



ENSAFE INC.

ENVIRONMENTAL AND MANAGEMENT CONSULTANTS

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July 30, 2004

Commander
Attn: ES31 Mr. Bill Hill
SOUTHNAVFACENGCOM
2155 Eagle Drive
North Charleston, South Carolina 29406

Subject: Delivery of Report, Final Remedial Investigation Report Addendum
CTO-059, Categories 2 and 3, Naval Air Station Pensacola, Florida
Contract # N62467-89-D-0318, CLEAN II

Dear Mr. Hill:

EnSafe Inc. is pleased to submit one printed copy of Volume I of the Final Operable Unit 2 (Sites 11, 12, 25, 26, 27 and 30 Remedial Investigation Report Addendum for the Naval Air Station Pensacola. Also enclosed are two "Living CDs" containing supporting documents for the Operable Unit 2 decision process and an electronic copy of the RI Addendum. Responses to EPA and FDEP comments are also enclosed. Volumes II, III, and IV did not change from the previously submitted versions and were not reproduced. However, errata cover pages for those volumes are provided with the enclosure.

If you should have any questions or need any additional information, please let me know.

Sincerely,
EnSafe Inc.

Allison L. Harris
Task Order Manager

Enclosures: (Operable Unit 2) Final RI Report Addendum, Volume I, NAS Pensacola

cc: Ms. Katie Stohs, Code ACQ22 SOUTHNAVFACENGCOM without enclosure
Mr. Greg Campbell, NAS Pensacola — 2 printed and 2 CDs
Mr. Greg Fraley, USEPA Region IV — 1 printed and 1 CD
Ms. Tracie Vaught, FDEP — 1 printed and 2 CDs
Mr. Tom Dillon, NOAA — 1 printed and 1 CD
Mr. Greg Wilfley CCI — 1 CD
Mr. Gerry Walker, TetraTech NUS — 1 CD
EnSafe Inc. CTO-059 without enclosure
EnSafe Inc. Knoxville file — 1 CD
EnSafe Inc. Pensacola — 1 CD

**Navy Response to FDEP Comments on the Final OU2 Remedial Investigation Report
Addendum, NAS Pensacola
April 2004**

FDEP Comment 1:

Figures which demonstrate Soil and groundwater exceedences do not clearly state what unit of measurement is used for the contamination concentrations. Please clarify by putting the unit of measurement in the legend.

Response:

Comment is noted and is addressed in the Final.

FDEP Comment 2:

This report refers to several instances where bulk soil samples were collected and sampled for SPLP. When the bulk soil sample was analyzed it did not have an exceedence for a certain contaminant of concern (COC) but the same COC was found in the groundwater. This is going to happen when bulk samples are used when sampling for SPLP. Please clarify the procedure used when collecting the bulk sample(s). Explain how many samples were taken per sample and how diluted the sample was prior to submitting for analysis.

Response:

There may be some confusion with regard to the term "bulk sample" used in the report. All "bulk" soil samples were collected from a specific two-foot interval per the CSAP for NAS Pensacola, with the last two digits of the sample ID designating the total depth of collection. From each two foot interval targeted for sampling, Cores were used to separate a small portion for VOC analyses, and the remaining material was composited. This was then split into two equal parts –one was designated the "bulk" sample and was sent to the lab for totals analysis, and the other was sent to the lab for SPLP analysis. This methodology was incorporated in the plan for resampling that was reviewed and approved by the Tier 1 team. Clarification has been added to the soil sampling methodology in the final addendum.

FDEP Comment 3:

When discussing the groundwater to surface water discharges please make sure that site 41 is referenced as well.

Response:

Site 41 are the NASP wetlands; wetlands included in this Site (5A and B, 6, and 64) are specifically cited in the addendum.

FDEP Comment 4:

Page 11, 5th paragraph: The questions that states, "*Are there continuing problems with the groundwater to surface water pathway?*" needs to be further addressed. Monitoring Wells 30GS123, 30GI111 AND 30GS111 have metals contamination in the groundwater and they are located adjacent to Wetland 7. This could serve as a potential pathway from groundwater to surface water.

