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NAS PENSACOLA
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May 6, 1993

Florida Department of Environmental Regulation
Federal Facilities Coordinator
Attn: Eric Nuzie
Twin Towers Office Building
2600 Stone Road
Tallahassee, Florida 32399-2400

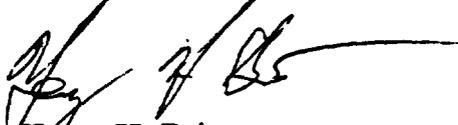
RE: Response to comments for **Defunct Work Plans**: Sites 40, 41, and 42, NAS-Pensacola,
Contract # N62467-89-D-0318/036

Dear **Mr.** Nuzie:

Please find enclosed a copy of the **response** to comments for the **Work Plans** on Site 40, 41, and 42: Naval Air Station Pensacola in Pensacola, Florida. We **look forward** to **discussing** them further at the meeting **on** May 12th and 13th in Atlanta. **For** the record, FDER did not have any comments **on** these **Work Plans** for Sites 40, 41, and 42.

If you should have any questions or need any additional information **regarding** the plans, please do not hesitate to call me.

Sincerely,
EnSafe\Allen & Hoshall



Henry H. Beiro
Task Order Manager

Enclosure
Response to Comments

cc: **Linda Martin**, SOUTHNAVFACENGCOM

**Technical Review and Comments
Draft RI/FS Work Plans for
Site 40 (Bayou Grande) and Site 42 (Pensamla Bay)
U. S. Environmental Protection Agency
Naval Air Station (NAS) Pensamla
Pensamla, Florida**

Common Site 40 and 42:

Comments Applicable to both work plans. (Note: page and paragraph numbers provided are for the "Bayou Grande" Work Plan. Identical text requiring revision in the "Pensacola Bay" Work Plan may occur at slightly different locations, although section numbers should be the same.)

Comment 1 — Page 1-1, Section 1.0, Paragraph 1:

The **Florida** Department of Environmental Protection (**FDEP**) is **also** a Party to the Federal Facilities Agreement. Please make the **necessary** correction.

Response:

Agreed. The Florida Department of Environmental Protection (**FDEP**) has been added.

Comment 2 — Page 1-1, Section 1.0, Paragraph 2:

This paragraph must **also** briefly summarize plans to conduct **and** prepare a Baseline Risk Assessment for the Operable Unit.

Response:

A Baseline **Risk** Assessment **will** be prepared for the sites.

Comment 3 — Pages 1-1 through 1-2, Section 1.0, Paragraph 3:

The components described in this paragraph (**i.e.** the **SAP** (including **FSAP** and **QAPP**) and the **HASP**) **are** essential components of the RI/FS **Work Plan**. Consequently, the **RI/FS Work Plans**

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for the subject Operable Units cannot be considered for approval until **these** components **are** received and approved.

Response:

Site-specific SAPs will be submitted to the Navy, USEPA, and FDEP.

Comment 4 — Page 2-8, Section 2.3.4, Paragraph 3:

The EPA Groundwater Classification for the surficial aquifer must be provided in this description **as** well.

Response:

The FDEP classification of the surficial aquifer is **G-1**. The **EPA** Groundwater Classification for the surficial aquifer is **IIA**. However, it should be noted the shallow and intermediate **zones** of the surficial aquifer are not used **as** a water supply. The deep zone of the surficial **Sand and Gravel Aquifer is** overlaid by a **confining unit**.

Comment 5 — Pages 2-8 through 2-12. Section 2.3.4:

A map depicting the direction of groundwater **flow** for NAS Pensacola for each zone of the Sand-And-Gravel Aquifer should be included in this **section**. The results of the forthcoming well inventory, together with existing hydrogeologic **data and** information which has been collected during previous investigations (**E&E**, Geraghty & Miller, etc.) should provide adequate information on which to base such maps.

Response:

Maps estimating the **direction** of groundwater flow **in** the **shallow, intermediate, and deep zones** at **NAS Pensacola** will be included if sufficient information has been obtained to construct the maps (e.g., top of casing elevations, water levels). If the information cannot be **obtained** until after the submittal of the **work** plans, the maps will be **submitted under** separate cover.

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Comment 6 — Page 3-1, Section 3.1:

The text states that the scope of proposed work for the RI/FS **will be** discussed in Sections **5 and 6**. However, Section 6 is a list of references and does not include such a discussion. Please clarify this point.

Response:

The scope of proposed work for the RI/FS is discussed in Sections **4 and 5**; the text has been changed accordingly.

Comment 7 — Page 3-3, Figure 3-1:

The figure states that Site 36 is not shown. The text should discuss where Site 36 is located **and** its relationship to the contamination of the Bayou (/Bay).

Response:

Site 36 is the industrial waste sewer system. The Sewer line is approximately **4.5** miles long and is located in an **area** approximately 1 mile wide by **1.5** miles long in the southeastern portion of NAS Pensacola. The contamination relationship to the Bayou (/Bay) is not known. **A** figure has been added illustrating the location of the sewer line.

