pettibone Creek sediments, 29 of approximately 200 N values were recomputed using the standard statistical power calculation. Five of the recomputed N values increased but, of those five, one was still less than 25. Several of the other recomputed N values decreased dramatically to values much less than 25. Eleven of the final N values remain greater than or equal to 26 and range as high as 353.

For Boat Basin sediments, nine of approximately 70 N values were recomputed. Two of the recomputed values increased but are less than 12. The N values for Boat Basin sediments are now less than 48.

In summary, if the calculation inputs are accurate, the recomputed N values indicate that the current sampling plan could yield an insufficient number of samples for evaluating risk due to 4 analytes (copper, lead, bis(2-ethylhexyl)phthalate and indeno(1,2,3-CD)pyrene) at Pettibone Creek. However, the recalculated N values suggest that between 80 and 353 samples could be required to provide the desired level of confidence in the decisions for Pettibone Creek. Given the stage of this investigation and the limited negative impact that these calculations are indicating for the project, the project planning team decided to proceed with 44 sediment samples across Pettibone Creek and its tributaries and 48 samples in the Boat Basin. If the N value calculations are verified to be correct, additional data may have to be collected for Pettibone Creek, or some compromises may have to be made when making decisions for the four analytes identified here."

31) Appendix E, pg. 10, 6th bullet: "Including" should be replaced with "Insuring".

Response: The document will be changed to read "Including nonconformance reports in the final site documentation and project files".

32) Appendix E, S.O.P.s: Numbers 11 and 14 are duplicated.

Response: The document will be changed in accordance with the comment. The duplicate copies will be removed.

33) Appendix G, HASP, pg. 1-6: My name is spelled Brian.

Response: The document will be changed in accordance with the comment. In addition to correcting the spelling of Brian's name, the correction also incorporated the correct phone provided in the comment number 11.

34) Appendix G, HASP, 2.8, bottom of page 2-10: There are no directions in text from Site 17 to the Hospital. These appear to have been truncated or deleted somehow.

Response: The document will be changed in accordance with the comment. A new figure that is an aerial photograph that was enhanced with street names and arrows for driving directions will replace the figure that was in the draft QAPP. Directions from Site 17, the Inner Harbor and Boat Basin (used as a reference point within Site 17) will be provided. These directions are as follows:

"From Site 17 – Pettibone Creek/Boat Basin – From the Inner Harbor and Boat Basin (Building 13) turn left (west) onto Mahan Rd travel approximately 0.12 miles to Bowers Drive. Bear left onto Bowers Drive, travel due west approximately 0.15 miles to Sampson Road. At this cloverleaf turn left (south), travel approximately 0.18 miles to B Street, turn left, then an immediate right onto Sixth Street, the hospital is on the left."

35) Appendix G, 3.1.2, middle of first paragraph: The depth of the creek is listed here as several inches to 2 feet. It was listed previously as up to 6 feet deep. These should be consistent.

Response: The document will be changed in accordance with the comment to make the statements consistent. The depth of the creek will be described as several inches to 2 feet. – The reference provided in the HASP text indicated a depth of several inches to 2 feet will remain and the other reference to depth in the text of the QAPP will be changed several inches to 2 feet.

General Comments

36) Appendices A and B: Appendices A and B do a good job presenting the risk calculations, but there are no examples or procedures included for demonstrating the wet laboratory calculations. Please incorporate these as soon as possible after a laboratory has been identified. In addition, please be sure to specify the units for reporting in all determinations.

Response: The wet laboratory calculations are part of the laboratory SOPs (see Appendix IV, Section 12 of each testing method SOP). The risk calculations use the laboratory-calculated/reported concentrations (from Section 12 of each testing method SOP). Table A-15 provides the reporting limits and units for this project. In general, concentration of chemicals in water will be reported in ug/L and concentrations of

chemicals in soil will be reported in ug/kg on a dry weight basis. No change was made in the text of the QAPP.

37) Identify the methods to be used to determine outliers or unacceptable data, other than being out of control limits. (i.e. T-test, etc...). The lab will probably supply this, but it needs to be included.

Response: The laboratory SOPs (Sections 10 and 12 in each testing method SOP) in Appendix IV identifies the methods above. No change was made in the text of the QAPP.

38) Section B5: Present a more detailed description of the field and laboratory audit procedures.

Response: Section A6.A.6, Quality Assurance Assessment Summary, will be revised to reference information on audit procedures. The field audit procedures will be referenced to Appendix V and the Field Audit Table will be included in this appendix. Laboratory internal auditing procedures can be found in Section 9.0 of the Laboratory Quality Manual (see Appendix IV) and Navy auditing procedures can be found in the Navy Installation Restoration Chemical Data Quality Manual (see Appendix IV) and Department of Defense Quality Systems Manual for Environmental Laboratories (see Appendix IV).

39) Add a distribution list for audit reports.

Response: The document will be changed in accordance with the comment. The distribution list will include Owen Thompson – U.S. EPA, Brian Conrath – IEPA, Anthony Robinson – Navy RPM, Robert Davis – TtNUS TOM, and Paul Frank – TtNUS QAM. For the laboratory audits, the distribution list will also include Veronica Bortot - laboratory PM and Patrick Conlon - laboratory QAO.

40) Do the SOPs contain critical spare parts listings? Are they handled in some other manner? This same comment applies to the laboratory.

Response: Some of the laboratory SOPs in Appendix IV contain maintenance schedules that tell how often and when to change a part. Also refer to Section 8.0 of the Laboratory Quality Manual (also in Appendix IV) for a more complete listing of the maintenance schedules. The SOPs for the field sampling do not contain critical spare part listings. The equipment's instruction manual would be referred to for information on spare parts. Spare parts for the field equipment or new equipment can be obtained within 1 or 2 days and should not impact the sampling schedule. No changes were made in the text of the QAPP.

41) Throughout the report, there are numerous typos (misspellings, omitted or duplicated words, or grammatical mistakes). Please review the text for these.

Response: The document will be changed in accordance with the comment. A TtNUS technical editor review the final QAPP document.