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NAS JACKSONVILLE
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LETTER WITH U S NAVY RESPONSES TO REGULATORY COMMENTS ON REMEDIAL
INVESTIGATION STUDY DRAFT WORK PLAN FOR OPERABLE UNIT 2 (OU 2) NAS
JACKSONVILLE FL
11/11/1992
ABB ENVIRONMENTAL



7559-0001

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November 11, 1992

Commanding Officer
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
P.O. Box 10068
Charleston, SC 29411-0068

Attention: Joel Murphy, Code 1853

Subject: **Response to Comments Concerning the Jacksonville Naval Air Station
Operable Unit 2 Remedial Investigation Study Draft Work Plan**

Dear Joel:

The responses to comments sent to you on November 10 were inadvertently marked "DRAFT." Enclosed is a copy of the responses without the "DRAFT" header. Please discard the November 10 version of the responses. Corrected copies have been sent to the U.S. Environmental Protection Agency Region IV and the Florida Department of Environmental Regulation.

I apologize for this inconvenience. If you have any questions, please call.

Sincerely,

ABB ENVIRONMENTAL SERVICES, INC.

Mark Woodruff
Geologist

Enclosure

cc:

Mr. James Hudson (USEPA Region IV)
Mr. Eric Nuzie (FDER)

ABB Environmental Services, Inc.

**NAS JACKSONVILLE OU-2 RI/FS WORK PLAN
RESPONSES TO USEPA REGION IV COMMENTS**

GENERAL COMMENTS

OU#2 RI/FS Work Plan

- 1 **COMMENT:** Figures are provided which represent the general area around the Operable Unit Number 2 (OU#2) site. Within the figures the specific OU#2 boundary is hatched. However, the area of investigation should also be shown. The area of investigation will encompass a much larger area than the official "Area of Contamination". The boundary for the AOC should remain within NAS Jacksonville property until sampling results obtained for the first round of the investigation indicate otherwise.

RESPONSE: Figure 5-1 will be modified to show the entire AOC. The AOC will not extend beyond NAS Jacksonville boundaries.

- 2 **COMMENT:** The Navy must coordinate the storage location of investigative derived waste generated from off base activities with the State of Florida Resource Conservation and Recovery Act personnel.

RESPONSE: This was discussed at the October 29 TRC meeting. If groundwater at the course is contaminated, waste will be drummed.

- 3 **COMMENT:** Soil sampling is to occur in two intervals at most of the PSCs undergoing investigation. The first interval is from zero to 6 inches and the second is from 3 to 5 feet. It is never specified as to which samples are composite and which samples are discrete. The Work Plan must state this information for each soil/sediment sample to be obtained.

RESPONSE: All surface soil samples collected for CLP analysis will be discrete; subsurface soil samples may be composited.

- 4 **COMMENT:** At most soil sampling locations it is stated that samples will be submitted to a laboratory for geotechnical testing. If the soil is contaminated, how will the soil be handled and disposed of following the geotechnical analysis? Is it appropriate for potentially contaminated soil samples to be geotechnically tested? Should this information be obtained from background locations as part of this investigation?

RESPONSE: When possible, geotechnical samples will be collected from outside the source areas. However, to obtain data that is representative of soil near the source area it is best to collect soil samples close to the source area. Some of these samples

may be contaminated, but there are laboratories that have the facilities to handle contaminated samples. Geotechnical laboratories will be selected based on their willingness and ability to work with contaminated samples. Any information about the contaminants and concentrations will be sent to the geotechnical laboratory. In the contract with the geotechnical laboratory, it will be specified that contaminated samples be disposed of properly.

- 5 **COMMENT:** The text mentioned that hydraulic testing has been conducted at OU-2 during past investigations. The results from these tests should be included in the text. Conducting a long term aquifer test is a good approach for determining the hydraulic properties of the aquifers and the extent of communication between them. Because a large number of monitoring wells are located near the waste water treatment plant, this area would be a good location for conducting an aquifer test. This information is necessary for understanding the system flow, and the data obtained will be invaluable for building a data set for a numerical model.

RESPONSE: A summary of the results from the last four rounds of hydraulic conductivity testing done at OU-2 will be added to the document. A brief qualitative summary of this data will also be included. The sources of the hydraulic conductivity test data will be referenced in the text and provided in the administrative record.

A pumping test is currently not planned for OU-2. The results from slug testing will be used to develop the groundwater flow models. Sensitivity analyses can be conducted to evaluate the impact of hydraulic conductivity variations on the model results. If more aquifer data is required to refine the model, a pumping test can be scheduled.

- 6 **COMMENT:** The Navy's approach to defining the ground water flow directions in the vicinity of OU-2 is a good one. However, rather than splitting the ground water sampling program into a two phase approach, the Navy should consider defining extent of the contamination by utilizing alternative methods, i.e., temporary wells, use of the Geoprobe, or use of the Hydropunch.

These methods are time and cost effective especially at this operable unit where the maximum depth for collecting ground water samples may be 30 feet. Wells and piezometers that are necessary for defining ground water flow directions could be installed while ground water samples are collected by one of the alternative methods. As soon as the ground water analysis results are obtained and the approximate extent of the ground water plume determined, then additional monitoring wells at appropriate locations can be installed. This approach will provide data necessary to define the extent of the contaminant plume in a timely manner.

RESPONSE: The primary objectives of the groundwater study at OU-2 are to evaluate the subsurface geology, the direction of groundwater flow, and the

distribution on contaminants in groundwater. The approach described in the OU-2 work plans reviewed by USEPA would provide this information but might leave some data gaps that would require the installation of additional wells. To more accurately define the subsurface geology and extent of groundwater contamination at OU-2 and avoid a many staged investigation, the Navy has selected a different approach. This approach, which is summarized below, was presented at the October 29 TRC meeting and will be incorporated with the rest of the changes to the work plans.

The groundwater investigation will be conducted in two stages. The objectives of the first stage are to provide geotechnical information about the surficial aquifer at OU-2 and map contaminant plumes. To collect this information, piezometric cone penetrometer testing (PCPT) coupled with a field-based gas chromatograph will be used. The PCPT survey will be conducted by pushing a penetrometer or a groundwater sampling device into the ground using a hydraulic ram system mounted on a weighted truck.

To provide the geotechnical information, a penetrometer equipped with sensors for pore pressure, tip pressure, and friction will be pushed down to the top of the Hawthorn Group. Readings from the sensors are relayed to an onboard computer system as continuous functions of depth and time. The soil type encountered by the cone as it is pushed through the subsurface will be interpreted from the instrument readings. The PCPT survey will consist of a series of borings in and around OU-2. Information from these borings will be evaluated to develop a thorough understanding of the stratigraphy of the surficial aquifer at OU-2. The nature and extent of the clayey sand/sandy clay identified in the surficial aquifer during previous investigations will be evaluated using this technique.

The PCPT, in combination with a field-based gas chromatograph, will also be used to map contaminant plumes. A sampling device that can be opened at selected depths will be pushed into the aquifer by the PCPT truck to collect groundwater samples. The geological information obtained from the previous PCPT borings will be used to select sample locations and depths. The groundwater samples collected by the PCPT will be analyzed on site for volatile organic compounds using the gas chromatograph. The chemical data collected from these samples will be used to map contaminant plumes. The data quality of these samples will meet and possibly exceed Level 2 requirements and will be sufficient to meet the data requirements for site investigation and remedial design.

The second stage of the groundwater investigation is the installation of piezometers and monitoring wells. Based on the geological information obtained from the PCPT survey, piezometers locations and depths will be selected. The water levels measured in the piezometers will provide input for OU-2 groundwater flow models. Monitoring well locations and depths will be selected based on the plume mapping done during the PCPT survey. The data gathered from the analysis of groundwater samples

collected from the wells will meet at least data quality Level 3 requirements. This data will be used in the evaluation of risk, site investigation, and remedial design.

The incorporation of this new approach will have the following additional impacts on the work plan:

- The well and piezometer locations and depths presented in the figures are will remain the same when the work plan is revised. However, the final locations will be determined based on the results of the PCPT survey.
- The primary purpose of soil sampling during the installation of wells and piezometers was to provide stratigraphic information. However, this information will be obtained in more detail by the PCPT survey. Therefore, with the exception of areas where soil samples are required for chemical analysis, soil samples will not be collected during well or piezometer installation.

7 **COMMENT:** The proposed sampling plan for evaluating groundwater contamination in the "first confined aquifer" at OU-2 is inadequate to characterize the nature and extent of contamination in this hydrologic unit. Only two wells are proposed, one well located south of OU-2, which presumably serves as a background well, and one well located at the northernmost boundary of OU-2, adjacent to the St. Johns River, which presumably serves as a downgradient well. Previous investigations have detected groundwater contamination in the "first confined aquifer" beneath the south-central portion of OU-2. The nature and extent of contamination should be characterized during the current RI/FS investigation by the installation, sampling and analysis of additional monitor wells in the south-central portion of OU-2. Additionally, it is recommended that the "deep" monitor wells in the first confined aquifer be constructed with a surface casing set and pressure-grouted into the low-permeability aquitard to minimize the potential for cross-contamination between this aquifer and the surficial aquifer.

RESPONSE: The surficial soil at OU-2 (i.e. the soil overlying the Hawthorn Group) has been described during previous IRP investigations as consisting of two aquifers; a water-table sand aquifer separated by 6 to 10 feet of sandy clay/clayey sand from a 5-foot thick confined sand aquifer. However, contaminants have been detected in groundwater samples collected from both "deep" and "shallow" wells adjacent to the sludge drying beds. This indicates that the sandy clay/clayey sand is not acting as a true aquitard and that the two sand units are hydrologically connected. In addition, the extent of this reported "confining unit" has not been determined and no geotechnical tests have been conducted on this soil. Because of uncertainties about the nature, extent, and importance of the sandy clay/clayey sand at OU-2, the current groundwater conceptual model has been revised and all the soil overlying the

Hawthorn Group is considered one aquifer. Information collected during the PCPT survey will be used to evaluate the nature and extent of the reported "confining unit." Well locations and depths will be selected based on the results of the PCPT survey.