Comment 8 — Pages 3-7 through 3-9, Section 3.3 (Section **3.2** for "Pensacola Bay" Work Plan):

This section presents a reasonable preliminary, or conceptual, identification of potential contaminant migration pathways and potential impacts on public health **and/or** the environment. However, while comprehensive, the information presented is **too** general to be of extensive **use** in directing **and** refining sampling plans. **As a** result, the sampling schemes proposed in subsequent sections consist of numerous sampling stations positioned at **regular** intervals along the entire length of the **NAS** Pensacola coastline. While it is **recognized** that most of the available **data** is questionable due to the use of lower **DQO** analytical levels and less than **rigorous** QA/QC methods, some focusing of sampling efforts should **still be** possible through (i) and identification of likely contaminant pathways (**GW, SW**), **(ii)** the use of available survey results, site histories **and** (iii) conservative use of the available **chemical data**. In addition, given that higher DQO Level **data** for individual sites will **be** forthcoming prior **to** actual implementation of the "Bay" **and** "Bayou" **work** plans, **an** addendum to this **work** plan **aimed** at focusing the proposed sampling scheme should be submitted following receipt and evaluation of this new site-specific **data**.

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Response:

The sampling scheme has been revised into a ~~three-phase~~ approach, **as** discussed in the meeting of May ~~12~~ and ~~13~~, **1993**. A brief outline of the **phases** is presented below.

Phase I

For Pensacola Bay and Bayou Grande during **Phase I**, transects will be extended **300** feet perpendicular to the shore. Bathymetry **will** be measured along the length of the transect and sediment samples will be collected at **0** feet (**shoreline**), **150** feet and **300** feet along the transect. Sediment samples **will** be submitted for analysis of grain size and total organic carbon.

During Phase I at the ~~NAS Pensacola~~ Wetlands, all listed wetlands **and/or** potential wetlands **as** impacted by a corresponding site at **NAS Pensacola** **will** be investigated to identify basic biological characteristics of the wetland, to ~~delineate~~ the wetland boundary and to ~~develop~~ a sampling strategy for Phase **II**, **as** required. **If** impact is suspected, a grid **will** be established across the wetland. Bathymetry **will** be measured across the wetland, and sediment samples will be collected from **selected** locations for **grain** size and total organic carbon analysis.

A technical memorandum will be submitted upon completion of the **Phase I** activities. **The** memorandum **will** detail the results of Phase I sampling and will present the Phase **IIA** sampling locations. The technical memorandum will **also** present the rationale for additional sampling or the rationale for no further ~~investigation~~.

Phase **IIA**

Phase **IIA** consists of collecting sediment and surface water samples for Target Analyte List/Target Compound List (TAL/TCL) analysis **using** CLP protocol. Wase **II** sampling locations **will** be selected based on various **criteria**, including but not limited to:

- **storm** water discharge **points**,
- areas hydraulically downgradient of other **identified** potential sources of contamination (PSCs),
- areas of surface water discharge,
- areas of high total organic carbon,
- areas of small grain **size** (e.g., high clay and silt content),
- background locations.

One sediment sample will be collected at **each** of these hot spot locations. The results of the analyses will initially be compared to background conditions. Locations where the detected concentrations of the sediments are greater than twice background **will** be further compared to the agreed trigger levels. At locations where the detected concentrations exceed the background or trigger levels, three additional sediment samples will be collected

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for analysis to delineate the extent. Surface water samples will be **collected** at locations where the detected concentrations of the sediments exceed the background or trigger levels in standing bodies of water (i.e., wetlands) and not in dynamic environments (i.e., Pensacola Bay and Bayou Grande). **A** technical memorandum **will be** written upon completion of Phase **IIA** detailing the analytical results and the comparison **to** background and the trigger levels. The technical memorandum will also present the rationale and locations for the subsequent Phase **IIIB** sampling or the rationale **for no** further investigation.

Phase IIB

Phase **IIIB** consists of diversity and toxicity tests of **potentially** impacted organisms. During this phase of the **investigation**, **a** known volume of sediment **will** be collected. The sample **will** be submitted to the selected laboratory and the diversity of the organisms within the sediment **will** be determined.

Toxicity tests **will** also be performed during this phase. Selected species of organisms will be directly exposed **in** the laboratory to the site water and sediment. Acute (**48** hour) toxicity **will** be tested on a portion of the selected organisms. Chronic (**28 days**) tests will be performed on all of the selected organisms.

A technical memorandum will be written upon completion of Phase **IIIB** detailing the analytical results. The technical memorandum **will** also present the rationale and locations for the subsequent Phase **III** sampling or the rationale for no further **investigation**.

Phase III

Phase **III** consists of collection of selected organisms for studying the bioaccumulation of contaminants. Phase **III** tests may be performed if needed to further gauge the ecological impact of a site. **This** information **must** be weighed against time and expense to determine an agreement for clean up levels.

Comment 9 — Pages 3-8 through 3-9, Section 3.3 and Figure 3-2:

Estuarine systems **can** have high loads of suspended particulate matter (e.f., suspended silt or detritus) in the water column. Contaminants **can** adsorb onto this suspended particulate matter **as well as being** dissolved in the water. **This** could result in bioaccumulation by organisms such **as** filter-feeders. The following changes should therefore be made to the test and table to reflect these possibilities:

- A. In the 6th and 7th sentences of Paragraph 3, mention adsorption of contaminants onto suspended particulate matter in the water column.

- B. In the 8th sentence, change "accumulated contaminants" to "adsorbed contaminants".
- C. In Figure 3-2, under the second occurrence of "**Primary Sources**", either add a third **box** for adsorbed contaminants, or amend the box for "dissolved contaminants in surface water" to include a reference to **contaminants adsorbed** onto suspended particulate matter.
- D. **Also** in Figure 3-2, add suspended particulate matter to the **box** under "**Primary Release Mechanisms**".