Response:

Comment is noted and is addressed in the final; these wells actually lie adjacent to Wetlands 5B and 6.

FDEP Comment 5:

Page 40, 3rd paragraph, Conclusions on SVOAs Section: Wetland 5B needs to be added to this paragraph due to metals contamination found in the groundwater in MWs 30GI111 and 30GS111.

Response:

Comment is noted and is addressed in the final.

FDEP Comment 6:

Page 41: Considering Natural Attenuation as a remedial alternative for this site can not be done per 62-780.690 F.S. which states:

"Fate and transport models as defined in Rule 62-780.610, F.A.C., may be utilized to support the appropriateness of natural attenuation with monitoring. Natural attenuation with monitoring is allowable provided the following criteria are met: (c) Contaminants present in the groundwater above background concentrations or applicable CTLs are not migrating beyond the temporary point of compliance or migrating vertically, which may contaminate aquifers or surface water resources or result in increased site rehabilitation time."

The groundwater contamination found in the monitoring wells adjacent to surface water bodies, (Wetlands 7, 6, and 5A) clearly demonstrate a groundwater to surface water discharge. This report states that this discharge is taking place for metals, volatiles and Semi-volatiles. The following monitoring wells are located adjacent wetlands 5B, 6, and 7 and exceed Florida's Surface Water Standards for metals:

MW11GI10
MW11GS09
MW11GS13
MW30GS111
MW30GI111
MW30GS18
MW20GS126

The following monitoring wells are located adjacent to wetland 5B and exceed Florida's Surface Water Standards for Semi-Volatiles:

MW30GI111

The following monitoring wells are located adjacent to wetland 5B and exceed Florida's Surface Water Standards for Volatiles:

MW30GS111
MW30GI111

Response:

Comment is noted and is addressed in the Final. As the RI Addendum does, the FS will recognize that deleterious groundwater to surface water discharges are occurring, and will take that into account in the evaluation of appropriate remedial actions. This will be re-iterated in the RI addendum. As a seed for initial thought, some combination of remedies may be employed for best results at this site; for example, proactive remediation on the plume frontal edges near the groundwater/surface water interface, and natural attenuation or enhanced natural attenuation on the internal portions of the plumes.

FDEP Comment 7:

Page 41: The department concurs with the recommendations:

To incorporate this information into a Feasibility Study for Operable Unit 2.

The Department concurs with addressing the areas adjacent to MWs 30GS111 and 30 GI111 as a separate site. However, due to lack of information pertaining to groundwater contamination this report should state that the area to be assessed is adjacent to Wetland 6 not located to the west of Wetland 6.

Response:

Comment is noted and is addressed in the Final.

FDEP Comment 8:

Figure 5: Cannot find MW11GI114 that is adjacent to the northern edge of Wetland 6 on this figure, please correct.

Response:

You are referring to MW11GI14; it is located at the northern terminus of Wetland 6 on the figure.

FDEP Comment 9:

Figure 6: Soil sample location LF-12 has a sample ID of 011LSF1206 and so does 11GI15, this needs to be corrected.

Response:

Comment is noted and will be addressed in the Final.

FDEP Comment 10:

Table 4: In the body of the table under the surface water standards an asterisk is shown next to some of the standards and it is not explained in the footnotes, please correct.

Response:

Comment is noted and will be addressed in the Final.

FDEP Comment 11:

Table: I could not find monitoring well MW 012GS00803 on Figure 5, please correct this error.

Response:

The well is 12GS008, and it is on the western side of Site 12 in Figure 5. The 03 at the end of the sample ID refers to the third time it has been sampled.

FDEP Comment 12:

Table 13 and Figure 4: I could not find MW 11GS47 on Figure 4 please correct.

Response:

Table 13 provides groundwater results, but Figure 4 shows soil locations. 11GS47 is shown on the northern end of Site 11 in Figure 5 — groundwater sampling locations.

FDEP Comment 13:

Tables 14 and 18: I like the summarized data in these tables. However, I do not know if this data is referring to groundwater, soil or leaching data, please clarify.

Response:

These tables refer to groundwater data. Comment is noted and will be addressed in the Final.