SPECIFIC COMMENTS

OU#2 RI/FS Work Plan

- 1 **COMMENT:** OU#2 RI/FS Workplan, Page 1-5, Section 1.1: Why is it assumed the polishing pond is filled with precipitation or runoff? It is much more likely to reflect water table conditions. The elevation of the water in the pond should be surveyed when water levels are collected.

RESPONSE: The reference to the source of the water will be removed. Water levels measured in wells near the polishing pond should be sufficient to evaluate the effect of the pond on the aquifer.

- 2 **COMMENT:** OU#2 RI/FS Workplan, Page 4-7, Section 4.1.2.1 and Table 4-1: The "Region IV Risk-based Concentration" column should not be listed. The stated source is from a table put together by Region III toxicologists for use as a quick desk reference. It was not developed to be considered as a preliminary chemical-specific ARAR.

RESPONSE: Agreed, these Risk-based concentrations developed by Region III were meant to be used for screening comparisons to develop the list of contaminants of potential concern and are not ARARs. Therefore this column (Region IV [should be Region III] Risk-Based Concentrations) will be removed from Table 4-1. However, these guidelines will be referenced in the text.

- 3 **COMMENT:** OU#2 RI/FS Workplan, Page 4-20, Section 4.3.1: The background samples should be collected from an area(s) on or adjacent to OU-2 that have not been, or have only minimally been, affected by anthropogenic activities. Background samples should not be collected from the "area of contamination. Additionally, surface soil samples should come from depths of zero to six (6) inches.

RESPONSE: The AOC was defined based on the potential for groundwater contamination; therefore, background soil samples collected outside source areas should not be impacted by OU-2 activities even if they are within the AOC. It is unlikely that there are any places on the base that have not been affected in some way by human activity; the selected sample locations are in areas where the least amount of impact is expected.

Region IV previously gave us guidance of 0-3 inches for surface soils for NAS Jacksonville OU-1. If 0-6 is now the preferred depth, we can incorporate this change.

- 4 **COMMENT:** OU#2 RI/FS Workplan, Page 4-24, Section 4.3.1, Table 4-5: The exposure pathways and exposure parameters which were used in calculating these risk-based values should be included in the report or in an appendix. Also, the reference doses (RfDs) and cancer slope factors (CSFs) should be referenced.

RESPONSE: The exposure parameters will be included in Appendix A. The references for the RfDs and CSFs are in Appendix A, Table A-7.

- 5 **COMMENT:** OU#2 RI/FS Workplan, Section 4.3.1, Page 4-25, Table 4-6: See comment on Table 4-5. There seems to be an error in calculating the hazard index (HI). The concentration in mg/l should be converted to mg/kg/day by using an ingestion rate of 2 liters/day and a body weight of 70 kg.

RESPONSE: See response to comment 4. Although it is not shown on the table, during the calculation of Hazard Indices, contaminant concentrations were converted to mg/kg/day using an ingestion rate of 2 liters/day and a body weight of 70 kg. A note will be added to the table to clarify this. The acronym "MDL" will be defined in the table.

- 6 **COMMENT:** OU#2 RI/FS Workplan, Page 5-10, Section 5.2.1.2: The first round of surface and subsurface soil samples should also be analyzed for pesticides/PCBs. Also, the pine tree planting area should be sampled for asbestos since it was disposed of there. If no detections of a potential chemical of concern are found in the first round of sampling, then that substance may be eliminated from analysis in further sampling events.

RESPONSE: Because this is the first extensive sampling that will be conducted at these sites, all samples collected for CLP analysis will be analyzed for TCL volatile organics, semivolatile organics, pesticides, and PCBs, and TAL inorganics.

- 7 **COMMENT:** OU#2 RI/FS Workplan, Page 5-10, Section 5.2.1.2: The collection of duplicate samples as the sole QA/QC sample collection check is not acceptable. Field blanks, trip blanks, sample duplicates, equipment rinse blanks, matrix spike and matrix spike duplicate QA/QC samples as specified in the ECB SOPQAM should be collected and analyzed for the full scan parameter suite to evaluate the validity, accuracy and precision of the analytical data that will be generated on the OU-2 soils during the RI/FS.

RESPONSE: The QC samples specified in the comment will be collected. The quantity of samples is addressed in Table 2-2 in the Field Sampling Plan and in the Quality Assurance Project Plan on page 8-2.

- 8 **COMMENT:** OU#2 RI/FS Workplan, Page 5-10, Section 5.2.1.3: No discussion of sample QA/QC is provided. Field blanks, equipment rinse blanks, trip blanks,

duplicate samples, matrix spike and matrix spike duplicate QA/QC samples should be collected and analyzed for the full scan parameter suite to evaluate the validity, accuracy and precision of the analytical data that will be generated on the OU-2 sediments and surface water during the RI/FS.

RESPONSE: See response to comment 7.

- 9 **COMMENT:** OU#2 RI/FS Workplan, Page 5-11, Section 5.2.1.4: The proposed construction of the shallow monitoring wells does not match the description of the hydrogeology given on page 2-2. Page 2-2 describes the area of OU-2 as consisting of 6 to 10 feet of sand and clayey sand overlying a sandy clay that acts as an aquitard. The Navy contractor proposes to insert a well screen 10 feet in length to a depth of 5 feet in the water table aquifer. This will leave at least some of the well screen above ground surface. In addition, the depth to groundwater in this area is not provided. EPA cannot provide a recommendation to correct this deficiency without basic information of this type. However, it would seem to make more sense to install cluster wells where the aquifer is thickest using a screen length of 5 feet installed such that the shallower wells straddle the water table (to monitor LNAPLS), while the deeper wells rest on the aquitard to monitor DNAPLS. Where the aquifer is thinnest, a single well with a screen length of 5 feet should suffice.

RESPONSE: The water table at OU-2 is generally 3.5 to 4.5 feet below ground surface (based on measurements taken on 01/28/92); this information will be added to the text. Well construction may have to be modified on a site-specific basis to ensure that a proper well can be constructed. A PCPT survey will be conducted to map contaminant plumes and guide the placement of permanent wells.

- 10 **COMMENT:** OU#2 RI/FS Workplan, Page 5-15, Figure 5-2: Unless the usage areas of the fire fighting training area are very poorly defined, the number of samples proposed to be collected outside the training area is excessive.

RESPONSE: The number of CLP samples proposed for outside the training area will be reduced to a maximum of four which will be collected within 20 feet of the edge of the fire training area.

- 11 **COMMENT:** OU#2 RI/FS Workplan, Page 5-13, Section 5.2.1.7: The first round of ground water samples should also be analyzed for pesticides/PCBs. It should also be noted that if high concentrations of asbestos are found in the soils of the pine tree planting area, the ground water may need to be analyzed for asbestos in later sampling events.

RESPONSE: The first samples collected from each well will be analyzed for TCL volatile organics, semivolatile organics, pesticides, and PCBs, and TAL inorganics.

12 **COMMENT:** OU#2 RI/FS Workplan, Page 5-16, Section 5.2.2.1: All soil samples collected at the Fire Training Area should be analyzed for volatile compounds and polychlorinated biphenyls (PCBs) in addition to the proposed parameters. The nature of the activities at this site include the possibility that PCB-contaminated oils were discharged at this site. Additionally, volatile compounds were known to be discharged onto the ground surface as a regular practice.

RESPONSE: See the response to comment 6.

13 **COMMENT:** OU#2 RI/FS Workplan, Page 5-17, Section 5.2.2.2: The Navy must clarify in the text why the number of samples to be collected from Parcel 1 and 2 are so different. Also, the Navy should consider collecting a few discrete samples of the sludge material for full TCL/TAL analyses to define a parameter list, then returning to this area with a screening program to define the extent of contamination, with additional TCL/TAL samples to confirm the screening. This program could save time and money if properly implemented and define the extent of contamination much better than the proposed sampling plan. This approach could also be used in PSC-4.

RESPONSE: Unlike Parcel 2, Parcel 1 has no visual signs contamination; therefore, less CLP samples are planned for Parcel 1. Field screening will be conducted at PSC-3 and PSC-4.

14 **COMMENT:** OU#2 RI/FS Workplan, Page 5-17, Section 5.2.2.2: Specify what will "indicate" that surface soil samples should be submitted for volatile compounds analysis. Specify how this determination will be made.

RESPONSE: The PID will not be used to determine which samples are selected for volatile organic analysis because all samples collected for CLP analysis will be analyzed for volatile organics. See response to comment 6.

15 **COMMENT:** OU#2 RI/FS Workplan, Page 5-19, Section 5.2.2.3: The proposed number of soil sample locations (four) and waste sample locations (one) is inadequate to characterize the full extent of soil contamination at this known waste disposal area. Additional samples of soil and waste materials should be collected and analyzed to provide an accurate representation of site conditions. All soil samples should be analyzed for full Target Compound List/Target Analyte List (TCL/TAL) parameters to define the nature of contamination at this site. In the discussion of PSC-3 in section 3, it was stated that some areas have 3 or more inches of pine needles covering the ground surface. The work plan should discuss how these covered areas will be sampled (i.e., the pine needles will be scraped back to expose the soils).

RESPONSE: A finer grid than shown in the text will be established for field screening sampling. CLP surface and subsurface soil samples will be collected from

visible sludge (e.g., sludge piles) at the PSC and they will be analyzed for the parameters listed in comment 6.