(Note: The proposed measurement of total suspended solids, in **Section 5.2.1**, page 5-7, should yield useful information on the amount of suspended particulate matter in the water column. It is **not** recommended that the proposed surface water samples **be filtered** for chemical analysis. If chemical **analysis** of the **surface** water samples indicates elevated concentrations of **contaminants** that might not **be** expected to partition into water, such as hydrophobic organic chemicals, analysis of particulate and dissolved fractions of surface water samples might be appropriate during a later phase of the investigation.)

Response:

- A. Agreed. Adsorption of contaminants onto suspended particulate matter **in** the water has been added to the paragraph.
- B. Agreed. "Accumulated contaminants" has been changed to "adsorbed contaminants.;
- C. A third **box** for adsorbed contaminants has been added.
- D. Suspended particulate matter has been added to the box under "**Primary Release Mechanisms**."

Note: Surface water samples will not **be** filtered **before** chemical analysis.

Comment 10 — Page 3-9, Figure 3-2:

Please make the **following** additional changes **to this figure**:

- A. Delete "Terrestrial biota" from the "**Secondary Sources**" beading. Contaminants in Bayou Grande would first bioaccumulate **in** aquatic organisms, ingestion of these organisms by terrestrial biota could then lead to bioaccumulation **in** the terrestrial biota.

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- B. **Draw** a direct line from the "Bioaccumulation" **box** (Secondary **Sources**) to "Consumption of Affected Ecological **Resources**" (Pathways), **since** many benthic macroinvertebrates (e.g., **infauna**) **are** sessile and do not migrate.

Response:

- A. Agreed. "Terrestrial biota" has been deleted.
- B. Agreed. **A** line has been drawn from the "Bioaccumulation" box **to** the "Consumption of Affected Ecological Resources."

Comment 11 — Page 3-10, Table 3-2:

Please revise the format of this table to more clearly indicate that **any** of the "General Response Actions" or "Remedial Technology Types" may be **used** to achieve **either** human health **or** environmental/ecological "Remedial Action Objectives".

Response:

Table 3-2 has been amended to more clearly indicate the General **Remedial** Actions or Remedial Technology Types **will** be **used** to achieve either human health or environmental/ecological "Remedial Action Objectives."

Comment 12 — Page 4-1, Section 4.0:

- A. **"As** analytic **data** becomes available **from** other site **specific** investigations completed at NAS Pensacola, this work plan will be re-evaluated." **In** order to **assure** meaningful and timely incorporation of this forthcoming data into the present, **more** conceptual plans, the logistics of **this** "re-evaluation" process must **be** clearly specified in some section of the present RI/FS Work Plan. For example, will data-supported modifications to the present sampling plans be submitted **as** a work plan addendum, **technical** memo, or in some other format? Would it be feasible (technically defensible, **cost** effective) to consider submitting any such addendums in pieces (e.g. west Bayou Grande, east Bayou Grande) so that work **can** commence on at least a portion of the Operable Unit? **An** adequate schedule for this "re-evaluation" process must **be** provided **so** that a realistic **start** date for implementing these work plans **can** be established. **This** schedule should include such information **as** (i) anticipated completion dates for "Phase II" **data** collection, validation, **and** evaluation efforts at each individual **PSC**, and (ii) proposed submittal dates for addendums to the "Bay" and "Bayou" RI/FS **Work** Plans. Adequate planning of this

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process up front **will** assure timely initiation and completion of an effectively designed RI/FS for these "ecological" Operable Units.

- B. **Please** delete the 4th and 5th sentences of this section, and replace them with more general terminology, such as the following:

"Biological effects **will** be investigated through the collection and taxonomic analysis of the benthic macroinvertebrate community."

The EMAP approach as contained in the document Ecological Indicators (EPA/600/3-90/060) is not appropriate, per se, for this site. The focus of the EMAP program is the ecological health of an area, while the focus of a Superfund investigation is cause and effect (i.e., determining whether ecological effects are related to site contaminants). Although some of the elements contained in this document can be applied to the investigation of Site 40, reference to the EMAP program, the Ecological Indicators document, and the EMAP terminology should be deleted to avoid confusion.

Response:

- A. A phased sampling approach has been developed for the investigation. Upon completion of each phase of work, a technical memorandum **will** be submitted detailing the activities and results of the completed phase and outlining the number of samples and sampling locations for the subsequent phase. See the response to USEPA Comment 8 for a brief outline of the sampling approach to be followed during the investigation.

The Navy is dedicated to meeting all proposed schedules. To meet the schedules, Sites 40, 41 and 42 will be investigated simultaneously. A draft field schedule is provided in the Site Management Plan (SMP).

- B. The 4th and 5th sentences of Section 4.0 have been replaced with "Biological effects **will** be investigated through the collection and taxonomic analysis of the benthic macroinvertebrate community." The EMAP approach is not applicable to the investigation. See the response to the USEPA Comment 8 for a brief outline of the sampling approach to be followed during the investigation.

Comment 13 — Pages 4-1 through 4-2, "Sediment Chemistry DQOs" and Table 4-1:

The term "chronic effects" usually refers to effects on biological receptors, not on sediment. Clarify this point.

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Response:

The term "chronic effects" has been deleted.

Comment 14 — Pages 4-2 through 4-3, "Surface Water **DQOs**" and Table 4-1:

The term "acute effects" usually refers to effects on biological receptors, not on surface water. Clarify this point.

Response:

The term "acute effects" has been deleted.

