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INTERIM RECORD OF DECISION FOR OPERABLE UNIT 3 (OU 3) NTC ORLANDO FL

9/1/2000

HARDING LAWSON ASSOCIATES

INTERIM RECORD OF DECISION

OPERABLE UNIT 3

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

UNIT IDENTIFICATION CODE: N65928
CONTRACT NO.: N62467-89-D-0317/136

SEPTEMBER 2000

SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORTH CHARLESTON, SOUTH CAROLINA 29418

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Engineering, Environmental
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September 26, 2000

Ms. Barbara Nwokike, Code 187300
Commanding Officer
SOUTHNAVFACENGCOM
2155 Eagle Drive
North Charleston, SC 29419-9010

Subject: **Operable Unit 3 Interim Record of Decision**
NTC, Orlando
Contract: N62467-89-D-0317

Dear Barbara:

Enclosed are two copies of the (Final) OU 3 Interim Record of Decision. We have incorporated all comments received from David Grabka (FDEP), and Nancy Rodriguez and David Jenkins (USEPA). The response to comments is included in the front cover of the final IROD.

If you have any questions or need additional information, please call me at (904) 448-1333.

Very Truly Yours,

Harding Lawson Associates

Richard P Allen

Richard P. Allen
Technical Lead

Attachment

cc: Wayne Hansel, Southern Division, 4 cy
Nancy Rodriguez, USEPA Region IV, 2 cy
David Grabka, FDEP, 2 cy
Steve Tsangaris, CH2M Hill, 1 cy
Steve McCoy, Tetra Tech/NUS, 1 cy
John Kaiser, HLA, 3 cy

Harding ESE
A MACTEC COMPANY

Memo

To: Orlando Partnering Team

cc: John Kaiser

From: Rick Allen

Date: 10/09/00

Re: Cover Page for OU 3 Interim ROD

We sent out the OU 3 Interim ROD, and everything is OK except for the green cover, which does not indicate it as "interim". Enclosed are the green covers to replace the original covers. Sorry for the confusion.

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Engineering, Environmental
and Construction Services

HLA

September 26, 2000

Ms. Barbara Nwokike, Code 187300
Commanding Officer
SOUTHNAVFACENGCOM
2155 Eagle Drive
North Charleston, SC 29419-9010

Subject: **Response to Comments**
Operable Unit 3 Interim Record of Decision
NTC, Orlando
Contract: N62467-89-D-0317

Dear Barbara:

As you know, HLA issued the OU 3 Interim ROD on April 25, 2000. We have received comments from David Grabka (FDEP), and Nancy Rodriguez and David Jenkins (U.S. EPA). Attached is the response to those comments.

On August 11, 2000, HLA issued an electronic redline/strikeout copy of the OU 3 Interim ROD that reflects how all comments are being addressed in the document. We will provide hard copy of the redline/strikeout document to those reviewers that request it. We have received electronic figures from TetraTech that have the most current analytical data represented (Figure 2-5, *Groundwater Exceedances, March 1998 to April 2000, Operable Unit 3, Study Area 8*, and 2-6, *Groundwater Exceedances, March 1998 to April 2000, Operable Unit 3, Study Area 9*). We will forward them to the OPT when minor revisions have been made to incorporate them into the Interim ROD.

If you have any questions or need additional information, please call me at (904) 448-1333.

Very Truly Yours,

Harding Lawson Associates

Richard P Allen

Richard P. Allen
Technical Lead

Attachment

cc: Wayne Hansel, Southern Division
Nancy Rodriguez, USEPA Region IV
David Grabka, FDEP
Steve Tsangaris, CH2M Hill
Steve McCoy, Tetra Tech/NUS
John Kaiser, HLA

PROJECT REVIEW COMMENTS

NTC, Orlando Operable Unit 3
NTC Orlando
Final Draft Interim Record of Decision

Florida Department of Environmental Protection - David Grabka, 7/10/00

1. **Page 1-3, Third Bullet on page. The prohibition on the issuance of permits for the installation of potable water wells, irrigation wells, or dewatering wells for construction projects screened within the surficial aquifer is not an attainable institutional control at this site. Rather, while the property remains with the Navy, the Navy will disallow the installation of the above-mentioned wells on their property. After the property has been transferred, groundwater use restrictions shall be enacted in the deed(s) through a Restrictive Covenant granting a perpetual conservation easement to the Department.**

   The Navy will eliminate the third bullet on Page 1-3 and insert the final sentence of your comment into the first bullet on Page 1-3.

2. **Page 1-3, Fifth Bullet on page. A five year site review is not required to be a part of this Interim Record of Decision. When a final decision is made on the selected remedy for this site, a five year site review will be a required component of the Record of Decision. Because of this, please also remove the first bullet on page 2-10.**

   The Navy will eliminate the fifth bullet on page 1-3 and the first bullet on p. 2-10, noting that the final ROD will require reference to a five year site review.

3. **Page 1-3, Groundwater Monitoring Section, Second Bullet. Groundwater also needs to be analyzed for iron, lead, antimony and manganese as those compounds have previously been detected above primary standards, secondary standards and base specific reference concentrations.**

   The Navy will add a reference to include these TAL metals in future monitoring. The second bullet on Page 1-3 will be revised to read: "Groundwater would be analyzed for only those compounds that previously exceeded primary and secondary standards, or basewide site screening concentrations; these include TCL semivolatile organic compounds (SVOCs), pesticides, herbicides, and certain TAL metals including iron, lead, antimony, manganese and arsenic."

4. **Page 1-3, Groundwater Monitoring Section, Fourth Bullet. It should be noted that contaminants in drive point wells and downgradient wells next to Lake Baldwin would need to be compared surface water quality standards in order to evaluate whether some parameters could be discontinued.**

   The following bullet will be added on Page 1-3 in the Groundwater Monitoring section:

   "Sampling data in drive point wells and downgradient wells next to Lake Baldwin will be

Florida Department of Environmental Protection - David Grabka, 7/10/00 (Continued)

compared to surface water quality standards to evaluate the need for retaining certain parameters in the monitoring program.".

5. **Page 2-8, Second Paragraph, Last Sentence. The last sentence should say "are such parcels."**

The Navy will make the suggested change.

6. **Page 2-8, Third Paragraph, Second Sentence. The sentence should end after future exposure to contaminated groundwater. This IROD does nothing to reduce further contamination migration through groundwater.**

The Navy will make the suggested change.

7. **Page 2-8, Fourth Paragraph. This should be rewritten as "While further study of cleanup alternatives is undertaken, and in consideration . . ."**

The Navy will make the suggested change.

8. **Page 2-8, Fourth Paragraph, Second Bullet. Are institutional controls to restrict land use to non-residential (recreational) to be applied over the entire site or only over portions of the site where contaminants remain at concentrations that exceed the residential SCTLs?**

Because the two study areas that comprise OU 3 are both of limited extent, the intention at this time would be that institutional controls restricting land use to non-residential (recreational) use be applied to each study area individually. At some point, it may be possible to remove institutional controls on a portion of, or all of, one or both study areas. This would most likely occur during a five year review. It should be noted that the reuse scenario for the entire buffer zone around Lake Baldwin, including OU 3, is planned for nonresidential (i.e., recreational) use.

9. **Page 2-8, Fourth Paragraph, Third Bullet. This sentence should be rewritten as "Monitoring of contaminated groundwater to track restoration and ensure the continued protection of human health and the environment as site use and conditions change with time."**

The Navy will make the suggested change.

10. **Page 2-8, Fifth Paragraph, Second Sentence. Insert ROD before selected remedy.**

The Navy will make the suggested change.

Florida Department of Environmental Protection - David Grabka, 7/10/00 (Continued)

11. **Page 2-8, Sixth Paragraph, Second Sentence. Remove references to the maintenance of soil cover and unauthorized digging activities. The periodic inspections will help assure that no unauthorized residential development has occurred and that no wells have been installed within the area of groundwater restriction.**

    The Navy will make the suggested change.

12. **Page 2-9, Fourth Bullet. See comment (1).**

    The Navy will eliminate the fourth bullet on Page 2-9 and insert the final sentence of your comment into the second bullet on Page 2-9.

13. **Page 2-9, Fifth Bullet. Please insert "written" between annual and reminders.**

    The Navy will make the suggested change.

14. **Page 2-14, Top of Page. It should say that "The Navy, FDEP and EPA will evaluate the data and will make a decision as to whether or not active remediation is necessary to prevent shallow groundwater beneath SA 8 from reaching Lake Baldwin."**

    The Navy will change "The Navy..." to "The OPT..." (see Ms. Rodriguez' comment No. 7).

15. **Page 2-14, Third Paragraph. It should say Florida surface water quality standard instead of guidance concentration. In the same paragraph, it should state that "groundwater samples from intermediate wells at SA '9' each . . ."**

    The Navy will make the suggested change.

16. **The chem box data in Figures 2-5 and 2-6 for the January 2000 sampling event should be properly bolded to indicate exceedances.**

    Noted. Figures 2-5 and 2-6 have been revised.

17. **It should be explicitly stated that the human health risk summary numbers explained in the text and listed in Tables 2-3 and 2-4 are for data collected from the Remedial Investigation. Since that time, Interim Removal Measures have reduced risk from surface soils to levels protective for potential future users such as recreational, tresspasser, and commercial users.**

Florida Department of Environmental Protection - David Grabka, 7/10/00 (Continued)

When a final remedy is selected and the Final Record of Decision is prepared, the risk numbers should be recalculated based upon current data, both soil and groundwater.

The Navy will make the suggested change.

18. **Page 2-33, Table 2-7. The list of selected contaminants of concern is not complete. Antimony, manganese, iron and several pesticides have been detected during the current groundwater monitoring effort and should be included on the table.**

The Navy will make the suggested change, although at the levels of iron and manganese detected, no additional risk is expected.

19. **Page 2-33, Second Paragraph. It is stated that while pump and treat is a proven technique for removing contamination, experience has shown that attainment of drinking water standards may be technically impractical. What experience has shown this? This needs to be further clarified.**

The second Paragraph of Page 2-33 will be revised as follows: "Alternatives G-4 and G-5 are proven techniques (i.e., pump-and-treat) for removing the bulk of contamination, but attainment of action levels (e.g., surface water standards, drinking water standards) may be difficult, given the recalcitrant nature of this contaminant."

20. **Page 2-33, Section 2.8.1.2, Second Paragraph, Bottom of page. It is stated that alternatives G-1 and G-2 may achieve action levels only after a sufficient period of time. "Sufficient" is too ambiguous a word. The estimated length of time predicted for those alternatives should be specified.**

The second paragraph of Section 2.8.1.2 will be revised as follows:

It is anticipated that Alternatives G-1 and G-2 may achieve action levels, but only within a time period that would likely be measured in decades. The ongoing groundwater monitoring program will provide data that will be used to estimate the period required to achieve action levels for all alternatives. These data will be factored into the final remedy. Alternatives G-3, G-4, and G-5 (*ex situ* treatment) would likely achieve action levels sooner than Alternatives G-1 and G-2 (*in situ* treatment). All five alternatives would comply with ARARs.

21. **Page 2-38, Groundwater Monitoring, Second Bullet, First Bullet on page. See comment (3).**

Florida Department of Environmental Protection - David Grabka, 7/10/00 (Continued)

Noted. See the Navy response to comment (3).

22. **Page 2-44, Table 2-10, State Guidance Materials. Soil Cleanup Target Levels and Groundwater Cleanup Target Levels are now listed in Chapter 62-777, Florida Administrative Code.**

Noted. The Navy will make the suggested changes.

PROJECT REVIEW COMMENTS

NTC, Orlando Operable Unit 3
NTC Orlando
Final Draft Interim Record of Decision

United States Environmental Protection Agency – Region 4, Nancy Rodriguez, 7/11/00

1. Declaration of the ROD, Section 1.3 Description of the Selected Remedy. This section states that EPA has indicated that until the selected remedy is operating properly and successfully, the property will be deemed non-transferrable. This statement should be revised in order to accurately reflect EPA's position. CERCLA's property transfer provisions in section 120(h) require the United States to place in the deed the covenant that all necessary remedial action has been taken. All necessary remedial action will be deemed to have been taken if the construction and installation of an approved remedial design has been completed, and the remedy has been demonstrated to the Administrator to be operating properly and successfully. If the remedy cannot be demonstrated to be operating properly and successfully, the property can still be transferred under the covenant deferral request provisions of CERCLA § 120(h)(3)(C). The correction to the text should be, "Without resort to the Covenant Deferral Request provisions of CERCLA § 12(h)(3)(C), the property cannot be transferred until the selected remedy is operating properly and successfully (OPS)." Please make this same correction to the text in Section 2.4 Scope and Role of Interim Remedial Action Selected for OU3.

   The Navy will make the suggested change.

2. Declaration of the ROD, Section 1.3 Description of the Selected Remedy. Please revise the third sentence in the first bullet under "Institutional Controls": "The Navy or its contractor ~~can~~ will verify whether the warning signs are still in place or whether ..." In addition, if the Navy employs a contractor to conduct such inspection, the Navy should periodically (for instance, at least every five years) verify the accuracy of the information in the inspection reports. Please address the text accordingly. Please make this same correction to the text in Sections 2.4 Scope and Role of Interim Remedial Action Selected for OU3 and 2.9.1 Description of the Limited Action Remedy.

   The Navy will make the suggested change.

3. Declaration of the ROD, Section 1.3 Description of the Selected Remedy. The remedy envisions prohibition against residential use of the property until residential cleanup standards have been met. While EPA agrees with the statement that the Navy will ensure that no residential development occurs prior to transfer, it is the Navy's responsibility to ensure that all aspects of its selected remedy are effective, regardless of the transfer status. Please revise the sentence in the third bullet under "Institutional Controls," by deleting "Prior to transfer." Please describe the process by which the Navy will ensure that such restrictions, and all ICs, are followed. The only reference to monitoring of ICs is that site review every five years to verify visually that ICs are maintained. Please add to your method

United States Environmental Protection Agency – Region 4, Nancy Rodriguez, 7/11/00 (Continued)

of monitoring ICs the inspection of deed records to ensure that the restrictions are memorialized with any transfer of restricted real property. Please describe the frequency with which the Navy will conduct such IC compliance-verification. Please make this same correction to the text in Sections 2.4 Scope and Role of Interim Remedial Action Selected for OU3 and 2.9.1 Description of the Limited Action Remedy.

The Navy will make the suggested changes.

4. **Declaration of the ROD, Section 1.3 Description of the Selected Remedy. "Institutional Controls", sixth bullet. Please include the restriction against residential development in the annual reminder notices. Please make this same correction to the text in Sections 2.4 Scope and Role of Interim Remedial Action Selected for OU3 and 2.9.1 Description of the Limited Action Remedy.**

The Navy will make the suggested changes in the fifth bullet, as FDEP wanted the sixth bullet deleted (see Mr. Grabka's comment No. 2 and the Navy response).

5. **Declaration of the ROD, Section 1.4 Declaration Statement. Please provide the rational for the statement that the selected remedy does not satisfy the statutory preference for treatment as a principal element of the remedy.**

The Navy observes that under CERCLA, some form of active remediation is preferable (not mandated) to monitoring only, but that the final remedy will likely include one or more active remedial measures which had not been considered when the RI/FS was submitted, due to groundwater monitoring data collected after the submittal.

6. **Section 2.4, Page 2-8, 2nd Paragraph. Delete the word greatest in the following sentence 'This has allowed cleanup efforts to focus on those parcels that pose the greatest potential risk to human health and the environment....".**

The Navy will make the suggested change.

7. **Section 2.5.4 Groundwater, Page 2-14, 1st Paragraph. Please change "The Navy is evaluating.." to "The OPT is evaluating...".**

The Navy will make the suggested change.

8. **Section 2.9.1 Description of the Limited Action Remedy. The text states that the remedy**

United States Environmental Protection Agency – Region 4, Nancy Rodriguez, 7/11/00 (Continued)

includes institutional controls, groundwater monitoring and five-year (maximum) reviews, and bench-scale pilot testing of innovative technologies. Note that CERCLA § 121(c) indicates that whenever hazardous substances, pollutants, or contaminants are left in place, the remedial action will be reviewed no less often than every five years. The Interim ROD appears to have translated CERCLA's "no less often" language into "no more often." While it does not violate the letter of the statute, it certainly appears to run at odds with its spirit. Please revise the Interim ROD so as to not deflate the five-year-review language of the statute.

The Navy did not mean to imply that site reviews would take place ***no less than*** every five years apart, but that the interval between site reviews would be a ***maximum*** of five years apart, as stipulated by CERCLA. The text will be modified to make this clear. However, for cost estimating purposes, five year reviews were assumed.

9. **Section 2.9.1 Description of the Limited Action Remedy. Compliance with ARARs. This section states that the remedy *may* comply with ARARs in the long-term. Compliance with ARARs is a CERCLA threshold criteria, and must be met in a final remedial decision. However, since this remedy is being selected on an interim basis, and includes bench scale testing to evaluate the effectiveness of the natural attenuation portion of the remedy, this section should make clear that this factor, uncertainty about compliance with ARARs, is one of the bases for selecting this as an *Interim* Remedy.**

The Navy assumes that you were referring to Section 2.9.2, not 2.9.1. The Navy will add the following at the end of the paragraph:

"The remedial actions selected for OU 3 are intended to address the principal threats and risks for OU 3. They were chosen as the interim remedy for OU 3, and will be revised in the final ROD, as necessary, because data collection and analysis activities are ongoing, bench scale testing results have not been completed and evaluated, and because of uncertainty as to the effectiveness of the chosen remedial actions. The uncertainty about compliance with ARARs was the principal basis for selecting monitoring as a component of the interim remedy."

10. **Section 2.9.1 Description of the Limited Action Remedy. Reduction of Toxicity, Mobility, and Volume Through Treatment. Where the preference for remedies employing treatment which permanently and significantly reduces the toxicity, mobility, or volume of hazardous substances, pollutants, or contaminants as a principal element of the selected remedy is not satisfied, the ROD must explain why a remedial action involving such reductions in toxicity,**

United States Environmental Protection Agency – Region 4, Nancy Rodriguez, 7/11/00 (Continued)

mobility or volume was not selected. Please provide this explanation in this section.

The Navy assumes that you were referring to Section 2.9.2, not 2.9.1. The Navy will add the following to the first paragraph of Section 2.9.2:

"The decision to implement Alternative G-1 rather than pursue more aggressive treatment technologies was made primarily because of the belief that the IRA soil removals at both SAs have removed the continuing source(s) of contamination and that natural processes will now be able to reduce contaminant levels in the shallow aquifer."

11. Section 2.9.1 Description of the Limited Action Remedy. Long-Term Effectiveness and Permanence. **Evaluation of the long-term effectiveness of the remedy states that administrative actions would provide exposure control, but would not provide a permanent remedy for risks posed by the site during the period that contaminant concentrations decline through natural processes. It appears to be the objective of the institutional controls, including legal and administrative (governmental) controls, to provide effectiveness of the remedy both for the short- and the long-term. If there is a reason to believe that the long-term effectiveness of the institutional control remedy is limited, please state that reason in the IROD. In addition, if the remedy is not effective in the long-term, its selection should be reevaluated.**

The Navy assumes that you were referring to Section 2.9.2, not Section 2.9.1. The remedy selected for the IROD (groundwater-use restrictions, groundwater monitoring, and site reviews) will be monitored closely during the first five years to determine its long-term effectiveness. Two of the herbicides (MCPA and MCPP) should degrade rapidly and not be detectable, certainly after the passage of five years. Other contaminants should also degrade naturally. However, arsenic is a persistent and relatively immobile contaminant, particularly in soil. Arsenic concentrations will be closely monitored in the short term to determine whether or not natural processes are reducing concentrations at a rate acceptable to regulatory agencies. The Navy has stated in the IROD that active treatment technologies may be required to reduce contaminant concentrations more rapidly, and that continuing site reviews and data evaluation will guide future decisions to implement the remedial alternatives selected for the IROD.

12. Section 2.9.1 Description of the Limited Action Remedy. Implementability. **Since there are aspects of the institutional control monitoring that have not been addressed, it is suggested that the implementability should be considered in light of EPA's comments. EPA does not**

United States Environmental Protection Agency – Region 4, Nancy Rodriguez, 7/11/00 (Continued)

suggest that the institutional controls are not implementable; merely, that the IROD has not captured all the elements essential to an effective institutional control remedy.

The Navy assumes that you were referring to Section 2.9.2 The text in the final ROD will reflect all essential elements for ICs, to include

- legal description of property,
- institutional control language in the same form as it will appear in the deed
- statement from the Navy of how the ICs will be enforceable under local/state law
- a description of who will be responsible for monitoring the integrity and effectiveness of the ICs and the frequency of monitoring
- a description of the procedures that will be used to enforce against violations of an IC (who will enforce, and what legal authority to enforce)
- Assurance that the Navy will verify maintenance of ICs on a periodic basis (specifying the period)

13. Section 2.9.1 Description of the Limited Action Remedy. Cost. **The cost should address the implementation of an effective institutional control remedy, per EPA comments on ICs. For instance, since there is no description of periodic inspections of the deeds of record through time (along with the five-year reviews) to verify the carrying forward of the restrictive covenants, and hence, no cost allocated to this function, the cost does not reflect an effective IC remedy.**

The Navy assumes that you were referring to Section 2.9.2. Table 2-9, "Cost Summary for Limited Action Remedy," will be revised to reflect any comments incorporated into the final IROD, if appropriate. Also, see the Navy response to your Comment 3

14. Statutory Determinations. **This section states that the selected remedy will comply with ARARs. Please reconcile this with EPA Comment 7.**

The Navy assumes that you were referring to EPA Comment 9, not Comment 7. Please refer to the Navy response for your comment 9. The text in Section 2.10, Statutory Determinations, will be revised similarly to the response to comment 9.

15. Statutory Determinations. **Please see EPA Comment 8. This section provides the rationale for not selecting a remedy, which results in reductions in toxicity, mobility or volume. The rationale given, "because evaluation of balancing criteria determined treatment of the groundwater was not practicable" is not meaningfully descriptive. Please provide more**

United States Environmental Protection Agency – Region 4, Nancy Rodriguez, 7/11/00 (Continued)

particular information about the nature of the balancing criteria that justified this decision, for example, technical infeasibility, inadequate short-term protection of human health and the environment, or extraordinarily high costs.

The reduction in arsenic (the primary COC at both Study Areas) concentrations to MCLs was estimated to take from 22 years (SA 9) to 38 years (SA 8) at costs ranging from $9M (Alternative G-4) to $14.5M (Alternative G-5). This contrasts with a cost of $0.75M (Alternative G-1) for monitoring with ICs and site reviews for 30 years. Thus, Alternatives G-4 and G-5 will cost from 10 to 20 times more than Alternative G-1, although for a similar time period.

United States Environmental Protection Agency – Region 4, David Jenkins, 7/18/00

1. **Figure 2-5 shows that all of the January, 2000 groundwater samples were collected on the 23rd, while Figure 3 of the May 12, 2000 quarterly report shows the January, 2000 groundwater samples were collected on the 19th, 20th or 22nd, but none were collected on the 23rd of January, 2000. There are similar minor discrepancies in the dates reported on Figure 2-6 and Figure 4 of the quarterly report. The reported results appear to be the same on all figures, just the dates are different. The maps with the correct dates should be identified and used in future reports.**

   The maps will be corrected.

2. **The legend on Figure 2-5 states that "BOLD CONCENTRATION INDICATES EXCEEDANCE", but not all exceedances appear in bold type. For example, arsenic and lead in the January 23, 2000 sample at OLD-08-14 exceed the screening criteria shown in the legend, but are not presented in bold type. There seems to be similar minor discrepancies on Figure 2-6. Corrected maps should used in future reports.**

   The maps will be corrected.

3. **Contaminants of Potential Concern are listed in Table 2-2. Dieldrin is listed as a COPC at Study Area 8. Figure 2-5 shows only one detection of dieldrin at Study Area 8. This is a 1997 estimated "J" result from monitoring well OLD-08-14, which has never been confirmed by subsequent analysis.**

   For both Study Areas 8 and 9, nearly all of the exceedances for MCPA and MCPP shown on Figures 2-5 and 2-6 are estimated or non-detect values with detection limits much greater

United States Environmental Protection Agency – Region 4, David Jenkins, 7/18/00 (Continued)

than the screening values shown in the legends of the figures. The qualifier for many of theses analyses is an "R" for Rejected. The usefulness of showing these results, especially the rejected data, as exceedances is questionable.

Similar comments apply to the results presented on Figure 2-6 where both rejected and non-detect results are shown in bold type, signifying exceedances of an applicable standard. Exceedances of screening criteria in groundwater at Study Area 9 should not be evaluated using non-detects and rejected data as shown on Figure 2-6.