Discussion of field screening. In Subsection 4.2.1 of the field Sampling and Analysis Plan, it is stated that "prior to sampling, leaves, grass, and surface debris will be removed from the area to be sampled..."

- 16 **COMMENT:** OU#2 RI/FS Workplan, Page 5-19, Section 5.2.2.3, first paragraph: It is stated that soil samples will be obtained at grid nodes and where visible sludge deposits are encountered. Approximately how many visible sludge samples will be taken as part of this site investigation?

RESPONSE: See response to comment 15

- 17 **COMMENT:** OU#2 RI/FS Workplan, Page 5-19, Section 5.2.2.3, second paragraph: Will a "visible sludge sample" have TCLP performed on it? EPA requests that the Navy consider this request.

RESPONSE: With the exception of samples of the blocks that make up the sludge drying beds, samples will not be analyzed using TCLP. The need for TCLP sampling will be evaluated after soil samples are analyzed.

- 18 **COMMENT:** OU#2 RI/FS Workplan, Page 5-21, Section 5.2.2.4: A single grab sample of surface and subsurface soils beneath each of the domestic and industrial waste sludge drying beds may not be representative of the contamination and contaminant distribution at these sites. Composite samples, collected from four locations within each bed at each depth interval specified for the grab samples, will provide a better representation of the nature and extent of contamination without increasing the number of aliquots to be analyzed. The composite samples should be analyzed for the full TCL/TAL parameter suite to characterize the nature of contamination at these sites.

RESPONSE: Composite samples do provide a greater area of coverage than grab samples for the same number of samples. However, contaminant concentrations in one portion of the composite sample can be diluted if there are no contaminants in remaining portions. In addition, generally data from composite samples can not be used in risk assessments. Surface soil samples will be used for risk assessment and will not be composited. Because the subsurface soil samples will not be used for risk assessment they are candidates for composite sampling.

- 19 **COMMENT:** OU#2 RI/FS Workplan, Page 5-24, Section 5.2.2.6: The referenced "Table 5-1" which reportedly "provides the rationale for each new piezometer and monitoring well proposed at OU-2" is missing from the report. The Table 5-1 in the RI/FS Work Plan is a comparison of existing groundwater analytical data to

Federal/state groundwater standards. The table listing the piezometer/monitor well location rationale should be provided.

RESPONSE: The reference to this table will be removed from the text. The actual locations and depths of wells will be determined after the results of the PCPT survey have been evaluated.

- 20 **COMMENT:** OU#2 RI/FS Workplan, Page 5-26/7, Section 5.2.2.6: The discussion of Round 1 and Round 2 monitor well installation and groundwater sampling is confusing to this reviewer. Please clarify this section.

RESPONSE: A different approach to characterizing groundwater is outlined in general comment 6.

- 21 **COMMENT:** OU#2 RI/FS Workplan, Page 5-28, Section 5.2.2.7: The United States Geologic Survey (USGS) does not author or promote a soil classification system. The probable reference should be Unified Soil Classification System (USCS).

RESPONSE: The reference to USGS will be replaced with the appropriate reference to the Unified Soil Classification System.

- 22 **COMMENT:** OU#2 RI/FS Workplan, Page 5-28, Section 5.2.2.8: No QA/QC samples are proposed for the surface water/sediment investigation of the drainage ditch and St. Johns River. Duplicate samples, field blanks, trip blanks, equipment rinse blanks, matrix spike and matrix spike duplicate QA/QC as specified in the ECB SOPQAM samples should be collected and analyzed for the full scan parameter suite to evaluate the validity, accuracy and precision of the analytical data that will be generated on the sediment and surface water samples at OU-2.

RESPONSE: See response to comment 7.

- 23 **COMMENT:** OU#2 RI/FS Workplan, Page 5-30, Section 5.2.2.9: The Navy must provide a figure showing the proposed area of sampling for the St. Johns River, if this proposal is to be carried out. EPA has a counter-proposal for this water body. In EPA's opinion, most of the proposed sampling for the river is beyond the scope of work for this OU, although other factors not included in this work plan may make this sampling necessary. For the purposes of this OU, sampling should focus on the area of the outfall(s) in operation during the period of interest. In addition, once water level contour maps are generated, sampling should focus on areas of discharge of contaminants. The proposed sampling is likely too broad in scope to measure the impacts of OU-2 on this river.

RESPONSE: The purpose of the surface water and sediment samples in the St. Johns River is to establish the current state of the river and not to evaluate the possible contribution of contaminants from OU-2.

The Navy is revising the approach to sediment and surface water sampling in the river. This was discussed during the October 21 -22 Natural Resources Trustees meeting. Because the purpose of the river sampling is to evaluate the general status of the river and not evaluate the impact of OU-2 this work will not be included in the OU-2 workplan.

- 24 **COMMENT:** OU#2 RI/FS Workplan, Page 5-40, Section 5.4: The stated source for USEPA Region IV risk-based concentrations should not be used to evaluate the concentrations of site-related contaminants. The table being referred to was developed by Region III toxicologists for use as a desk reference, not for determining contaminants of concern for Superfund sites. Part B of the EPA Risk Assessment Guidance (RAG) should be used to calculate preliminary remediation goals (PRGs). These PRGs should then be compared to the concentrations of site related contaminants.

RESPONSE: In a meeting with Region IV on September 13, 1991, between the EPA Region IV, the Navy, and ABB-ES, EPA Region IV indicated that, in selecting COCs, Region IV prefers to remove contaminants that do not contribute significantly to the risk from the calculations. Two possible techniques were suggested to screen contaminants: (1) use the Risk Based Concentration Table Prepared by Region III, and/or (2) screen contaminants assuming a residential exposure and an acceptable risk level of 10^{-6} . If using Region III Risk Based Concentrations in now unacceptable to Region IV, we will use only the guidance in Part B of RAGS to screen for COCs.

- 25 **COMMENT:** OU#2 RI/FS Workplan, Page 5-43, Section 5.5: Part B of RAG should be referenced.

RESPONSE: This reference will be added.

- 26 **COMMENT:** OU#2 RI/FS Workplan, Page 5-45, Table 5-1: The MCL for arsenic is 0.05 mg/l.

RESPONSE: The federal MCL for arsenic will be corrected to 0.05 mg/L in Table 5-1.

- 27 **COMMENT:** OU#2 RI/FS Workplan, Page 5-49, Section 5.5.1.2: A future use of residential exposure should be evaluated for OU-2. There is no guarantee that the NAS will always be an active facility and with a golf course already present on the adjacent property, future residential development could be a possibility if the base was closed. It should be noted that just because a future residential pathway is evaluated,

it does not mean that remediation goals will automatically be set for a residential use scenario. This pathway is needed so that an adequate risk management decision can be made on the need for potential remediation.

RESPONSE: For the duration of the IRP at OU-2 and in the foreseeable future, the expected use of the land is as a waste water treatment plant. If the land is no longer under Navy jurisdiction, it is doubtful that the use of the land will change. In addition, a 5-year review will be required for OU-2; if there is a proposed change in the status of the OU-2 area, risks can be reevaluated at that time.

- 28 **COMMENT:** OU#2 RI/FS Workplan, Page 5-50, Section 5.5.1.2, Residential Exposure Scenarios, first paragraph: Due to the reality of DOD downsizing and base closure, a future residential risk assessment will be required for any and all PSC's located within NAS Jacksonville.

RESPONSE: See response to comment 27.

- 29 **COMMENT:** OU#2 RI/FS Workplan, Page 5-51, Table 5-2: This table should reflect the future use residential scenario for adults and children. The future use of ground water should be evaluated for children as well as adults.

RESPONSE: In a meeting with Region IV on September 13, 1991, between the EPA Region IV, the Navy, and ABB-ES, EPA Region IV indicated that residential use of groundwater should include exposure to adults only. Please confirm that both adults and children should be considered.

- 30 **COMMENT:** OU#2 RI/FS Workplan, Page 7-14, Section 7.4: The schedule for RI/FS activities at OU-2 is excessively lengthy. The schedule shows an excess of two years between field mobilization and the submittal of the Draft FS report. The FS should be conducted concurrently with the RI to the maximum extent practical. The Baseline Risk Assessment should not take in excess of eight months to prepare. The analysis and data management should not require three months after all field activities are complete. Numerous and substantial areas of potential schedule compression are available to minimize the length of time before a ROD can be signed.

RESPONSE: The Navy is committed to conducting the IRP at OU-2 in the most practical, efficient, timely, and cost effective manner.

OU#2 RI/FS Quality Assurance Project Plan

- 31 **COMMENT:** OU#2 RI/FS Quality Assurance Project Plan, Page 5-5, Item 3: The use of electrical tape to secure the sample bottle lids is discouraged. Custody seals should be used in place of plastic tape.

RESPONSE: No tape will be used to secure the lids. It should be sufficient to screw the lids on hand tight.

- 32 **COMMENT:** OU#2 RI/FS Quality Assurance Project Plan, Page 8-2, Table 8-1: Field QC samples should include blanks of drilling materials such as drilling water (if used), bentonite, and sand. In addition, the organic-free water system used should be tested weekly. EPA Region IV may choose to submit blind QA/QC samples for analysis as a check on the Navy's contractor laboratory.

RESPONSE: Bentonite and sand will be tested one time (per lot), at the beginning of the field work effort. The system currently installed at OU-1 will be used to supply DI/organic free water; it is a potable water system. Drilling water and decon water will be tested when field work starts and when it ends. The Navy does not agree that weekly testing is required.

OU#2 RI/FS Site-Specific Field Sampling Plan

- 33 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Page 2-1, Section 2.1, first paragraph: Are soil samples discrete or composite? What is Btu content? Is this too hazardous for geotechnical analysis?