Comment 15 — Page 4-3, Section 4.1, "Biological Effects **DQOs**":

An investigation of the benthic macroinvertebrate community, with the subsequent determination of distribution and diversity, should provide valuable information about biological effects. However, it should be noted that additional biological investigations (e.f., sediment toxicity testing, bioaccumulation studies) may be needed at a later point in the investigation in order to provide sufficient information for the ecological **risk** assessment.

Response:

Bioaccumulation studies are outlined in Phase III of the ecological assessment as a contingency plan if further investigation is need to gauge ecological impact.

Comment 16 — Pages 4-4 through 4-8, Section 4.2:

As mentioned above, this investigation is being conducted under the Superfund program, not the **EMAP** program. Several of the "indicators" presented in **this** section and the following subsections **are** applicable to the proposed investigation, but the **terminology** is not applicable. Please delete Section 4.2 and the indicated subsections (pages 4-4 through 4-8, including tables) and incorporate applicable portions under Section 5.0 (RI/FS Tasks) subheadings, as **follows**:

Section 4.2 — Delete

Subsection 4.2.1 — Delete. No detailed discussion is **needed**. Dissolved oxygen is already included among the general water quality parameters in Section 5.2.1, pages 5-7 through 5-9.

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Subsection 4.2.2 and Table 4-2 — Combine *this* section with Section 5.2.1 (page 5-10). However, in the text on page 4-6, change "Most benthic **organisms are** sessile" to **Many benthic organisms...**"

Subsection 4.2.3 — Either delete **this section**, or **add a subsection on** sediment toxicity testing to Section 5.2.1 (pages 5-6 through 5-10). (**It appears that no toxicity testing** was planned for the proposed investigation. It might be **more** appropriate to include sediment toxicity testing in a later investigation phase.)

Subsection 4.2.4 — Delete. Measurement of water clarity (**e.g., Secchi disk visibility?**) **can** be added to a subsection of Section 5.2.1 @ages 5-6 through 5-10).

Response:

The EMAP approach **has** been deleted. **See** the response to the **USEPA** Comment 8 for a brief outline of the sampling approach to be followed during the investigation.

Comment 17 — Pages 4-8 through 4-9, Section 4.3:

The information contained in this section is overly general. Please **refer** to comments 8 and 12A.

Response:

The sampling approach has been revised to focus on hot spot locations **as was discussed** during the meeting of May 12 and 13, 1993. See the **response** to the **USEPA** Comment 8 for a brief outline of the sampling approach to be followed during the investigation.

Comment 18 — Page 4-9, Section 4.4:

Whenever possible, detection limits used in the chemical analysis of sediment samples should be sufficiently low that the **data can be** compared to the **NOAA Effects** Range-Low and **Effects** Range-Median values used **as** ecological sediment screening values **by** the **USEPA** Region IV Waste Management Division. Likewise, detection **limits used** in the chemical analysis of surface water samples should be sufficiently low that the **data can be** compared to the **Florida Surface Water Standards** and the ecological surface water screening values (including the Ambient Water Quality Criteria) used by the **USEPA** Region IV Waste Management Division.

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Response:

The Navy will be submitting trigger level values for joint approval and subsequent use. If needed, the detection limits of the chemical analysis will be lowered to be commensurate with the trigger levels. However, the added cost should be weighed against the usefulness of the analytical data in determining ecological risk.

Comment 19 — Pages 5-2 through 5-10, Section 5.2:

- A. The proposed extensive transect sampling design appears to be very thorough with respect to determining the extent of contamination in the Bayou (/Bay) sediments. However, EPA is concerned that the planned full scan chemical analyses and the infaunal benthic macroinvertebrate analyses represent a major effort in terms of time and cost. The following comments are provided as recommended ways of decreasing the number of samples while still obtaining sufficient data for the site characterization and risk assessment:
- (i) Collect information on the nature of the bottom sediment (e.g., sand, silty sand, silt, etc.) and the water column depth prior to choosing sediment sampling locations. Sediment sampling should then be focused on depositional areas with fine sediments, since many types of contaminants tend to adsorb onto such sediments. (However, some samples would still be needed from coarser-grained sediment locations.)
 - (ii) Collect sediment samples along all of the proposed sampling transects, but only analyze samples from every second or third transect, or transects near areas likely to have received contaminants from land-based source areas. Depending upon the holding time for chemical analyses, the remaining samples could be held (or extracted and held) until the results of the first sample batch were available. Analyzing benthic macroinvertebrate samples from every other transect (as mentioned in Section 5.2.1, page 5-10) is also a good approach.

If a change is made in the proposed transect design, include an explanation/rationale for the sampling design.

- B. Despite the extensiveness of the proposed sampling scheme, this approach provides no guarantee that any detected contamination will be adequately delineated. In particular, the work plan should include contingency plans to address the delineation of any contamination associated with an NAS Pensacola source which is found to extend greater than 300 feet offshore.

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- C. Indicate which sampling stations will be used as background/control sampling stations for sediment, surface water, and biota.

Response:

- A. **See** the response to the USEPA Comment 8 for a brief outline of the sampling approach to be followed during the investigation.
- B. The three-phased **sampling** approach allows for adequate delineation of any detected contamination associated with **NAS** Pensacola. **This** includes contamination associated with an **NAS** Pensacola PSC which is found to extend greater than 300 feet offshore. However, **if no** evidence links offshore contamination to **NAS** Pensacola and approved by all parties during the May 12 and 13, 1993 meeting, further delineation of contamination **is** not within the **scope** of the investigation.
- C. Because of the variability in currents during high and low tide events, background/control sampling locations **will** be determined statistically. **A** discussion of the equation and the assumptions to be **used** have **been** added to the **work** plan.