Dieldrin will be added to the list of compounds for analysis at SA 8. "R" qualified results will not be shown on Figures 2-5 and 2-6. Non-detect results will not be shown in bold type.

4. **Only one detect for MCPP is unqualified at Site 8 (Figure 2-5), and one result each for MCPP and MCPA are unqualified at Site 9 (Figure 2-6). While the land use in this area makes the presence of pesticides and herbicides unsurprising, the answers to the questions: "Are these COCs, and how much needs to be cleaned up?" are a not readily apparent.**

MCPA is reported to degraded rapidly by soil microorganisms and has low persistence, with a reported field half-life of 14 days to 1 month, depending on soil moisture and soil organic matter (EXTOXNET). The duration of MCPP (mecoprop) residual activity in soil is about two months. Because of it's high mobility, it may potentially leach into groundwater. However, in general, phenoxy herbicides such as MCPP are not sufficiently persistent to reach groundwater (EXTOXNET). If these are compounds have reached groundwater and are COCs at Study Area 8, the determination needs to be made at lower detection limits than shown on Figure 2-5.

Note that plots (attached to this memo) of the MCPA and MCPP data from Study Area 8 shows that the concentrations in the summer and fall are consistently higher than the concentrations in winter. The plots were made by assuming that non-detect results were one-half of the detection limit. Even with this assumption, all of the non-detect results are greater than the screening level. Designation of MCPA and MCPP as a contaminant of concern must be based on data obtained with lower detection limits. The plot seems to support the statements in the previous paragraph about the "short" persistance of MCPA and MCPP in groundwater, and may indicate that the results are due to seasonal application, which might be more cheaply terminated than treated in a remedial action. If seasonal application of these compounds no longer occurs, are these compounds being leached into groundwater from a residual source in soil which might be removed?

United States Environmental Protection Agency – Region 4, David Jenkins, 7/18/00 (Continued)

The CLEAN III contractor has been working closely with their laboratory to bring down the detection limits for MCPA and MCPP to meaningful levels. The two compounds are being carried as COCs even though it is expected that by the time arsenic concentrations have become significantly reduced from their current levels, that MCPA and MCPP will no longer be detectable. A residual source for MCPA and MCPP in soil is an unlikely scenario, given the recent interim remedial actions (soil removals) that have occurred at both Study Areas comprising OU 3. It should be noted that application of all pesticides and herbicides to this area ceased at least two years ago, following the decommissioning of this portion of the Main Base.

5. **A plot (attached to this memo) of the arsenic data from Study Area 8 shows that arsenic concentrations in groundwater increased dramatically following the Interim Remedial Measure in April, 1999. Some concentrations remained at abnormally high concentrations in January, 2000, while others have diminished to concentrations less than observed before the Interim Remedial Measure. The results from many on-site wells show sharp increases for aluminum, manganese, lead and antimony followed by decreases in concentration to pre-Remedial Measure levels or less by January, 2000. These data may indicate that the effects of the Interim Remedial Measure have not reached equilibrium in the groundwater flow system. Additional quarterly groundwater samples should be collected until the post-Remedial Measure groundwater conditions are determined.**

Agreed. A recommendation to continue with quarterly monitoring for the short term will be made to the OPT.

6. **As stated in my memo dated December 3, 1999, what is the basis for limiting the quarterly monitoring period for groundwater sampling events to one year? The EPA MNA guidelines recommend quarterly monitoring "... for at least one year... "(pages 44, 47, C2-7, C3-22), after which "... an appropriate sampling frequency should be established which considers seasonal variations in water table elevations, ground-water flow direction and flow velocity at the site (p. 52). Instead of following EPA guidelines, the description of Alternative G-1 on page 2-29 states that "Groundwater would be sampled quarterly for the first year, and annually thereafter ...". The text on page 1-3 seems to conflict with the text on page 2-29. Page 1-3 states that sampling will occur quarterly for the first year "... and annually thereafter, unless the data consistency between quarterly sampling episodes indicates that a different strategy is more appropriate."**

United States Environmental Protection Agency – Region 4, David Jenkins, 7/18/00 (Continued)

A major Interim Remedial Measure was implemented in April, 1999, (p. 2-12), but the report does not present graphs showing concentration trends or travel time estimates which demonstrate that the effects for the remedial measure could be expected to be observed already in the monitoring wells. It is premature to state that the quarterly monitoring period can be limited to one year because seasonal water level, and groundwater flow direction variations have not been demonstrated, and the time required for the monitoring well network to respond to the Interim Remedial Measures which have been implemented has not been determined. The sampling schedule text on page 1-3 allows for consideration of site specific conditions more than the text on page 2-29, and therefore, is more consistent with EPA guidelines.

The text of the IROD will be changed so that it is consistent with the sampling methodology described on Page 1-3.

7. **No maps showing plumes of contaminated groundwater which can be related to source areas and groundwater flow directions are provided for any of the contaminants of concern listed in Table 2-2. While the area of contamination is relatively small and the sources and natural discharge areas appear to be obvious, maps showing the extent of contamination are useful for describing the site and, in particular, for designing remedial measures. Future reports should include maps showing water level contours, groundwater flow directions, concentrations of key contaminants and contaminant plumes which clearly define the extent of contamination, demonstrate relationships between source and discharge areas and will aid in evaluating remedial measures.**

The IROD contains current groundwater elevation maps and flow directions (Appendix C), and concentrations of contaminants that exceed regulatory limits are presented on Figures 2-5 and 2-6 (see responses to your comment Nos. 1, 2 and 3 for pending revisions to the two figures). The CLEAN III contractor will be preparing the final ROD and will consider your comments when preparing their submittal.

8. **Regarding the statements that contamination may be reaching Lake Baldwin, an unusual sampling device has been developed recently which may be applicable for use at this site. The device, called a Henry sampler, is essentially a syringe with tubing which allows a sample to be collected from just below the surface water/groundwater interface. Also, observation of the water level in the tubing compared with the surface water level allows a visual determination and measurement of the groundwater head above the surface water body. The observation of groundwater head above the surface water level proves that groundwater inflow to surface water is occurring. The sampling device allows a sample to be collected**

United States Environmental Protection Agency – Region 4, David Jenkins, 7/18/00 (Continued)

before mixing with surface water occurs, if the bottom sediments are soft enough to allow penetration of the sampler.

Five "jpg" files are attached to this memo which demonstrate some of the uses of the Henry sampling device. The device is available from:

Mark Henry, MHE Products,
123 Dunlap St,
Lansing, Michigan, 48910
markhen@alumni.engin.umich.edu

EPA Region 4 does not have an SOP for this device yet, and it's use is suggested only as an field confirmation technique. If the method is found to be applicable to this site's specific conditions, it may be less expensive and more informative than alternative techniques for obtaining samples of groundwater inflow to Lake Baldwin.

The Navy appreciates the information provided. The new sampling device appears to be an improvement over more traditional sampling techniques.

INTERIM RECORD OF DECISION

OPERABLE UNIT 3

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Unit Identification Code: N65928

Contract No.: N62467-89-D-0317/136

Prepared by:

Harding Lawson Associates
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Prepared for:

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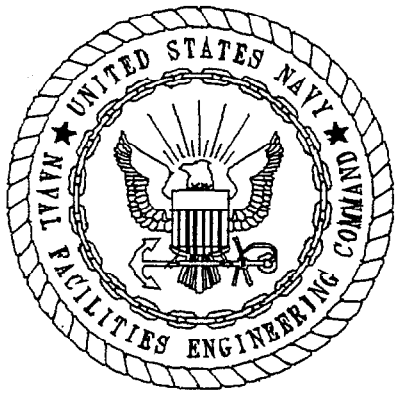
Barbara Nwokike, Code 1873, Engineer-in-Charge

September 2000



CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

The Contractor, Harding Lawson Associates, hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/116 are complete and accurate and comply with all requirements of this contract.

DATE: April 7, 2000

NAME AND TITLE OF CERTIFYING OFFICIAL: John Kaiser
Task Order Manager

NAME AND TITLE OF CERTIFYING OFFICIAL: Rick Allen
Project Technical Lead

(DFAR 252.227-7036)

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Naval Training Center
Orlando, Florida

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GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
ARAR	applicable or relevant and appropriate requirement
bls	below land surface
BCP	Base Realignment and Closure Cleanup Plan
BRAC	Base Realignment and Closure (Act)
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
cm/sec	centimeters per second
COC	chemical of concern
CPC	chemical of potential concern
DET	Environmental Detachment, Charleston
ECPC	ecological chemical of potential concern
ELCR	excess lifetime cancer risk
ERA	ecological risk assessment
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
Ft/day	feet per day
Ft/ft	feet per foot
GCTL	groundwater cleanup target level
HHCPC	human health chemical of potential concern
HHRA	human health risk assessment
HI	hazard index
HLA	Harding Lawson Associates
IAS	Initial Assessment Study
IC	institutional controls
IR	Installation Restoration
IRA	interim remedial action
IROD	Interim Record of Decision
MCL	maximum contaminant level
MCPA	(4-chloro-2-methylphenoxy)acetic acid
MCPP	potassium (2-methyl-4-chlorophenoxy)propionate
NCP	National Oil and Hazardous Substances Contingency Plan
NPDES	National Pollutant Discharge Elimination System
NTC	Naval Training Center
O&M	operation and maintenance
OPS	operating properly and successfully
OPT	Orlando Partnering Team
OU	Operable Unit
PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyl
PP	Proposed Plan

GLOSSARY (Continued)

RAB	Restoration Advisory Board
RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act
RfD	reference dose
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
SA	study area
SCG	Soil Cleanup Goal
SCTL	Soil Cleanup Target Level
SOUTHNAV-FACENGCOM	Southern Division Naval Facilities Engineering Command
STP	Sewage Treatment Plant
SVOC	semivolatile organic compound
TAL	Target Analyte List
TBC	to be considered
TCL	target compound list
USEPA	U.S. Environmental Protection Agency
UV/OX	ultraviolet light and oxidation
VOC	volatile organic compound

1.0 DECLARATION OF THE INTERIM RECORD OF DECISION

1.1 SITE NAME AND LOCATION.

The site name is Operable Unit (OU) 3, which consists of Study Areas (SAs) 8 and 9 – former pesticide and herbicide handling areas. OU 3 is located in the southeast corner of the Main Base of the former Naval Training Center (NTC) in Orlando, Florida.

1.2 STATEMENT OF BASIS AND PURPOSE.

This Interim Record of Decision (IROD) presents the selected remedial actions for OU 3 at NTC Orlando. The response actions selected in this IROD are necessary to protect the public health, welfare, or the environment from actual or threatened releases of hazardous substances or pollutants or contaminants into the environment. The selected actions were chosen in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The remedial actions were chosen based on the administrative record for the site. The information supporting the remedial action decision for OU 3 is contained in the Information Repository for this site. Both the Administrative Record and the Information Repository are located at the Orlando Public Library.

As part of base closure for NTC Orlando, environmental investigations and studies have been conducted to evaluate the soil and groundwater conditions at OU 3 from past chemical handling, storage, and disposal practices. The Navy's studies of OU 3 indicated that several pesticide-related chemicals, particularly arsenic, were found in the shallow soil and shallow groundwater at SA 8 and 9. In addition, other chemicals of concern (COCs) such as herbicide compounds were detected in soil and groundwater. The studies concluded that the groundwater contamination is most likely the result of COCs leaching from soil. As a result, several cleanup and removal actions have been implemented to address soil and groundwater contamination. Contaminated soil has been excavated and removed during two Interim Remedial Actions (IRAs) in 1997 and 1999. Furthermore, the groundwater has been sampled, analyzed, and monitored to evaluate COC concentrations before and after the IRAs.

The purpose of remedial action at OU 3 is to monitor contamination at the site via a groundwater monitoring program, institutional controls, and site reviews. The IRA for soil, completed in May 1999, removed additional contaminated soil, thereby reducing the risk to humans and wildlife to acceptable levels for the intended reuse of the land, which is non-residential (recreational). Therefore, no further cleanup is required for site soil.

Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this IROD, may present a risk to public health, welfare, or the environment. The selected response action is necessary to protect public health. The U.S. Environmental Protection Agency (USEPA) and the State of Florida's Department of Environmental Protection (FDEP) concur with the remedial actions selected for OU 3.

1.3 DESCRIPTION OF THE SELECTED REMEDY.

The proposed remedial actions addressing contamination at OU 3 include (a) institutional controls (groundwater-use restrictions), (b) groundwater monitoring, and (c) site reviews. In addition, recent data from the groundwater monitoring program has indicated that more proactive remedial measures may be necessary. Accordingly, (d) bench scale pilot tests are in the planning stages to evaluate

three innovative remedial technologies that may be effective in more quickly reducing groundwater contaminant levels to below State and Federal cleanup criteria. Also, (e) three drive point wells will be installed along the shoreline of Lake Baldwin and added to the groundwater monitoring program to determine contaminant levels in groundwater at the point where the migration pathway from the source area to surface water is completed.

The operable unit described in this IROD is the third of four operable units identified at the NTC. The Remedial Investigation/Feasibility Study (RI/FS) (Harding Lawson Associates [HLA], 1999a) and Proposed Plan (PP) (HLA, 1999b) for OU 3 recommended that actions (a) through (c) be implemented. The USEPA and FDEP had concurred that, following the IRA soil removal (and thus the elimination of the source of contamination) in May 1999, monitoring of groundwater to determine if natural processes will reduce contaminant concentrations to permissible levels is an acceptable remedy. However, with more recent groundwater monitoring data indicating the possibility that groundwater may be entering Lake Baldwin with contaminant concentrations exceeding surface water standards, additional precautions have been implemented ([d] and [e], above). At any point in the monitoring program, the Navy, USEPA or FDEP may determine that the rate of contaminant reduction is inadequate, or that groundwater next to Lake Baldwin is in violation of surface water standards, and thereby decide to implement more active remedial measures as described in the RI/FS report (HLA, 1999a), or as proposed pending results from bench scale studies (summarized in (d), above).

The remedial actions selected for OU 3 are intended to address the principal threats and risks for OU 3 and are chosen as the interim remedy for OU 3. The final remedy will be chosen upon completion of the quarterly monitoring program and bench scale testing. Any changes to the remedy, as proposed herein, will be documented in a final ROD or ROD amendment. Each remedial action is summarized below.

Institutional Controls

Institutional controls (ICs) will be required at this parcel from the time that the IROD is implemented until such time as the remediation goals have been met and some of the ICs can be lifted. Without resort to the Covenant Deferral Request provisions of CERCLA § 12(h)(3)(C), the property cannot be transferred until the selected remedy is operating properly and successfully (OPS). Thus, until there is an OPS determination, it will be the responsibility of the Navy to restrict access to the parcel and assure that the public is protected from possible exposure to soil and groundwater contaminants. After the OPS determination, the ICs will accompany transfer documents and property deeds.

Prior to property transfer, the Navy will retain title to the land until the OPS determination, and will restrict access to the parcel by posting signs and conducting periodic visual inspections concurrently with sampling events in the long-term monitoring program. These measures will help to assure that soil cover has been maintained, that no unauthorized digging activities have taken place, and that no wells have been installed within the area of the groundwater restriction. The Navy or its contractor will conduct these inspections at least annually as long as ICs remain in effect. The inspections will include the inspection of deed records to ensure that the restrictions are memorialized with any transfer of restricted real property. If the Navy delegates verification of site conditions to its contractor, the Navy will be responsible for periodically (at least every five years) verifying the contractor's site inspection reports.

The institutional controls that will be implemented are listed below:

- Post signs in the vicinity of known soil contamination that was left in place at SAs 8 and 9. The soil was left in place because the risks to the wetland from active remediation were perceived to be greater than the risk of leaving the soil in place. The Navy or its contractor will verify whether the warning signs are still in place or whether there is any evidence of digging in these areas during the groundwater monitoring program. If the Navy delegates verification of site conditions to its contractor, the Navy will be responsible for periodically (at least every five years) verifying the contractor's site inspection reports.

- Disallow the use of surficial aquifer groundwater for drinking or irrigation by posting signs and conducting periodic visual inspections to assure that no unauthorized wells have been installed. After an OPS determination has been made and the property is deemed transferable by the USEPA and FDEP, the Navy will assure that language is written into transfer documents and property deeds which specifies the ICs that will remain in effect until contaminants in groundwater have been reduced to levels below State or Federal MCLs, whichever is lower. Furthermore, groundwater use restrictions shall be enacted in the deed(s) through a Restrictive Covenant granting a perpetual conservation easement to the Florida Department of Environmental Protection.

- Disallow future land use for residential development in areas where contaminated soil exceeds residential cleanup target levels. This would be achieved through restrictive covenants in the transfer documents and property deeds. The Navy will ensure that no residential development occurs in the restricted areas as long as ICs remain in effect.

- Implement annual written reminders of groundwater use restrictions to property owners, planning agencies, and permitting agencies. Annual reminders should stipulate that residential development is prohibited while ICs are in effect.

Groundwater Monitoring

- Sample groundwater from selected monitoring wells in the vicinity of OU 3. For each SA, 14 monitoring wells will be sampled, consisting of upgradient, downgradient, and source area wells. Initially, these wells will consist of the same wells being monitored by the CLEAN III Contractor during the first year of baseline sampling, which concluded in January 2000. As conditions change or site conditions become better understood, this list of wells may be modified. In addition, three drive point wells will be installed at SA 8 along the shoreline of Lake Baldwin to determine contaminant levels in groundwater along the migration pathway from the source area to surface water.

- Groundwater would be analyzed for only those compounds that previously exceeded primary and secondary standards, or basewide site screening concentrations; these include TCL semivolatile organic compounds (SVOCs), pesticides, herbicides, and certain TAL metals including iron, lead, antimony, manganese and arsenic.

- Sampling data in drive point wells and downgradient wells next to Lake Baldwin will be compared to surface water quality standards to evaluate the need for retaining certain parameters in the monitoring program.

- Perform sampling and analysis four times in the first year (i.e., quarterly) and annually thereafter, unless the data consistency between quarterly sampling episodes indicates that a different (i.e., more frequent) strategy is more appropriate.

- Every fifth year, analyze samples for target compound list and target analyte list (TCL/TAL) parameters (VOCs, SVOCs, pesticides, herbicides, and inorganics), unless the previous two rounds of sampling indicate that some parameters no longer need to be evaluated due to contaminant reduction to levels below the State's groundwater cleanup target levels (GCTLs). This, however, would hold true only for upgradient and source area wells, not for downgradient wells.

- Analytical results and data would be used to evaluate whether or not contaminant concentrations continue to decrease over time. Data would be summarized and managed on an annual basis for use in the five-year reviews. Annual groundwater sampling and monitoring will continue until action levels are met or changes in land use are proposed.

Site Reviews

- Site reviews would occur at least every 5 years until action levels are attained. Site reviews would consist of evaluating groundwater data, visual inspection for maintenance of ICs, and assessing changes in site conditions and uses.

- Based on a review of groundwater data and site conditions, the Navy will recommend: (1) no further action; (2) continued monitoring; or (3) implementation of other remedial action.

- At any point in the monitoring program, the Navy, USEPA or FDEP may determine that the rate of contaminant reduction is inadequate, or that groundwater next to Lake Baldwin is in violation of surface water standards, and thereby decide to implement more active remediation; such remedial techniques are listed in the Feasibility Study (HLA, 1999a) and could include Alternatives G-4 (Groundwater Extraction, Treatment, Discharge to POTW), and G-5 (Groundwater Extraction, Treatment, Discharge to Surface Water), or one of the technologies to be pilot-tested (see below).

Bench Scale Pilot Testing of Innovative Technologies

Due to recent analytical results that indicate the possibility that groundwater with contaminant levels exceeding surface water standards may be reaching Lake Baldwin, the Orlando Partnering Team (OPT), which includes representatives from the Navy, FDEP, and USEPA, decided to evaluate three innovative remedial technologies that show promise for reducing contaminant levels in groundwater. The three treatment technologies that will be evaluated are listed below in Table 1-1.

Table 1-1
Treatment Options Being Evaluated in Bench Scale Testing

Interim Record of Decision, Operable Unit 3
Naval Training Center
Orlando, Florida

Treatment Options	Physiochemical Mechanism	Advantages	Disadvantages
Iron modified zeolite	sorption/precipitation	• Works with As(III) and As(V) • Passes TCLP	• provides no organic removal
Surfactant modified zeolite	anion exchange	• Fixed charge not pH dependent • Surfactant may absorb organic contaminants	• Competition for exchange sites with common anions • Most effective with As(V)

Table 1-1 (Continued)
Treatment Options Being Evaluated in Bench Scale Testing

Interim Record of Decision, Operable Unit 3
Naval Training Center
Orlando, Florida

Treatment Options	Physiochemical Mechanism	Advantages	Disadvantages
Activated aluminum	sorption	• Strong sorption (irreversible) • Major anions don't compete • Widely used in water treatment	• PH sensitive (5-6) • Competitive with phosphate • Works best with As(V) • Does not address organics

The results of the bench scale testing will be evaluated and factored into the final decision at OU 3. Specific timelines for achieving cleanup targets and evaluation criteria will be included in the final ROD, based on evaluation of monitoring data and bench scale testing results.

1.4 DECLARATION STATEMENT.

The selected interim remedy for OU 3 attains the mandates of CERCLA Section 121, and to the maximum extent possible, the National Contingency Plan. The interim remedial action selected for OU 3 is protective of human health and the environment, complies with Federal and State regulatory requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost effective. The selected interim remedy does not satisfy the statutory preference for treatment as a principal element of the remedy. The remedial action will be reevaluated quarterly as additional monitoring data is collected and after results from bench scale testing have been assessed. The final remedial action will likely be composed of one or a combination of alternatives discussed in the Feasibility Study (including Alternative G-1 [Limited Action, including groundwater monitoring with evaluation of natural attenuation parameters], or groundwater treatment alternatives [G-4 and G-5]). However, data from the ongoing monitoring program and future bench scale studies may revise the final remedial strategy. Whatever remedial action is eventually chosen, it will have specific cleanup targets and timelines in place, and will include ample reviews to ensure that the remedy continues to provide adequate protection of human health and the environment.

1.5 IROD DATA CERTIFICATION CHECKLIST.

The following information is included in the Decision Summary (Section 2) of this IROD. Additional information can be found in the Administrative Record file for this site.

- Chemicals of concern and their respective concentrations.
- Baseline risk represented by the chemicals of concern
- Cleanup levels established for chemicals of concern and the basis for these levels.
- How source materials constituting principal threats are addressed.
- Current and reasonably anticipated future land use assumptions and current and potential future beneficial uses of ground water used in the baseline risk assessment and ROD.

- Potential land and groundwater use that will be available at the site as a result of the Selected Remedy.

- Estimated capital, annual operation and maintenance (O&M), and total present worth costs, discount rate, and the number of years over which the remedy cost estimates are projected.

- Key factor(s) that led to selecting the remedy (i.e., describe how the Selected Remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria, highlighting criteria key to the decision)

Based on the results of quarterly groundwater monitoring and bench scale testing, the key factors influencing remedy selection may be revised, with a subsequent change in the final remedy selection. Any such changes will be addressed in the final Record of Decision for OU 3.

1.6 AUTHORIZING SIGNATURE OF THE INTERIM REMEDY.

Wayne Hansel, P.E.
Base Realignment and Closure
Environmental Coordinator, Department of Navy

OCT 4, 2000
Date

2.0 DECISION SUMMARY

2.1 SITE NAME, LOCATION, AND DESCRIPTION.

OU 3 consists of SA 8 (Golf Course Greenskeeper's Storage Area) and SA 9 (Former Pesticide Handling and Storage Area). These areas are located in the southeast corner of the NTC Main Base, between Lake Baldwin and the former golf course (Figure 2-1). The NTC Main Base is located approximately 3 miles east of Interstate 4 and north of State Road 50, within the Orlando city limits (Figure 2-2). SA 8 is located at the end of Trident Lane (Figure 2-3) and SA 9 is located adjacent to Trident Lane, south and west of SA 8 (Figure 2-4).

2.2 SITE HISTORY AND ENFORCEMENT ACTIVITIES.

Pesticides and herbicides, along with equipment used to maintain the golf course, were stored at SA 8 for 20 to 30 years. SA 9 was the primary pesticide handling facility for the Main Base in the late 1960's and early 1970's. Pesticide mixing reportedly did not occur at this location after 1972, although chemicals may have been stored there until the buildings were demolished in 1981. Currently all structures have been removed from both SA 8 and SA 9.

OU 3 has undergone several phases of investigation. Summaries of these activities are presented in Table 2-1.

