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NAS PENSACOLA

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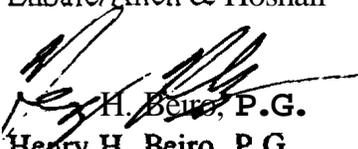
**RE:** Remedial Investigation Report for NAS Pensacola Site 38  
Contract # N62467-89-D-0318/059

Dear Ms. Townsend:

On behalf of the Navy, **EnSafe/Allen & Hoshall** is pleased to submit one copy of the errata for the Remedial Investigation Report for Site 38, at Naval Air Station Pensacola, Florida. The **filing instructions** detail how to incorporate the errata into this report. Also, a final response to comments is provided to facilitate the review process. If you should have any questions or need any additional information regarding this document, please do not hesitate to call me.

Sincerely,

EnSafe/Allen & Hoshall

  
Henry H. Beiro, P.G.

Henry H. Beiro, P.G.  
Task Order Manager

Enclosure

**cc:** Bill Hill, SOUTHNAVFACENGCOM - 2 copies  
Ron Joyner, NAS Pensacola - 2 copies  
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**SITE 38 REMEDIAL INVESTIGATION REPORT  
NAS PENSACOLA, FLORIDA  
RESPONSE TO EPA REGION IV COMMENTS**

(Gena Townsend comments December 4, 1996)

**GENERAL COMMENTS**

**COMMENT:**

1. Section 1.0, Page 1-1, Paragraph 4, Bullet 1, states that the objectives of the RI are to 'determine the **source**, nature and to the degree **practical** for an **acceptable FS**, the **extent** of **soil** and **groundwater** contamination.' However, **this statement** is unclear **and** does not adhere to **EPA guidance**. **EPA guidance** clearly describes the objectives of an RI report, and the text **should** be revised **accordingly**.

**RESPONSE:**

The Navy disagrees **based** on current EPA OSWER Directive 9335.3-01, page 1-7 which states; "The RI continues to serve **as** the mechanism for collecting **data** for site and waste characterization and for conducting treatability testing **as** necessary to evaluate the performance and cost of the treatment technologies and support the design of selected remedies." The statement in the RI **may** not be the rote "**nature and extent**" statement **usually** seen, but it does meet the intent of the **guidance**.

**COMMENT:**

2. Section 7.0, Page 7-1, Paragraph 3, indicates that the **State** of Florida **and/or** USEPA risk-based concentrations, general **guidance** concentrations, and **promulgated standards** have **been** defined **as** PRGs for **this** investigation. According **to this statement**, PRGs **appear to** be a screening value for COPC because the **risk-based** concentrations **are** used. Therefore, the COPC selection should be presented in the section **on** the **nature** and extent of **contamination**. In addition, the PRG, **as** the **screening** criteria, should **also** include the background concentrations (reference **concentrations**). The **report** should be **reorganized** accordingly, and

the background concentration should be included in the PRGs for inorganics in soil and groundwater.

**RESPONSE:**

The Navy disagrees with reorganizing the document. The reorganization suggested is not consistent with previously produced reports for NAS Pensacola nor with past EPA requests to keep COPC selection in the risk assessment section of the report. PRGs were defined to offer a preliminary understanding of contaminant magnitude. The NAS Pensacola reference concentrations are included in the PRGs as the primary screening criteria for inorganics in soil and groundwater. Text has been modified to help clarify this misunderstanding.

**COMMENT:**

3. Section 7.0, Page 7-9, Paragraph 2, states that a detected inorganic will be discussed in the following sections relative to reference concentrations only when a specific inorganic exceeds PRG or when no PRG is available for it. However, this approach does not appear to be logical. The detected inorganic should be compared to the reference concentration first, and then to the PRG only when it exceeds the reference concentration. It has been noted that the values of the PRGs for a number of inorganics, such as As, are lower than the reference concentrations. Normally, the reference concentrations should be used as the first screening criteria unless the difference between the PRGs and the reference concentration is significant (the value of the reference concentration is unusually high). The approach regarding the use of reference concentration and the PRGs for the inorganic screening process may need to be reconsidered.