**Navy Response to USEPA Comments on the Final OU2 Remedial Investigation
Report Addendum, NAS Pensacola
April 2004**

USEPA Comment 1:

Background information is not developed and presented clearly in this document and would be a helpful comparison for data interpretation and understanding of operable unit contamination, fate, transport and extent. Please expand on the area background and history as well as the geology so the reader can build a conceptual understanding of a site model.

Response:

The intent of the RI Addendum was to be a companion document to the RI, not a stand-alone document. The requested information is included in the original RI. The original RI will be included on a "Living CD" that will contain all supporting documentation for OU2; this CD will be enclosed with submittal of the Final Addendum.

USEPA Comment 2:

Several comparisons are briefly made to 1993 and 1995 data. First of all, the comparisons should be expanded, and shown in mapped figures in order to present changes in previously identified contaminant plumes. This will show changes in plume location and may show any possibility of changes in direction or fate and transport over ten years. Secondly, the text points out the accuracy of 1995 data over the 1993 data, but does not build on this point in data analysis. Please revise text to incorporate these concerns.

Response:

A comparison between mapped extents should be possible through a side-by-side review of the Addendum compared to the RI. The original RI will be included on a "Living CD" that will contain all supporting documentation for OU2; this CD will be enclosed with submittal of the Final Addendum. Expansion of the text to explain the increased accuracy of 1995 data over 1993 data will be included in the Final Addendum.

USEPA Comment 3:

Please include section on groundwater elevations in which recharge to surface locations are evaluated and identified clearly in a mapped figure. This will help to show possible transport pathways for groundwater contamination.

Response:

Surface water elevations were not collected during the fieldwork execution of the RI Addendum. However, they were collected during the execution of the original RI. Additionally, extensive groundwater and surface water elevation data were collected during the data collection phase of the Navy's effort to construct a base-wide numerical groundwater model. Finally, all data collected during the Addendum show the typical patterns in the piezometric surface of gaining stream conditions. All of this data indicate that groundwater heads remain substantially above surface water heads during mean tide conditions. The only time that this condition might reverse is under extreme storm conditions, such as a hurricane surge. From an assessment perspective for remediation evaluation, it is a

conservative assumption, and one that should be pursued based on all data collected to date, that all groundwater discharges to proximal surface water bodies.

SPECIFIC COMMENTS:

Comment 1:

Page 1, Section 1.0, paragraph 2: Text suggests that Figure 1 shows location of OU2. Figure 1 is actually a layout for OU2. Please include a figure to show location of OU2 within base limits and nearby land/water features. This presentation is important for the reviewer to gain a visual concept and understanding of the area before presenting the site layout. Please show the actual boundaries of OU2.

Response:

The intent of the RI Addendum was to be a companion document to the RI, not a stand-alone document. The requested information is included in the original RI. The original RI will be included on a "Living CD" that will contain all supporting documentation for OU2; this CD will be enclosed with submittal of the Final Addendum.

Comment 2:

Page 3, Section 2.0: Section is meant to actually provide a summarized background, historical use and site geology for the operable unit and its encompassing sites in order to give the reviewer background knowledge of the area before presenting data. The reference to the previous RI report from 1995 is not sufficient, since it is not easily accessible for the reviewer. Please expand this section to include a background history for each site, area geology and historical groundwater flow, as well as results and figure-aided plume identification from the previous 1993 and 1995 data.

Response:

The intent of the RI Addendum was to be a companion document to the RI, not a stand-alone document. The requested information is included in the original RI. The original RI will be included on a "Living CD" that will contain all supporting documentation for OU2; this CD will be enclosed with submittal of the Final Addendum.

Comment 3:

Page 4, Section 3.2, paragraph 2: Text states that "four locations previously scheduled for groundwater resampling had been demolished. As a result, four new monitoring wells were installed to obtain the groundwater samples in those locations. These are designated as 11GS16, 12GS17, 25GS10, and 30GS175." The demolished wells are never identified, and when data is presented in tables, the corresponding data from demolished wells are never paired with data from the new replacement well. Since these were replacements, a comparison of these data should be included in text and tables. In consequence, data from each of the new wells would be included next to the original well exceedences from 1993 and 1995. For instance, is seemed there are no metal exceedences in 2003 for wells 12GS17, 25GS10, and 30GS175, since they are not included in table 4. It would be of interest to show

this next to the original well exceedences in which a decreasing trend in concentration would result-if this is, in fact, the case. Please include.