Comment 20 — Page 5-5, Paragraph 2:

The text states that temporary monitoring wells will be installed along the coast to determine the quality of groundwater **being** discharged to the Bayou (/Bay). The proposed locations for the temporary monitoring wells **will** be useful, but **an** insufficient number of groundwater sampling locations are proposed. The proposed locations should **be** supplemented with additional temporary well points and through the sampling of existing monitoring wells. Also, in order to increase the likelihood of locating groundwater hot spots along the coast that **are** discharging to surface water, additional groundwater **sampling** locations should **be** concentrated in **areas** of known or suspected contamination. Delineating groundwater hot spot **areas** along the coast early in the process **will** help focus surface water/sediment sampling locations for any additional rounds of sampling which may **be** needed. Specifically, **once** hot spot **areas** are identified in the Bayou (/Bay), sediment core samples extending **several** feet below the **bottom** of the Bayou (/Bay) should **be** collected to determine the vertical extent of contamination. The **pore** water from core samples could also **be** analyzed for contaminants of **concern**.

For further, OU-specific recommendations **on** the placement of additional temporary groundwater sampling locations, please refer to the comments provided for the Bay and Bayou in the following sections.

Response:

The revised sampling approach addresses the issue of hot spot sampling locations. **All** specific PSCs adjacent to the Bay/Bayou will have adequate groundwater monitoring

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systems to determine migration to the Bay/Bayou. Surface water samples will **be collected** at locations where the detected concentrations of the sediments exceed the background or trigger levels in standing bodies of water (Le., wetlands) and not in dynamic environments (i.e., Pensacola Bay and Bayou Grande). **As** agreed by all parties during the meeting of May 12 and 13, 1993, sediment samples **will be collected** from **0 to 6 inches** depth at all locations. **If** areas of significant contamination are encountered, additional samples **will** be collected from **0.5 to 2** feet.

Comment 21 — Page 5-5, Paragraph 3:

The number of **staff** gauges which **will be installed** in the Bayou (**/Bay**) should **be** adequate for acquiring **data** that will **allow** for the calculation of groundwater flow velocity, **once** compared with groundwater level measurements from wells located adjacent to the Bayou (Bay). However, this **data** should **also** be used to calculate the volume of groundwater discharge/recharge to the Bayou (**/Bay**) over a complete tidal cycle.

Response:

Agreed. The volume of discharge/recharge to the Bayou (**/Bay**) **will be** calculated over a complete tidal cycle.

Comment 22 — Page 5-5, Paragraph 4:

- A. **W h y will** surge blocks and bailers **be** used to develop monitoring wells, when peristaltic pumps **will be used to** purge wells prior to sampling?
- B. According to the text, development **will be** considered complete "when the water has become as clear as possible given the subsurface lithology." **This final** phrase would appear **unnecessary**, "Given the predominantly sandy lithology of the **area.**" Please delete.

Response:

- A. Monitoring wells will be developed by bailing, surging and **bailing** or surging and pumping. Purging will be **performed** with a Teflon bailer or a decontaminated peristaltic pump. **If** the peristaltic pump **is used** for purging, at least one "**polish**" volume **will** be removed with a Teflon bailer. **The text has** been revised accordingly. **This** issue **will** be addressed in more detail in a technical letter.
- B. **Agreed.** The **unnecessary** text has been deleted.

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Comment 23 — Page 5-7, Paragraph 1:

- A. Surface water samples for determination of total suspended solids should **be** collected at the same time and **locations as** the surface water samples **collected** for water quality analyses.
- B. Sediment samples for chemical analysis must **be** collected at both the 0-0.5 ft. interval and the 0.5-2.0 ft interval. Most benthic infaunal organisms live in the upper part of the sediment, which is the interval that **will be** sampled using a Ponar **grab**. Therefore, sampling the upper interval is recommended for correlation with the benthic macroinvertebrate study. The lower interval should also **be** sampled, to **check** for historic deposition of contaminants.

Response:

- A. Surface water samples **will** be collected at locations where the detected concentrations of the sediments exceed the background or trigger levels in standing bodies of water (Le., wetlands) and not in dynamic environments (i.e., Pensacola Bay and Bayou Grande). Total suspended **solids** analysis will be collected at the same time and locations **as** the surface water samples collected for water quality analyses.
- B. As agreed by all parties during the **meeting** of May **12** and **13, 1993**, sediment samples **will** be **collected** from **0** to **6** inches depth. **If** areas of significant contamination are encountered, additional samples **will** be collected from **0.5** to **2** feet.

Comment 24 — Pages 5-7 through 5-8:

Please provide the rationale for the locations of the total water quality **stations**.

Response:

The total water quality stations were located at regular intervals along the **NAS** Pensacola shoreline. The distance offshore **was** selected to **minimize** the impact of point and non-point source discharges.

Comment 25 — Pages 5-7 through 5-8, "Surface Water Sampling":

The following depths should be **used** in the collection of (i) surface water quality parameters at **sediment sampling stations** (i.e., **temperature, pH, etc.**) and (ii) **surface** water samples and the concurrent water quality parameters at **total** water quality stations:

<u>Water Column Depth</u>	<u>SW Parameter Measurement Depth</u>
3 feet or less	Mid-depth
3-10 feet	1 foot below water surface 1 foot above bottom
More than 10 feet	1 foot below water surface Mid-depth 1 foot above bottom

This sampling regime is similar to that recommended in the EPA Environmental Services Division's Environmental Compliance Branch Standard Operating Procedures and Quality Assurance Manual for surface water sampling in estuarine waters having a halocline (salinity stratification). The **bottom** measurements **are** especially important in conjunction with the benthic macroinvertebrate study.