2.3 HIGHLIGHTS OF COMMUNITY PARTICIPATION.

The RI/FS Report for OU 3 was finalized and placed in the Information Repository in June 1999. The Proposed Plan for OU 3 was made available to the public in July 1999. These documents, and other IR program information, are available for public review in the Information Repository, which is located at the Orlando Public Library. A public comment period to solicit comments on the Proposed Plan was advertised in the *Orlando Sentinel* from July 1 through August 1, 1999. No responses were received during the public comment period; if comments had been received, Navy responses would have been included in this document. The public comment period advertisement also stated that a public meeting would be scheduled if anyone so requested; no requests were received.

A Restoration Advisory Board (RAB) was established for NTC, Orlando in 1994 after the base was selected for closure. The progress and results of activities at OU 3 have been presented at the bi-monthly RAB meetings, as appropriate, during that time. Community acceptance of the preferred alternative has been evaluated over the past year through presentations to the facility's Restoration Advisory Board (RAB). This board is composed of a group of community citizens who participate in reviewing and evaluating environmental cleanup at the base. RAB meetings are advertised and open to the general public, as well. Minutes from the RAB meetings are included in the information repository for NTC Orlando. The RAB has been briefed on the status of OU 3 and has agreed to the approach and recommendations made herein.

2.4 SCOPE AND ROLE OF INTERIM REMEDIAL ACTION SELECTED FOR OU 3.

NTC, Orlando was named as a Base Realignment and Closure (BRAC) installation in 1994. A BRAC Cleanup Plan (BCP) was developed subsequently for all of NTC, Orlando. The goal of the BCP process is to facilitate the disposal and reuse of BRAC installations while protecting human health and the environment. The City of Orlando and the Navy are parties to the transfer, with FDEP and USEPA acting as support

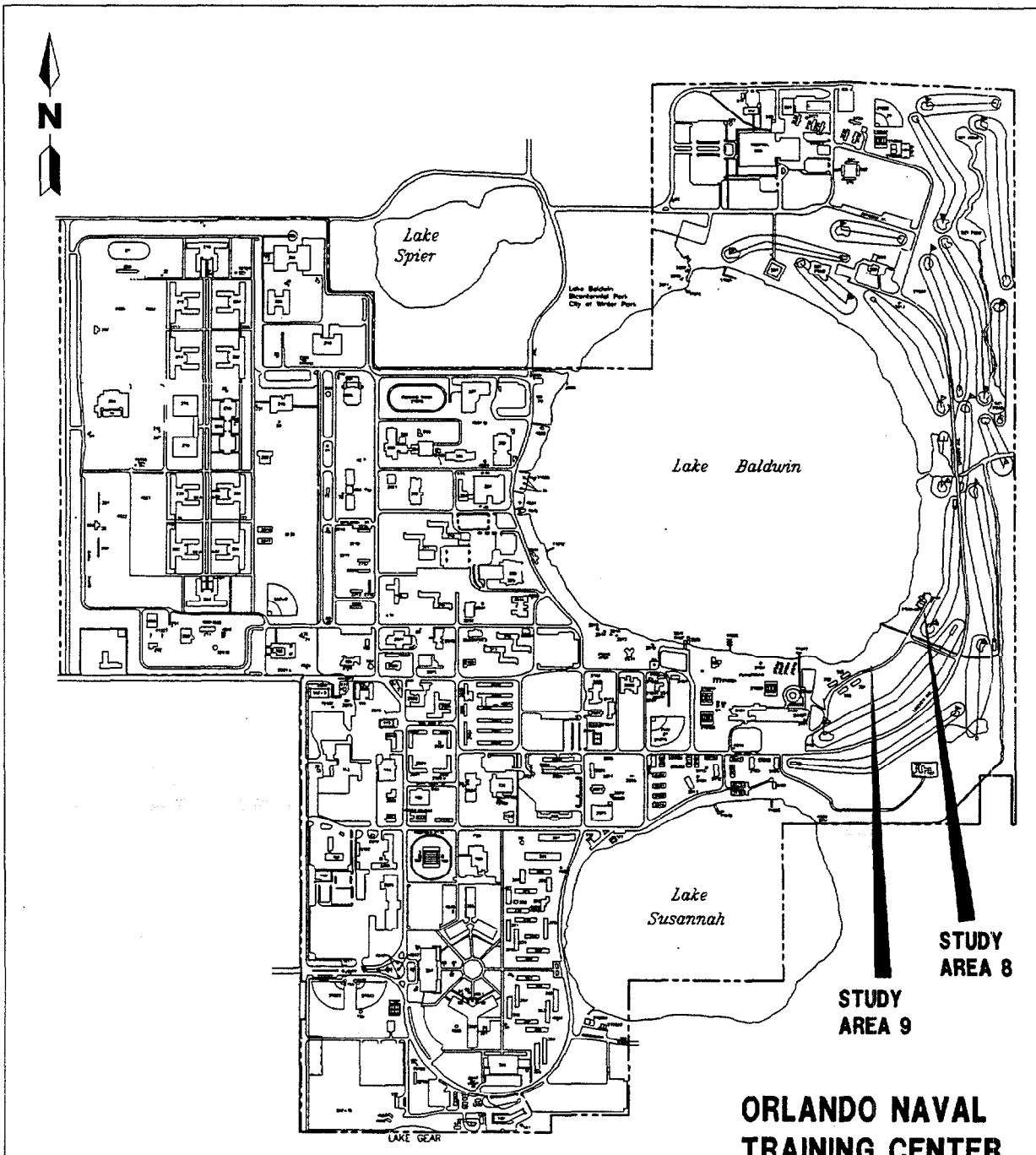

FIGURE 2-1
MAIN BASE
SITE LOCATION MAP
STUDY AREAS 8 AND 9

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INTERIM RECORD OF DECISION
OPERABLE UNIT 3

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

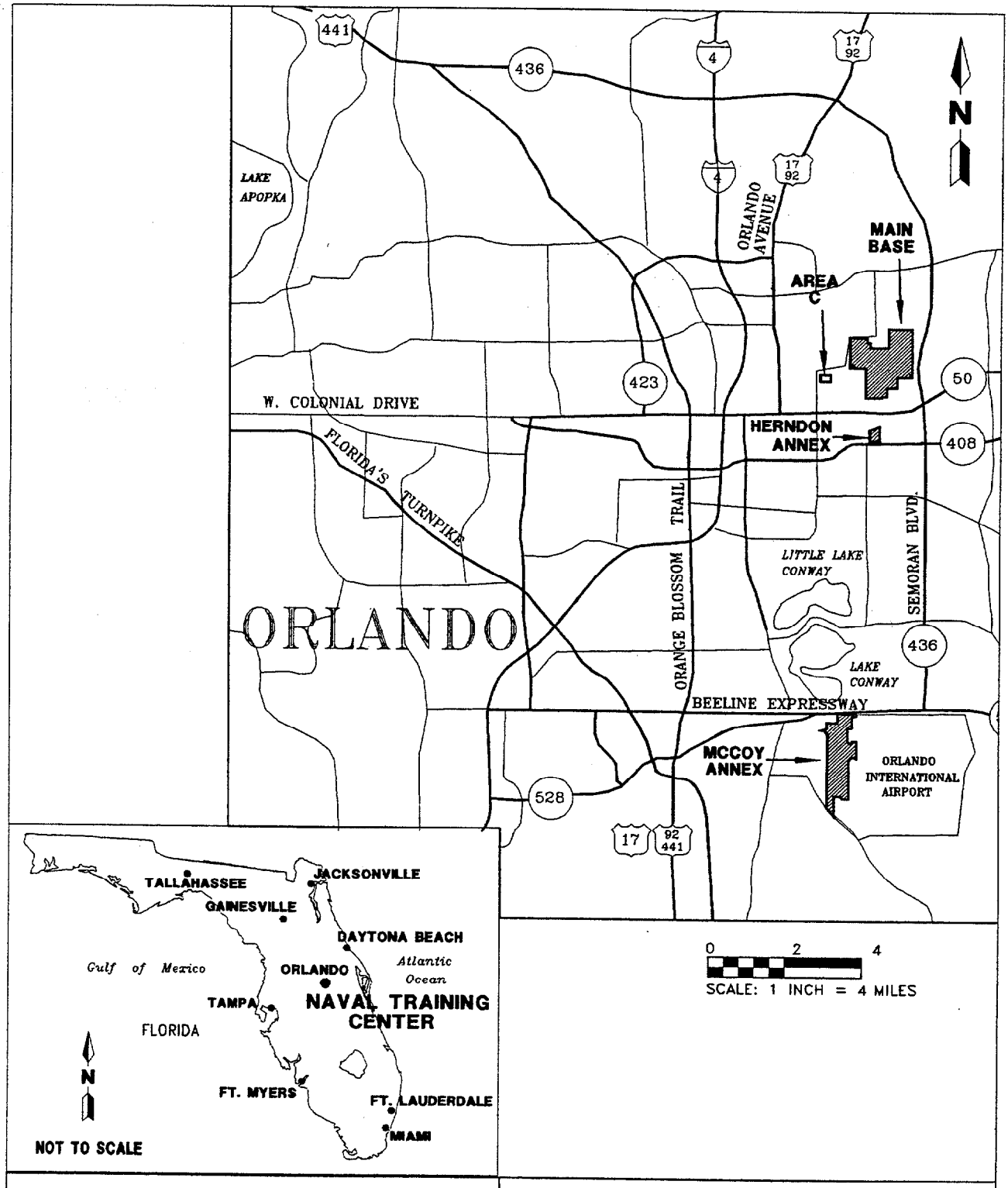

FIGURE 2-2
VICINITY MAP

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INTERIM RECORD OF DECISION
OPERABLE UNIT 3

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

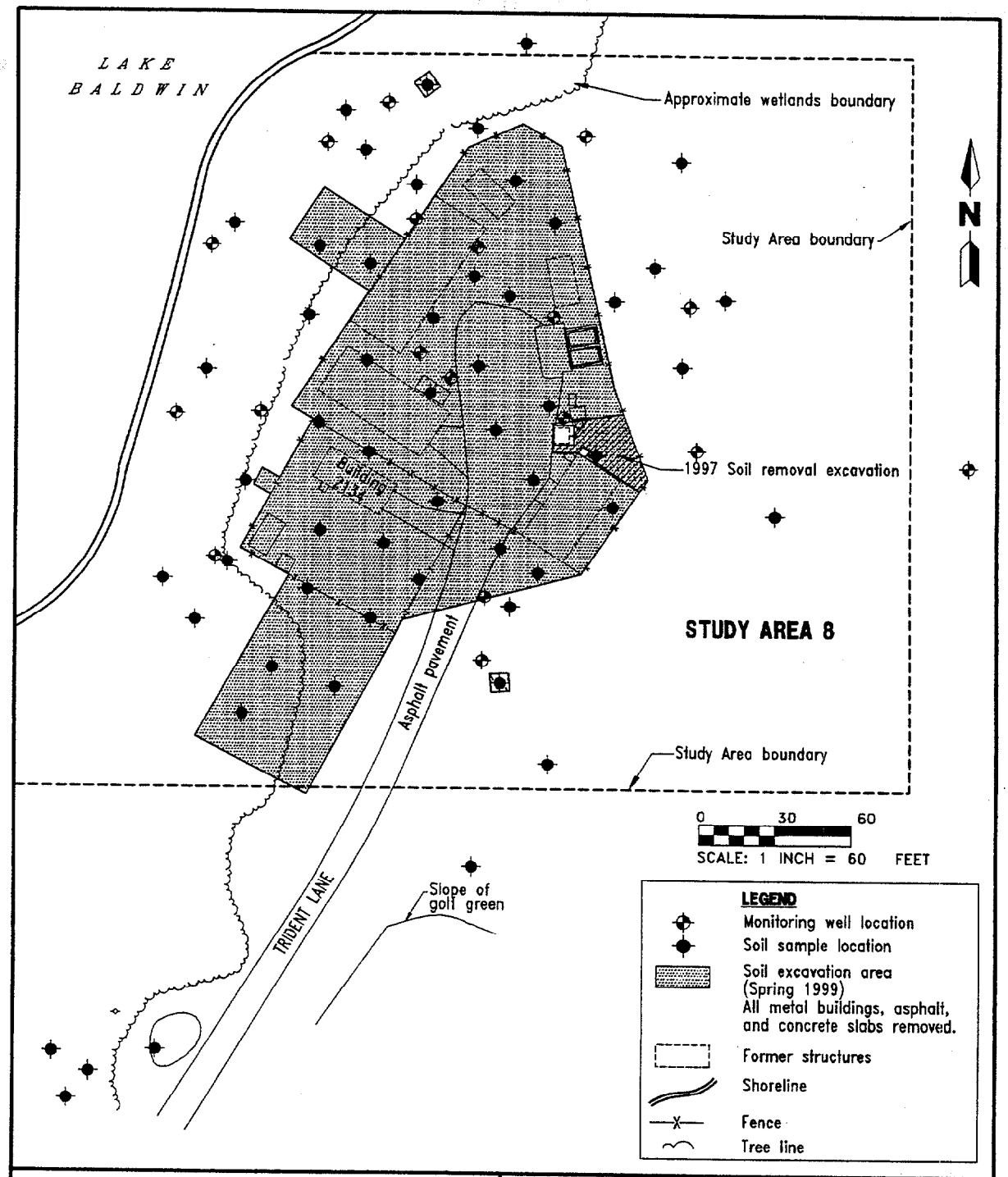

FIGURE 2-3
SITE FEATURES AND
SOIL EXCAVATION AREAS
STUDY AREA 8

INTERIM RECORD OF DECISION
OPERABLE UNIT 3

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

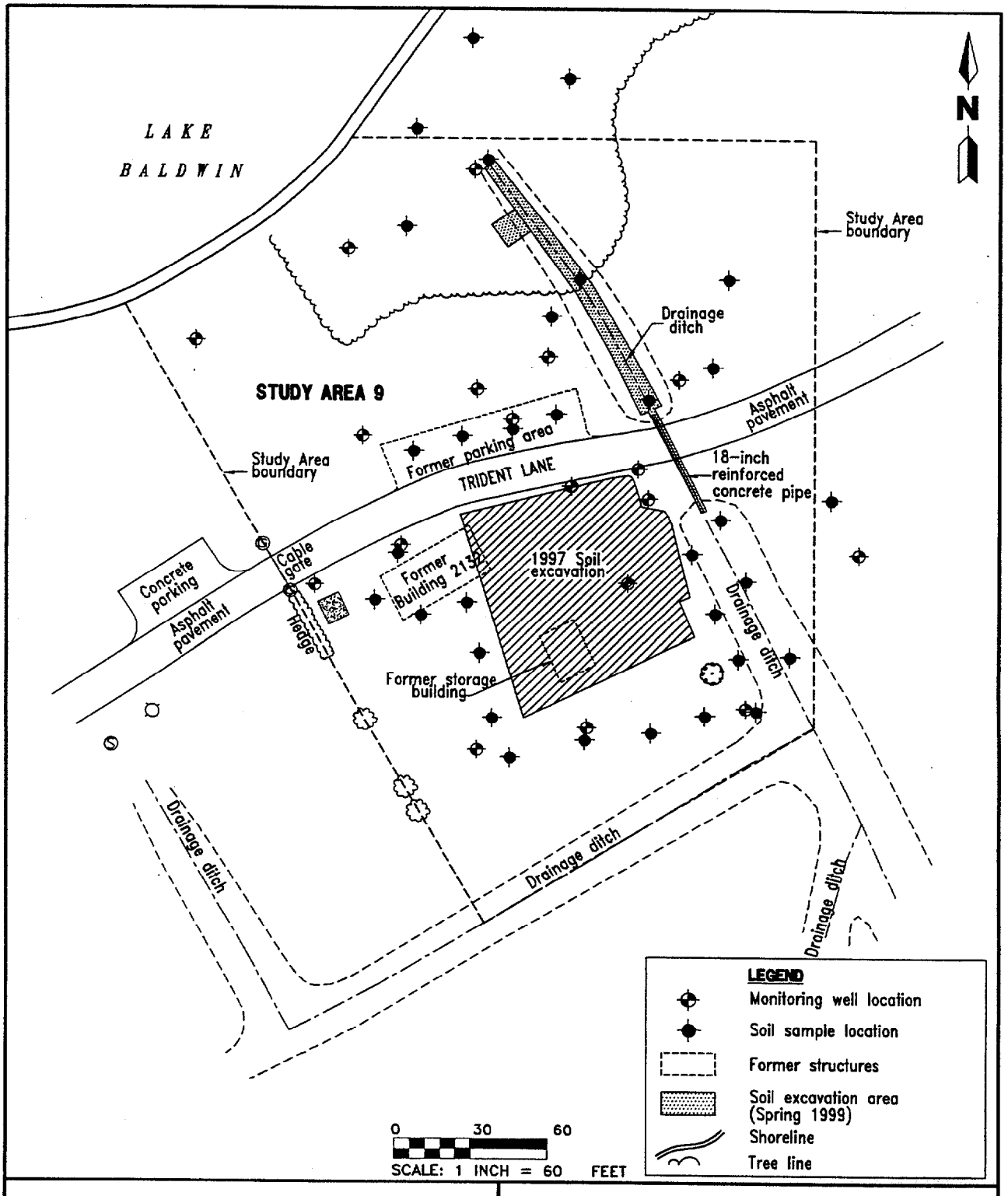

FIGURE 2-4
SITE FEATURES AND SOIL EXCAVATION AREAS STUDY AREA 9

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INTERIM RECORD OF DECISION OPERABLE UNIT 3

NAVAL TRAINING CENTER ORLANDO, FLORIDA

Table 2-1
Operable Unit 3 Investigative History

Interim Record of Decision, Operable Unit 3
Naval Training Center
Orlando, Florida

Date	Investigation Title	Activities	Findings
1985	Initial Assessment Study (IAS) of NTC, Orlando Facilities C.C. Johnson and Associates, 1985)	• Archival search and site walkovers.	• Nine potentially contaminated sites identified, including SA 9 which indicated that pesticides and herbicides may have been spilled or disposed of in the vicinity and a gravel drywell sump may be located there.
1986	Verification Study at NTC, Orlando Facilities (Geraghty & Miller, 1986)	• Installation and sampling of three wells at SA 9	• Ethylbenzene, phenol, 2-chlorophenol, 2,4-dichlorophenol and chlordane were detected in the wells at SA 9. • Recommendation for the installation of a fourth monitoring well. • Quarterly monitoring recommended at SA 9 for one year.
1994	Environmental Baseline Survey (ABB Environmental Services [ABB-ES], 1994)	• Record search and walkover of SA 8.	• Further investigation under the site screening program recommended.
1994	Site Screening Evaluation	• Surface soil and subsurface soil samples collected at SA 8 and SA 9. • Evaluation of aerial photographs at SA 9. • Installation and sampling of one monitoring well at SA 9 and four monitoring wells at SA 8.	• Arsenic, lead, and SVOCs detected at SA 9 in concentrations greater than Federal MCLs and/or FGGCs in groundwater samples. • PAHs and pesticides detected at concentrations greater than Florida residential SCGs in soil samples at SA 9. • Arsenic concentrations greater than background screening concentrations and benzo(a)pyrene concentrations exceeding Florida's residential SCGs were detected in surface soil samples. • Arsenic concentrations exceeding the Federal MCL and FGGCs were detected in groundwater at SA 8. • Recommended that an RI/FS be conducted at SA 8 and SA 9. • Further evaluation of surface and groundwater at SA 9 needed.

See notes at end of table.

Table 2-1 (Continued)
Operable Unit 3 Investigative History

Interim Record of Decision, Operable Unit 3
Naval Training Center
Orlando, Florida

Date	Investigation Title	Activities	Findings
1997-1999	Remedial Investigation, Operable Unit 3, Naval Training Center, Orlando, Florida (HLA, 1999)	SA 8 and SA 9: • Surface soil sampling. • HHRA conducted. • ERA conducted. • Geophysical survey. • Ecological surveys • Wetland delineation survey SA 8: • Hydraulic conductivity tests performed at two wells. • Installation, development, and sampling of 10 microwells and 4 well points. • Collection of groundwater samples from 4 existing monitoring wells. • Toxicity testing for two test species from 2 well points and 1 microwell. SA 9: • Installation, development, and sampling of 11 microwells and 3 well points. • Collection of groundwater samples from 4 existing monitoring wells.	• Contamination in soil and groundwater at SA 8 and SA 9 poses unacceptable cancer and noncancer risks to human receptors. • Potential risks for ecological receptors exposed to surface soil and groundwater were identified at SA 8. • SA 8: Arsenic, PAHs (primarily benzo(a)pyrene), and MCPP exceed their screening values for soil. Arsenic, MCPA, and MCPP exceed their screening values for groundwater. • Potential risks were identified for terrestrial wildlife exposed to surface soil at SA 9. • SA 9: Arsenic, alpha-chlordane, gamma-chlordane, 4,4'-DDD, and MCPA exceeded screening values for soil. Arsenic, 2,4-dichlorophenol, alpha-, and gamma-BHC, MCPA, and MCPP exceeded screening values for groundwater. • Based on the results of the RI, an FS was conducted.
1997-1999	Feasibility Study, Operable Unit 3, Naval Training Center, Orlando, Florida (HLA, 1999)	• Evaluated potential remedial alternatives based on engineering factors, implementability, environmental and public health concerns, and costs.	• Identified 4 remedial action objectives for SA 8 and 3 remedial action objectives for SA 9. • Five remedial alternatives to address soil contamination were developed. • Five remedial alternatives to address groundwater contamination were developed.
March 1999 to January 2000	Quarterly monitoring well resampling events (4), Operable Unit 3, Navy Installation Restoration Program, Naval Training Center, Orlando, Florida (Tetra Tech NUS [TtNUS], 1999)	Resampled all monitoring wells at OU 3 (Study Areas 8 and 9) to determine baseline contaminant levels prior to Environmental Detachment Charleston's scheduled Interim Remedial Action, a soil removal, and effects of source removal on contaminant concentration fluctuations as a function of time.	Resampling results initially indicated that the two pesticide compounds, MCPA and MCPP, were no longer present at detectable concentrations, but later sampling indicated they were still present. Arsenic concentrations fluctuated over a wide range of concentrations, and were present along the shoreline of Lake Baldwin at concentrations exceeding MCLs.

Notes: NTC = Naval Training Center.
OU = operable unit.
MCL = maximum contaminant level.
VOC = volatile organic compound.
PCB = polychlorinated biphenyl.
TAL = target analyte list.
TCL = target compound list.
USEPA = U.S. Environmental Protection Agency.
TPH = total petroleum hydrocarbons.
SVOC = semivolatile organic compound.
HHRA = human health risk assessment.
ERA = ecological risk assessment.
FDEP = Florida Department of Environmental Protection.

agencies with respect to environmental restoration activities. However, the community at large, potential developers, and other site stakeholders have been informed and included in both the cleanup and transfer decision-making processes through regular meetings of the RAB and the Land Reuse Authority.

A phased approach to environmental evaluation and restoration at NTC, Orlando has allowed identification and prioritization of areas requiring remedial actions. This has allowed cleanup efforts to focus on those parcels that pose potential risk to human health or the environment, as well as those parcels for which reuse and economic redevelopment plans have already been identified. The areas south of Lake Baldwin at Main Base, which includes OU 3, are such parcels.

This IROD addresses OU 3 and the associated contaminated groundwater of SA 8 and SA 9. The purpose of this response is to prevent current or future exposure to contaminated groundwater.

While further study of cleanup alternatives is undertaken, and in consideration of the proposed reuse of the area including OU 3, the Orlando Partnering Team (OPT), which includes representatives from the Navy, FDEP, and USEPA, is proposing the following plan to address the potential risk from site contamination:

- No Further Action is expected to address soil contamination. The contaminated soil has been removed from the site, with the exception of some isolated soils within the wetland areas along Lake Baldwin, and the overall potential risk has been reduced to acceptable levels for the intended reuse of the property, which is non-residential (recreational).

- Institutional controls would be implemented to prevent use of contaminated groundwater and to restrict land use to non-residential (recreational).

- Monitoring of contaminated groundwater to track restoration and ensure the continued protection of human health and the environment as site use and conditions change with time.

The institutional controls alluded to in the second bullet above will be required at this parcel from the time that the IROD is implemented until a Final ROD is in place, remediation goals have been met and some of the ICs can be lifted. Without resort to the Covenant Deferral Request provisions of CERCLA § 12(h)(3)(C), the property cannot be transferred until the selected remedy is operating properly and successfully (OPS). Thus, until there is an OPS determination, it will be the responsibility of the Navy to restrict access to the parcel and assure that the public is protected from possible exposure to soil and groundwater contaminants. After the OPS determination, the ICs will accompany transfer documents and property deeds.