RESPONSE: Surface soil samples collected for CLP analysis will be discrete; subsurface soil samples may be composited. Btu is British Thermal Units; the Btu content of the soil can be used to evaluate alternatives that involve incineration. Geotechnical laboratories will be selected based on their willingness and ability to work with contaminated samples. Any information about the contaminants and concentrations will be sent to the geotechnical laboratory.

- 34 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Page 2-2, Section 2.2, first paragraph: Please state in this section that samples to be obtained are soil samples. It is implied but never stated.

RESPONSE: The first sentence of the first paragraph will be changed to: "Fourteen soil samples...." and the first sentence of the second paragraph will be changed to: "Forty-six soil samples..."

- 35 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Page 2-3, Section 2.4, first paragraph: How many samples (total) will be obtained from the sludge drying beds? Composite or discrete?

RESPONSE: Nine discrete surface soil samples will be collected from the drying beds for CLP analysis (i.e., one from each of the nine beds). Nine subsurface soil samples will also be collected but they may be composited. In addition to these

samples, composite samples of the blocks that make up the sludge drying beds will be collected and submitted for TCLP analyses.

- 36 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Page 2-3, Section 2.5, first paragraph: How many samples will be taken from the sediment sampling event (those samples taken from zero to 24 inches in the Polishing Pond)?

RESPONSE: Seven CLP sediment samples will be collected from the polishing pond, one in the east leg and three each in the other two legs.

- 37 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Page 2-4, Section 2.6: This entire section is unacceptable as presented for the following reasons:

- a. Unable to locate table 3-1
- b. Unable to locate figures 5-12, 5-13
- c. Location of monitor wells and piezometers are not presented graphically.

Additionally, no total depths for the wells are stated. If this work is being performed in two rounds, then BOTH rounds should be presented. This would allow the reader to understand how the investigation would progress if additional contamination is found.

RESPONSE: These are incorrect references.

- a) The reference to Table 3-1 will be removed. The actual locations and depth of wells will be determined after the results of the PCPT survey have been evaluated.
 - b) Figure 5-12 should be 5-7 and a new figure will be created that shows sediment sampling locations.
 - c) See response to general comment 6.
- 38 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Page 4-9, Section 4.2.2.1, first Paragraph: Will the PID be equipped to screen out possible methane gas or does an HNu meter need to be included in the sampling equipment? Will headspace analysis be performed as part of the soil analysis?

RESPONSE: Due to the nature of the soil, methane gas is not expected in the shallow soil; therefore, a PID should be sufficient for surface soil sampling. Methane is also not expected in the deeper soil; however, a dual detector (O₂ and explosimeter)

will be used during drilling operations to detect asphyxiating or explosive atmospheres. FIDs, which can detect methane, will also be used on site.

Head space samples may be collected but the primary screening of surface soil and split spoon samples will be done by exposing fresh soil and scanning the sample with the PID/FID as close to the sample as possible.

- 39 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Page 4-10, Section 4.2.2.2: This entire section is too vague to determine what split spoon samples will be obtained. Additionally it is stated that the piezometers constructed on the golf course will be well points and that no soil samples will be obtained, however, the text reads like split spoon samples will be taken - please explain. Which monitor wells/piezometers are considered background?

RESPONSE: The Navy has selected a different approach to the groundwater investigation, which is described in the response to general comment 6. The piezometers on the golf course will not be well points but will be constructed using the same specifications as the other piezometers and wells.

Split-spoon samples will only be collected where soil samples are required for chemical or physical analysis.

The exact locations of background wells will be determined after evaluating the results of the PCPT survey. See response to general comment 6.

- 40 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Page 4-12, Section 4.2.2.2, second paragraph: Florida Geological Survey Bulletins and reports should be consulted to determine if a "Regional" aquitard/clude exists in the area and at what approximate depth it might be encountered. Geotechnical testing would then determine its confining integrity.

RESPONSE: The availability of additional geologic information specific to the OU-2 vicinity will be investigated.

- 41 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Page 4-13, Section 4.3: This section does not present the detail necessary to approve this action. Location, depth and other necessary information is missing from this section. What or who's flow model will be used "to optimize the locations of round 2 wells"?

RESPONSE: Figure 5-7 in the RI/FS Work Plan shows the potential locations. The actual locations of wells will be determined after the results of the PCPT survey are evaluated.

USGS's groundwater flow model MODFLOW will be used to estimate groundwater flow at OU-2.

- 42 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Page 4-13 to 4-21, Section 4.3: The procedures and construction techniques given for monitoring well installation are not in accordance with those found in the Environmental Compliance Branch Standard Operating Procedures and Quality Assurance Manual, (ECBSOPQAM), February 1, 1991. Unless these deficiencies are corrected, EPA cannot recommend this document for approval. Following are the noted deficiencies:

a. EPA recommends the use of stainless steel well casings and screens for this OU. While the use of PVC materials may not significantly influence the data for this project, EPA does not feel it is the best choice. If PVC is selected, however, it must meet the specifications of NSF Standard 14 in addition to ASTM Schedule 40.

RESPONSE: ASTM Schedule 40 PVC that meets NSF standard 14 will be used to construct monitoring wells and piezometers.

b. The augers proposed are undersized. EPA recommends the use of 6.5- I.D. augers to allow sufficient working room for tremie tubes. If undersized augers are used, it will not be possible to properly place an adequate amount of sand, bentonite, or grout around the well.

RESPONSE: The Navy will use the appropriate equipment to install the wells.

c. The bentonite seal should be a minimum of 24" thick and should be allowed to hydrate for 8 hours. Improperly hydrated seals of insufficient thickness can cause premature failure of the well.

RESPONSE: Agreed. Bentonite will be hydrated in accordance with manufacturers recommendations.

d. EPA recommends a pure bentonite grout for PVC wells to eliminate potential problems with heat of hydration.

RESPONSE: High-solids bentonite grout will be used.

e. The concrete pad should be 4'x 4'x 6", extending 2' below the ground surface in the annular space. If water table conditions prevent having a 24" bentonite seal and the concrete pad as specified, the concrete pad depth should be decreased.

RESPONSE: Agreed.

f. Wells penetrating a confining unit should be double-cased. EPA views with concern the Navy's proposal for the deeper wells at this OU. The wells penetrating the aquitard must be double cased as specified in the ECBSOPQAM. If the existing deep wells at this OU are not double cased, they should be removed, pressure grouted and then replaced with a properly constructed well, if monitoring at that location is desired. EPA cannot recommend this document for approval until these corrections are made.

RESPONSE: The Navy agrees that any wells that will penetrate true confining layers should, and will, be double cased during well installation. Prior to well installation, a PCPT survey will be used to try to investigate subsurface geology and identify any potential confining layers. See responses to general comments 6 and 7.

- 43 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Page 4-13, Section 4.3.1: Where is the OU#2 site specific justification for the use of PVC as a monitor well casing? This document must be supplied to EPA before any monitor well or piezometers are constructed.

RESPONSE: See response to 42a.

- 44 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Page 4-14, Section 4.3.1: The well points constructed on the golf course are missing from this section. It is stated that "The total depth of the piezometers and monitoring wells shall be approximately 10 feet", however further in the text it is stated that a ten foot section of well screen shall be used extending five feet above and below the water table interface. Please correct this section.

RESPONSE: See the responses to general comment 6 and comment 9.

- 45 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Pages 4-15, 16, 17 and 4-20, Section 4.3.1, Figures 4-3, 4-4, 4-5 and 4-6: The "2 foot" sump stated in the text appears to be missing from the figures. Additionally, weep holes in security casing and air holes in monitor well casing are missing from figures. Please make these corrections.

RESPONSE: There will be no sumps; the bottom of the screen will be capped. Weep holes, and vent holes will be added to the figures.

- 46 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Page 4-18, Section 4.3.1, second paragraph: Hydration time for bentonite should be per manufacturers specified time frame, not "about 30 minutes after hydration".

RESPONSE: The bentonite pellet seal will be hydrated as per the manufacturers specifications. Text will be changed to reflect this.

47 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Page 4-19, Section 4.3.1, second paragraph: It is stated that "The 15-inch borehole will be advanced 3 to 5 feet below the depth of contamination as detected by visual observation and PID measurements.", OU#2 has VOC's however, there is also heavy metal contamination located at this site and visual observation will not provide the necessary information to support this statement.

RESPONSE: This statement refers to the use of a temporary casing during well construction. This method will not be used during the investigation at OU-2 and will be removed from the work plan. See responses to general comments 6 and 7.

48 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Page 4-19 and 4-21, Section 4.3.1: The "deep" monitor wells should be screened in the "first confined aquifer" to evaluate the downward migration of contaminants from the surficial aquifer across the first sandy clay confining unit. To minimize the potential for cross-contamination, a surface casing should be set and pressure-grouted into the clay confining unit. The monitor wells should be constructed of stainless steel, not PVC, per ECB SOPQAM guidance.

RESPONSE: See responses to comments 42a and 42f.

49 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Page 4-21, Section 4.3.2: The monitor wells should be developed utilizing a methodology that promotes a "back and forth" motion of water across the well screen and filter pack. Surging and overpumping are the most reliable methods of development. The goals of well development are the removal of fines from the well and borehole, re-establishing hydraulic communication between the aquifer and the monitor well and ensuring representative, sediment free groundwater samples. The proposed usage of stabilization of water pH, temperature and conductivity are applicable to well purging, not well development.

RESPONSE: Wells and piezometers will be developed by pumping. To provide the back-and-forth motion, the pump will be cycled on and off several times during the development. The presence of fines will be used in conjunction with indicator parameters to determine when development is complete.

50 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Page 4-21, Section 4.3.1: What depths will the deep monitoring wells be constructed too? Where will they be located?

RESPONSE: The depths at which wells are installed will be determined after evaluation of the PCPT survey results. See response to general comment 6.