Response:

Surface water samples will be collected at locations where the detected concentrations of the sediments exceed the background or trigger levels in standing bodies of water (i.e., wetlands) and not in dynamic environments (i.e., Pensacola Bay and Bayou Grande). The surface water samples would then be collected at the following intervals in accordance with the USEPA SOP/QAM and the **CSAP**:

<u>Water column Depth</u>	<u>SW Parameter Measurement Depth</u>
3 feet or less	Mid-depth
3-10 feet	1 foot below water surface 1 foot above bottom
More than 10 feet	1 foot below water surface Mid-depth 1 foot above bottom

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Comment 26 — Page 5-8, Paragraph 3:

- A. "and during **periods** when the groundwater level exceeds the adjacent surface water level of Bayou Grande...". **How** will this determination be made? **will** water level measurements be recorded on some **regular** basis?
- B. "...surface water samples will be **collected**... to determine the **quality** of Bayou (/Bay) surface water...". **will** surface water samples be analyzed for **TCUTAL** parameters or **only** for water quality parameters?

Response:

- A. **Electronic** pressure transducers and **dataloggers will be deployed** at the temporary monitoring well and **staff** gauge locations for a 24-hour **period**. The dataloggers will be used to collect water level measurements at regular intervals (every 10 minutes). Data will then be used to determine when the groundwater level exceeds the adjacent surface water level of Pensacola Bay or Bayou Grande.
- B. Surface water **samples** will be **collected** at locations where the detected **concentrations** of the sediments **exceed** the background or trigger levels in standing bodies of water (**i.e.**, wetlands) and not in **dynamic** environments (**i.e.**, Pensacola Bay and Bayou Grande). Surface water samples will be analyzed for **TAL/TCL** parameters.

Comment 27 — Page 5-13

Although the Bayou (/Bay) *can be* considered a possible receptor of contaminants that have migrated **from** land-based source areas, **an** area of such contaminants present in the Bayou (**e.f.** in sediments) could act **as** a source of contaminants having the potential to migrate elsewhere (**e.f.** via surface water movement, food chains). The Feasibility Study for the land-based sites will **focus** on potential remedial alternatives for those sources and their contaminant **transport** mechanisms. The FS for Bayou Grande should focus on potential remedial alternatives for the Bayou itself.

Response:

Agreed. The FS for Bayou Grande will focus on potential remedial alternatives for the Bayou itself.

Responses in bold denote changes
to first draft.

Comments applicable only to OU 40 (Bayou Grande) Work Plan:

Comment 1 — Page 2-1, Section 2.2:

In the first sentence, change "estaurian" to "estuarine." In the fourth sentence, clarify that the net flow in Bayou Grande is apparently eastward, but **tidal** flow reversals also occur in the bayou.

Response:

Agreed. "Estaurian" has been changed to "estuarine." The fourth sentence has been revised to state the net **flow in** Bayou Grande is to the east, but **tidal** flow reversals may **also** occur.

Comment 2 — Pages 2-3 through 2-6, Section 2.2:

Much of the information contained in these pages **pertains** to Pensacola Bay **as** a whole, yet the section is titled "Site - Bayou Grande". The text should either **be modified** and/or expanded to illustrate the relevance of the information presented to the Bayou RI/FS, or deleted.

Response:

Although much of the discussion in Section 2.2 **pertains** to Pensacola Bay, it is specific to the Bayou Grande investigation. Tidal flow reversals may **cause** contaminants in Pensacola Bay near Bayou Grande to migrate into Bayou Grande. **This** statement **will** be included in the text.

Comment 3 — Page 2-7, Section 2.3.2:

"Some intermittent **streams** do flow north into Bayou Grande...". These **streams** should be clearly identified in some **figure**, along with the potential contaminant **sources** which may impact them.

Response:

Agreed. The intermittent **streams** have **been** added to Figures 2-1 and 3-1.

Comment 4 — Pages 2-12 through 2-16, Section 2.4:

This section should be limited to a review of previous studies which **are directly** applicable to Bayou Grande and its interaction with Pensacola Bay.

Responses in bold denote *changes*
to first draft.

Response:

Agreed. Previous studies not directly related to Bayou Grande or its interaction **with** Pensacola Bay have **been** deleted.

Comment 5 — Page 2-16, **Section 2.5:**

This section states that the average depth of the bayou **is 6** feet, but **Section 2.2, page 2-1,** states that the average depth is **9** feet. **Clarify** this point.

Response:

The average depth of Bayou Grande **is 6** feet. **Section 2.2, page 2-1 has been** corrected.

Comment 6 — Page 3-7, Section 3.2, "**Minimal** Impacting Sites":

Please check the results of previous studies conducted by Geraghty & Miller (1984 & 1986) for additional information **on** some of these sites. Several wells **may** have **been** installed to monitor a groundwater plume which originated at Site 31 and **was** believed to **be** migrating towards Sites 25 and 27 and the small **arm** of Bayou Grande.

Response:

The Navy agrees "**minimal potential to impact**" **is vague.** The sites **potential to impact Bayou Grande will** be evaluated during Phase I.