Prior to property transfer, the Navy will retain title to the land until the OPS determination, and will restrict access to the parcel by posting signs and conducting periodic visual inspections concurrently with sampling events in the long-term monitoring program. The periodic inspections will help assure that no unauthorized residential development has occurred and that no wells have been installed within the area of groundwater restriction. The Navy or its contractor will conduct these inspections at least annually as long as ICs remain in effect. The inspections will include the inspection of property deed records to ensure that the restrictions are memorialized with any transfer of restricted real property. If the Navy delegates verification of site conditions to its contractor, the Navy will be responsible for periodically (at least every five years) verifying the contractor's site inspection reports.

At the time of the property transfer, the Navy will include language in the transfer documents that has been developed for other parcels at the NTC, similar to the following:

"Institutional controls at Operable Unit 3 will consist of administrative measures taken to prevent exposure of human receptors to surface soil that exceeds recreational screening criteria in certain

wetland areas where remediation would have destroyed ecological habitat. Institutional controls will also be taken to prevent exposure of human receptors to contaminated groundwater in the surficial aquifer. These institutional controls will be established at the time of property transfer, employing deed restrictions, notices, and agreements in a layering strategy to mutually reinforce the goals of the institutional controls. To provide for enforceability of the institutional controls, a Restrictive Covenant shall be applied to the property implementing those land and groundwater use restrictions. The Restrictive Covenant shall grant the FDEP a perpetual conservation easement on the property that shall run with the land and the title to the property and that will be binding on all subsequent owners of the property. The Restrictive Covenant shall also be enforceable by the Department through injunctive relief or other available remedies. The Restrictive Covenant shall only be released with FDEP concurrence.

"The unauthorized excavation of surface soil and use of groundwater within the soil and groundwater restriction boundary(s) shall be prohibited (including drinking and irrigation) through the Restrictive Covenant until released by the Navy with FDEP concurrence. The unauthorized excavation of soil and installation of new wells for any purpose other than assessing soil and groundwater quality or remediating ground-water contamination shall be prohibited through the covenant. The disturbance of existing groundwater remediation systems, including monitoring wells, will also be prohibited.

"The Navy will issue a ground-water use advisory to the St. Johns River Water Management District, the Orange County Environmental Protection Division, and the City of Orlando that no surficial wells should be permitted while the restriction is in effect. The groundwater restrictions shall remain in place until such time that groundwater cleanup goals are met and the restrictions have been removed by the Navy with FDEP concurrence."

The institutional controls that will be implemented are listed below:

- Post signs in the vicinity of known soil contamination that was left in place at SAs 8 and 9. The soil was left in place because the risks to the wetland from active remediation were perceived to be greater than the risk of leaving the soil in place. The Navy or its contractor will verify whether the warning signs are still in place or whether there is any evidence of digging in these areas during the groundwater monitoring program.

- Disallow the use of surficial aquifer groundwater for drinking or irrigation by posting signs and conducting periodic visual inspections to assure that no unauthorized wells have been installed. After an OPS determination has been made and the property is deemed transferable by the USEPA and FDEP, the Navy will assure that language is written into transfer documents and property deeds which specifies the ICs that will remain in effect until contaminants in groundwater have been reduced to levels below State or Federal MCLs, whichever is lower. Furthermore, groundwater use restrictions shall be enacted in the deed(s) through a Restrictive Covenant granting a perpetual conservation easement to the Florida Department of Environmental Protection.

- Disallow future land use for residential development in areas where contaminated soil exceeds residential cleanup target levels. This would be achieved through restrictive covenants in the transfer documents and property deeds. The Navy will ensure that no residential development occurs in the restricted areas as long as ICs are in effect.

- Implement annual written reminders of groundwater use restrictions to property owners, planning agencies, and permitting agencies. Annual reminders should stipulate that residential development is prohibited while ICs are in effect.

2.5 SITE CHARACTERISTICS.

The goal of the RI conducted for OU 3 was to collect data to determine the nature and extent of releases of site-derived contaminants; identify potential pathways of migration via soil or groundwater; and evaluate risks to human and ecological receptors. The goal of the FS was to identify remedial action objectives (RAOs), identify remedial technologies and alternatives that will achieve RAOs, and evaluate the selected alternatives to provide the basis for selection in the PP.

2.5.1 Physical Settings

The following is a brief summary of physical conditions at both SAs.

2.5.1.1 Study Area 8

The Greenskeeper's Storage Area is located in the southeast portion of the Main Base at NTC, Orlando, between Lake Baldwin and the recently closed golf course. A paved cul-de-sac (Trident Lane) occupied the central portion of the site. As shown on Figure 2-3, metal buildings, concrete slab, and asphalt were removed from SA 8. The remainder of the site is sparsely vegetated, with trees bordering the fence in many areas. A chain link fence currently surrounds the site effectively limiting foot traffic through the area.

A strip of dense wooded wetlands up to 60 feet wide lies between the northwestern fenced perimeter and the open water of Lake Baldwin. The distance from the end of Trident Lane to the water's edge at Lake Baldwin is approximately 135 feet. The eastern side of the fenced complex is bordered by grassy fairways of the recently closed golf course.

The ground surface is relatively flat, with a slight regional slope to the northwest, towards the bordering wetlands along Lake Baldwin. There is a slight but noticeable drop off (approximately 1.5 feet) at the edge of the wetlands, just outside the northwestern fenceline. Surface runoff has been observed to pool in this area after significant rainstorm events. Runoff following storm events has also been observed to travel northeast along Trident Lane, towards the end of the cul-de-sac, and also southwest, from the roadway towards the gate.

2.5.1.2 Study Area 9

The former Pesticide Handling and Storage Area for Main Base is located in the southeast portion of Main Base, southeast of Lake Baldwin. Building 2132 and a smaller, unnumbered storage building were formerly located south of what is now Trident Lane, and directly north of the fourth hole fairway of the former golf course. These buildings were demolished in 1981. Rinse water used to clean application equipment and empty containers was reportedly discharged inside Building 2132 to a drain connected to a gravel sump. This sump was excavated and removed as part of the IRA at SA 9 in 1997 (Environmental Detachment Charleston, S.C. [DET], 1997).

The shore of Lake Baldwin is approximately 150 feet northwest of the location of former Building 2132. Trident Lane crosses the SA from southwest to northeast. Shallow drainage swales (several feet wide and 1 foot deep) border the south and east sides of the site. The ground surface slopes gently towards the eastern swale, and there is a slight regional slope towards the northwest. The eastern drainage swale crosses under Trident Lane and continues into the wooded wetland area bordering Lake Baldwin. During heavy rainfall events, overland flow has been observed to travel northeast, along Trident Lane, from the site to the eastern drainage swale.

The site currently consists of a large, flat grassy field. The entire surface of SA 9 is grass-covered, including the area backfilled following the 1997 IRA. There are scattered, mature trees, particularly south of the former building locations. Access to the entire area is unrestricted.

2.5.2 Hydrogeology

The hydrogeology at OU 3 was evaluated through preparation of potentiometric surface maps and permeability testing of shallow monitoring wells across both SAs. These data were evaluated for the shallow zone of the surficial aquifer.

2.5.2.1 Water Table Surface Mapping

In order to determine the direction of groundwater flow in the shallow surficial aquifer at OU 3, static water-level data measurements were made at monitoring wells across the area. These data were used to map the water table. Locally, the water table surface mimics the topography of the area with the groundwater flow from the areas of highest elevation toward Lake Baldwin.

The spatial variation and seasonal fluctuation in water level due to rain is reflected in the hydraulic gradient at both sites. Data collected in 1997 indicate a groundwater hydraulic gradient of approximately 1×10^{-2} feet per foot (ft/ft) at both sites with flow generally toward Lake Baldwin. Data collected in 1998 indicate a gradient of approximately 5×10^{-3} ft/ft with little change in flow direction. The reduced gradient may be due to the greater decrease in water-level elevation over time in wells further from Lake Baldwin.

2.5.2.2 Aquifer Characterization Results

At each SA, rising-head tests were performed at selected monitoring wells. Results showed that the hydraulic conductivity value for the wells at SA 8 averaged 2.74 feet per day (ft/day). Hydraulic conductivity values were more variable at SA 9, averaging 2.09×10^{-1} ft/day in OLD-09-02 and 6.8×10^{-2} ft/day in OLD-09-04.

The groundwater-flow velocity in the surficial aquifer at SA 8 ranged from 3.9×10^{-2} to 7.8×10^{-2} ft/day. The average groundwater velocity for the surficial aquifer at SA 8 is 5.8×10^{-2} ft/day. Since the hydraulic conductivity is more variable at SA 9, groundwater-flow velocities are more variable. Calculated velocities range from a low of 9.71×10^{-4} ft/day at low hydraulic gradient conditions (5×10^{-3} ft/ft) to a high of 5.97×10^{-3} ft/day at high hydraulic gradient conditions (1×10^{-2} ft/ft). The higher calculated groundwater velocity at SA 8 is due to higher hydraulic conductivity in this area, since the hydraulic gradient is roughly the same at both SAs.

2.5.3 Surface Soil

The contaminants at OU 3 that exceed screening values are believed to be related to the handling and storage of pesticides and herbicides and, to a limited extent, to the operation and maintenance (O&M) of landscaping equipment and other local road traffic.

Although contaminants in soil (primarily arsenic) have been detected upgradient of the former work areas at SA 8 and SA 9 at concentrations above screening values, these concentrations were considerably lower than concentrations detected at and downgradient of the source areas. Their presence is likely the result of routine application of pesticide and herbicide compounds to landscaped areas and the golf course greens.

The soil contamination resulting from greenskeeper activities at SA 8 were concentrated in the fenced compound and the immediate vicinity. The highest contaminant concentrations were located within the fence or within the heavily vegetated area just west of the fence. Because of the high arsenic levels, an IRA was implemented in the most heavily contaminated portions of SA 8 in September 1997, resulting in the excavation and disposal of 36 tons of contaminated soil. Some of the less heavily contaminated soils were left in place in 1997, with the expectation that they would be evaluated and potentially remediated subsequent to submittal of the Feasibility Study. In April 1999, the DET mobilized at OU 3 and excavated nearly all remaining contaminated soil, primarily within the fenced area of the parcel (Figure 2-3). Section 2.11.1 contains additional information about the IRA soil removal, and the DET's completion report is included as Appendix B.

Soil contaminants at SA 9 were concentrated in two areas. The first area is located in the flat grassy area east of former Building 2132 in which the 1997 IRA occurred, resulting in the excavation and disposal of 946 tons of pesticide-contaminated soil in September 1997. The second area is located along the drainage swale, which has been a receptor of surface runoff from the work area for many years. It appeared that contaminated sediment had accumulated at the point where the swale entered the heavily vegetated areas, based on the finding that concentrations at that point were higher than concentrations in all other samples collected from the swale and wetlands both above and below that point. Samples results confirmed that contamination did not extend laterally beyond the swale. The soil in the swale area of SA 9 was excavated and disposed of during a second IRA in April and May 1999 (Figure 2-4).

Soil samples were collected in the wetland area to evaluate concentrations of soil likely to migrate overland and be deposited into Lake Baldwin as sediment. Although contaminants were detected in wetland soil at both SAs, concentrations generally showed a significant decrease from the concentrations located at the source areas.

Since the completion of the IRA soil removal by the Environmental Detachment Charleston in May 1999, most remaining soil at OU 3 meets soil cleanup criteria required for the intended reuse, which is non-residential (recreational). In several instances, soil exceeding recreational cleanup criteria was left in place because the exceedances were isolated, adjacent to and within a wetland, and the overall exposure to the area would be protective of recreational users. In addition, the potential harm to ecological receptors and biota from soil removal activities in the wetlands was deemed to be more harmful than the benefit that would result from soil remediation.

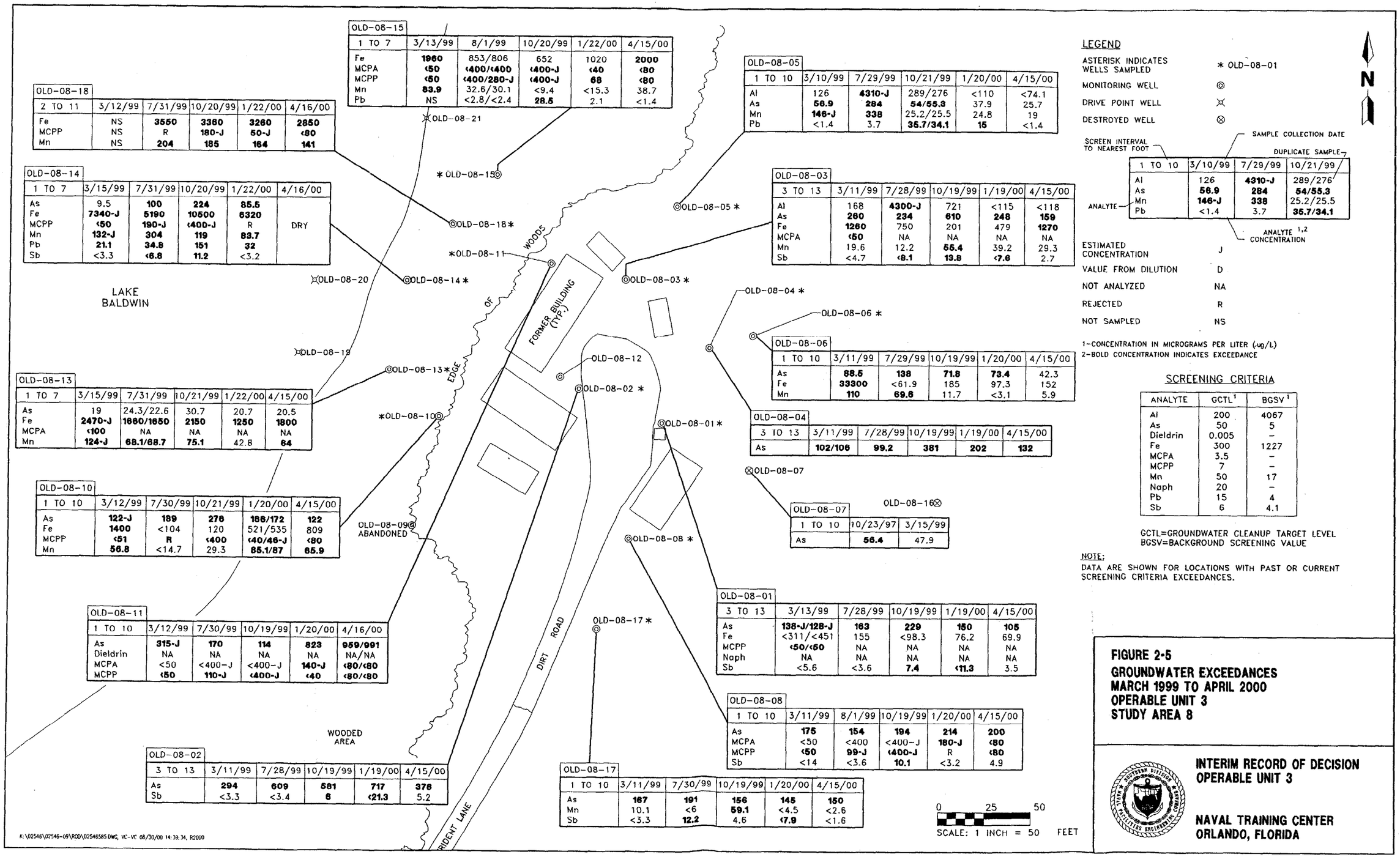
2.5.4 Groundwater

At SA 8, four monitoring wells were installed during site screening (Figure 2-3). During the first phase of the RI/FS, eight wells were installed at SA 8. During the second phase at SA 8, two additional wells and one additional well point were installed. Groundwater samples collected during both RI/FS sampling phases were analyzed for SVOCs, pesticides, polychlorinated biphenyls (PCBs), herbicides, inorganics, total organic carbon (TOC), and total suspended solids (TSS). Selected wells were also analyzed for arsenic speciation and related parameters.

At SA 9, four monitoring wells were installed during site screening (Figure 2-4). During the first phase of the RI/FS, three shallow well points and nine wells were installed at SA 9. During the second phase at SA 9, two additional wells were installed. Groundwater samples during the first RI/FS sampling round were analyzed for SVOCs, pesticides and PCBs, herbicides, inorganics, TOC, and TSS. During the second phase, samples were analyzed for herbicides, inorganics, TOC, and TSS. Selected wells were also analyzed for arsenic speciation and related parameters.

Lake Baldwin is located downgradient of both SAs 8 and 9. Well points were installed adjacent to the lake edge at both SAs to evaluate groundwater discharge to the lake. Arsenic is the primary COC in groundwater at both SAs.

At SA 8, in the October 1999 quarterly sampling, arsenic exceeded both surface water standards and GCTLs at one of the four well points adjacent to Lake Baldwin (Figure 2-5). In addition, MCPP and lead were each detected in one well point at concentrations exceeding the Florida GCTL. More recently at SA 8, in the January 2000 quarterly sampling (unvalidated), MCPP was detected in three out of four well points, and arsenic in two out of four well points at concentrations exceeding the Florida GCTL. The OPT is evaluating the data and will make a decision as to whether or not active remediation is necessary to prevent shallow groundwater beneath SA 8 from reaching Lake Baldwin.


OLD-08-15
1 TO 7 | 3/13/99 | 8/1/99 | 10/20/99 | 1/22/00 | 4/15/00
Fe | 1960 | 853/806 | 652 | 1020 | 2000
MCPA | <50 | <400/<400 | <400-J | <40 | <80
MCPP | <50 | <400/280-J | <400-J | 68 | <80
Mn | 83.9 | 32.6/30.1 | <9.4 | <15.3 | 38.7
Pb | NS | <2.8/<2.4 | 28.5 | 2.1 | <1.4
OLD-08-18
2 TO 11 | 3/12/99 | 7/31/99 | 10/20/99 | 1/22/00 | 4/16/00
Fe | NS | 3550 | 3380 | 3260 | 2850
MCPP | NS | R | 180-J | 50-J | <80
Mn | NS | 204 | 185 | 164 | 141
OLD-08-14
1 TO 7 | 3/15/99 | 7/31/99 | 10/20/99 | 1/22/00 | 4/16/00
As | 9.5 | 100 | 224 | 85.5 |
Fe | 7340-J | 5190 | 10500 | 6320 |
MCPP | <50 | 190-J | <400-J | R | DRY
Mn | 132-J | 304 | 119 | 83.7 |
Pb | 21.1 | 34.8 | 151 | 32 |
Sb | <3.3 | <6.8 | 11.2 | <3.2 |
OLD-08-05
1 TO 10 | 3/10/99 | 7/29/99 | 10/21/99 | 1/20/00 | 4/15/00
Al | 126 | 4310-J | 289/276 | <110 | <74.1
As | 56.9 | 284 | 54/55.3 | 37.9 | 25.7
Mn | 146-J | 338 | 25.2/25.5 | 24.8 | 19
Pb | <1.4 | 3.7 | 35.7/34.1 | 15 | <1.4
OLD-08-03
3 TO 13 | 3/11/99 | 7/28/99 | 10/19/99 | 1/19/00 | 4/15/00
Al | 168 | 4300-J | 721 | <115 | <118
As | 260 | 234 | 610 | 248 | 159
Fe | 1260 | 750 | 201 | 479 | 1270
MCPA | <50 | NA | NA | NA | NA
Mn | 19.6 | 12.2 | 55.4 | 39.2 | 29.3
Sb | <4.7 | <8.1 | 13.8 | <7.6 | 2.7
OLD-08-06
1 TO 10 | 3/11/99 | 7/29/99 | 10/19/99 | 1/20/00 | 4/15/00
As | 88.5 | 138 | 71.8 | 73.4 | 42.3
Fe | 33300 | <61.9 | 185 | 97.3 | 152
Mn | 110 | 69.8 | 11.7 | <3.1 | 5.9
OLD-08-04
3 TO 13 | 3/11/99 | 7/28/99 | 10/19/99 | 1/19/00 | 4/15/00
As | 102/106 | 99.2 | 381 | 202 | 132
OLD-08-13
1 TO 7 | 3/15/99 | 7/31/99 | 10/21/99 | 1/22/00 | 4/15/00
As | 19 | 24.3/22.6 | 30.7 | 20.7 | 20.5
Fe | 2470-J | 1660/1650 | 2150 | 1250 | 1800
MCPA | <100 | NA | NA | NA | NA
Mn | 124-J | 68.1/68.7 | 75.1 | 42.8 | 64
OLD-08-10
1 TO 10 | 3/12/99 | 7/30/99 | 10/21/99 | 1/20/00 | 4/15/00
As | 122-J | 189 | 278 | 186/172 | 122
Fe | 1400 | <104 | 120 | 521/535 | 809
MCPP | <51 | R | <400 | <40/46-J | <80
Mn | 56.8 | <14.7 | 29.3 | 85.1/87 | 65.9
OLD-08-11
1 TO 10 | 3/12/99 | 7/30/99 | 10/19/99 | 1/20/00 | 4/16/00
As | 315-J | 170 | 114 | 823 | 959/991
Dieldrin | NA | NA | NA | NA | NA/NA
MCPA | <50 | <400-J | <400-J | 140-J | <80/<80
MCPP | <50 | 110-J | <400-J | <40 | <80/<80
OLD-08-02
3 TO 13 | 3/11/99 | 7/28/99 | 10/19/99 | 1/19/00 | 4/15/00
As | 294 | 609 | 581 | 717 | 376
Sb | <3.3 | <3.4 | 6 | <21.3 | 5.2
OLD-08-01
3 TO 13 | 3/13/99 | 7/28/99 | 10/19/99 | 1/19/00 | 4/15/00
As | 138-J/128-J | 163 | 229 | 150 | 105
Fe | <311/<451 | 155 | <98.3 | 76.2 | 69.9
MCPP | <50/<50 | NA | NA | NA | NA
Naph | NA | NA | NA | NA | NA
Sb | <5.6 | <3.6 | 7.4 | <11.3 | 3.5
OLD-08-08
1 TO 10 | 3/11/99 | 8/1/99 | 10/19/99 | 1/20/00 | 4/15/00
As | 175 | 154 | 194 | 214 | 200
MCPA | <50 | <400 | <400-J | 180-J | <80
MCPP | <50 | 99-J | <400-J | R | <80
Sb | <14 | <3.6 | 10.1 | <3.2 | 4.9
OLD-08-17
1 TO 10 | 3/11/99 | 7/30/99 | 10/19/99 | 1/20/00 | 4/15/00
As | 167 | 191 | 156 | 145 | 150
Mn | 10.1 | <6 | 59.1 | <4.5 | <2.6
Sb | <3.3 | 12.2 | 4.6 | <7.9 | <1.6
OLD-08-07
1 TO 10 | 10/23/97 | 3/15/99
As | 56.4 | 47.9
OLD-08-21
OLD-08-15
OLD-08-18
OLD-08-05
OLD-08-14
OLD-08-20
OLD-08-19
OLD-08-03
OLD-08-04
OLD-08-06
OLD-08-13
OLD-08-12
OLD-08-02
OLD-08-10
OLD-08-09
ABANDONED
OLD-08-11
OLD-08-01
OLD-08-16
OLD-08-08
OLD-08-17
OLD-08-07
LAKE BALDWIN
WOODS
EDGE OF
FORMER BUILDING (TYP.)
WOODED AREA
DIRT ROAD
TRIDENT LANE
N
0 25 50
SCALE: 1 INCH = 50 FEET
LEGEND
ASTERISK INDICATES WELLS SAMPLED * OLD-08-01
MONITORING WELL
DRIVE POINT WELL
DESTROYED WELL
SCREEN INTERVAL TO NEAREST FOOT
SAMPLE COLLECTION DATE
DUPLICATE SAMPLE
1 TO 10 | 3/10/99 | 7/29/99 | 10/21/99
Al | 126 | 4310-J | 289/276
As | 56.9 | 284 | 54/55.3
Mn | 146-J | 338 | 25.2/25.5
Pb | <1.4 | 3.7 | 35.7/34.1
ANALYTE
ANALYTE 1,2 CONCENTRATION
ESTIMATED CONCENTRATION J
VALUE FROM DILUTION D
NOT ANALYZED NA
REJECTED R
NOT SAMPLED NS
1-CONCENTRATION IN MICROGRAMS PER LITER (ug/L)
2-BOLD CONCENTRATION INDICATES EXCEEDANCE
SCREENING CRITERIA
ANALYTE | GCTL1 | BGSV1
Al | 200 | 4067
As | 50 | 5
Dieldrin | 0.005 | –
Fe | 300 | 1227
MCPA | 3.5 | –
MCPP | 7 | –
Mn | 50 | 17
Naph | 20 | –
Pb | 15 | 4
Sb | 6 | 4.1
GCTL=GROUNDWATER CLEANUP TARGET LEVEL
BGSV=BACKGROUND SCREENING VALUE
NOTE:
DATA ARE SHOWN FOR LOCATIONS WITH PAST OR CURRENT SCREENING CRITERIA EXCEEDANCES.
FIGURE 2-5
GROUNDWATER EXCEEDANCES
MARCH 1999 TO APRIL 2000
OPERABLE UNIT 3
STUDY AREA 8
INTERIM RECORD OF DECISION
OPERABLE UNIT 3
NAVAL TRAINING CENTER
ORLANDO, FLORIDA
K:\02546\02546-09\ROD\02546585.DWG, VC-VC 08/30/00 14:39:34, R2000

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Because of this recent data, the OPT has decided to monitor the groundwater via drive point wells installed in shallow water adjacent to the shoreline of the lake to determine whether or not ecological receptors are at risk. The OPT also decided to implement bench scale testing on three remedial technologies that show promise in reducing contaminant concentrations in groundwater. The last option available is to implement active remedial strategies outlined in the feasibility study, which include groundwater extraction and treatment prior to release either to surface water or the local publicly owned treatment works (POTW).