51 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Page 4-23, Section 4.3.2: What analytical methods will be used to determine the correct method of bail/purge water disposal (drummed piezometer IDW)?

RESPONSE: Water from development and purging will be discharged to the ground in an area near each well.

52 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Page 4-23, Section 4.3.3: It is unclear from the text if both shallow and deep monitoring wells will have hydraulic conductivity tests performed on them.

RESPONSE: Hydraulic conductivity tests will be performed on all new wells, shallow or deep. The text will be changed to clarify this.

53 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Page 4-23, Section 4.4: What is the purpose of wiping the top of the monitor well casing with a Kimwipe?

RESPONSE: The top of the casing is wiped to remove any foreign material that could be knocked into the well during sampling. It is just a precaution and not a significant step in the sampling procedure.

54 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Page 4-25, Section 4.4.1: Unable to locate a figure 5-14. Please explain what an "ORS electronic interface probe" is.

RESPONSE: The text should reference Figure 5-7 which shows proposed well/piezometer locations. An Oil Recovery Systems (ORS) electronic interface probe is used to measure water levels and/or product levels in a well. The text will be changed to read: "an electronic water-level meter."

55 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Page 4-29, Section 4.4.2: A minimum of three successive stable readings of pH, temperature, and specific conductivity indicate a well is sufficiently purged after three volumes have been removed.

RESPONSE: Standard monitoring protocol is to remove a minimum of three volumes from the well. Temperature, pH, and specific conductance are measured after each volume is removed. If the readings taken during the removal of the first three volumes are stable, purging is considered complete; otherwise, purging continues until there are three successive stable reading, five volumes have been removed, or the well is pumped dry.

56 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Page 4-32, Section 4.4.3: Samples must be preserved in the field, with the exception of VOAs. Pre-preserved sample containers invite poor sample quality and erroneous analytical results.

RESPONSE: Prepreserved sample containers will only be used to collect groundwater samples for volatile organic analysis. All other preservation will be done in the field immediately after samples are collected.

57 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Page 4-33, Section 4.5.1: If surface water samples are collected by a sampler wading into the surface water body, as proposed, the sampler should wade in the downstream to upstream direction, to minimize the creation of suspended sediments, which may alter the analytical results (total metals).

RESPONSE: Agreed, the proper sampling technique is to have the sampler wade from downstream to upstream to minimize the impact of disturbed bottom sediments on the sample to be collected. Also, in the case of a water body with minimal flow, after reaching the sampling location, the sampler should wait a few minutes to allow the disturbed sediments to settle.

58 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Page 4-33, Section 4.5. 1: Unable to locate figures 5-10 and 5-14. All field sampling procedures must follow USEPA Region IV Standard Operating Procedure Quality Assurance Manuals (SOPQAM), copies of which can be obtained from Federal Facilities Section. Any deviation from EPA Region IV SOPQAM must be justified in writing, and be approved by EPA.

RESPONSE: The text should reference Figure 5-6 for the samples to be collected from the polishing pond. An additional figure showing the other surface water and sediment sample locations will be added to the RI/FS Work Plan.

Field sampling procedures will be conducted in accordance with EPA's SOPQAM. USEPA will be informed of any changes.

59 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Page 4-37, Section 4.6: Unable to locate figure 3-10. Specific protocols for shellfish sampling must be presented within this workplan or field and sampling plan.

RESPONSE: A new figure will be added showing the locations of sediment and surface water samples. The results of the inventory will be used to develop the protocol for sampling shellfish.

60 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Page 4-39, Section 4.8.2: Deionized and organic free water are not interchangeable. Organic free water must be used as the final rinse in the described decontamination procedure. If equipment must be rinsed with acetone or hexane, it must be subjected to the entire decontamination procedure again.

RESPONSE: Agreed, deionized and organic-free water are not interchangeable. As stated in Subsection 4.8.2, acetone or hexane may be used to pre-clean equipment; therefore, acetone or hexane use will be followed by a complete decontamination procedure.

61 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Page 4-39, Section 4.8.8: Please clarify the wording regarding the external inspection of metal and hoses associated with the dig rig.

RESPONSE: The procedures described in Subsection 4.8.3 remain the same but have been reworded.

62 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Page 4-39, Section 4.8.3: Downhole drilling, sampling equipment and tools, must be decontaminated using the procedure described on pp. 4-38/39.

RESPONSE: Sampling equipment and downhole drilling equipment will be decontaminated before each sample using the procedures on pages 4-38 and 4-39.

63 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Page 4-41, Section 4.9: Insufficient information is presented in this section to approve of the manner investigative derived wastes will be disposed. Navy must present specific figures showing location and dimensions of IDW disposal pits for the OU#2 investigation.

RESPONSE: As decided at the October 29, 1992 TRC meeting, soil from borings will not be collected in pits. The soil will be spread on the ground around the borehole. Water from development and purging will be discharged to the ground in an area near each well. These procedures will be described in a new IDW Section of the Field Sampling Plan.

64 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Page 4-42, Section 4.9.1: Will the bottom of IDW disposal pit be impacted by rising groundwater associated with tide and/or storm events? Due to the close proximity of OU#2 to the St. Johns River, could this event(s) impact the river?

RESPONSE: See response to comment 63.

65 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Page 4-43, Section 4.10: This section must provide site specific information and show the exact location of the decontamination pad and associated trailer(s) from which field work will be conducted.

RESPONSE: A decontamination pad will be constructed next to the southern end of the east leg of the polishing pond. The pad will be large enough to accommodate decontamination of the largest on-site vehicle. The pad will be lined with a pool liner and will be constructed so that decontamination fluids will flow off the pad into the polishing pond. Contaminants present in the runoff will be addressed during the investigation and remediation of polishing pond sediment and water. The location of the decontamination pad and associated trailers will be shown on a Figure in the new IDW section of the Field Sampling Plan.

66 **COMMENT:** OU#2 RI/FS Site-Specific Field Sampling Plan, Page 4-44, Section 4.10: This section must provide figures which are site specific (for OU#2) and show the exact location of the decontamination pad and associated trailer(s) from which field work will be conducted.

RESPONSE: See response to Comment 65.

OU#2 RI/FS Health and Safety Plan

67 **COMMENT:** OU#2 RI/FS Health and Safety Plan, Page 2-4, Section 2.3.2: Specify what constitutes "modified Level D" personal protective equipment (PPE).

RESPONSE: Modified level D is level D protection with the addition of chemical-resistant clothing. Level D does not include respiratory protection. This level of protection will be described in Subsection 2.3.2.

68 **COMMENT:** OU#2 RI/FS Health and Safety Plan, Page 2-5, section 2.4.1: Specify under what conditions the level of PPE will be upgraded to Level C and Level B.

RESPONSE: The conditions that will initiate protection upgrades will be specified in Subsection 2.3.2.

OU#2 RI/FS Appendix A, Baseline Risk Assessment

69 **COMMENT:** OU#2 RI/FS Appendix A, Baseline Risk Assessment, page 1: As mentioned in previous comments, the USEPA risk-based concentrations should not be used to determine contaminants of concern.

RESPONSE: See response to comment 24.

70 **COMMENT:** OU#2 RI/FS Appendix A, Baseline Risk Assessment, page 3: Surface soil samples should be taken from zero to 6 inches.

RESPONSE: Region IV previously gave us guidance of 0-3 inches for surface soils for NAS Jacksonville OU-1. If 0-6 is now the preferred depth, we can incorporate this change.

71 **COMMENT:** OU#2 RI/FS Appendix A, Baseline Risk Assessment, Table A-1, page 5: This table should reference the source of the equations which are provided.

RESPONSE: The source of these equations is RAGS (USEPA, 1989) which will be referenced in the Table.

72 **COMMENT:** OU#2 RI/FS Appendix A, Baseline Risk Assessment, Tables A-2, A-3, A-4, A-5, and A-6: The referenced sources should be better referenced (i.e., USEPA, 1991 a, b, c, or d). These tables do not provide the relative absorption factors which will be used for dermal exposure to soils or the permeability constants for dermal exposure to water.

RESPONSE: The references will be clarified. The relative absorption factors for dermal exposure to soils and the permeability constants for dermal exposure to water will be added.

73 **COMMENT:** OU#2 RI/FS Appendix A, Baseline Risk Assessment, Tables A-7, A-8, A-9, and A-10: The values from IRIS and HEAST should be reviewed and any changes updated before the risks in the BRA are quantified so that any changes will be incorporate

RESPONSE: These values will be reviewed and updated prior to use in the baseline risk assessment.

NAS JACKSONVILLE OU-2 RI/FS WORK PLAN RESPONSES TO FDER COMMENTS

GENERAL COMMENTS

COMMENT: While the approach of dividing the assessment effort into two rounds is acceptable, the text of this document does not discuss or explain what will happen at the conclusion of Round 1. A milestone in the form of a report is not discussed in the document or in its accompanying graphs; instead, meetings are planned throughout the RI effort. It is not clear whether these meetings are in lieu of a formal Round 1 activities and findings report. It is suggested that the Navy consider the preparation of such document in which Round II proposals are presented based on findings of Round 1.

RESPONSE: At the end of the RI field work, results will be published. This document will outline actions taken to date, results achieved, data gaps noted, and proposed actions required to fill any gaps. However, decisions about well placement may be made based on field-screening results while the field work is ongoing. At a minimum, preliminary decisions as to well locations will be briefed to the TRC members during on-site meetings.

SPECIFIC COMMENTS

- 1 **pp 4-17:** Table 4-4 Potential Compounds of Concern. This table can be viewed as a preliminary table since other compounds may be found in the analysis.

RESPONSE: Agreed.