**RESPONSE:**

The Navy agrees and has modified the RI text and tables throughout the document as required to incorporate this approach.

**COMMENT:**

4. Section 7.0, Figures 7-5 through 7-42, show Buildings 71 and 604 study area soil and groundwater sample parameters exceeding PRGs. However, the figures do not clearly depict the migration of the plume. Isoconcentration lines contouring the horizontal distribution of contamination and the most widely distributed contaminant should be developed for groundwater.

**RESPONSE:**

The "plume" mentioned is not supported by the data collected. Generally, most individual contaminant detections are sporadic and would not define an acceptable "Plume". The Navy agrees however that the distribution of contaminants should be graphically exhibited so as to facilitate the determination of remedial alternatives. The Navy has provided additional figures (7-29 and 7-40) which illustrate potential groundwater contamination plumes.

**COMMENT:**

5. Section 7.0, Page 7-75, Figure 7-29, shows Building 71 study area total VOC concentrations in shallow groundwater samples with the shaded areas indicating the approximate extent of groundwater contamination based on PRG exceedances. However, it is difficult to determine the extent of groundwater contamination with inadequate wells around areas with PRG exceedances. There should be more wells placed around areas with PRG exceedances to delineate the plume.

This comment also applies to Figure 7-40. In addition, the term "total VOC" in this figure is inappropriate. Only specific VOCs should be referenced.

**RESPONSE:**

The Navy disagrees. Specific VOC concentrations are presented in Figures 7-11, 7-18, 7-23 through 7-28, 7-33 through 7-39 and 7-42. The total VOC figures are presented in support of the FS. When and if volatile organics are remediated, they will be remediated based on their like chemical characteristics, such as volatility. The remediation process will remove numerous VOCs, not single species. In this respect it is useful to understand which areas have general VOC contamination regardless of chemical speciation.

**COMMENT:**

6. Section 7.2.3, Page 7-1 10, Paragraph 2, Sentence 1, **states** that the investigation at Site 38 has adequately assessed the **nature** and extent of **contamination** for use **in** developing the **FS** and for preliminary remedial design alternatives. In **assessing** the **nature and extent** of contamination for the soil and **groundwater, soil** and groundwater samples **were** taken. The sampling results **are** supposed to be used to clearly **delineate** the extent of contamination for the development **of** the **FS**. However, the extent of contamination **has** not **been** clearly delineated because an inadequate amount of soil and groundwater samples were collected. The decision to do a FS **can** only be made after completion of a **risk** assessment. Therefore, a conclusion regarding the **FS can** not be made. Any discussion regarding the **FS** should be presented in the **final** section of this report.

**RESPONSE:**

The reviewer is not clear in exhibiting how the extent of contamination was not **assessed**. The Navy agrees the reference to **an FS** is premature and **has** removed the statement on Page 7-1 10.

**COMMENT:**

7. Section 12, Page 12-1, Paragraph 1, **states** that if groundwater remediation is determined necessary, more quantifiable hydrologic testing should be **performed as part of a predesign** phase. However, **Section 7.2.3** states that the investigation of soil and groundwater at Site 38 **has** adequately assessed the **nature** and extent of **contamination at** Site 38 for **use** in developing the FS. The statement in Section 7.2.3 contradicts the statement in the conclusion of the RI **report**. If the nature and extent of contamination in groundwater **has** been adequately assessed, then there would be no need for hydrologic testing. The purpose of the RI is to delineate the extent of contamination **so that** the boundaries **can** be determined for calculating the feasibility of a clean-up; however, **this RI has** not clearly delineated the boundaries **as** implied in the text conclusions.

**RESPONSE:**

The hydrologic testing will provide specific information about the aquifer's physical properties necessary to help screen the site for remedial alternatives. The delineated extent of contamination refers to chemical constituents not aquifer properties.