Comment 7 — Pages 3-11 through 3-12, Table 3-2:

The contents **of** these *two* pages appear identical. **Please** check and **correct as needed.**

Response:

Page 3-12 has **been** deleted.

Comment 8 — Pages 5-3 through 5-4, **Figures 5-1A and 5-1B:**

- A. In conjunction with comment 19. In the first group of **comments** (applicable to both the Bayou and Bay), use **data** from the USEPA Region IV Environmental Services Division, Environmental Compliance Branch's July **1992** field investigation at **NAS** Pensacola to help focus the sampling investigation in the Bayou.
- B. According to these figures, 10 **total** water quality stations **are** planned. Since water quality measurements will **be** taken at these stations during the 8 surface water sample collection events, the proposed deployment of continuous water quality monitoring instruments at **all** 10 stations may not **be** necessary. EPA recommends that these instruments **be** deployed **at** a subset of the **total** water quality stations, to obtain information about water quality fluctuations over time.

Response:

- A. Since the Navy was not allowed to take split samples during the July 1992 ESD Field Investigation, the data is not acceptable to the **Navy** for RI work. Additionally, the results of the RI will **be** used to perform a **baseline** risk assessment for human and ecological health purposes **as** recommended in the 1992 ESD investigation.
- B. Total Water **Quality** stations will be deployed at a subset of the originally proposed locations. The locations **are** illustrated in Figures 5-1A and 5-1B.

Comment 9 — Page 5-5, Paragraph 2:

The most contaminated ground water that discharges into Bayou Grande appears to **be** located in the vicinity of Sites 1 and 11. The following additional groundwater **sampling** locations proximate to these sites **are** therefore recommended:

- Site 1: Sample existing wells **GM42, GM41, GM43, GM04 and GM40**. Surface water samples should be collected from the Bayou adjacent to these well locations.
- Site 11: Sample existing well **GM26** and proposed Phase II wells **15, 10, 6, 2 and 1**. **To** determine if groundwater discharging from OU10 is adversely impacting the Bayou, temporary well points should be **installed** near proposed intermediate well 12 and north **of this** location opposite proposed well **6** (downgradient of the former sludge drying **beds** at OU10).

Responses in bold denote changes
to first draft.

Response:

The monitoring wells at Site 1 and 11 **will be** sampled **as** part of the site-specific investigation. The **data** obtained from those investigations **will be used** to assess groundwater **quality** as it discharges into Bayou Grande.

Comment 10 — Page 5-9, Paragraph 3:

In the 4th sentence, add the word "months" before the phrase "of the year". **Also, "data sonde"** should be capitalized, since it is a trade name.

Response:

Agreed. The word "months" has been added to the phrase "of the year." Data Sonde has been capitalized.

Comment 11 — Page 5-10, Section 5.2.1, "Biota Sampling":

This section should be **similar** to the corresponding section in the Site 42 (Pensacola Bay) Work Plan. For example, sediment lithology data should **also** be used in evaluating the benthic macroinvertebrate **data**. In addition to the identification of contaminant indicator species, benthic macroinvertebrate community diversity and distribution should also be determined. Include the diversity and similarity indices and the biotic indices mentioned in the Bay Work Plan.

Response:

Biota samples will be collected for determination of diversity and similarity indices and biotic indices. See the response to USEPA Comment 8.

Comments Applicable Only to **OU 42** (Pensacola Bay) **Work Plan**:

Comment 1 — Page **2-5**, Paragraph **2**:

Discuss the deposition of the sediments that **were** dredged **from** Pensacola Bay during the latest dredging event and whether the sediments were tested to determine if they were hazardous waste.

Response:

The sediments dredged from Pensacola Bay **were** deposited at Site **14**. **Analytical** results were **summarized** in the Thompson **Engineering Testing** report entitled “A **Report** of the **Collection** and Analysis of Sediment, Water, and **Elutriate** Samples **NAS Turning Bash**” Thompson Engineering Testing, Inc. **(1984)**. The sediments were not classified **as** hazardous waste. Additionally, screening analyses of samples from Site **14 (E&E 1991)** did not indicate significant soil or groundwater contamination.

Comment 2 — Pages **2-13** through **2-15**, Section **2.4**, Facility-Specific Studies:

The locations of these previous sampling events relative to the locations of the **42** currently-**known** potential sources of contamination should be shown on some figure. Such **a** summary map would facilitate the identification of potential problem **areas**. It would **also** highlight **areas** for which little or **no data** exists, thereby aiding the investigator’s efforts to focus and direct future sampling events.

Response:

A figure will be included presenting the potential **sources** of contamination and the locations of previous Pensacola Bay sampling events.

Comment 3 — Pages **2-15** through **2-18**, Section **2.5**:

Please provide the distance and direction **from** **NAS** Pensacola to the City of Pensacola Main Street sewage treatment plant.

Response:

The City of Pensacola **Main** Street sewage treatment plant is approximately 3 miles northeast of NAS Pensacola. Other **NPDES** permittees will **also** be located **as** the **data** becomes available.

Comment 4 — Page 3-4, "Southeast Waterfront":

Clarify the boundaries of Site 2 with respect to Site 42 (e.g. distance along shoreline and distance into Bay). This is particularly important since the Sampling and Analysis Plan for Site 2 states that the western and easternmost portions of Site 2 **will be** incorporated into the Site 42 sampling investigations.

Response:

Agreed. A **figure** will be added to clarify the boundaries of Site 2.