At SA 9, arsenic concentrations in the well points were all well below groundwater screening values and the Florida surface water quality standard, although in one well point, the pesticide MCPA was present at an estimated concentration exceeding the State of Florida GCTL (Figure 2-6). Groundwater samples collected from intermediate wells at SA 9 each showed that no significant downward migration of contaminants has occurred within the shallow aquifer. Evaluation of filtered versus unfiltered groundwater sample results at both SAs indicates that most inorganic contaminants are not attributable to suspended solids

2.5.5 Migration Pathways

Direct spillage or disposal of pesticides and herbicides on the ground surface at both SAs and via a sump at SA 9 were the most likely mechanisms for introducing contaminants to the environment. Given the proximity of the sites to the golf course, and the amount of grass cover at the sites, particularly at SA 9, it is also very likely that some component of the total contaminant load detected is due to routine application of pesticide and herbicide compounds.

Once the contaminants had been introduced to the environment, several migration routes were possible. The first of these would be airborne transport of particulates generated during mixing or washing. Routine application of some of the pesticides and herbicides was by spraying, as well. Sprays would only have been generated or applied episodically, and the droplets likely traveled very short distances.

Rainfall is likely the primary agent driving contaminant migration at OU 3. There are two potential migration pathways driven by rainfall. The first is overland flow or runoff. The second is infiltration or percolation. Contaminants present within the soil may be picked up or dissolved in the rainwater and migrate with water as it travels vertically.

For groundwater, the primary migration mechanism is horizontal groundwater flow that serves to transport contaminants away from the source areas at OU 3. The groundwater flow is generally in a northwesterly direction, following surface topography towards Lake Baldwin from both SAs.

2.5.6 Fate and Transport

Based on the fate and persistence characteristics of the COCs and the most likely transport mechanisms, it is expected that off-site migration of contaminants is limited, both in distance and variety of contaminants at SAs 8 and 9. Furthermore, organic contaminants, such as the polynuclear aromatic hydrocarbons (PAHs), pesticides and herbicides, are expected to degrade over time, either in place (soil) or as they migrate (groundwater), while the inorganics tend to sorb to soil and remain near the point of introduction to the environment.

2.5.7 Current and Future Land Use

Because NTC, Orlando has been decommissioned, there are no military activities ongoing in the area including OU 3. Current land at OU 3 consists of open, maintained grass fields, bordered by palustrine wetlands along the shore of Lake Baldwin, and unlined drainage swales. A paved road, Trident Lane bisects both SAs. All buildings have been removed from both locations as part of IRAs. The only current use of

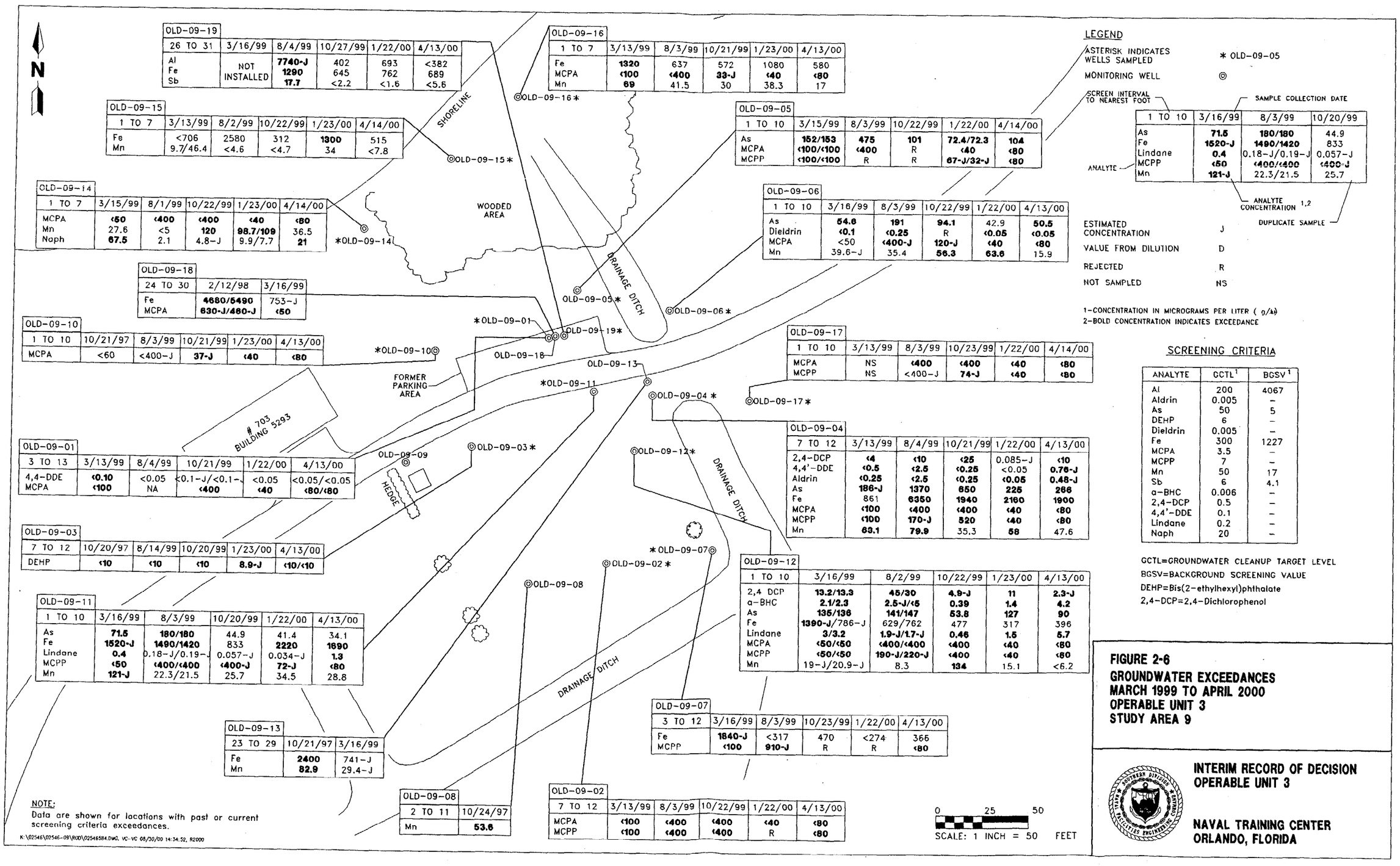

FIGURE 2-6
GROUNDWATER EXCEEDANCES
MARCH 1999 TO APRIL 2000
OPERABLE UNIT 3
STUDY AREA 9

INTERIM RECORD OF DECISION
OPERABLE UNIT 3

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

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land at OU 3 is by the occasional grounds maintenance worker or trespasser. Groundwater is not currently used at OU 3.

Proposed land use zones for NTC Orlando are documented in the City of Orlando's Site Reuse Plan. The areas encompassing both SA8 and 9 will border a proposed multi-family residential development, but will themselves be designated as non-residential (recreational) use only. The shallow groundwater in the vicinity of OU 3 has never been developed for potable water use, as it is not sufficiently productive, and there is no reason to expect this will change in the future. The only possible beneficial use of shallow groundwater from this area would be for irrigation or non-potable use by the nearby residential development. Because NTC, Orlando is a BRAC facility, any future land use has been reviewed and approved by the Land Reuse Authority, including representatives from all stakeholders. Because the Navy will retain title to the property until all cleanup goals have been achieved and approved by FDEP and USEPA, and after transfer, certain restrictive covenants will remain in place, any change in reuse would require regulatory review and approval.

2.6 SUMMARY OF SITE RISKS.

A risk assessment was completed for OU 3 to predict whether or not the site would pose current or future threats to human health or the environment. Both a human health risk assessment (HHRA) and an ecological risk assessment (ERA) were performed for OU 3. The risk assessments evaluated the contaminants detected in site media during the RI and provided the basis for selecting the remedial actions.

The risk assessments were performed using data collected after the first IRA in September 1997 but before the second IRA was completed in April and May 1999. Therefore, the human health and ecological risk assessments, summarized below, do not take into account recent changes in the conditions of the sites. Refer to Section 2.12 for more information.

2.6.1 Human Health Risk Assessment

An HHRA was conducted to characterize the risks associated with potential exposures to site-related contaminants at OU 3 for human receptors. The HHRA is provided as Chapter 6.0 of the RI/FS report (HLA, 1999a), and supporting documentation is provided in Appendix E of that report.

Five components of the HHRA were completed, including (1) data evaluation, (2) selection of human health chemicals of potential concern (CPCs), (3) exposure assessment, (4) toxicity assessment, and (5) risk characterization.

2.6.1.1 SA 8 Data Evaluation

The data evaluation involved numerous activities, including sorting data by medium, evaluating analytical methods, evaluating quantitation limits, evaluating quality of data with respect to qualifiers and codes, evaluating tentatively identified compounds, comparing potentially site-related contamination with background, developing a data set for use in risk assessment, and identifying CPCs.

Fifty-five surface soil and 18 groundwater sample locations were evaluated in this HHRA. The samples were analyzed for TCL SVOCs, PCBs, pesticides, herbicides, and TAL inorganic compounds. In addition, five surface soil samples and seven groundwater samples were also analyzed for arsenic speciation to determine the ionic form of arsenic present at the site.

Selection of CPCs CPCs are defined as: chemicals for which data of sufficient quality are available for use in the risk assessment; chemicals that are potentially site related; and chemicals that have maximum detected concentrations above standards or guidelines, including risk-based screening concentrations (where available) and background screening concentrations (for inorganic analytes, where established). Table 2-2 summarizes the HHCPCs selected for surface soil and groundwater at SA 8.

Table 2-2
Summary of Human Health Chemicals of Potential Concern (CPCs)

Interim Record of Decision, Operable Unit 3
Naval Training Center
Orlando, Florida

Environmental Medium	CPCs
Study Area 8	
Surface Soil	**volatile organics:** none **semivolatile organics:** benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene **pesticides, herbicides and PCBs:** aldrin, alpha-chlordane, gamma-chlordane, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, dieldrin, heptachlor, heptachlor epoxide, MCPA, MCPP, and Aroclor-1260 **inorganics:** aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, copper, iron, lead, manganese, silver, and vanadium
Groundwater	**volatile organics:** naphthalene **semivolatile organics:** benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz-(a,h)anthracene, and indeno(1,2,3-cd)pyrene **pesticides, herbicides and PCBs:** dieldrin, MCPA, and MCPP **inorganics:** aluminum, arsenic, iron, and manganese
Study Area 9	
Surface Soil	**volatile organics:** none **semivolatile organics:** none **pesticides, herbicides and PCBs:** 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, alpha-chlordane, gamma-chlordane, dieldrin, MCPA , and MCPP **inorganics:** aluminum, antimony, arsenic, beryllium, copper, and silver
Groundwater	**volatile organics:** none **semivolatile organics:** 2,4-dichlorophenol, and naphthalene **pesticides, herbicides and PCBs:** alpha-BHC, delta-BHC, gamma-BHC, aldrin, gamma-chlordane, dieldrin, heptachlor epoxide, 2,4-D, MCPA, and MCPP **inorganics:** arsenic, iron, and manganese

Notes: 2,4-D = 2,4-dichlorophenoxyacetic acid.
BHC = benzene hexachloride.
DDD = 4,4-dichlorodiphenyldichloroethane.
DDE = 4,4-dichlorodiphenyldichloroethene.
DDT = 4,4-dichlorodiphenyltrichloroethane.
MCPA = (4-chloro-2-methylphenoxy)acetic acid.
MCPP = potassium (2-methyl-4-chlorophenoxy)propionate.
PCBs = polychlorinated biphenyls.

Exposure Assessment Potentially site-related chemicals from the Greenskeeper's Storage Area are pesticides, herbicides, metals, and solvents used as pesticide dispersants. These CPCs are only an issue where the three exposure factors are present and complete: (1) a chemical source or release, (2) an exposure point, and (3) an exposure route. Lastly, currently complete or potentially complete future exposure routes must be identified (exposure routes in the HHRA are often hypothetical future routes such as a residential exposure.)

Although the golf course is no longer in use, site maintenance workers may perform routine lawn maintenance activities, where the highest concentrations of contaminants exist. Additionally, trespassers may access the area outside the fence. No humans currently reside at SA 8. The proposed land reuse scenario for the area including SA 8 is multi-family residential units near SA 8 and an undeveloped recreational buffer zone bordering Lake Baldwin and encompassing most of SA 8.

The receptors that are reasonable to consider in the current scenario are trespassers and site maintenance workers. Recognizing probable future land uses, the following potential receptors were identified:

- Site maintenance workers, who perform routine lawn maintenance activities, such as: mowing, weed control, and sprinkler system repairs,
- Commercial workers (assumes only indoor exposures, i.e., minimal contact with site soils),
- Excavation workers, such as construction or installation of utility lines.
- Recreational users, and
- Future area residents.

The potentially complete pathways considered include:

- Incidental ingestion, dermal contact, and inhalation of particulates of contaminants in soil; and Ingestion of groundwater as drinking water by a future area resident.

Currently, there are no drinking water wells at the site and potable water is obtained from the City's public water supply wells offbase. These supply wells are screened at depths exceeding 100 feet and derive groundwater from a deep aquifer. If SA 8 is developed for residential use, drinking water wells in the surficial aquifer could be influenced by contaminants in the groundwater. Because the groundwater is at less than four feet, potable water will most likely continue to be obtained from the City's water supply wells and not from drinking water wells at the site. Exposure of potential future adult and child residents (ingestion of drinking water) is, therefore, evaluated in the HHRA as a conservative measure.

Toxicity Assessment The toxicity assessment is a two-step process whereby the potential hazards associated with the route-specific exposure to a given chemical are (1) identified by reviewing relevant human and animal studies, and (2) quantified through analysis of dose-response relationships. USEPA has calculated numerous toxicity values that have undergone extensive review within the scientific community. These values (published in the Integrated Risk Information System and other journals) are used in the baseline evaluation to calculate both carcinogenic and non-carcinogenic risks associated with each CPC and rate of exposure.

Risk Characterization In the final step of the risk assessment, the results of the exposure and toxicity assessments are combined to estimate the overall risk from exposure to site contamination. For cancer-causing chemicals, risk is estimated to be a probability. For example, a particular exposure to chemicals at a site may present a 1 in 10,000 (or 1×10^{-4}) chance of developing cancer over an estimated lifetime of 70

years. For noncancer-causing chemicals, the dose of a chemical for which a receptor may be exposed is estimated and compared to the reference dose (RfD). The RfD is developed by USEPA scientists and represents an estimate of the amount of a chemical a person (including the most sensitive persons) could be exposed to over a lifetime, without developing adverse effects. The measure of the likelihood of adverse effects other than cancer occurring in humans is called the hazard index (HI). An HI greater than 1 suggests that adverse effects are possible.

Current and future scenario risk estimates are calculated for each exposure pathway and receptor at SA 8. Both carcinogenic and noncarcinogenic risks were estimated for each CPC for each complete exposure pathway for each medium. A summary of the predicted risks for various exposure scenarios is summarized in Table 2-3. Human health risk summary numbers in Table 2-3 are based on data collected during the Remedial Investigation, the final analytical data dating back to October 1998 and February 1999. Since that time, IRA soil removals have reduced risk from surface soils to levels protective for potential future users such as recreational, trespasser, and commercial. When a final remedy is selected and the Final Record of Decision is prepared, the risk numbers will be recalculated based upon current data for soil and groundwater.

Surface Soil Current Land Use For the current land use scenario, the cancer risks associated with exposure to surface soil are 5×10^{-6} for a lifetime trespasser (combined adult and adolescent), and 1×10^{-6} for a site maintenance worker. Both receptors' cancer risk values are at or below the USEPA acceptable cancer risk range of 1 in 10,000 to 1 in 1,000,000; however, the lifetime trespasser cancer risk exceeds the Florida level of concern of 1×10^{-6}.

The noncancer risks associated with surface soil ingestion dermal contact and fugitive dust inhalation under the current land use scenario (adolescent and adult trespasser user, and site maintenance worker) are below USEPA's and FDEP's target HI of 1. The removal of additional soil at SA 8 has decreased the potential cancer and noncancer risks for current receptors below the USEPA and FDEP criteria for acceptable risk.

Surface Soil Future Land Use For potential future land use scenario, the cancer risks associated with exposure to surface soil are 5×10^{-6} for an lifetime recreational user (combined adult and adolescent), 1×10^{-6} for a site maintenance worker, 7×10^{-5} for an lifetime resident (combined adult and child), 9×10^{-6} for a commercial worker, and 3×10^{-7} for an excavation worker. All of these receptors' cancer risks are within or below the USEPA acceptable cancer risk range of 1 in 10,000 to 1 in 1,000,000; however, the lifetime recreational user, lifetime resident, and commercial worker cancer risk exceed the Florida level of concern of 1×10^{-6}.

The noncancer risks associated with surface soil ingestion, dermal contact, and fugitive dust inhalation under the future land use scenario for all potential future receptors are below USEPA's and FDEP's target HI of 1, except for child resident. The child resident HI of 2.9 exceeds the USEPA and FDEP target HI. The removal of additional soil at SA 8 has decreased the potential cancer and noncancer risks for future receptors below the USEPA and FDEP criteria for acceptable risk.

Groundwater Current Use There are no current exposures to groundwater. Therefore, risk was not evaluated for the current land use scenario.

Groundwater Future Land Use For potential future land use scenarios, the cancer risks associated with groundwater ingestion are 3×10^{-3} for a lifetime resident (combined adult and child). Cancer risks associated with groundwater inhalation were not evaluated because VOCs were not identified as COCs. The potential future residential receptor cancer risk is above both the USEPA acceptable risk range of 1×10^{-4} to 1×10^{-6} and the FDEP level of concern of 1×10^{-6} (mainly due to arsenic, and to a lesser extent, dieldrin).

The noncancer risks associated with groundwater ingestion under the future land use scenario for potential future adult (HI = 41) and child (HI = 95) residential receptors are above USEPA's and FDEP's target HI of 1.

Table 2-3
Human Health Risk Summary for Study Area 8

Interim Record of Decision, Operable Unit 3
Naval Training Center
Orlando, Florida

Land Use	Exposure Route	HI *	ELCR *
Current Land Uses			
Surface Soil:			
Adult Trespasser:	Incidental ingestion	0.03	2×10^{-6}
	Dermal contact	0.02	4×10^{-7}
	Inhalation of particulates	0.00004	5×10^{-10}
	Total Adult Trespasser:	0.05	2×10^{-6}
Adolescent Trespasser:	Incidental ingestion	0.05	2×10^{-6}
	Dermal contact	0.1	1×10^{-6}
	Inhalation of particulates	0.00004	3×10^{-10}
	Total Adolescent Trespasser:	0.2	3×10^{-6}
	Total Risk to Trespasser (Adult and Adolescent) Exposed to Surface Soil:	NC	5×10^{-6}
Site Maintenance Worker:	Incidental ingestion	0.01	9×10^{-7}
	Dermal contact	0.01	3×10^{-7}
	Inhalation of particulates	0.0001	3×10^{-9}
	Total Site Maintenance Worker:	0.02	1×10^{-6}
Commercial Worker:	Incidental ingestion	0.09	8×10^{-6}
	Dermal contact	0.05	1×10^{-6}
	Inhalation of particulates	0.001	2×10^{-8}
	Total Commercial Worker:	0.1	9×10^{-6}
Site Maintenance Worker:	Incidental ingestion	0.01	9×10^{-7}
	Dermal contact	0.01	3×10^{-7}
	Inhalation of particulates	0.0001	3×10^{-9}
	Total Site Maintenance Worker:	0.02	1×10^{-6}
Future Land Uses			
Surface Soil:			
Adult Recreational User:	Incidental ingestion	0.03	2×10^{-6}
	Dermal contact	0.02	4×10^{-7}
	Inhalation of particulates	0.00004	5×10^{-10}
	Total Adult Recreational User:	0.05	2×10^{-6}
Adolescent Recreational User:	Incidental ingestion	0.05	2×10^{-6}
	Dermal contact	0.1	1×10^{-6}
	Inhalation of particulates	0.00004	3×10^{-10}
	Total Adolescent Recreational User:	0.2	3×10^{-6}
	Total Risk to Recreational User (Adult and Adolescent) Exposed to Surface Soil:	NC	5×10^{-6}

See notes at end of table.

Table 2-3 (Continued)
Human Health Risk Summary for Study Area 8

Interim Record of Decision, Operable Unit 3
Naval Training Center
Orlando, Florida

Land Use		Exposure Route	HI *	ELCR *
	Adult Resident:	Incidental ingestion	0.2	2×10^{-5}
		Dermal contact	0.1	4×10^{-6}
		Inhalation of particulates	0.002	3×10^{-8}
		Total Adult Resident:	0.3	2×10^{-5}
	Child Resident:	Incidental ingestion	2.3	5×10^{-5}
		Dermal contact	0.6	4×10^{-6}
		Inhalation of particulates	0.006	3×10^{-8}
		Total Child Resident:	2.9	5×10^{-5}
		Total Risk to Resident (Adult and Child) Exposed to Surface Soil:	NC	7×10^{-5}
	Commercial Worker	Incidental ingestion	0.09	8×10^{-6}
		Dermal contact	0.05	1×10^{-6}
		Inhalation of particulates	0.001	2×10^{-8}
		Total Commercial Worker:	0.1	9×10^{-6}
	Site Maintenance Resident:	Incidental ingestion	0.01	9×10^{-7}
		Dermal contact	0.01	3×10^{-7}
		Inhalation of particulates	0.0001	3×10^{-9}
		Total Site Maintenance Worker:		5×10^{-6}
	Excavation Worker:	Incidental ingestion	0.2	3×10^{-7}
		Dermal contact	0.01	1×10^{-8}
		Inhalation of particulates	0.0001	1×10^{-10}
		Total Excavation Worker:	0.2	3×10^{-7}
Groundwater:				
	Adult Resident:	Ingestion of Groundwater as Drinking Water	41	2×10^{-3}
		Total Adult Resident:	41	2×10^{-3}
	Child Resident:	Ingestion of Groundwater as Drinking Water	95	1×10^{-3}
		Total Child Resident:	95	1×10^{-3}
		Total Risk to Resident (Adult and Child) Exposed to Groundwater:	NC	3×10^{-3}
		Total Risk to Resident (Adult and Child) Exposed to Groundwater and Surface Soil:	NC	3×10^{-3}

Notes: * = receptor totals may vary for spreadsheets due to rounding algorithm.
HI = hazard index.
ELCR = excess lifetime cancer risk.
NC = Not calculated because child and adult HIs are not additive.
Risk summary calculations are based on data collected in October 1998 and February 1999 for the RI report.

Cumulative Cancer Risk Summary USEPA Region IV guidance requires an assessment of a cumulative receptor risk. No cumulative risks need to be calculated for current land use because there is currently only potential exposure to soil. For future land use, the potential future residential receptor, based on the land reuse scenario of a multi-family residential unit, could potentially be exposed to both surface soils and groundwater. The cumulative risk of 3×10^{-3} is above the USEPA acceptable cancer risk range and the FDEP target level of concern. This risk is primarily due to arsenic in groundwater, although recent soil removals (1999) have lowered the cumulative risk posed by exposures at the site.

2.6.1.2 SA 9 Data Evaluation

The data evaluation involved numerous activities, including sorting data by medium, evaluating analytical methods, evaluating quantitation limits, evaluating quality of data with respect to qualifiers and codes, evaluating tentatively identified compounds, comparing potentially site-related contamination with background, developing a data set for use in risk assessment, and identifying CPCs.

Thirty-two surface soil and 18 groundwater sample locations evaluated in this HHRA. The samples were analyzed for TCL, VOCs, SVOCs, PCBs, pesticides, herbicides, and TAL inorganic compounds. In addition, five surface soil samples and four groundwater samples were also analyzed for arsenic speciation.