## SPECIFIC COMMENTS

### COMMENT:

1. Section 1.0, Page 1-1, Paragraph 2, Sentence 3.  
The text states that contamination in the soil is underlain by concrete. However, the concrete is not below but above the soil. Consequently, the soil cannot be underlain by the concrete. The text should be revised accordingly.

### RESPONSE:

Actually, the soil sampled is underlain by concrete. However, this text is not appropriate for this section and has been deleted.

### COMMENT:

2. Section 2.1.1, Page 2-5, Figure 2-2.  
Figure 2-2 shows the study areas on Site 38. Although there are sewer lines depicted on the figure, these lines are not pronounced. The sewer lines should be more prominently reflected on the figure.

### RESPONSE:

The Navy has made the suggested change to Figure 2-2.

### COMMENT:

3. Section 2.1.2, Page 2-9, Figure 2-3.  
Figure 2-3 shows the drainage trench system, Building 71, and surrounding areas. However, the figure does not have a legend. A legend should be added to the figure.

**RESPONSE:**

The Navy has made the suggested change to Figure 2-3.

**COMMENT:**

- 4. Section 2.1.2, Page 2-13, Paragraph 3, Sentence 4.  
The text *states* that silver, cadmium, mercury, and lead were detected in background samples. However, Table 2-1 shows additional contaminants found in the background. The text should explain why the additional contaminants were not mentioned.

**RESPONSE:**

Because the results of the previous investigation have no bearing in this RI, this text has been deleted for clarity.

**COMMENT:**

- 5. Section 2.1.2, Page 2-15, Table 2-2.  
Table 2-2 makes reference to background soil versus detected concentrations for Building 71 and tabulates the concentrations for Bays 3, 4 and 6 and the Apron. However, Figure 2-4 does not identify the apron where these areas are depicted. Figure 2-4 should be revised to identify the Apron that is referred to in Table 2-2.

**RESPONSE:**

The Navy has revised Figure 2-4 identifying the apron.

**COMMENT:**

6. Section 2.2.1, Page 2-21, Paragraph 1, Sentence 2.

The text **states** that the construction of a fuel line along **Radford Boulevard** will be discussed in the RI report. However, there is no discussion on the **construction** of the fuel line. **This** discrepancy should be corrected, and the text should be **revised** accordingly.

**RESPONSE:**

The Navy has **modified** the text in Section **4.3 Contaminant Source** Survey to include Section **4.3.4 Jet Fuel Pipeline** and deleted the **text** concerning the **jet** fuel line in Section 2.2.1 **as this** is inappropriate in **this** context.

**COMMENT:**

7. Section 2.3.1, Table 2-3.

Table 2-3, "Ecology and Environment, Inc. Screening Results for Soil, Site **38** Associated Sewer Line", shows different sampling locations at the site; however, the locations **are** not identified on a map. The sampling locations should be identified on a map.

**RESPONSE:**

The Navy directs **the** reader to Figure 2-5 for the locations **and has** modified Table 2-3 to include the Ecology and Environment sample identification for locations sampled in **this** report.

**COMMENT:**

8. Section 2.3.1, Page 2-33, Figure 2-7.

Figure 2-7 identifies Building **604** operations, but the boundaries **are** not defined on the figure. The boundaries **of** Building 604 should be clearly outlined on the **figure** to distinguish this building from the others.

**RESPONSE:**

The **Navy** has bolded the outline of Building **604** on Figure **2-7**.

**COMMENT:**

- 9. Section **2.3.1**, Page **2-37**, Table **2-7**.  
Table 2-7 identifies hazardous **materials** stored in Building **609**. However, **the title** of the table is incorrect. The title of the table should be **corrected** to reflect **Building 604 instead of Building 609** (see page 2-31, paragraph 0, sentence 3).

**RESPONSE:**

The Navy has made **this** typographical change.

**COMMENT:**

- 10. Section 2.3.2, Page 2-39, Paragraph 1.  
The text states that twelve soil borings were **advanced** and completed **as** monitoring wells and **that** the analytical **results are** provided in **Appendix C**. However, **the figure** in Appendix **C** shows 11 wells **instead** of 12. Therefore, the discrepancy **between** the text **and figure** in Appendix C should be resolved.