- 2 **pp 4-11:** Nowhere in the text does the Navy indicate what level of DQO it plans to use while in the field. From past experience, it seems that Level I will be used throughout the assessment phase. Instead, the Navy should consider the use of Level II DQO at the very onset of field work. Level II DQO will provide real time, acceptable results which, in turn, can lead to satisfactory decisions while-in-the field regarding the future placement of wells/piezometers or soil borings without waiting for laboratory results that could take some time. Moreover, based on those results the preparation of a Round II proposal plan could possibly take less time overall.

RESPONSE: The primary objectives of the groundwater study at OU-2 are to evaluate the subsurface geology, the direction of groundwater flow, and the distribution on contaminants in groundwater. The approach described in the OU-2 work plans reviewed by USEPA would provide this information but might leave some data gaps that would require the installation of additional wells. To more accurately define the subsurface geology and extent of groundwater contamination at OU-2 and avoid a many staged investigation, the Navy has selected a different approach. This approach, which is summarized below, was presented at the October 29 TRC meeting and will be incorporated with the rest of the changes to the work plans.

The groundwater investigation will be conducted in two stages. The objectives of the first stage are to provide geotechnical information about the surficial aquifer at OU-2 and map contaminant plumes. To collect this information, piezometric cone penetrometer testing (PCPT) coupled with a field-based gas chromatograph will be used. The PCPT survey will be conducted by pushing a penetrometer or a groundwater sampling device into the ground using a hydraulic ram system mounted on a weighted truck.

To provide the geotechnical information, a penetrometer equipped with sensors for pore pressure, tip pressure, and friction will be pushed down to the top of the Hawthorn Group. Sensors readings are relayed to an onboard computer system as continuous functions of depth and time. The soil type encountered by the cone as it is pushed through the subsurface will be interpreted from the instrument readings. The PCPT survey will consist of a series of borings in and around OU-2. Information from these borings will be evaluated to develop a thorough understanding of the stratigraphy of the surficial aquifer at OU-2. The nature and extent of the clayey sand/sandy clay identified in the surficial aquifer during previous investigations will be evaluated using this technique.

The PCPT, in combination with a field-based gas chromatograph, will also be used to map contaminant plumes. A sampling device that can be opened at selected depths will be pushed into the aquifer by the PCPT truck to collect groundwater samples. The geological information obtained from the previous PCPT borings will be used to select sample locations and depths. The groundwater samples collected by the PCPT will be analyzed on site for volatile organic compounds using the gas chromatograph. The chemical data collected from these samples will be used to map contaminant plumes. The data quality of these samples will meet and possibly exceed Level 2 requirements and will be sufficient to meet the data requirements for site investigation and remedial design.

The second stage of the groundwater investigation is the installation of piezometers and monitoring wells. Based on the geological information obtained from the PCPT survey, piezometers locations and depths will be selected. The water levels measured in the piezometers will provide input for OU-2 groundwater flow models.

Monitoring well locations and depths will be selected based on the plume mapping done during the PCPT survey. The data gathered from the analysis of groundwater samples collected from the wells will meet at least data quality Level 3 requirements. This data will be used in the evaluation of risk, site investigation, and remedial design.

The incorporation of this new approach will have the following additional impacts on the work plan:

- The well and piezometer locations and depths presented in the figures are will remain the same when the work plan is revised. However, the final locations will be determined based on the results of the PCPT survey.
- The primary purpose of soil sampling during the installation of wells and piezometers was to provide stratigraphic information. However, this information will be obtained in more detail by the PCPT survey. Therefore, with the exception of areas where soil samples are required for chemical analysis, soil samples will not be collected during well or piezometer installation.

3 **pp 5-9:** It is not clear whether surface samples (zero to 12 inches below ground surface) will be collected at the same time and locations as the subsurface samples. Please clarify.

RESPONSE: Surface soil and subsurface soil samples will be collected from the same locations at the same time.

4 **pp. 5-11:** Enough data exists on all the previous documentation to ascertain the groundwater table depth. It should be included in this paragraph.

RESPONSE: The water table at OU-2 is generally 3.5 to 4.5 feet below ground surface (based on measurements taken on 01/28/92) but does fluctuate; this information will be added to the text.

5 **pp. 5-11:** Please correct the details of monitoring well/piezometer installation, specifically, screen lengths in relation to the estimated water table depth.

RESPONSE: Well construction may have to be modified on a site-specific basis to ensure that a proper well can be constructed. A PCPT survey will be conducted to map contaminant plumes and guide the placement of permanent wells. The PCPT equipment will be calibrated against the log from an existing or new boring.

6 **pp. 5-15:** What does the Navy mean with .."samples will be designated for VOC analysis where indicated"?. Please indicate what the indicator parameters are.

RESPONSE: This sentence will be removed from the document; all samples collected for laboratory analysis will be analyzed for TCL volatile organic, semivolatile organics, pesticides, and PCBs and TAL inorganics.

7 **pp. 5-19:** It seems that, due to the size of the PSC, the number of samples to be collected will not be sufficient to characterize the extent of contamination that could

be present between each sample point. It is suggested that at a minimum, a sample be collected at the center of each square grid.

RESPONSE: A finer grid will be established for this PSC for field screening. CLP surface and subsurface soil samples will be collected from visible sludge (e.g., sludge piles) at the PSC. Samples collected for CLP analysis will be analyzed for the parameters listed in comment 7.

- 8 **pp. 5-24:** Please provide Table 5-1 or the rationale for the installation of each new piezometer and monitor well to be installed at OU-2 during Round 1.

RESPONSE: The actual locations of wells and piezometers will be determined after the results of the PCPT survey are evaluated.

- 9 **pp. 5-41:** Mathematical Models. As is the case for OU-1, it seems that modeling will be used to quantify any potential changes and contaminant fate and transport processes present at OU-2. However, the Navy fails to mention which models will be used by the USGS. In the past modeling has been used at numerous sites at other installations with not always the expected results due to the fact that no model, however complicated, will represent everything about a site; therefore, modeling should not take precedence over actual field data and field based conclusions.

RESPONSE: USGS's groundwater flow model MODFLOW will be used to estimate groundwater flow at OU-2. The modeling results will have to be balanced against field observations before decisions are made based on the model.

- 10 **Figure 7-2:** The amount of time needed to mobilize (1 month) is excessive. Why does it take only two weeks to demobilize and a month to mobilize?. It seems that ABB-ES has almost all the logistic support already on the facility. With exception of the concrete decon pad, which should be in place before any assessment work is implemented, a two-week mobilization period is more acceptable.

RESPONSE: In addition to getting equipment to the site, mobilization involves finalization of contracts, clearing boring location for utilities, and other activities.

- 11 **Figure 7-2:** According to the Table, it will take the contractor/Navy two and a half months to validate the data after the last round of sampling. This amount of time is also excessive given the fact that quick turnaround time could be used on the laboratory analysis and that the total number of samples that would be expected in the second round will be less than in Round 1.

RESPONSE: Thirty-day analysis and thirty-day data validation are industry standards. Any quicker turnaround costs considerably extra and is not cost effective

given the non-emergency condition of the site. The Navy is committed to conducting the IRP at OU-2 in the most practical, efficient, timely and cost effective manner.

**NAS JACKSONVILLE OU-2 RI/FS WORK PLAN
RESPONSES TO FDNR COMMENTS**

GENERAL COMMENTS

At the Technical Review Committee (TRC) meeting in June, 1992, you stated there would also be SW/SD sampling performed in the drainage ditch/swale area to the east of the treatment plant. This ditch parallels the north/south runway and a taxi-way. This should be included in the work plan.

RESPONSE: All swales and ditches that may be impacted by the site will be sampled.

SPECIFIC COMMENTS

- 1 **Section 1.1 (Site Description) - p. 1-6 and Section 3.1.1 (Description and Background) - p. 3-2:** These sections refer to the Fire Fighting Training Area (PSC 2) as being under construction. At our visit in July, 1992, we were told the new facility was completed. The wording should refer to the construction as being finished.

RESPONSE: The text will be changed to indicate that construction on the new fire fighting training area is complete.

- 2 **Section 4.1.2.1 (Chemical Specific ARARs) - p. 4-6:** 1) Florida Surface Water Quality Standards (FSWQS) (Chapter 17-302, F.A.C.), as well as Federal Ambient Water Quality Criteria (AWQC) should be included as ARARs. If a particular contaminant is listed in both the FSWQS and the AWQC, the lowest value of the two should be used for analysis and/or detection limits.

RESPONSE: FSWQSs and federal AWQCs will be referenced in the text as chemical-specific ARARs for surface water.

2) There are no regulatory criteria established for sediments. However, the USEPA has established some guidelines. Also, a study performed by Long and Morgan for the National Oceanic and Atmospheric Administration provides values which could be used relating to sediment contamination analysis (Long and Morgan).

RESPONSE: The authors of the NOAA technical memorandum state on Page 2 of their report that "These guidelines were not intended for use in regulatory decisions or any other similar applications." These guidelines may be classified as "To be considered."

3) Table 4-1 (Preliminary Chemical Specific ARARs) should include FSWQS and AWQC for surface water.

RESPONSE: Table 4-1 is a listing of the chemical-specific ARARs for groundwater; therefore, surface water ARARs were not listed on this table. A new table will be developed for surface water.

- 3 **Section 4.3.1 (Human Health Risk Assessment Data Requirements) p. 4-18:** The first paragraph on p. 4-18 includes "and ingestion of shellfish from the St. Johns River." Shellfish are not the only species consumed from the river. You should change "shellfish" to "aquatic organisms."

RESPONSE: Agreed, changes will be made to the text.

- 4 **Section 4.3.2 (Ecological Risk Assessment Data Requirements) . 4-26:** The first paragraph on p. 4-26 refers to potential routes of exposure. You need to include dermal contact of sediments/soils as a possible exposure route. Many organisms (e.g., worms; snails;) live in soils and sediments and could absorb contaminants through the skin. This also includes reptiles who crawl on or live within the soils.