Response:

This information was misstated in the draft version of the Addendum. Actually only two wells were discovered to be demolished (25GS04 and 30GS029, replaced with 25GS10 and 30GS174 respectively). Historical data from the demolished wells have been added to the tables and incorporated into the text. The other two new wells (11GS16 and 12GS17) were installed to monitor new areas where it was felt there were data gaps.

Comment 4:

Page 8, Section 5.0, paragraph 1: Text states, "Only current exceedences were mapped." All figures in this presentation would benefit from expanding the small exceedence tables in each figure to include previous exceedences. This would provide a better understanding of the area exceedences. It would help to show if there are changes in plume locations, as well as show increasing and decreasing trends in a conceptual site model. Please include.

Response:

The intent of the RI Addendum was to be a companion document to the RI, not a stand-alone document. The requested information is included in the original RI. The original RI will be included on a "Living CD" that will contain all supporting documentation for OU2; this CD will be enclosed with submittal of the Final Addendum.

Comment 5:

Page 11, Section 5.1, Feasibility Study Question 1: Text states, "There has been a downward trend in soil contamination with respect to metals." This should be modified to include, "with the exception of chromium measured at location 011S001506."

Response:

This statement is modified per the comment.

Comment 6:

Page 11, Section 5.1, Feasibility Study Question 2: Text states, "decreases are noted for locations ..." This is not true, as 27GS10 shows increase in cadmium, 30GS27 shows increase in chromium, 30GS103 shows increasing lead. Please revise. Text goes on to note increases in only 3 wells. It should also include cadmium for 11GS15, Cadmium and lead for 11GS07, cadmium for 12GS08 and 12GS09, lead for 30GS06 and 30GS103. Barium slightly increases for 11GS13. Also increases from 1995 concentrations were noted for cadmium in 12GS10, chromium in 30GS27, and barium in 11GS13, but these exceedences were lower than in 1993. Since page 2, section 1.2, paragraph 1 suggests that the 1995 values are more accurate, this distinction is important to include.

Response:

Again, these statements were intended to provide a generalized status of the contamination in groundwater, and used the number of exceedances per location to form those statements. To eliminate future confusion and to aid in the interpretation of the data, the Final Addendum will elaborate on 1) the number of locations that exhibited fewer or higher number of exceedances, and 2) for those locations that exhibited an exceedance in 2003, whether those exceedances have gone up or down from previous sampling. This should adequately address the above comment.

Comment 7:

Page 21, Section 5.4, Feasibility Study Question 2: The distinction between changes in concentrations between the 1993 and present vs. 1995 and present data is made, but it is not noted whether the difference from 1995 to present data is more valid due to the accuracy of testing in 1995 vs. 1993. Please include.

Response:

The data from 1995 and the data from 2003 are considered to be equally valid. The USEPA and FDEP-approved comprehensive Sampling and Analysis Plan included the bailer methodology for sample collection in 1993, but was changed to incorporate low-flow sampling techniques for the 1995 and later samplings.

Comment 8:

Page 39, Section 6.0, Metals, paragraph 1: Text note two exceedances in nine soil samples. Chromium exceeds criteria in two locations and arsenic at one of these locations. Please revise.

Response:

Comment is noted and is addressed in the Final.

Comment 9:

Page 39, Section 6.0, Metals, paragraph 2: Text states that 10 locations show decreasing concentrations and three show increases. Please re-evaluate this statement, as it appears there are several more increasing concentrations for groundwater contaminants in sampled wells. This reviewer counts several increases in a single groundwater contaminant for several wells, not counting iron manganese and aluminum. Also, per comment for page 4, the exceedances for replacement wells are not compared to old demolished wells. Please include.

Response:

This statement pertained to the total of dissolved metals load in the samples from those locations. To eliminate future confusion and to aid in the interpretation of the data, the Final Addendum will elaborate on 1) the number of locations that exhibited fewer or higher number of exceedances, and 2) for those locations that exhibited an exceedance in 2003, whether those exceedances have gone up or down from previous sampling. This should adequately address the above comment.