Comment 5 — Page 3-7, "NAS Pensacola's Eastern Shore of Pensacola Bay":

Since the groundwater contaminants at OU 10 may discharge into the Bay, it would **be** more helpful (from an ecological perspective) to compare the groundwater contaminant concentrations found at OU 10 with Florida Surface Water **Quality Standards** for aquatic life (**FAC**, chapter 17-302).

Response:

Although comparing contaminant concentrations detected in groundwater with the Florida Surface Water Quality Standards (FAC, Chapter 17-302) may be helpful, it would be technically incorrect.

Comment 6 — Page 3-8, Paragraph 2:

Change "Sherman **Filed**.." to "Sherman Field.."

Response:

Agreed. "Sherman **Filed**" has been changed to "Sherman Field."

Comment 7 — Page 3-10, **Figure** 3-2:

Under "Primary Release Mechanisms" related to the 18 sites, "Fuel Pipeline/AST" should apparently read "Fuel Pipeline/UST" .

Responses in bold denote changes
to first draft.

Response:

Agreed. "Fuel Pipeline/AST" **has been** changed to "Fuel Pipeline/UST."

Comment 8 — Pages 5-3 through 5-5, Figures 5-1A, 5-1B and **5-1C**:

- A. In conjunction with comment 19, **in** the first group of comments (applicable to both the Bayou and the Bay), the attached copies of Figures **5-1A** and **5-1B** show **two areas** where the number of transects might be able to **be** halved (**i.e.** sample every other transect), based upon the locations of the land-based **sources** (**figure** 3-1) and the probable migration pathways into Pensacola Bay.
- B. According to these **figures**, **16** total water quality stations **are planned**. Since water quality measurements will be taken at these stations during the 8 surface water sample collection events, the proposed deployment of continuous water quality monitoring instruments at all 16 stations may not **be** necessary. EPA recommends that these instruments be deployed at a subset of the total water quality stations, to obtain information about water quality fluctuations over time.
- C. Also with regards to the proposed water quality stations, it is recommended that the stations be positioned close to permanent monitoring wells which have **been** installed near the coast whenever possible. **This** would **allow** comparisons of groundwater samples collected near the stations with the chemical and physical surface water conditions in the Bay. For example, the proposed water quality station north of OU10 could be repositioned to a location which is more proximate to nearby well **GM83**.

Response:

- A. **The sampling approach has been revised to better address migration pathways as discussed in the May 12 and 13, 1993 meeting. See the response to Comment 8 in the Common Site 40 and 42 USEPA comments.**
- B. The total water quality stations will **be** deployed at **a** subset of the previously proposed locations. Figures 5-1A, 5-1B, and **5-1C** have **been** revised accordingly.
- C. The total water quality stations were located at **regular** intervals along the NAS Pensacola shoreline. The distance offshore was selected to **minimize** the impact of point and non-point source discharges.

Responses in bold denote changes
to **first** draft.

Comment 9 — Page 5-6, Paragraph 2:

The most contaminated groundwater that discharges into Pensacola Bay appears **to** be located in the vicinity of Operable Unit **10** and Sites **14, 20, 38, 2** and **21**. The following additional groundwater sampling locations proximate to these sites are therefore recommended in order to better establish the degree of communication between groundwater and Bay surface water.

OU **10** (Sites **32, 33 & 35**): Sample existing wells **GM71, GM72, GM73, GM14** and **GM83** and collect surface water samples from the Bay proximate to these well locations. If possible, relocate the proposed water quality station just south of **OU10** so that it is adjacent to either existing well GM14 or proposed well 11 (for Site **14**).

Site **14**: Sample proposed wells 11 and **18** and compare the results to adjacent surface water samples from the Bay.

Site **20**: If a permanent well exists or is proposed for this site, it should be sampled and compared to the results for a surface water sample collected from an adjacent area of the Bay. If no permanent well exists, a temporary well should be installed and sampled at the site.

Site 38: Sample the two shallow proposed wells located on the south side of the site and compare the results to adjacent surface water samples from the Bay.

Site **2**: Install and sample a temporary well at or near this site to provide a baseline of the groundwater quality discharging into the Bay.

Site 21: Sample proposed shallow monitoring wells **20** and **41** and compare the results to adjacent surface water samples ~~from~~ the Bay.

Response:

The wells at OU **10**, Site **14**, Site **2**, Site **21** and Site **38** ~~will~~ not be resampled as part of the Site **42** investigation. The analytical data obtained ~~from each~~ of the site-specific investigations will be used to assess the groundwater quality as it discharges into the Bay. A temporary monitoring well will be ~~installed~~ and sampled at Site **20**.

Comment 10 — Page 5-9, Paragraph 3:

Clarify what is meant by "nearshore" (i.e. distance ~~from~~ shoreline, surface water ~~column~~ depth).

Response:

Surface water samples **will** be collected at locations where the detected concentrations of the sediments exceed the background or trigger levels **in** standing bodies of water (i.e., wetlands) and not in dynamic environments (i.e., Pensacola Bay and Bayou Grande). Surface water ~~samples~~ will be analyzed for TAL/TCL parameters,

Comment 11 — Page 5-10, Paragraph 3:

"**data** sonde" should be capitalized, since it is a trade name.

Response:

Agreed. "**Data** Sonde" has been capitalized.

Comment 12 — Page 5-11, Paragraph 1:

Change "**pollution** diversity" to "community diversity".

Response:

Agreed. "Pollution diversity" has been **changed to** "community diversity."

Responses in bold denote *changes*
to first draft.