RESPONSE: Agreed. Dermal contact will be considered as an exposure route.

- 5 **Section 5.2.1.3 (Surface Water/Sediment Sampling) - p. 3-5:** This section should indicate what contaminants will be analyzed. A full parameter of constituents should be screened (i.e., Total Compound Lists, Total Analyte Lists, etc.).

RESPONSE: Surface water samples will be analyzed for TCL VOCs, SVOCs, Pesticides, and PCBs, and TAL metals and cyanide. Sediment samples will be analyzed for all the parameters listed for surface water.

This information will be included in a paragraph added to Subsection 5.2.1.2.

- 6 **Section 5.2.1.9 (Survey) - p. 5-14:** The National Geodetic Vertical Datum of 1929 is out of date. Topographic elevations should be based on the National Geodetic Surveys most recent adjustment, North American Datum (NAD) 1983.

RESPONSE: Topographic elevations will be referenced to the North American Datum (NAD) 1983. References to the NGVD 1929 will be removed from the text.

- 7 **Section 5.2.2.5 (Polishing Pond for Waste Water Treatment (PSC-42)) - p. 5-24:** The last paragraph of this section needs to define what constituents will be analyzed for surface water and sediments (SW/SD). It states the constituents to be analyzed for soils, but not SW/SD.

RESPONSE: See response to comment 5.

- 8 **Section 5.2.2.9 (St. Johns River Surface Water and Sediment) - p. 5-31:** The document states SW/SD samples will be taken at the shoreline of the river. Some groundwater, in the near vicinity of the river bank, likely leaches at the shoreline. However, due to the distance that the various Potential Sources of Contamination (PSCs) are from the river, PSC contaminants may leach further offshore as any contaminants in the surficial groundwater are probably deeper within the upper surficial layer. We suggest alternating samples along the shoreline (e.g., near shore, offshore, near shore, etc.).

A map also needs to be included which shows the location of the proposed SW/SD samples.

RESPONSE: The purpose of the surface water and sediment samples in the St. Johns River is to establish the current state of the river and not to evaluate the possible contribution of contaminants from OU-2.

The Navy is revising the approach to sediment and surface water sampling in the river. This was discussed during the October 21-22 Natural Resources Trustees meeting. Because the purpose of the river sampling is to evaluate the general status of the river and not evaluate the impact of OU-2 this work will not be included in the OU-2 workplan.

A figure showing the surface water and sediment sample locations will be added.

- 9 **Section 5.5.2.1 (Contamination Identification) - p. 5-60:** The list of contaminants of concern (COC) relating to the ecological risk assessment needs to be based upon the contaminants impact to biological organisms rather than humans. This can be determined from AWQC, FSWQS, USEPA Sediment Quality Criteria, and the Long and Morgan study.

RESPONSE: Agreed. The selection of indicator chemicals will be based on the inherent toxicity of each chemical to ecological receptors.

- 10 **Section 5.5.2.3 (Ecological Exposure Assessment) - p. 5-61 and Table 5-3 (Overview of Exposure Pathways):** 1) The last paragraph on page 5-61 states, "In selecting receptors, an effort will be made to select species that are (1)....., (2) omnivorous and carnivorous, and (3)....." Item "(2)" should also include selection of herbivorous species.

RESPONSE: Agreed. Herbivorous species will also be considered.

2) Table 5-3 identifies for each PSC a potential contaminated medium (i.e., soils; surface water; sediment), a route of exposure for that medium, and the possible population exposed to the medium. For soils, the population exposed to incidental

ingestion of contaminated soils needs to also include invertebrates (e.g., worms). For surface water (SW) and sediment (SD), the population exposed to dermal contact with SW/SD needs to also include aquatic reptiles and mammals.

RESPONSE: Agreed. Additions will be made to the table as suggested.

- 11 **Section 5.5.2.4 (Ecotoxicity Assessment) - p. 5-65:** You need to also include FSWQS as information available to evaluate chemical toxicity in surface water.

RESPONSE: Agreed. FSWQS will also be considered.

- 12 **Section 7.1 (Authority and Responsibilities) - p. 7-1:** This section identifies each person responsible for various areas of the remedial process for NAS Jacksonville. You should also include the person representing the Department of Defense/U.S. Navy natural resource trustee interests. The Department of Defense is identified as a Natural Resource Trustee under the CERCLA/SARA.

RESPONSE: Sandy Maynard from the NAS Jacksonville Environmental Division is the representative for the U.S. Navy. This will be added to the text.

- 13 **Appendix I-B - Field Sampling Plan (OU-2 Site Specific Field Sampling Plan for Naval Air Station Jacksonville, Florida. June 1992) - Section 4.7 (Topographic Survey) - p. 4-37:** The National Geodetic Vertical Datum of 1929 is out of date. Topographic elevations should be based on the National Geodetic Surveys most recent adjustment, North American Datum (NAD) 1983.

RESPONSE: See response to comment 6.

**NAS JACKSONVILLE OU-2 RI/FS WORK PLAN
RESPONSES TO CAPT. HOENSTINE'S COMMENTS**

- 1 **COMMENT:** The studies of August 1989 and January/May 1991 conducted at the Domestic Sludge Drying Bed site showing contamination of both the deep and shallow aquifers with constituent measurements exceeding permit levels are of special concern. Although the Floridan aquifer is over 400 feet below land surface at this site, contamination of the overlying intermediate aquifer system could under certain circumstances endanger the water quality of this primary source of potable water. Accordingly, this RI/FS investigation needs to determine the nature of the contacts between the surficial/intermediate and Floridan aquifer systems as well as their respective water qualities.

RESPONSE: The extent and depth of the uppermost confining unit at OU-2 will be defined by piezometric cone penetrometer testing (PCPT). The need for an evaluation of Floridan aquifer groundwater quality will be determined based on the type and extent of confining unit encountered and the vertical distribution of contaminants observed during PCPT survey.

- 2 **Chapter 2.1.2: p. 2-2 /** Have any permeability tests been conducted on the "sandy clay aquitard? Such data is needed to characterize this unit.

RESPONSE: No permeability tests have been conducted on the soil previously described as a "sandy clay aquitard."

The surficial soil at OU-2 (i.e. the soil overlying the Hawthorn Group) has been described during previous IRP investigations as consisting of two aquifers; a water-table sand aquifer separated by 6 to 10 feet of sandy clay/clayey sand from a 5-foot thick confined sand aquifer. However, contaminants have been detected in groundwater samples collected from both "deep" and "shallow" wells adjacent to the sludge drying beds. This indicates that the sandy clay/clayey sand is not acting as a true aquitard and that the two sand units are hydrologically connected. In addition, the extent of this reported "confining unit" has not been determined and no geotechnical tests have been conducted on this soil. Because of uncertainties about the nature, extent, and importance of the sandy clay/clayey sand at OU-2, the current groundwater conceptual model has been revised and all the soil overlying the Hawthorn Group is considered one aquifer. Information collected during the PCPT survey will be used to evaluate the nature and extent of the reported "confining unit." Well locations and depths will be selected based on the results of the PCPT survey.

The need to conduct laboratory permeability potential aquitards will be determined after PCPT results are evaluated.

- 3 **Chapter 3.1.2: p. 3-3** / The contaminants found in surficial aquifer wells (TMW02, TMW03 and TMW04) warrants an investigation of the underlying intermediate aquifer at this site.

RESPONSE: The lower portion of the surficial aquifer will be investigated during the PCPT survey.

- 4 **Chapter 3.1.3: p. 3-6** / Add to potential migration pathways "Migration of fuels or residuals along the upper surface of the sandy clay confining unit and potential downgradient transport into the underlying intermediate aquifer via possible breeches or lithologic facies changes in the confining unit. (Note: downward leakage/infiltration of contaminants may occur within the sandy clay sediments.)"

RESPONSE: The text in the work plan will be reworded to clarify this. Also see response to comment 2.

- 5 **Chapter 3.3. 3: p. 3-12** / Same comment as above.

RESPONSE: See response to comment 4.

- 6 **Chapter 3.4.3: p. 3-19, line 4** / The depth's of the existing deep monitoring wells shown on Figure 3-4 are not shown. What aquifer system are they monitoring?

RESPONSE: See the response to comment 2 for a revision of the groundwater conceptual model. The depth of the wells will be determined after evaluation of the PCPT survey results.

- 7 **Chapter 3.5.3: p. 3-23, line 2** / Add: "Migration into the intermediate aquifer via potential breeches/facies changes/of the confining unit or potential leakage into the underlying aquifer."

RESPONSE: See the response to comment 2.

- 8 **Chapter 4.1: p. 4-1, line 7** / Add to because of: "the depth of sampling."

RESPONSE: Disagree with this recommendation.

- 9 **Chapter 4.5: p. 4-32, line 12** / Add: "Data to be collected in support of the modeling includes horizontal extent (continuity) and permeability of suspected confining unit."

RESPONSE: The sentence will be reworded to include these data requirements.

- 10 **Chapter 4.5: p. 4-32, line 15** / Change .. conductivity for geologic units to .. "conductivity for lithologic units."

RESPONSE: The term "geologic units" will be changed to "hydrogeologic units."

- 11 **Chapter 5.2: p. 5-7, line 6** / Continuous cores in lieu of continuous collection of reference soil samples during piezometer installation would more accurately characterize sediment contacts and the lateral extent of lithologic units.

RESPONSE: The Navy has decided to use a PCPT survey to define the stratigraphy of the surficial soil (i.e., the soil overlaying the Hawthorn Group). This will provide much more objective data than interpretation of cores or split-spoon samples. Split-spoon samples will be collected in areas where subsurface soil samples are required for chemical or physical analysis.