**RESPONSE:**

The well completion log for MW-7 **was** not included in the file provided to the Navy. In addition the location of **this** boring/well is **unknown**. However, data for **12** groundwater samples is included in Appendix C.

**COMMENT:**

11. Section 2.3.2, Page 2-39, Paragraph 1, Sentence 1.  
The text **states** that **an underground** storage tank (**UST**) next to Building **604** and in Figure 2-2 was investigated. However, Figure 2-2 **does** not outline the location of the **UST**. The figure should be revised to depict the **UST**.

**RESPONSE:**

Figure 2-2 has been **modified** to include the **approximate** location of the **UST requested**.

**COMMENT:**

12. Section 2.4.3, Page 2-41, Figure 2-8.  
The **figure** shows the existing **storm** drainage **system** at the site. **However**, the **figure** does not distinguish the storm sewer line **from** the sanitary sewer line. The **figure** should be revised to show a distinction between the storm sewer line and the sanitary sewer line.

**RESPONSE:**

Figure 2-8 presents the layout of the storm **sewer system**. The Navy directs the reader's attention to Figure 2-9 for the sanitary sewer **system**.

**COMMENT:**

13. Section 4.5.2, Page 4-15, Paragraph 1, Sentence 2.  
The text **states** that volatile emissions above **reference** concentrations were not **measured** at any sampling locations. However, **the text** does not **specify** the reference concentrations. The text should be revised accordingly.

**RESPONSE:**

The Navy believes **this sentence** to be **incorrect and has** deleted it from the text on page **4-15**.

**COMMENT:**

14. Section **4.5.4**, Page **4-19**, Paragraph 1, Sentence 1.  
The text references Figure 4-1 regarding soil-gas samples. **However, soil-gas samples are** found in Figure **4-2**. The text should be **revised** accordingly.

**RESPONSE:**

The Navy **has** made the editorial **correction** to page **4-19**.

**COMMENT:**

15. Section 4.5.4, Page **4-21**, Figure 4-3.  
The **figure** shows the **preliminary** survey **total VOCs** for Site 38. **However, there are no units** for the concentration of **VOCs**. The **figure** should add a note specifying the **units** of concentration. In addition, **giving a value for total VOCs is inappropriate**.

**RESPONSE:**

The Navy disagrees. The **units are** not quantifiable in **that** the **volume** of gas is **not** typically **measured** while screening with a PID. The **figure is intended to present a relative soil gas value representative of total VOCs**. The Navy provides **this data as a screening tool for soil boring and well placement**. The **subsequent** analysis of soil and groundwater will confirm or deny the total volatiles and specific **compounds present**. The **reader is directed to** the modified text on page **4-20, first paragraph**, clarifying the **purpose of this figure**.

**COMMENT:**

16. Section 4.5.4, Page 4-23, Paragraphs 3 through 5.  
The text **discusses** the groundwater results in the Soil-Gas Survey (Section 4.5.4, page 4-15). However, a separate section for **groundwater results** should be **added**.

**RESPONSE:**

The Navy agrees. Groundwater screening **results are discussed in Section 4.5.5.**

**COMMENT:**

17. Section 4, Page 4-25, Table 4-3.  
Table 4-3 presents groundwater **screening results by showing highest/lowest detection, mean value, and frequency of detection.** However, for benzene, C-1, 2-DCE, CHCl<sub>3</sub>, TCE, and PCE, it is unclear how their mean values are calculated. For example, in the table, the highest detection of benzene is **593 µg/L** with a **frequency** of 1/11. **Based** on these **data**, the mean value should be **593 µg/L**. However, the **mean** value **shown** in the table is **53.9 µg/L**. **The** text should explain how the mean values for the above compounds are calculated.