Selection of CPCs CPCs are defined as: chemicals for which data of sufficient quality are available for use in the risk assessment; chemicals that are potentially site related; and chemicals that have maximum detected concentrations above standards or guidelines, including risk-based screening concentrations (where available) and background screening concentrations (for inorganic analytes where available). Table 2-2 summarizes the selected CPCs for surface soil and groundwater at SA 9.

Exposure Assessment Potentially site-related chemicals from the former Pesticide Handling and Storage Area are pesticides, herbicides, metals, and solvents used as pesticide dispersants. These CPCs are only an issue where the three exposure factors are present and complete: (1) a chemical source or release, (2) an exposure point, and (3) an exposure route. Lastly, currently complete or potentially complete future exposure routes must be identified. Often in the HHRA the exposure route is a hypothetical future route such as a resident.

Although the golf course is no longer in use, site maintenance workers may still be working at the site, performing activities such as mowing the grass. Additionally, trespassers may access the area. No humans currently reside at SA 9. The proposed land reuse scenario includes a residential area with a strip of land bordering the lake to be used for recreational purposes. The boundaries of the recreational buffer zone (limited development) have not been fully defined, but would likely encompass portions of SA 9.

The receptors that are reasonable to consider in the current scenario are trespassers and site maintenance workers. Recognizing probable future land uses, the following potential receptors were identified:

- Site maintenance workers, who perform routine lawn maintenance activities, such as: mowing, weed control, and sprinkler system repairs,
- Commercial workers (assumes only indoor exposures, i.e., minimal contact with site soils),
- Excavation workers performing activities such as construction or installation of utility lines.
- Recreational users, and
- Future area residents.

A recreational user of surface water was evaluated as part of the Lake Baldwin study area. The potentially complete pathways considered include:

- Incidental ingestion, dermal contact, and inhalation of particulates of contaminants in soil; and
- Ingestion of groundwater as drinking water by a future area resident.

Currently, there are no drinking water wells at the site and potable water is obtained from the City's public water supply wells offbase. If SA 9 is developed for residential use, drinking water wells in the surficial aquifer could be impacted by contaminants in the groundwater. Because the groundwater is less than four feet deep, potable water will most likely continue to be obtained from the City's water supply wells and not from drinking water wells at the site. Exposure of potential future adult and child residents (ingestion of drinking water) is, therefore, evaluated in the HHRA as a conservative measure.

Toxicity Assessment The toxicity assessment is a two-step process whereby the potential hazards associated with the route-specific exposure to a given chemical are (1) identified by reviewing relevant human and animal studies, and (2) quantified through analysis of dose-response relationships. USEPA has calculated numerous toxicity values that have undergone extensive review within the scientific community. These values (published in the Integrated Risk Information System and other journals) are used in the baseline evaluation to calculate both carcinogenic and non-carcinogenic risks associated with each CPC and rate of exposure.

Risk Characterization Current and future scenario risk estimates are calculated for each exposure pathway and receptor at SA 9. Both carcinogenic and noncarcinogenic risks were estimated for each CPC for each complete exposure pathway for each medium. The relative significance of risk estimates is evaluated in terms of a comparison with acceptable risk limits established by USEPA and the State and by comparison of site concentrations to risk-based screening concentrations and other guidance values. Table 2-4 provides a summary of predicted risks for various exposure scenarios. Human health risk summary numbers in Table 2-4 are based on data collected during the Remedial Investigation, the final analytical data dating back to October 1998 and February 1999. Since that time, IRA soil removals have reduced risk from surface soils to levels protective for potential future users such as recreational, trespasser, and commercial. When a final remedy is selected and the Final Record of Decision is prepared, the risk numbers will be recalculated based upon current data for soil and groundwater.

Surface Soil Current Land For the current land use scenario, the cancer risks associated with exposure to surface soil (ingestion, dermal contact, and fugitive dust inhalation) are 2×10^{-6} for a lifetime trespasser (combined adult and adolescent), and 6×10^{-7} for a site maintenance worker. Both receptors' cancer risk values are at or below the USEPA acceptable cancer risk range of 1 in 10,000 to 1 in 1,000,000; however, the lifetime trespasser cancer risk exceeds the Florida level of concern of 1×10^{-6} (mainly due to beryllium and arsenic).

The noncancer risks associated with surface soil ingestion, dermal contact, and fugitive dust inhalation under the current land use scenario are below USEPA's and FDEP's target HI of 1. The removal of additional soil at SA 8 has decreased the potential cancer risks for current receptors to below the USEPA and FDEP criteria for acceptable risk.

Surface Soil Future Land Use For potential future land use scenarios, the cancer risks associated with exposure to surface soil are 2×10^{-6} for a lifetime recreational user (combined adult and adolescent), 6×10^{-7}

Table 2-4
Human Health Risk Summary for Study Area 9

Interim Record of Decision, Operable Unit 3
Naval Training Center
Orlando, Florida

Land Use	Exposure Route	HI*	ELCR*
Current Land Use			
Surface Soil:			
Adult Trespasser:	Incidental ingestion	0.02	5×10^{-7}
	Dermal contact	0.02	5×10^{-7}
	Inhalation of particulates	0.000001	6×10^{-11}
	Total Adult Trespasser:	0.04	1×10^{-6}
Adolescent Trespasser:	Incidental ingestion	0.04	4×10^{-7}
	Dermal contact	0.1	1×10^{-6}
	Inhalation of particulates	0.000002	4×10^{-11}
	Total Adolescent Trespasser:	0.1	1×10^{-6}
	Total Risk to Trespasser (Adult and Adolescent) Exposed to Surface Soil:	NC	2×10^{-6}
Site Maintenance Worker:	Incidental ingestion	0.008	2×10^{-7}
	Dermal contact	0.01	4×10^{-7}
	Inhalation of particulates	0.000005	3×10^{-10}
	Total Site Maintenance Worker:	0.02	6×10^{-7}
Surface Soil:			
Adult Recreational User:	Incidental ingestion	0.02	5×10^{-7}
	Dermal contact	0.02	5×10^{-7}
	Inhalation of particulates	0.000001	6×10^{-11}
	Total Adult Recreational User:	0.04	1×10^{-6}
Adolescent Recreational User:	Incidental ingestion	0.04	4×10^{-7}
	Dermal contact	0.1	1×10^{-6}
	Inhalation of particulates	0.000002	4×10^{-11}
	Total Adolescent Recreational User:	0.1	1×10^{-6}
	Total Risk to Recreational User (Adult and Adolescent) Exposed to Surface Soil:	NC	2×10^{-6}
Adult Resident:	Incidental ingestion	0.2	5×10^{-6}
	Dermal contact	0.2	5×10^{-6}
	Inhalation of particulates	0.00006	4×10^{-9}
	Total Adult Resident:	0.4	1×10^{-5}
Child Resident:	Incidental ingestion	1.7	1×10^{-5}
	Dermal contact	0.7	5×10^{-6}
	Inhalation of particulates	0.0002	3×10^{-9}
	Total Child Resident:	2.4	2×10^{-5}
	Total Risk to Resident (Adult and Child) Exposed to Surface Soil:	NC	3×10^{-5}

See notes at end of table.

Table 2-4 (Continued)
Human Health Risk Summary for Study Area 9

Interim Record of Decision, Operable Unit 3
Naval Training Center
Orlando, Florida

Land Use		Exposure Route	HI*	ELCR*
	Occupational Worker:	Incidental Ingestion	0.06	2×10^{-6}
		Dermal contact	0.05	1×10^{-6}
		Inhalation of particulates	0.00004	3×10^{-9}
		Total Occupational Worker:	0.1	3×10^{-6}
	Site Maintenance Worker:	Incidental ingestion	0.008	2×10^{-7}
		Dermal contact	0.01	4×10^{-7}
		Inhalation of particulates	0.000005	3×10^{-10}
		Total Site Maintenance Worker:	0.02	6×10^{-7}
	Excavation Worker:	Incidental ingestion	0.07	8×10^{-8}
		Dermal contact	0.01	2×10^{-8}
		Inhalation of particulates	0.000005	1×10^{-11}
		Total Excavation Worker:	0.08	1×10^{-7}
Groundwater:				
	Adult Resident:	Ingestion of Groundwater as Drinking Water	112	1×10^{-3}
		Total Adult Resident:	112	1×10^{-3}
	Child Resident:	Ingestion of Groundwater as Drinking Water	261	8×10^{-4}
		Total Child Resident:	261	8×10^{-4}
		Total Risk to Resident (Adult and Child) Exposed to Groundwater:	NC	2×10^{-3}
		Total Risk to Resident (Adult and Child) Exposed to Groundwater and Surface Soil:	NC	2×10^{-3}

Notes: HI = hazard index.
* = receptor totals may vary for spreadsheets due to rounding algorithm.
ELCR = excess lifetime cancer risk.
NC = Not calculated because child and adult HIs are not additive.
Risk summary calculations are based on data collected in October 1998 and February 1999 for the RI report.

for a site maintenance worker, 3×10^{-5} for a lifetime resident (combined adult and child), 3×10^{-6} for a commercial worker, and 1×10^{-7} for an excavation worker. All of these receptors' cancer risks are within or below the USEPA acceptable cancer risk range of 1 in 10,000 to 1 in 1,000,000; however, the lifetime recreational user, lifetime resident, and commercial worker cancer risk exceed the Florida level of concern of 1×10^{-6} (mainly due to arsenic, beryllium, and alpha- and gamma- chlordane).

The noncancer risks associated with surface soil ingestion dermal contact and fugitive dust inhalation under the future land use scenario for all potential future receptors are below USEPA's and FDEP's target HI of 1, except for child resident. The child resident HI of 2.4 exceeds the USEPA and FDEP target HI of 1 (mainly due to MCPP, MCPA, and to a lesser extent, arsenic). The removal of additional soil at SA 9 has decreased the potential cancer and noncancer risks for future receptors to below the USEPA and FDEP criteria for acceptable risk.

Groundwater Current Land Use There are no current exposures to groundwater. Therefore, risk was not evaluated for the current land use scenario.

Groundwater Potential Land Use For potential future land use scenario, the cancer risks associated with groundwater ingestion are 2×10^{-3} for an lifetime resident (combined adult and child). Cancer risks associated with groundwater inhalation were not evaluated because VOCs were not identified as COCs. The potential future residential receptor cancer risk is above both the USEPA acceptable risk range of 1×10^{-4} to 1×10^{-6} and the FDEP level of concern of 1×10^{-6}.

The noncancer risks associated with groundwater ingestion under the future land use scenario for potential future adult (HI = 112) and child (HI = 261) residential receptors are above USEPA's and FDEP's target HI of 1.

Cumulative USEPA Region IV guidance requires an assessment of a cumulative receptor risk. No cumulative risks need to be calculated for current land use because there is currently only potential exposure to soil. For future land use, the potential future residential receptor could potentially be exposed to surface soils and groundwater. The cumulative risk of 2×10^{-3} is above the USEPA acceptable cancer risk range and the FDEP target level of concern. The removal of additional soil at SA 9 has decreased the potential cancer and noncancer risks for future receptors to below the USEPA and FDEP criteria for acceptable risk.

2.6.2 ERA

This ERA evaluates actual and potential adverse effects to ecological receptors associated with exposure to contamination from OU 3 surface soil and groundwater at NTC, Orlando. The ERA for OU 3 was completed in accordance with current guidance for ERAs at Superfund sites. Table 2-5 provides a summary of the CPCs selected for SA 8 and SA 9 to be evaluated for each medium.

2.6.2.1 ERA for SA 8

No lethal risks were identified for terrestrial wildlife resulting from exposure to ECPCs in surface soil; therefore, reductions in the survivability of wildlife receptor populations at SA 8 are not expected to occur. Sublethal risks associated with ingestion of arsenic and cadmium in surface soil and food items are predicted for small herbivorous mammals at SA 8. In addition, sublethal risks associated with ingestion of cadmium in soil and related food items are predicted for insectivorous birds at SA 8. These sublethal risks have been reduced or eliminated as a result of additional soil removals completed in 1999.

Reduction in terrestrial plant and soil invertebrate biomass used as forage material was evaluated. Terrestrial plants could potentially experience adverse growth and reproduction effects from exposure to detected concentrations of aluminum, arsenic, chromium, silver, vanadium, and zinc in the surface soil at SA 8. No evidence of current reduction in vegetative biomass was observed in the field at SA 8. Therefore, impacts to

Table 2-5
Summary of Ecological Chemicals of Potential Concern (ECPCs)

Interim Record of Decision, Operable Unit 3
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Environmental Medium	ECPCs
Study Area 8	
Surface soil	**volatile organics:** none **semivolatile organics:** acenaphthylene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, di-*n*-butylphthalate, dibenz(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, pyrene, bis(2-ethylhexyl)phthalate **pesticides, herbicides, and PCBs:** 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, Aroclor-1260, endrin, heptachlor epoxide, alpha-chlordane, gamma-chlordane, 2,4 5-TP (silvex), 2,4,5-T, 2,4-D, 2,4-DB, dalapon, dichloroprop, dinoseb, MCPA, and MCPP **inorganics:** aluminum, antimony, arsenic, beryllium, cadmium, chromium, copper, lead, manganese, mercury, selenium, silver, vanadium, zinc
Groundwater	**volatile organics:** none **semivolatile organics:** none **pesticides, herbicides, and PCBs:** 4,4'-DDT, dieldrin, endrin, Endrin aldehyde, delta-BHC, 2,4-D, 2,4-DB, dalapon, dichloroprop, dinoseb, MCPA, and MCPP **inorganics:** arsenic, barium, cobalt, copper, iron, lead, manganese
Study Area 9	
Surface soil	**volatile organics:** none **semivolatile organics:** 2-methylnaphthalene and bis(2-ethylhexyl)phthalate **pesticides, herbicides, and PCBs:** 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, alpha-chlordane, gamma-chlordane, 2,4-D, 2,4-DB, dalapon, dichloroprop, dinoseb, MCPA, and MCPP **inorganics:** aluminum, antimony, arsenic, beryllium, copper, lead, manganese, selenium, silver, and vanadium
Groundwater	**volatile organics:** none **semivolatile organics:** 2,4-dichlorophenol, 2-methylnaphthalene, 2-methylphenol, 4-methylphenol, and naphthalene **pesticides, herbicides, and PCBs:** 4,4'-DDD , 4,4'-DDT, dieldrin, endosulfan I, endrin, endrin aldehyde, heptachlor epoxide, , alpha-chlordane, gamma-chlordane, delta-BHC, gamma-BHC, 2,4-D, 2,4-DB, dalapon, dichloroprop, dinoseb, MCPA, and MCPP **inorganics:** arsenic, barium, cobalt, copper, iron, lead, manganese, silver

Notes: DDD = dichlorodiphenyldichloroethane.
DDE = dichlorodiphenyldichloroethene.
DDT = dichlorodiphenyltrichloroethane.
BHC = hexachlorobenzene.
2,4-D = 2,4-dichlorophenoxyacetic acid.
2,4-DB = 2,4-dichlorophenoxybutyric acid.
MCPA = (4-chloro-2-methylphenoxy)acetic acid.
MCPP = potassium (2-methyl-4-chlorophenoxy)propionate.

small mammals and birds that rely on plant biomass as a forage base are unlikely. It is unlikely that invertebrate biomass and/or abundance would be reduced such that small mammal and bird populations would be affected at SA 8, particularly as contaminant concentrations have been further reduced.

Potential risks associated with exposures to ECPCs in SA 8 groundwater were evaluated for terrestrial plants in the forested wetland area and for aquatic receptors in Lake Baldwin.

Risks to aquatic receptors associated with exposure to groundwater were evaluated based on the responses of the water flea and the fathead minnow. The results of the groundwater toxicity tests show no significant reduction in survival of test species exposed to site-related groundwater as compared to the groundwater collected from the upgradient reference sample. It is possible that groundwater discharge to the surface water of Lake Baldwin adjacent to SA 8 may pose an unacceptable sublethal risk to aquatic receptors, specifically invertebrates in the water column. Risks for terrestrial and wetland plants were evaluated. The growth and yield of terrestrial and wetland plants in the forested wetland area adjacent to SA 8 may be reduced due to exposure to arsenic in groundwater, although there is currently no indication this is occurring.

2.6.2.2 ERA for SA 9

No lethal risks were identified for terrestrial wildlife resulting from exposure to ECPCs in surface soil. Sublethal risks associated with ingestion of 4,4'-DDD in surface soil and food items are possible for small herbivorous mammals and insectivorous birds at SA 9. In addition, sublethal risks are possible for carnivorous birds exposed to RME concentrations of pesticides. However, these potential risks have been further reduced or eliminated as a result of the 1999 soil removals.

Reduction in terrestrial plant and soil invertebrate biomass used as forage material was evaluated. Terrestrial plants could potentially experience adverse growth and reproduction effects from exposure to detected concentrations of aluminum in the surface soil at SA 9. Impacts to small mammals and birds that rely on plant biomass as a forage base at SA 9 are not likely.

Potential risks associated with exposures to ECPCs in SA 9 groundwater were evaluated for terrestrial plants in the forested wetland area and for aquatic receptors in Lake Baldwin. The growth and yield of terrestrial and wetland plants in the forested wetland area adjacent to SA 9 are not expected to be impacted.

It is unlikely that groundwater discharge to the surface water of Lake Baldwin adjacent to SA 9 will pose an unacceptable risk to aquatic receptors.

2.7 DESCRIPTION OF REMEDIAL ALTERNATIVES.

As described in the RI/FS (HLA, 1999a), five alternatives were considered for remediating surface soil and five alternatives were considered for groundwater. As described in the PP, an IRA was completed in May 1999 by the DET to remove the remaining contaminated soil from OU 3. A summary of the IRA is provided in Section 2.12. Because the remaining soil contaminated above action levels was removed from OU 3, no further remedial actions are required to achieve Remedial Actions Objectives (RAOs).

2.7.1 Groundwater Alternatives

This section summarizes the five remedial alternatives presented in the RI/FS for addressing COCs in groundwater at OU 3:

- Alternative G-1: Limited Action (with Evaluation of Natural Attenuation Parameters)
- Alternative G-2: Permeable Treatment Walls
- Alternative G-3: Extraction and Phytoremediation

- Alternative G-4: Extraction, Pretreatment, Discharge to Orlando STP
- Alternative G-5: Extraction, Treatment, Discharge to Surface Water

A summary of the key components for groundwater alternatives is presented in Table 2-6 and a description of the alternatives is provided in the following subsections. For all groundwater alternatives, groundwater monitoring and sampling would be conducted as part of the corrective action.

2.7.1.1 Alternative G-1: Limited Action (with Evaluation of Natural Attenuation Parameters)

Due to the relatively low risks to human health and ecological receptors at OU 3, a limited action alternative with continuing evaluation of natural attenuation (NA) parameters for groundwater is considered a viable option for site closure. Limited action includes groundwater use restrictions, groundwater monitoring, and site reviews. Natural attenuation would likely biodegrade organic COCs over time. The environmental and cost impacts of this alternative are significantly less than the environmental and cost impacts of any of the other four cleanup alternatives.

NA includes the following mechanisms: biodegradation, sorption, dispersion, dilution, and volatilization. Biodegradation is not expected to be an important NA mechanism at OU 3, although it may be marginally effective at reducing concentrations of the herbicides MCPA and MCPP through reductive dechlorination. However, all of the remaining mechanisms are expected to reduce contaminant concentrations for one or more COCs (organic and inorganic). The groundwater monitoring program will confirm the rates at which concentrations are being attenuated and assist in the selection of a final remedy.

Groundwater would be sampled quarterly for the first year, and annually thereafter from selected existing monitoring wells and drive point wells adjacent to the shoreline of Lake Baldwin, unless the data consistency between quarterly sampling episodes indicates that a different (i.e., more frequent) strategy is more appropriate. Samples would be analyzed for COCs. Groundwater monitoring shall also include measuring water quality parameters such as temperature, pH, Eh, dissolved oxygen, and specific conductance to evaluate NA conditions. A review of conditions after one year, following completion of bench-scale testing and remedy selection, then at 5 year intervals would also occur to determine if additional actions should be implemented.

2.7.1.2 Alternative G-2: *In Situ* Permeable Treatment Walls

Under this alternative, permeable reactive walls would be strategically placed to intercept COCs in groundwater. This is an innovative technology that treats groundwater "in-situ", or in place. The materials in the wall would remove targeted COCs by degrading, transforming, precipitating, or adsorbing the target solutes as groundwater flows through the wall. A "Funnel and Gate" design that involves the use of sheet pilings to funnel groundwater flow may be installed to optimize treatment. In addition, walls of varying reactive materials could be installed in series to remove targeted compounds.

This alternative would require treatability studies and design to ensure COCs are treatable. This alternative does not require extraction of groundwater for treatment but does require excavation of soil to install the treatment wall. Groundwater monitoring would be required to evaluate effectiveness. Removal or replacement of reactive wall materials would be required as part of routine O&M. This is a relatively new cleanup technology and would require preliminary testing to determine its efficiency in removing COCs at OU 3. Five-year reviews and interim groundwater use restrictions would also be required as part of this alternative.

Due to recent analytical results that indicate the possibility that groundwater with contaminant levels exceeding surface water standards may be reaching Lake Baldwin, the Orlando Partnering Team (OPT), which includes representatives from the Navy, FDEP, and USEPA, decided to evaluate three innovative remedial technologies that show promise for reducing contaminant levels in groundwater. The three treatment technologies that will be evaluated were listed previously in Table 1-1, and consist of the addition of iron modified zeolite, surfactant modified zeolite, or activated aluminum to the substrate to reduce contaminant levels. One or more of these compounds may prove to be effective in removing COCs at OU 3.

Table 2-6
Identification of Remedial Alternatives for Groundwater

Interim Record of Decision, Operable Unit 3
Naval Training Center
Orlando, Florida

Remedial Action Component	G-1 Limited Action	G-2 Permeable Treatment Walls	G-3 Phytoremediation	G-4 Groundwater Extraction, Pretreatment, and Discharge to Orlando STP	G-5 Groundwater Extraction, Treatment, and Discharge to Surface Water
Groundwater-Use Restrictions	X	X	X	X	X
Treatability Studies		X	X		
Design		X	X	X	X
Mobilization/Site Preparation		X	X	X	X
Utilities Required (water or electricity)			X	X	X
In Situ Groundwater Treatment		X			
Groundwater Extraction			X	X	X
Ex Situ Groundwater Treatment:					
Chemical Precipitation					X
Aeration					X
Filtration				X	X
Carbon Adsorption				X	X
UV/Oxidation				X	
Sampling & Analysis					
Monitoring COCs in groundwater	X	X	X	X	X
Influent Sampling			X	X	X
Treated Effluent Sampling			X	X	X
Groundwater Discharge:					
Surface water					X
Orlando STP				X	
Residuals Disposal (sludges, filters, spent carbon, plants)			X	X	X
Operation and Maintenance		X	X	X	X
Five-Year Site Reviews	X	X	X	X	X

Notes: G = groundwater.
STP = Sewage Treatment Plant.
COC = chemical of concern.
UV = ultraviolet light.

2.7.1.3 Alternative G-3: Phytoremediation

Under this alternative, groundwater would be extracted and discharged to a trough containing appropriate plant species that have an affinity to take up, accumulate, and/or degrade contaminants. Plants would be tested under both bench-scale (laboratory) and pilot-scale (field) conditions. Indigenous plant species would

be tested first. Plant species that are not indigenous to the area but that effectively bioaccumulate COCs will be planted on site. These plants will be field-tested to determine their ability to accumulate and degrade COCs as well as their ability to survive under ambient conditions.

Nutrients, such as nitrogen and phosphorus, may be added to the groundwater influent to promote microbial activity. Plants that have maximized their waste bearing capacity in the roots (i.e., plant tissue) will be removed, treated (if necessary), and disposed of. Groundwater would be analyzed to determine COC concentrations and removal rates. Over a period of time and multiple plantings, RAOs may be achieved. Confirmatory groundwater samples would be collected to confirm COC removal. Long-term groundwater monitoring would be required as part of the alternative. This technology is also new and may not achieve cleanup levels.

2.7.1.4 Alternative G-4: Groundwater Extraction, Pretreatment, and Discharge to Orlando STP

This alternative provides only the pretreatment required to treat organic COCs while inorganic COCs would be treated at the Orlando STP. Groundwater would be collected by a series of extraction wells. This alternative would consist of the following components:

- acidification (lowering pH with sulfuric acid),
- UV/OX with hydrogen peroxide,
- neutralization (raising pH with potassium permanganate), and
- GAC adsorption.

UV/OX was selected as the representative pretreatment technology to remove SVOCs (pesticides and herbicides) prior to discharge and treatment in the Orlando STP. Lowering the pH can keep inorganic compounds in dissolved form and avoid fouling the UV/OX unit. Raising the pH prevents excessive deterioration of the carbon absorption media. Treatment with GAC can then remove remaining SVOCs prior to discharge to the Orlando STP. Based on existing groundwater data and knowledge of STP operations, the Orlando STP should be capable of effectively treating the effluent from the UV/OX system without impacting the sludge quality or discharge limitations of the Orlando STP under the existing NTC, Orlando permit.