The comparisons of new well data to the two demolished wells is also made in the Final.

Comment 10:

Page 39, Section 6.0, SVOCs, paragraph 1: There are 18 exceedences in 7 locations, not 16 in 6 locations. Please revise text (twice in this paragraph) per comment below for table 14.

Response:

Comment is noted and is addressed in the Final.

Comment 11:

Page 40, Section 6.0, VOCs, paragraph 1: There are 47 exceedences in 22 locations, not 42 in 22 locations. Please revise text per comment below for table 17.

Response:

Comment is noted and is addressed in the Final.

Comment 12:

Page 40, Section 6.0, VOCs, paragraph 2: Text comments directly on comparison from 1993 data to present. Please include analysis for the comparison to 1995 data, since it was deemed "more accurate" due to low flow measurement techniques.

Response:

The data from 1993 with regard to VOCs is not suspect, it is the 1993 data with respect to metals. At any rate, the direct comparison to 1993 data was made because all of the 2003 locations were sampled also sampled in 1993. The 1995 event only sampled a select few locations. An additional analysis regarding trends of exceedences is made in the final addendum, and it includes a comparison of 2003 data to all 1993/95 data.

Comment 13:

Table 2: Tables notes state "Bold indicates an exceedence of higher SCTL or NASP reference." This is not clearly discussed in text. It seems an exceedence should be marked by the lower of the two standards in order for risk criteria to be upheld. Please comment and revise if necessary.

Response:

Under CERCLA, cleanup goals will not be lower than background (in this case NASP reference). There are some NASP reference values that are higher than the CTLs; hence the use of the higher of the two benchmarks for defining exceedences.

Comment 14:

Table 4: Tables notes state "Bold indicates an exceedence of higher SCTL or NASP reference." This is not clearly discussed in text. It seems an exceedence should be marked by the lower of

the two standards in order for risk criteria to be upheld. Please comment and revise if necessary.

Response:

Under CERCLA, cleanup goals will not be lower than background (in this case NASP reference). There are some NASP reference values that are higher than the CTLs; hence the use of the higher of the two benchmarks for defining exceedances.

Comment 15:

Table 4: Well 11GS07- second result column year is not included. It is assumed that this is 2003. Please revise.

Response:

Comment is noted and is addressed in the Final.

Comment 16:

Table 5: Sample 030S012304- Please change sample year from 2004 to 2003.

Response:

Comment is noted and is addressed in the Final.

Comment 17:

Table 14: Sample 30GI111 is confused with 30GS111, which is not included. Change 30GI111 to 30GS111. Then add a line for 30GI111 where 1993 exceedences =2, 1995=2, and 2003=2 where 1,4- dichlorobenzene and 2,4- dichlorophenol decrease.

Response:

Comment is noted and is addressed in the Final.

Comment 18:

Table 17: Sample 27GS18- result column year missing.

Response:

Comment is noted and is addressed in the Final.

Comment 19:

Table 17: sample 30GI111- result column years confused, 1992 and 1993 instead of 1993 and 1995. Please revise. Once changes are made, there are 18 exceedences in 7 locations.

Response:

Comment is noted and is addressed in the Final.

Comment 20:

Table 18: 2003 exceedences for 30GI111 and 30GS111 should be 3 instead of 2 where benzene increases. 2003 exceedences for 30GS06 should be 3 instead of 2 where benzene decreases.

*Navy Response to USEPA Comments on the Final OU2
Remedial Investigation Report Addendum, NAS Pensacola
April 2004*

Table 17 indicates 30GI170 was not analyzed in 1995. 1995 exceedences for 11GM47 should be 4 instead on 3. 1995 data are missing from table 17 for 27GS18 where this table suggests there were 2 exceedences. Table 18 should also include 11GM28 where benzene decreases, and 11GI10, where 1,2 dichloroethene slightly decreases. Once changes are made, there are 47 exceedences for VOCs in groundwater in 22 wells.

Response:

Comment is noted and is addressed in the Final.