**RESPONSE:**

Non-detects were assigned a value of **zero**. For example, the **mean** for **benzene** is represented by: **593/11 = 53.9**. Please note **this is a field GC being used for field screening.** **A note has been added to Table 4-3 explaining the calculation of the mean.**

**COMMENT:**

18. Section 4.5.4, Page 4-26, Paragraph 1, Sentence 1.  
The text states that groundwater **collected** at Location 638 had the **greatest frequency** of chlorinated compound detections. However, according to the **results** in Table 4-3, **the term** "greatest frequency" implies a comparison. For example, PCE and CHCl<sub>3</sub> detected at Location 638 have a frequency of detection **as** 1/11 which **is** only greater than the nondetect. The text should be revised to use appropriate words to replace the word "greatest".

**RESPONSE:**

The Navy has edited the text on page 4-25.

**COMMENT:**

19. Section 5.7.1, Page 5-42, Paragraph 2, Sentence 2.  
The text states: "All level IV groundwater samples were analyzed for pesticides, but only 21 of the 73 soil samples because pesticides were anticipated to be present only from application, not disposal, mixing, etc." However, this statement is unclear and grammatically incorrect. The sentence needs to be rewritten.

**RESPONSE:**

The Navy has edited the text on page 5-42.

**COMMENT:**

20. Section 6.1.3, Page 6-10, Table 6-1.  
Table 6-1 tabulates soil physical properties. However, for sample boring Number 38S43, the superscript "b" is missing. The superscript "b" should be added to the sample boring number.

**RESPONSE:**

The Navy has made the typographical correction to Table 6-1.

**COMMENT:**

21. Section **6.3**, Figures 6-9 through 6-11.

The figures show the **total** cyclic potentiometric **surface** at 9 a.m., noon, and 3:00 p.m. Although there is a legend for this **figure**, the legend is missing the symbol for the shoreline for Pensacola Bay. The symbol for the shoreline for Pensacola **Bay** should be added.

**RESPONSE:**

The shoreline **has been** added to the **Figures 6-9 through 6-11**.

**COMMENT:**

22. Section 7.0, Page 7-5, Paragraph 2, Sentence 1.

The text states that analytical **results** for background soil and groundwater samples **are** in Appendix G. However, Appendix G does not present these background **analytical results**. The text should be revised accordingly.

**RESPONSE:**

Appendix G is a typographical **error**, the correct **appendix** reference is Appendix K. The correction **has** been made to the text.

**COMMENT:**

23. Section **7.1.1.1**, Page **7-15**, Figure **7-5**.

This **figure** shows **Building 71 study area** inorganic parameters **exceeding** PRGs in surface soil. The **figure** has a table showing the parameters, concentration and PRGs. However, it is not clear what the table is intended to show. The table should be revised for clarity. In addition, the **symbols** for the elements are incorrect.

**RESPONSE:**

The Navy **has** made the **editorial changes**. The table was **intended** to supplement the legend. **To** avoid confusion the table has been removed from Figure 7-5. Common element **symbols** have been corrected.

**- COMMENT:**

**24.** Section 7.1.1.1, Page 7-17, Paragraph 0, Sentence 9.

The text states that three **borings: 38338, 38339, and 38340** were **analyzed for** hexavalent chromium (Figure 7-4). However, these **borings are** not **shown** on Figure 7-4. The **figure** should be revised to show **the missing borings**.

**RESPONSE:**

The **correct figure** reference is Figure 7-5. The **locations** of these **borings** have been verified.

**COMMENT:**

**25.** Section 7.2.2.2, Page 7-103, Paragraph 2, Sentence 2.

The text states that **exceedances are** coincident with **halogenated** aliphatics in **the** shallow groundwater. However, aliphatics is misspelled. The misspelling should be corrected.

**RESPONSE:**

The Navy **has** made **the** spelling correction.

**COMMENT:**

26. Section 9.2.1.1, Page 9-3, Table 9-2.

The table shows the constituent characteristics based on chemical and physical properties. However, in the table notes, 'g/cm' is incorrectly written. The notes should reflect 'g/cm<sup>3</sup>'.

**RESPONSE:**

The Navy has ~~made~~ the typographical change to Table 9-2.