- 12 **Chapter 5.2.1. 6; p. 5-13, line 5** / Permeability tests should be performed on suspected confining units (i.e. sandy clays, etc.).

RESPONSE: See response to comment 2.

- 13 **Chapter 5.2.1.8; p. 5-3** / The use of ground penetrating radar may be useful in determining the presence, continuity and depth of underlying clay units.

RESPONSE: The primary objectives of the groundwater study at OU-2 are to evaluate the subsurface geology, the direction of groundwater flow, and the distribution of contaminants in groundwater. The approach described in the OU-2 work plans reviewed by USEPA would provide this information but might leave some data gaps that would require the installation of additional wells. To more accurately define the subsurface geology and extent of groundwater contamination at OU-2 and avoid a many staged investigation, the Navy has selected a different approach. This approach, which is summarized below, was presented at the October 29 TRC meeting and will be incorporated with the rest of the changes to the work plans.

The groundwater investigation will be conducted in two stages. The objectives of the first stage are to provide geotechnical information about the surficial aquifer at OU-2 and map contaminant plumes. To collect this information, PCPT coupled with a field-based gas chromatograph will be used. The PCPT survey will be conducted by pushing a penetrometer or a groundwater sampling device into the ground using a hydraulic ram system mounted on a weighted truck.

To provide the geotechnical information, a penetrometer equipped with sensors for pore pressure, tip pressure, and friction will be pushed down to the top of the Hawthorn Group. Sensor readings are relayed to an onboard computer system as continuous functions of depth and time. The soil type encountered by the cone as it is pushed through the subsurface will be interpreted from the instrument readings. The PCPT survey will consist of a series of borings in and around OU-2. Information from these borings will be evaluated to develop a thorough understanding of the

stratigraphy of the surficial aquifer at OU-2. The nature and extent of the clayey sand/sandy clay identified in the surficial aquifer during previous investigations will be evaluated using this technique.

The PCPT, in combination with a field-based gas chromatograph, will also be used to map contaminant plumes. A sampling device that can be opened at selected depths will be pushed into the aquifer by the PCPT truck to collect groundwater samples. The geological information obtained from the previous PCPT borings will be used to select sample locations and depths. The groundwater samples collected by the PCPT will be analyzed on site for volatile organic compounds using the gas chromatograph. The chemical data collected from these samples will be used to map contaminant plumes. The data quality of these samples will meet and possibly exceed Level 2 requirements and will be sufficient to meet the data requirements for site investigation and remedial design.

The second stage of the groundwater investigation is the installation of piezometers and monitoring wells. Based on the geological information obtained from the PCPT survey, piezometers locations and depths will be selected. The water levels measured in the piezometers will provide input for OU-2 groundwater flow models.

Monitoring well locations and depths will be selected based on the plume mapping done during the PCPT survey. The data gathered from the analysis of groundwater samples collected from the wells will meet at least data quality Level 3 requirements. This data will be used in the evaluation of risk, site investigation, and remedial design.

The incorporation of this new approach will have the following additional impacts on the work plan:

- The well and piezometer locations and depths presented in the figures are will remain the same when the work plan is revised. However, the final locations will be determined based on the results of the PCPT survey.
- The primary purpose of soil sampling during the installation of wells and piezometers was to provide stratigraphic information. However, this information will be obtained in more detail by the PCPT survey. Therefore, with the exception of areas where soil samples are required for chemical analysis, soil samples will not be collected during well or piezometer installation.

14 **Chapter 5.2.2.2; p. 5-17, line 7** / The finding of contaminants at a depth of 3 to 5 feet should result in the testing of deeper sediments to determine the vertical extent of contamination.

RESPONSE: Agree.

- 15 **Chapter 5.2.2.4; p. 5-21, line 11 /** Same comments for (PSC-41) and (PSC-42) as above.

RESPONSE: Agree.

- 16 **Chapter 5.2.2.6; p. 5-27, line 6 /** Include permeability tests of the confining unit.

RESPONSE: See response to comment 2.

- 17 **Page 5-50 /** The current discussions on base and NADEP closings presents a possible future residential scenario for OU-2 and contiguous areas.

RESPONSE: For the duration of the IRP at OU-2 and in the foreseeable future, the expected use of the land is as a waste water treatment plant. If the land is no longer under Navy jurisdiction, it is doubtful that the use of the land will change. In addition, a 5-year review will be required for OU-2; if there is a proposed change in the status of the OU-2 area, risks can be reevaluated at that time.

- 18 **Chapter 5.5.3; p. 5-71, line 6 /** Understanding that prevention of erosion of contaminants in surface soils VIA containment is a temporary remedial action.

RESPONSE: Agree

- 19 **Attachment I-A (QAPP) 10.0, p. 10-1 /** Recommend some QA functions including non-scheduled visits to evaluate operational practices also be given to NAS JAX Environmental or FDER personnel to ensure impartiality and minimize conflict of interest perceptions.

RESPONSE: Agree, this is done is currently done.

- 20 **Attachment I-B:2.6.1; p. 2-4 /** Same comments as for Chapter 5.2, p. 5-7 ... continuous coring.

RESPONSE: See response to comment 11.

- 21 **Attachment I-B:4.2.2.2; p. 4-12, line 9 /**Analyses should include permeability tests on suspected confining units as these sediments are commonly sandy clays which may permit downward leakage over time.

RESPONSE: See response to comment 2.

- 22 **Attachment I-B:4.5.2.2; p. 4-36, line 6** / Suggest capping bottom portion of core at sediment-water interface as experience has shown that sediment losses will occur in the water column.

RESPONSE: Agree.

**NAS JACKSONVILLE OU-2 RI/FS WORKPLAN
RESPONSES TO MR. BARNARD'S COMMENTS**

- 1 **COMMENT:** The preliminary AOC would appropriately designated as an area for surficial hydrogeological assessment. This designation would remain until evidence indicates otherwise of groundwater contamination due to operations at the waste water treatment facility.

RESPONSE: The boundaries of the AOC will be adjusted so they are within NAS Jacksonville boundaries. Portions of the golf course will be within the boundaries of a larger "area of investigation."

- 2 **COMMENT:** Consideration of placement of deep piezometers adjacent to the proposed three shallow piezometers on the Timuquana Country Club property as shown on Figure 5-7. The addition of these piezometers would possibly contribute to the groundwater movement definition.

RESPONSE: The Navy has decided to use piezometric cone penetrometer testing (PCPT) to evaluate the subsurface geology at OU-2. Piezometer locations and depths will be selected after the PCPT results are evaluated and the hydrostratigraphy is defined.

- 3 **COMMENT:** Include an investigation into the location of all irrigation, domestic and residential wells in the area which may impact surficial groundwater movement.

RESPONSE: This type of investigation will be conducted. The information will be used to help evaluate hydrogeologic conditions at the site. The information may also be used to determine exposure scenarios.

- 4 **COMMENT:** The consideration of the inclusion of measuring groundwater elevations in key monitoring wells and piezometers with relation to the water surface elevation of the St. Johns River during several different time periods (high and low tide). Due to the size of the St. Johns River and the proximity of the study area to both the St. Johns River and the Ortega River, tidal influence may be significant.

RESPONSE: A tidal influence study will be conducted for NAS Jacksonville; however, this is beyond the scope of OU-2 and will be included in a later work plan.

**NAS JACKSONVILLE OU-2 RI/FS WORKPLAN
RESPONSES TO MR. JOHNSON'S COMMENTS**

- 1 **COMMENT:** The proposed sampling for OU-2 should help to characterize the extent and kind of contamination at NAS Jacksonville. However, we suggest that samples also be analyzed for pesticides and PCBs. The work plan stated that samples will be analyzed only for volatile organic compounds, semivolatile organic compounds and trace elements.

RESPONSE: Agreed. Samples will be analyzed for pesticides and PCBs.

- 2 **COMMENT:** The work plan states that a minimum of 20 surface water and 20 sediment samples will be collected at 90 m intervals from a 1.8 km stretch of the St. Johns River. Additional surface water and sediment samples will be collected when groundwater seeps or other suspect area are encountered. Sediment samples should be collected from depositional areas along the stretch of the river sampled regardless of whether they are at the predetermined intervals. It is more important that sampling be conducted in areas that will give the most useful information for characterizing the extent of off-site contaminant migration than to rigidly adhere to a predetermined sampling plan.

RESPONSE: The purpose of the surface water and sediment samples in the St. Johns River is to establish the current state of the river and not to evaluate the possible contribution of contaminants from OU-2.

The Navy is revising the approach to sediment and surface water sampling in the river. This was discussed during the November 21-22 Natural Resources Trustees meeting. Because the purpose of the river sampling is to evaluate the general status of the river and not evaluate the impact of OU-2 this work will not be included in the OU-2 workplan.

- 3 **COMMENT:** The description of the ecological risk assessment proposed was very general and basically outlines the steps presented in EPA's *Risk Assessment Guidance for Superfund: Environmental Evaluation Manual*. It was not stated specifically whether the risk assessment included off-site areas affected by site-related activities. NOAA, in particular, recommends that the St. Johns River be included in the risk assessment. Additionally, the potential threat to aquatic organisms inhabiting the water column and the sediments, as well as the potential for transfer of contaminants through the food web, should be included.

RESPONSE: A risk assessment will not be conducted for the St. Johns River until the nature of the contaminants that OU-2 is contributing to the river is evaluated.

4 **COMMENT:** The work plan did not propose benthic macroinvertebrate surveys or the collection of sediment samples for bioassay. Such sampling may not be necessary at this point, but should be made contingent upon the results from the St. Johns River samples. If elevated concentrations of contaminants are detected in the sediment or water samples from the river, benthic surveys and sediment bioassays should be considered.

RESPONSE: See the response to comments 2 and 3.