Administrative activities would be required as part of this alternative, including five-year reviews, groundwater monitoring, and groundwater-use restrictions until the action levels are met. No treatability studies were included in the cost estimate for this alternative; it was anticipated that an observational approach would be used to modify the system, if required.

2.7.1.5 Alternative G-5: Groundwater Extraction, Treatment, and Discharge to Surface Water

This alternative consists of collecting groundwater, providing both organic and inorganic COC treatment, and discharging the treated effluent to surface water. Treatment levels would be based on discharge to surface water (i.e., achievement of surface water standards). Similar to Alternative G-4, groundwater would be collected by a series of extraction wells. This alternative would consist of the following components:

- chemical precipitation with ferric chloride,
- flocculation with anionic polymer,
- clarification,
- diffused aeration,
- filtration, and GAC adsorption.

Precipitation with ferric iron is recognized as the most effective and practical means of arsenic removal. Flocculation with polymer addition can precipitate the oxidized inorganic compounds by forming a dense particle mass. Clarification can provide the required detention time for settling and removal of the suspended mass. Diffused aeration would oxidize readily available organic contaminants. A filtration step would be used to remove suspended solids and prevent the GAC units from clogging. Finally, treatment with GAC would remove remaining SVOCs prior to discharge to surface water.

Treated water would meet the substantive requirements of an NPDES permit administered by the USEPA. Administrative activities would be required as part of this alternative, including five-year reviews, groundwater monitoring, and groundwater-use restrictions until the action levels are met. No treatability studies were included in the cost estimate for this alternative; it was anticipated that an observational approach would be used to modify the system, if required.

2.8 COMPARATIVE ANALYSIS OF REMEDIAL ALTERNATIVES.

In evaluating the remedial actions for OU 3, nine criteria were used. The first seven are technical criteria based on the degree of protection of the environment, cost, and engineering feasibility issues. The last two are acceptance criteria (acceptance by the USEPA/FDEP and acceptance by the community).

The nine criteria can be categorized into three groups: threshold criteria, primary balancing criteria, and modifying criteria. Remedial actions should satisfy the threshold criteria, achieve the primary balancing criteria, and consider the modifying criteria after the public comment period. The subsections that follow discuss the remedial actions proposed for OU 3 relative to the nine criteria.

2.8.1 Comparative Analysis for Groundwater Alternatives

This section summarizes the comparative analysis for the five groundwater (G) alternatives. Alternatives discussed in the RI/FS and ROD are labeled as follows:

- G-1: Limited Action (with evaluation of natural attenuation parameters);
- G-2: Permeable Treatment Walls;
- G-3: Phytoremediation;
- G-4: Extraction, Pretreatment, Discharge to Orlando STP; and
- G-5: Extraction, Treatment, Discharge to Surface Water.

2.8.1.1 Comparison of Threshold Criteria

A comparison is made between the groundwater alternatives with respect to two criteria: (1) overall protection of human health and the environment and (2) compliance with ARARs.

Overall Protection of Human Health and the Environment According to the RI/FS (Chapters 6.0 and 7.0), contaminants in groundwater at OU 3 present slight risks to human health and ecological receptors. Alternative G-1 would only protect human health through imposing groundwater use restrictions. Action levels may be achieved through natural attenuation processes (i.e., physical, chemical, and biological). The rate of transformation is anticipated to be slow without intervention. Table 2-7 presents the COCs at OU 3 and their respective Federal and State MCLs, as currently available. The rate of transformation for each COC will be evaluated via the ongoing quarterly monitoring program. In addition, the bench scale tests that are planned for iron-modified zeolite, surfactant-modified zeolite, or activated aluminum will provide input into estimates of contaminant reduction as a function of time. If at any time, results suggest that Alternative G-1 is no longer protective of human health and the environment and goals are not achievable, the Navy will propose and implement another alternative.

Table 2-7
Selected Contaminants of Concern at Operable Unit 3
Federal and State Maximum Contaminant Levels for Groundwater

Interim Record of Decision, Operable Unit 3
Naval Training Center
Orlando, Florida

COC	Federal MCL[1]	State MCL[1]
Aldrin	–	0.005
Antimony	6	6
Arsenic	50	50
Beryllium	4	4
α-BHC	–	0.006
2,4-Dichlorophenol (2,4-DCP)	–	0.5
4,4-DDE	–	0.1
Dieldrin	–	0.005
Iron	–	1227[2]
Lead	15	15
Lindane (γ-BHC)	0.2	0.2
Manganese	–	50[3]
MCPA	–	3.5
MCPP	–	7
Naphthalene	–	20

[1] in micrograms per liter.
[2] NTC, Orlando background screening concentration, versus Florida secondary standard of 300.
[3] Florida secondary standard.

Alternatives G-2 and G-3 are innovative technologies that are anticipated to achieve protection of human health and the environment; however, limited data on their success are available. Alternatives G-2 and G-3 are more protective of human health than Alternative G-1, but they are not as well demonstrated as Alternatives G-4 and G-5. Although mechanical intervention is included in Alternatives G-2 and G-3, their effectiveness is less predictable as they rely on natural transformation processes and conditions at the site.

Alternatives G-3, G-4, and G-5 would provide an aggressive groundwater extraction and treatment system to directly remove dissolved contaminants from the shallow aquifer. Alternatives G-4 and G-5 are proven techniques (i.e., pump-and-treat) for removing the bulk of contamination, but attainment of action levels (e.g., surface water standards, drinking water standards) may be difficult, given the recalcitrant nature of this contaminant.

Compliance with ARARs All alternatives are anticipated to eventually achieve chemical-specific ARARs. Alternatives G-2 and G-3 are focused primarily on arsenic contamination and may not attain ARARs for organic compounds at the same time as ARARs for inorganic compounds are achieved. Alternative G-2 relies primarily on adsorption and precipitation, while Alternative G-3 relies primarily on a plant's ability to biodegrade or directly uptake COCs in its root system.

Alternative G-4 would be expected to meet all ARARs because it includes mechanical treatment processes to address organic COCs and relies on the STP to address inorganic COCs. Alternative G-5 would be expected to meet all ARARs because it includes mechanical treatment processes to address both organic and inorganic

contaminants. ARARs for inorganic contaminants could potentially be achieved using G-2, G-3, and G-5. ARARs for organic contaminants could potentially be achieved using any of the alternatives.

2.8.1.2 Comparison of Primary Balancing Criteria

A comparison is made between groundwater alternatives with respect to five criteria: (1) long-term effectiveness and permanence; (2) reduction in toxicity, mobility, and volume; (3) short-term effectiveness; (4) implementability; and (5) cost.

Long-Term Effectiveness and Permanence It is anticipated that Alternatives G-1 and G-2 may achieve action levels, but only within a time period that would likely be measured in decades. The ongoing groundwater monitoring program will provide data that will be used to estimate the period required to achieve action levels for all alternatives. These data will be factored into the final remedy. Alternatives G-3, G-4, and G-5 (*ex situ* treatment) would likely achieve action levels sooner than Alternatives G-1 and G-2 (*in situ* treatment). All five alternatives would comply with ARARs.

Given sufficient time for natural transformation processes to occur, the limited-action alternative (G-1) may eventually achieve action levels for organics but not at the same time as for inorganics (arsenic). The long-term effectiveness and permanence of Alternatives G-2 and G-3 are unknown; therefore, neither would be as reliable as Alternatives G-4 or G-5.

While Alternatives G-1, G-2, G-3, and G-5 are independent alternatives, Alternative G-4 is dependent upon the City of Orlando's STP. If the STP were to close in the future before action levels are met in the aquifer, additional treatment would be required for discharge directly to surface water.

Reduction of Toxicity, Mobility, and Volume Other than that accomplished through natural transformation processes, Alternative G-1 would not reduce the toxicity, mobility, or volume of contaminants. Alternatives G-1 and G-2 would not include groundwater extraction; therefore, contaminant volume would not be reduced. However, Alternative G-2 includes installing permeable reactive walls to reduce the toxicity and mobility of COCs in groundwater flowing toward Lake Baldwin.

Alternatives G-3, G-4, and G-5 provide treatment processes to extract and treat contaminated groundwater. By extracting groundwater from strategic locations, the hydraulic flow paths would be controlled, preventing contaminant migration. The selected technologies for treatment would provide reduction in toxicity, mobility, and volume of both organic and inorganic contaminants.

Short-Term Effectiveness Alternatives G-3, G-4, and G-5 would likely have the quickest impact (i.e., contaminant concentrations would be reduced sooner than if Alternatives G-1 or G-2 were implemented) on groundwater contaminants. The treatment duration for these alternatives are based on the pumping duration to effectively remove COCs from groundwater. All three of these alternatives include physical, chemical, or biological treatment processes for contaminant removal.

Alternative G-2 relies primarily on the natural flow of groundwater in the surficial aquifer to pass through the treatment wall. Hydraulic conductivity values range from approximately 0.2 ft/day at SA 9 to 2.74 ft/day at SA 8. Retardation due to adsorption would result in even slower COC movement in groundwater. As a result, many years would be required for a plume to pass through the treatment walls for Alternative G-2. Therefore, short-term effectiveness is considered negligible.

Implementability Because Alternative G-1 includes only administrative actions (e.g., groundwater-use restrictions, groundwater monitoring and sampling, and site reviews at least every five years), it would be the easiest to implement.

Alternative G-2 and G-3 includes bench-scale and pilot-scale treatability studies to test the effectiveness of COC removal. Alternative G-2 includes the installation of permeable reactive walls in addition to the components of Alternative G-1. Alternative G-3 includes groundwater extraction, setup of greenhouses, and harvesting and removing plants that have accumulated COCs in addition to the components of Alternative G-1. Alternatives G-2 and G-3 are relatively difficult to implement because reactive walls and phytoremediation are new technologies and few vendors are available that offer the necessary knowledge and experience with the processes.

Alternatives G-4 and G-5 are straightforward. These alternatives include a similar type of remedial action (i.e., pump-and-treat); however, Alternative G-4 would be easier to construct because it only includes pretreatment of extracted groundwater (i.e., organic treatment) for acceptance in Orlando's STP, whereas Alternative G-5 includes the construction of a more comprehensive treatment system for treatment of all contaminants (e.g., organics and inorganic COCs).

Cost Table 2-8 summarizes the present worth cost estimates for each groundwater alternative based on treatment duration O&M and administrative O&M costs. Cost estimates were prepared for each SA because individual treatment units would be installed at each location (Alternatives G-2, G-3, G-4, and G-5). If SA 8 and 9 are addressed at the same time, cost savings may be realized by combining direct costs (i.e., treatability studies, site preparation, equipment purchases, etc.) and indirect costs (i.e., design, engineering, permitting, etc.). Table 2-8 shows the combined gross total cost for SA 8 and 9.

In accordance with USEPA guidance, the cost for Alternative G-1, the limited-action alternative, is based on a 30-year time frame. As expected, Alternative G-1 has the lowest capital cost and the lowest cost overall. Most of the cost for this alternative is for O&M activities (i.e., groundwater sampling and monitoring and five-year reviews) for 30 years. Alternatives G-2, G-3, G-4, and G-5 have higher capital costs than Alternative G-1 and also have five-year reviews for the treatment duration. Table 2-8 shows the estimated period of time to complete each alternative.

Alternatives G-4 and G-5 include a similar type of remedial action (i.e., pump-and-treat); however, Alternative G-4 would have a lower cost because it only includes pretreatment of extracted groundwater for acceptance at Orlando's STP. As expected, Alternative G-5 has the highest estimated costs of the five alternatives because is offers the most comprehensive treatment process (groundwater extraction, inorganic COC removal, organic COC removal, and discharge).

2.9 SELECTED REMEDY.

After careful study of the conditions at OU 3, comparison of the cleanup alternatives, and consideration of the proposed reuse of the land containing OU 3, the OPT concluded that no further action is appropriate for site soil and Alternative G-1 (Limited Action with natural attenuation monitoring) was the appropriate groundwater remedy for this site. The remedial actions selected for OU 3 are intended to address the principal threats and risks for OU 3. They were chosen as the interim remedy for OU 3, and will be revised in the final ROD, as necessary, because data collection and analysis activities are ongoing, bench scale testing results have not been completed and evaluated, and because of uncertainty as to the effectiveness of the chosen remedial actions.

2.9.1 Description of the Limited Action Remedy

Under this remedy, long-term groundwater sampling and monitoring will be conducted to assess whether or not COC concentrations are reducing over time via natural attenuation. Institutional controls will be implemented to prohibit potable use of groundwater in the vicinity of SAs 8 and 9.

Table 2-8
Summary of Comparative Analysis for Groundwater Alternatives

Interim Record of Decision, Operable Unit 3
Naval Training Center
Orlando, Florida

Alternative:	G-1 Limited Action	G-2 Permeable Treatment Walls	G-3 Phyto-remediation	G-4 Groundwater Extraction, Treatment, Discharge to STP	G-5 Groundwater Extraction, Treatment, Discharge to Surface Water
Groundwater Remediation					
Groundwater extracted?	No	No	Yes	Yes	Yes
Organics reduced?	Potential	Potential	Potential	Yes	Yes
Inorganics reduced?	Potential	Yes	Yes	At STP	Yes
Estimated time to achieve action levels (years)?[1]	30+	30+	SA 8 = 30+ SA 9 = 22	SA 8 = 30+ SA 9 = 22	SA 8 = 30+ SA 9 = 22
Plume contained?	No	Yes	Yes	Yes	Yes
Plume toxicity reduced?	No	Yes	Yes	Yes	Yes
Remedy permanent?	No	Unknown	Unknown	Yes	Yes
Uncertainty of attaining action levels?	High	High	High	Low	Low
Treatment Residuals Produced?	No	No	Yes	Yes	Yes
Operation and Maintenance					
Treatment System and Residuals Management	No	Yes	Yes	Yes	Yes
Utilities Maintenance	No	No	Yes	Yes	Yes
Groundwater Monitoring	Yes	Yes	Yes	Yes	Yes
Contaminants Released/Remaining in Environment					
Organics	Yes	Yes	No	No	No
Inorganics	Yes	Yes	No	No	No
Total Cost - Cleanup cost for **SA 8**					
Present Worth	$741,000	$1,670,000	$4,095,000	$3,582,000	$8,279,000
Total Cost - Cleanup cost for **SA 9**					
Present Worth	included in SA 8	$1,498,000	$3,525,000	$5,420,000	$6,192,000
Combined Total Cost - **SA 8 and 9**					
Present Worth	$741,000	$3,168,000	$7,620,000	$9,002,000	$14,471,000

[1] For Alternative G-4, the treatment system would operate for approximately eight years at SA 8 to remove organic contaminants. After this period, the system would be shut down but the pumps would continue to operate in order for inorganics to be treated at the STP.

Notes: SA = Study Area.
STP = sewage treatment plant.

This remedy includes the following components:

- institutional controls,
- groundwater monitoring, and
- site reviews at least every five years.

Data from the recently completed first year of quarterly monitoring indicates that more proactive remedial measures may be necessary (Appendix C). As a result, bench scale pilot tests are in the planning stages to evaluate three innovative remedial technologies that may more quickly reduce groundwater contaminant levels to below State and Federal cleanup criteria. Three drive point wells will also be installed along the shoreline of Lake Baldwin and added to the groundwater monitoring program to determine contaminant levels in groundwater at the point where the potential migration pathway from the source area to surface water is completed.

The remedial actions selected for OU 3 are intended to address the principal threats and risks for OU 3. They were chosen as the interim remedy for OU 3, and will be revised in the final ROD, as necessary, because data collection and analysis activities are ongoing, bench scale testing results have not been completed and evaluated, and because of uncertainty as to the effectiveness of the chosen remedial actions. At any point in the monitoring program, the Navy, USEPA or FDEP may determine that the rate of contaminant reduction is inadequate, or that groundwater next to Lake Baldwin is in violation of surface water standards, and thereby decide to implement more active remedial measures. The final remedy will be chosen upon completion of the quarterly monitoring program and bench scale testing. Any changes to the remedy, as proposed herein, will be documented in a final ROD or ROD amendment. Each remedial action is summarized below.

Institutional Controls

Institutional controls will be required at this parcel from the time that the IROD is implemented until such time as the remediation goals have been met and some of the ICs can be lifted. Prior to property transfer, the Navy will retain title to the land until the OPS determination, and will restrict access to the parcel by posting signs and conducting periodic visual inspections concurrently with sampling events in the long-term monitoring program. These measures will help to assure that soil cover has been maintained, that no unauthorized digging activities have taken place, and that no wells have been installed within the area of the groundwater restriction. The Navy or its contractor will conduct these inspections at least annually as long as ICs remain in effect. The inspections will include the inspection of deed records to ensure that the restrictions are memorialized with any transfer of restricted real property. If the Navy delegates verification of site conditions to its contractor, the Navy will be responsible for periodically (at least every five years) verifying the contractor's site inspection reports.

The specific institutional controls that will be implemented are listed below:

- Post signs in the vicinity of known soil contamination that was left in place at SAs 8 and 9. The soil was left in place because the risks to the wetland from active remediation were perceived to be greater than the risk of leaving the soil in place. The Navy or its contractor can verify whether the warning signs are still in place or whether there is any evidence of digging in these areas during the groundwater monitoring program. If the Navy delegates verification of site conditions to its contractor, the Navy will be responsible for periodically (at least every five years) verifying the contractor's site inspection reports.

- Disallow the use of surficial aquifer groundwater for drinking or irrigation by posting signs and conducting periodic visual inspections to assure that no unauthorized wells have been installed. After an OPS determination has been made and the property is deemed transferable by the USEPA and FDEP, the Navy will assure that language is written into transfer documents and property deeds which specifies the ICs that will remain in effect until contaminants in groundwater have been reduced to levels below State

or Federal MCLs, whichever is lower. Furthermore, groundwater use restrictions shall be enacted in the deed(s) through a Restrictive Covenant granting a perpetual conservation easement to the Florida Department of Environmental Protection.

- Disallow future land use for residential development in areas where contaminated soil exceeds residential cleanup target levels. This would be achieved through restrictive covenants in the transfer documents and property deeds. The Navy will ensure that no residential development occurs in the restricted areas as long as ICs remain in effect.

- Implement annual written reminders of groundwater use restrictions to property owners, planning agencies, and permitting agencies. Annual reminders should stipulate that residential development is prohibited while ICs are in effect.

Groundwater Monitoring

- Sample groundwater from selected monitoring wells in the vicinity of OU 3. For each SA, 14 monitoring wells will be sampled, consisting of upgradient, downgradient, and source area wells. Initially, these wells will consist of the same wells being monitored by the CLEAN III Contractor during the first year of baseline sampling, which concluded in January 2000. As conditions change or site conditions become better understood, this list of wells may be modified. In addition, three drive point wells will be installed at SA 8 along the shoreline of Lake Baldwin to determine contaminant levels in groundwater along the migration pathway from the source area to surface water.

- Groundwater would be analyzed for only those compounds that previously exceeded primary and secondary standards, or basewide site screening concentrations; these include TCL SVOCs, pesticides, herbicides, certain TAL metals including iron, lead, antimony, manganese and arsenic.

- Sampling data in drive point wells and downgradient wells next to Lake Baldwin will be compared to surface water quality standards to evaluate the need for retaining certain parameters in the monitoring program.

- Perform sampling and analysis four times in the first year (i.e., quarterly) and annually thereafter, unless the data consistency between quarterly sampling episodes indicates that a different (i.e., more frequent) strategy is more appropriate.

- Every fifth year, analyze samples for TCL/TAL parameters (VOCs, SVOCs, pesticides, herbicides, and inorganics), unless the previous two rounds of sampling indicate that some parameters no longer need to be evaluated due to contaminant reduction to levels below the State's GCTLs. This, however, would hold true only for upgradient and source area wells, not for downgradient wells.

- Analytical results and data would be used to evaluate whether or not contaminant concentrations continue to decrease over time. Data would be summarized and managed on an annual basis for use in the five-year reviews. Annual groundwater sampling and monitoring will continue until action levels are met or changes in land use are proposed.

Site Reviews

- Site reviews would occur at least every 5 years until action levels are attained. Site reviews would consist of evaluating groundwater data, visual inspection for maintenance of ICs, and assessing changes in site conditions and uses.

- Based on a review of groundwater data and site conditions, the Navy will recommend: (1) no further action; (2) continued monitoring; or (3) implementation of other remedial action.

- At any point in the monitoring program, the Navy, USEPA or FDEP may determine that the rate of contaminant reduction is inadequate, or that groundwater next to Lake Baldwin is in violation of surface water standards, and thereby decide to implement more active remediation; as previously described in detail.

Bench Scale Pilot Testing of Innovative Technologies

Due to recent analytical results that indicate the possibility that groundwater with contaminant levels exceeding surface water standards may be reaching Lake Baldwin, the OPT, which includes representatives from the Navy, FDEP, and USEPA, decided to evaluate three innovative remedial technologies that show promise for reducing contaminant levels in groundwater. The three treatment technologies that will be evaluated include iron-modified zeolite, surfactant-modified zeolite, and activated aluminum.

The results of the bench scale testing will be evaluated and factored into the final decision at OU 3. Specific timelines for achieving cleanup targets and evaluation criteria will be included in the final ROD, based on evaluation of monitoring data and bench scale testing results.

2.9.2 Technical Assessment of the Limited Action Remedy

This section provides the technical assessment of the Limited Action remedy against the nine criteria. The decision to implement Alternative G-1 rather than pursue more aggressive treatment technologies was made primarily because of the belief that the IRA soil removals at both SAs have removed the continuing source(s) of contamination and that natural processes will now be able to reduce contaminant levels in the shallow aquifer.

Overall Protection of Human Health and the Environment There is currently no exposure to groundwater at OU 3. Exposure to contaminated groundwater would be addressed via groundwater-use restrictions. Humans would be prevented from developing a drinking water well within the surficial aquifer at OU 3 and drinking untreated groundwater. This remedy does not provide a maximum standard of protection to humans (i.e., groundwater treatment); however, shallow groundwater is not used as a drinking water source and no adverse short-term or cross-media effects are anticipated.

Compliance with ARARs This remedy does not comply with chemical-specific ARARs (e.g., maximum contaminant levels [MCLs] or GCTLs) in the short term; however, this remedy may comply with ARARs in the long-term. Natural processes, including physical, chemical, and biological changes in the aquifer will reduce contaminant concentrations. Achievement of ARARs is one factor to be considered in evaluation of bench scale testing and the first year of quarterly results. The remedial actions selected for OU 3 are intended to address the principal threats and risks for OU 3. They were chosen as the interim remedy for OU 3, and will be revised in the final ROD, as necessary, because data collection and analysis activities are ongoing, bench scale testing results have not been completed and evaluated, and because of uncertainty as to the effectiveness of the chosen remedial actions. The uncertainty about compliance with ARARs was the principal basis for selecting monitoring as a component of the interim remedy.

Long-Term Effectiveness and Permanence Naturally occurring processes, such as biological activity, may reduce organic contaminant concentrations in the aquifer over the long term. Groundwater monitoring would provide a means of evaluating the concentrations of contaminants in groundwater and predicting the degradation rate of contaminants. Administrative actions proposed in this remedy would provide a means of exposure control, but would not provide a permanent remedy for risks posed by the site during the period that

contaminant concentrations decline through natural processes. Groundwater monitoring and administrative actions are considered reliable controls.

Reduction of Toxicity, Mobility, and Volume Through Treatment Although treatment is not included in this remedy, this alternative provides some reduction in contaminant toxicity of SVOCs (pesticides and herbicides) through natural degradation processes. This remedy would not provide a reduction in contaminant mobility or volume because groundwater extraction or treatment is not proposed. The decision to implement Alternative G-1 rather than pursue more aggressive treatment technologies was made primarily because of the belief that the IRA soil removals at both SAs have removed the continuing source(s) of contamination and that natural processes will now be able to reduce contaminant levels in the shallow aquifer.

Although groundwater is not a drinking water source at OU 3, human health toxicity posed by ingestion of groundwater contaminants would remain over a period of several decades until concentrations are reduced through natural processes. No treatment residuals would be produced if this alternative were implemented.

Short-Term Effectiveness Because groundwater is not currently being used as a drinking water source at OU 3, there is no change in short-term risks. However, groundwater-use restrictions would be implemented to prevent humans from drinking untreated water from the surficial aquifer.

This remedy would not comply with RAOs in the short term because the only means of contaminant reduction posed by this alternative is natural degradation. Based on the baseline RA, this remedy does not pose a threat to workers through exposure to contaminated groundwater.

Implementability This remedy does not require remedial construction for implementation. Other activities, such as groundwater monitoring, implementation of groundwater use restrictions, and site reviews at least every five years are easily implemented. Several vendors provide these services in the Orlando area. Monitoring equipment is easily obtained.

Cost The present worth cost of Alternative G-1 is $741,000 and is presented in Table 2-9. This estimate includes the cost of the groundwater monitoring program, groundwater-use restrictions, and site reviews at least every five years over a 30-year period, as suggested by USEPA guidance (USEPA, 1988c).

State and Federal Acceptance The FDEP and USEPA have concurred with the remedial actions selected for OU 3.

Community Acceptance Community acceptance of the preferred alternative has been evaluated over the past year through presentations to the facility's RAB. This board is composed of a group of community citizens who participate in reviewing and evaluating environmental cleanup at the base. The RAB has been briefed on the status of OU 3 and has agreed to the approach and recommendations made herein.

In addition to these RAB presentations, a 30-day public comment period on the PP was held from July 1 to August 1, 1999 to solicit input on the selected remedial actions from community citizens. No comments were received from the public during the comment period. Had they been received, they would have been addressed in the Responsiveness Summary, which is included in Appendix A to this ROD.

2.10 STATUTORY DETERMINATIONS.

The remedial action selected for implementation at OU 3 is consistent with the Navy's IR program, and satisfies the statutory requirements of CERCLA Section 121, and the NCP. The remedial actions selected for OU 3 are intended to address the principal threats and risks for OU 3. They were chosen as the interim remedy for OU 3, and will be revised in the final ROD, as necessary, because data collection and analysis

Table 2-9
Cost Summary Table for Limited Action Remedy

Interim Record of Decision, Operable Unit 3
Naval Training Center
Orlando, Florida

Cost Item	Cost - SAs 8 and 9
DIRECT COST	
Groundwater-Use Restrictions (SAs 8 and 9)	$10,000
Total Direct Cost	$10,000
INDIRECT COST	
Health and Safety (at 3%)	NA
Administration and Permitting Fees (at 3%)	NA
Engineering and Design (at 10%)	NA
Construction Support Services (at 10%)	NA
Total Indirect Cost	NA
Total Capital Cost (Direct + Indirect)	$10,000
OPERATION AND MAINTENANCE (O&M) COST	
Annual Groundwater Monitoring	$36,000
five-year Groundwater Monitoring (annualized)	$6,000
five-year Site Reviews (annualized)	$6,000
Present worth of O&M (over 30-year period)	$663,000
Total Capital and O&M Cost	$673,000
Contingency (at 10%)	67,000
Total Cost of Alternative G-1: Limited Action	$741,000

Notes: % = percent.
NA = not applicable.

activities are ongoing, bench scale testing results have not been completed and evaluated, and because of uncertainty as to the effectiveness of the chosen remedial actions. The uncertainty about compliance with ARARs was the principal basis for selecting monitoring as a component of the interim remedy. The remedial action selected for OU 3:

- is protective of human health and the environment, based on current and future land use exposure pathways, and current contaminant concentrations, as determined by risk assessment;
- may comply with Federal and State regulatory requirements that are legally applicable or relevant and appropriate to the remedial action (as summarized in Table 2-10);
- utilizes permanent solutions and alternative treatments to the extent practicable, based on interim actions involving removal and off-site disposal of contaminated soil, and the proposed bench scale testing of three alternative groundwater treatment techniques;
- cost effective, based on the cost analysis summarized in Table 2-9;
- however, because evaluation of balancing criteria determined treatment of the groundwater was not practicable (i.e., prohibitively expensive), this remedy does not satisfy the statutory preference for treatment as a principal element. Results of bench scale testing and the first year's quarterly monitoring data may suggest that a treatment remedy would be more appropriate.

Because this remedy will result in hazardous substances remaining onsite above health-based levels, a review will be conducted at least every 5 years after commencement of the remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment. The 5-year reviews will include evaluation of all monitoring data gathered since the preceding review and a visual inspection to evaluate changes in site conditions and effectiveness of institutional controls.

2.11 DOCUMENTATION OF SIGNIFICANT CHANGES.

As stated in the PP, site conditions have changed since the issuance of the RI/FS. An IRA conducted between April and May 1999 removed the remaining contaminated soil that posed a potential health risk. In addition, a quarterly groundwater monitoring program was initiated in March 1999 to evaluate whether COCs are still present following removal of the contaminant source and at what concentration level. A summary of the results of the monitoring program are included on Figures 2-5 and 2-6, and the Fourth Quarterly Monitoring Report by the CLEAN III Contractor (for the January 2000 sampling event) is included in Appendix C. The other quarterly monitoring reports for sampling events that occurred in March 1999, July 1999, and October 1999 have become part of the Administrative Record for this site and may be viewed in the Orlando Public Library (TetraTech NUS, 1999a & b, 2000).

2.11.1 Soil Removal Action

The soil contamination resulting from greenskeeper activities at SA 8 were concentrated in the fenced compound and the immediate vicinity. The highest contaminant concentrations were located within the fence or within the heavily vegetated area just west of the fence. Because of the high arsenic levels, an IRA was implemented in the most heavily contaminated portions of SA 8 in September 1997, resulting in the excavation and disposal of 36 tons of contaminated soil. Some of the less heavily contaminated soils were left in place in 1997, with the expectation that they would be evaluated and potentially remediated subsequent to submittal of the Feasibility Study. In April 1999, the DET mobilized at OU 3 and excavated the remaining soil, primarily within the fenced area of the parcel (Figure 2-3). Section 2.11.1 contains additional information about the IRA soil removal, and the DET's completion report is included as Appendix B.

Table 2-10
Synopsis of Applicable or Relevant and Appropriate Requirements

Interim Record of Decision, Operable Unit 3
Naval Training Center
Orlando, Florida

Name and Regulatory Citation	Description	Consideration in the Remedial Action Process for OU 3
Federal Regulatory Requirements		
Clean Water Act (CWA), General Pretreatment Regulations for Existing and New Sources of Pollution (40 CFR Part 403)	Regulations for the introduction of pollutants from nondomestic sources into POTWs, to control pollutants that pass through, cause interference, or are otherwise incompatible with treatment processes at the plant.	If extracted and treated groundwater is discharged to a POTW, the discharge must meet local limits imposed by the plant.
CWA, National Permit Discharge Elimination System (NPDES) (40 CFR Part 122 and 125)	Requires permits for discharge of any pollutant into the navigable waters of the United States. Permits specify allowable concentrations of contaminants that may be present in the effluent stream.	Remedial alternatives that involve discharging pollutants to navigable water will require a NPDES permit.
CWA, Water Quality Standards (40 CFR Part 131)	Ambient Water Quality Criteria (AWQC), which are nonenforceable, ecological- and human health-based criteria, have been developed to establish water quality standards under the CWA.	Remedial actions that involve the discharge of groundwater to a surface water body must consider the Federal AWQC in the absence of a state surface water standard.
Endangered Species Act Regulations (50 CFR Parts 81, 225, 402)	The Act requires Federal agencies to take action to avoid jeopardizing the continued existence of federally listed endangered or threatened species.	Endangered or threatened species may be present in the vicinity of OU 3. If a planned remedial action could potentially affect an endangered species, this regulation would apply.
National Environmental Policy Act (NEPA) Wetlands, Floodplains, Important Farmland, Coastal Zones, etc. (40 CFR □ 6.302[a])	Contains the procedures for carrying out the executive order on wetland protection (EO 11990). Requires Federal agencies to minimize the degradation, loss, or destruction of wetlands, and take steps to preserve and enhance the natural and beneficial value of wetlands.	When choosing a remedial action, any possible impact to wetlands should be considered and mitigated.
NEPA Wetlands, Floodplains Important Farmland, Coastal Zones, etc. (40 CFR Part 6)	Appendix A sets forth the policy for carrying out the Floodplains EO 11988. This appendix requires cleanup in a floodplain not be selected unless determination is made that no practicable alternative exists.	If a remedial action will be implemented in a designated floodplain, alternatives should be considered to reduce the risk of flood loss and preserve and restore floodplains.
Resource Conservation and Recovery Act (RCRA) Regulations, Identification and Listing of Hazardous Wastes (40 CFR Part 261)	Defines listed and characteristic hazardous wastes subject to RCRA. Appendix II contains the Toxicity Characteristic Leaching Procedure.	These regulations would apply when determining whether or not waste on site is hazardous either by being listed or exhibiting a hazardous characteristic as described in the regulations.
RCRA Regulations, Standards Applicable to Transporters of Hazardous Waste (40 CFR Part 263)	These regulations establish procedures to be followed when transporting manifested hazardous waste within the United States.	If a remedial alternative for OU 3 were to include the off-site transportation of hazardous waste for treatment and/or disposal, transporters must meet these requirements.
RCRA Regulations, LDRs for Contaminated Debris (40 CFR Parts 270 and 271)	Hazardous debris, under these regulations, can be managed so that treated, cleaned debris may be disposed of as nonhazardous waste. Treatment residuals containing the original contaminant remain a hazardous waste and must be disposed of as such.	If a remedial alternative for OU 3 generates hazardous debris (e.g., if pavement or concrete contaminated with hazardous waste requires removal), these regulations would apply to disposal and/or treatment of that debris.

See notes at end of table.

Table 2-10 (Continued)
Synopsis of Applicable or Relevant and Appropriate Requirements

Interim Record of Decision, Operable Unit 3
Naval Training Center
Orlando, Florida

Name and Regulatory Citation	Description	Consideration in the Remedial Action Process for OU 3
Safe Drinking Water Act (SDWA) Regulations, Maximum Contaminant Levels (MCLs) and Maximum Contaminant Level Goals (MCLGs) (40 CFR Part 141, Subparts B and F)	Establishes enforceable standards (MCLs) for potable water for specific contaminants that have been determined to adversely affect human health. MCLGs are nonenforceable health goals established by USEPA.	MCLs can be used for groundwater or surface waters that are current or potential drinking water sources. Nonzero MCLGs can be considered potential relevant and appropriate requirements for groundwater used as a current or potential drinking water source.
SDWA Regulations, Underground Injection Control Program (40 CFR Parts 144, 146, 147, and 1000)	These regulations outline minimum program and performance standards for underground injection programs.	If a remedial alternative for OU 3 includes injection into the aquifer, then these regulations would apply.
Federal Guidance Material		
USEPA Region III Risk-Based Concentration Tables	This table contains reference doses and carcinogenic potency slopes for nearly 600 chemicals. These toxicity constants have been combined with standard exposure scenarios to calculate chemical concentrations corresponding to fixed levels of risk.	The chemical-specific soil and groundwater values provided in this guidance are TBC values when evaluating these media in the risk assessment and the FS.
State Regulatory Requirements		
Florida Rules on Permits (Chapter 62-4, FAC)	Provides permitting requirements for water pollution sources and air emissions units.	The regulation would apply to off-site CERCLA activities or non-CERCLA remedial activities requiring air emissions or water discharge permits.
Florida Surface Water Quality Standards (Chapter 62-302, FAC)	Rule distinguishes surface water into five classes based on designated uses and establishes ambient water quality standards (called Florida Water Quality Standards) for listed pollutants.	Because these standards are specifically tailored to Florida waters, they should be used to establish cleanup levels rather than the Federal AWQC for remedial actions that involve the discharge of groundwater to a surface water body.
Florida Groundwater Classes, Standards and Exemptions (Chapter 62-520, FAC)	Rule designates the groundwaters of the State into five classes and establishes minimum "free from" criteria. Rule also specifies that Class I & II waters must meet the primary and secondary drinking water standards listed in Chapter 62-550, FAC.	These regulations should be used when determining cleanup levels for groundwater.
Florida Underground Injection Control Regulations (Chapter 62-522, FAC)	This rule establishes a State underground injection control program consistent with the Federal requirements and appropriate to the hydrogeology of Florida. Five classes of injection wells are defined.	If a remedial alternative for OU 3 includes injection into the aquifer, then these regulations would apply.
Florida Drinking Water Standards (Chapter 62-550, FAC)	Rule adopts Federal primary and secondary drinking water standards and also creates additional rules to fulfill State and Federal requirements for community water distribution systems.	The standards provided in this rule will be used when evaluating cleanup levels for groundwater at OU 3.

See notes at end of table.

Table 2-10 (Continued)
Synopsis of Applicable or Relevant and Appropriate Requirements

Interim Record of Decision, Operable Unit 3
Naval Training Center
Orlando, Florida

Name and Regulatory Citation	Description	Consideration in the Remedial Action Process for OU 3
State Regulatory Requirements (Continued)		
Florida Wastewater Facility Permits (Chapter 62-620, FAC)	Establishes requirements for wastewater permits. Because Florida is a designated state (i.e., has the authority to implement the National Discharge Elimination System permits), one permit will suffice to meet both Federal and State discharge requirements.	If a remedial alternatives consists of the discharge of wastewater to navigable waters, the substantive requirements of this rule would need to be achieved.
Pretreatment Requirements for Existing and New Sources of Pollution (Chapter 62-625, FAC)	Rule establishes the authority of various bodies to implement pretreatment standards to control pollutants that pass through or interfere with treatment processes in domestic wastewater facilities.	The regulation would apply to remedial activities involving the discharge of remediation waters to a POTW.
Florida Water Quality Based Effluent Limitations (WQBELs) (Chapter 62-650, FAC)	Requires that all activities and discharges, except dredge and fill, must meet effluent limitations based on technology or water quality. WQBELs are determined by FDEP based on the characteristics of the receiving discharge, the receiving water, and the surface water criteria promulgated by FDEP.	The regulation would apply to remedial alternatives that discharge contaminated groundwater to surface water.
Hazardous Waste Rules (Chapter 62-730, FAC)	These rules adopt by reference appropriate sections of 40 CFR Parts 260 through 268 and established minor additions and exceptions to these regulations concerning the generation, storage, treatment, transportation, and disposal of hazardous waste.	Based on the history of operations at OU 3 and the chemicals used during operations, the wastes encountered at the OU may be classified as hazardous wastes, and these regulations would apply.
State Guidance Materials		
Soil Cleanup Target Levels (Chapter 62-777, FAC)	Provides risk-based cleanup target levels for contaminants in soil based on direct human contact. Includes levels for residential, industrial, and leaching to groundwater exposure scenarios. Target levels are based on default site characteristics, but site-specific soil target levels may be calculated.	The values in this guidance should be considered when determining cleanup levels for soil.
Groundwater Cleanup Target Levels (Chapter 62-777, FAC)	Provides risk-based cleanup target levels for contaminants in groundwater based on ingestion.	The values in this guidance should be considered when determining cleanup levels for groundwater.

Notes: OU = operable unit.
CFR = Code of Federal Regulations.
POTW = publicly owned treatment works.
EO = Executive Order.
LDR = Land Disposal Restriction.
USEPA = U.S. Environmental Protection Agency
TBC = to be considered.
FS = feasibility study.
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act.
FAC = Florida Administrative Code.
FDEP = Florida Department of Environmental Protection.

Soil contaminants at SA 9 were concentrated in two areas. The first area is located in the flat grassy area east of former Building 2132 in which the 1997 IRA occurred, resulting in the excavation and disposal of 946 tons of pesticide-contaminated soil in September 1997. The second area is located along the drainage swale, which has been a receptor of surface runoff from the work area for many years. It appeared that contaminated sediment had accumulated at the point where the swale entered the heavily vegetated areas, based on the finding that concentrations at that point were higher than concentrations in all other samples collected from the swale and wetlands both above and below that point. Samples results confirmed that contamination did not extend laterally beyond the swale. The soil in the swale area of SA 9 was excavated and disposed of during a second IRA in April and May 1999 (Figure 2-4).

Soil samples were collected in the wetland area to evaluate concentrations of soil likely to migrate overland and be deposited into Lake Baldwin as sediment. Although contaminants were detected in wetland soil at both SAs, concentrations generally showed a significant decrease from the concentrations located at the source areas.

Since the completion of the IRA soil removal by the Environmental Detachment Charleston in May 1999, most remaining soil at OU 3 meets soil cleanup criteria required for the intended reuse, which is non-residential (recreational). In several instances, soil exceeding recreational cleanup criteria was left in place because the exceedances were isolated, adjacent to and within a wetland, and the overall exposure to the area would be protective of recreational users. In addition, the potential harm to ecological receptors and biota from soil removal activities in the wetlands was deemed to be more harmful than the benefit that would result from soil remediation.

2.11.2 Quarterly Groundwater Sampling

The OPT suspected that groundwater quality had improved since completion of RI activities because the most highly contaminated soil had been removed from the site. In order to evaluate the effects of soil removal on groundwater contamination and to provide data for evaluating the rate at which natural attenuation is affecting contaminant concentrations, quarterly sampling was conducted between March 1999 and January 2000. Results of the sample rounds are summarized on Figures 2-5 and 2-6. The most recent quarterly report (January 2000) is included as Appendix C and contains a complete summary of all data to date.

At SA 8, in the October 1999 quarterly sampling, arsenic exceeded both surface water standards and GCTLs at one of the four well points adjacent to Lake Baldwin (Figure 2-5). In addition, MCPP and lead were each detected in one well point at concentrations exceeding the Florida GCTL. More recently at SA 8, in the January 2000 quarterly sampling (unvalidated), MCPP was detected in three out of four well points, and arsenic in two out of four well points at concentrations exceeding the Florida GCTL. The OPT is evaluating the data and will make a decision as to whether or not active remediation is necessary to prevent shallow groundwater beneath SA 8 from reaching Lake Baldwin.

Because of this recent data, the OPT has decided to monitor the groundwater via drive point wells installed in shallow water adjacent to the shoreline of the lake to determine whether or not ecological receptors are at risk. The OPT also decided to implement bench scale testing on three remedial technologies that show promise in reducing contaminant concentrations in groundwater.

At SA 9, arsenic concentrations in the well points were all well below groundwater screening values and the Florida surface water guidance concentration, although in one well point, the pesticide MCPA was present at an estimated concentration exceeding the State of Florida GCTL (Figure 2-6).

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APPENDIX A

RESPONSIVENESS SUMMARY

Responsiveness Summary

The Responsiveness Summary serves three purposes. First, it provides regulatory agencies with information about the community preferences regarding the remedial alternatives presented for Operable Unit (OU) 3, Study Areas 8 and 9, at Naval Training Center (NTC), Orlando, Florida. Second, the Responsiveness Summary documents how public comments have been considered and integrated into the decision-making process. Third, it provides the Navy, U.S. Environmental Protection Agency, and Florida Department of Environmental Protection with the opportunity to respond to each comment submitted.

The Remedial Investigation/Feasibility Study and Proposed Plan for OU 3 were made available in an Information Repository maintained at the Orlando Public Library. Comments on these documents were solicited from the public during a public comment period held from July 1 through August 1, 1999. No comments were received during the comment period.

APPENDIX B

INTERIM REMOVAL ACTION COMPLETION REPORT (1999)

OPERABLE UNIT 3

1. INTRODUCTION

1.1 OPERABLE UNIT 3

Operable Unit (OU) 3 is located on the Main Base, Naval Training Center, Orlando (Figure 1). OU 3 consists of SA 8 and SA 9. SA 8 was the location of the greenskeeper's storage area, which consists of Building 2134, several smaller storage sheds, and numerous concrete pads (Figure 1). Information for SA 9 can be found in Section 6.

STUDY AREA 8

1.2 OU 3 SA 8 INTERIM REMEDIAL ACTION

SOUTHDIV tasked the DET to perform an IRA for this site. The objective of the IRA was to excavate and dispose of soil contaminated with pesticides and/or arsenic. The excavation was to continue until the sampling program indicated with reasonable confidence that the concentrations of contaminants at the site were less than residential limits specified by FDEP SCG, dated 30 April 1998 or USEPA Region III, dated 01 October 1998, whichever specifies the stricter criteria.

1.2.1 OU 3 SA 8 Interim Remedial Action Execution Summary

The execution of this IRA is discussed in the following sections:

1.2.1.1 OU3 SA 8 Sample Point 08S044

The execution of this IRA consisted of excavating an area approximately 5' x 8' to a depth of 2' (Figure 2). Soil removed from the site was characterized as hazardous and was sent to a permitted Treatment, Storage, and Disposal Facility (TSDF). A Confirmation sample was collected from each sidewall testing for pesticides. The results of these samples were all less than the RGOs.

1.2.1.2 OU3 SA 8 Sample Point 08S031

The execution of this IRA consisted of excavating an area approximately 16′ x 31′ to a depth of 2′ (Figure 3). Soil removed from the site was characterized as hazardous and was sent to a permitted Treatment, Storage, and Disposal Facility (TSDF). A Confirmation sample was collected from each sidewall testing for pesticides. The results of these samples were all less than the RGOs.

1.2.1.3 OU3 SA 8 Arsenic Areas

The execution of this IRA consisted of excavating an area approximately 150′ x 290′ to a depth of 2′ (Figure 4). Soil removed from the site was characterized as non-hazardous and was sent to a Subtitle D landfill. Confirmation samples were collected from each sidewall testing for arsenic. The results of these samples were all less than the RGOs or were less than three times the RGOs.

2.0 INTERIM REMEDIAL ACTION EXCECUTION

2.1 ACTIONS PERFORMED BY THE INTERIM REMEDIAL ACTION WORK PLAN

Actions performed are listed below.

- Collection of waste characterization samples
- Installation of approximately 400′ of silt fencing for erosion control
- Removal and disposal of 50 square feet of non-friable transite shingles
- Demolition and disposal of Building 2143
- Removal and disposal of concrete, asphalt, trees/shrubs/ and fencing
- Excavation and disposal of approximately 2,886 tons of non-hazardous waste
- Excavation and disposal of approximately 63 tons of hazardous waste
- Collection of confirmatory samples along each sidewall for analysis of pesticides and/or arsenic
- Restoration of site by backfilling, grading to surrounding area, and hydroseeding

2.2 OBSERVATIONS NOTES

2.2.1 Soil Conditions

From ground surface to the bottom of the excavation the soil was dark silty sand.

2.3 PLAN MODIFICATIONS AND JUSTIFICATION

- The OPT added three 5′ x 5′ x 2′ areas, an 25′ x 40′ x 2′ area, and a 50′ x 50′ x 2′ area to the original scope of work to be conducted at the site for arsenic contamination.

3.0 INTERIM REMEDIAL ACTION OUTCOME

3.1 SITE CONDITIONS FOLLOWING COMPLETION OF WORK

Following completion of work, the DET had removed 63 tons of pesticide contaminated soil and 2,886 tons of arsenic contaminated soil. The site was backfilled, graded to surrounding area and hydroseeded. Site photographs are included in Appendix H1.

4.0 SAMPLING

4.1 CONFIRMATION SAMPLING

Upon completion of work a confirmation sample was taken on each sidewall testing for arsenic and/or pesticides (Figures 2, 3, & 4). See appendix H2 for sampling documentation.

4.2 WASTE CHARACTERIZATION SAMPLING

Waste characterization samples SA8001, 2, and 3 were taken and analyzed for TCLP metals and TCLP pesticides and sample 99SPORT0140-1 was taken and analyzed for TCLP metals.

5.0 WASTE GENERATION

5.1 Hazardous Waste

A total of 63 tons of hazardous pesticide contaminated soil was disposed of to a permitted treatment, storage and disposal facility. Waste Manifests are in appendix H3.

5.2 Non-Hazardous Waste

A total of 2,886 tons of non-hazardous arsenic contaminated soil was disposed of to a permitted treatment, storage and disposal facility. Waste Manifests are in appendix H3.

STUDY AREA 9

6.1 OPERABLE UNIT 3

Operable Unit (OU) 3 is located on the Main Base, Naval Training Center, Orlando (Figure 5). OU 3 consists of SA 8 and SA 9. SA 9 was the location of a pesticide and herbicide storage building used by the Air Force and Navy between the 1950's to 1972 (figure 1). Information for SA 8 can be found in Section 1.

6.2 OU 3 SA 9 INTERIM REMEDIAL ACTION

SOUTHDIV tasked the DET to perform an IRA for this site. The objective of the IRA was to excavate and dispose of soil contaminated with pesticides. The excavation was to continue until the sampling program indicated with reasonable confidence that the concentrations of contaminants at the site were less than residential limits specified by FDEP SCG, dated 30 April 1998 or USEPA Region III, dated 01 October 1998, whichever specifies the stricter criteria.

6.2.1 OU 3 SA 9 Interim Remedial Action Execution Summary

The execution of this IRA consisted of excavating an area approximately 128' x 3' to a depth of 2' (Figure 6). Soil removed from the site was characterized as hazardous and was sent to a permitted Treatment, Storage, and Disposal Facility (TSDF). A Confirmation sample was collected from each sidewall testing for pesticides. The results of these samples were all less than the RGOs.

7.0 INTERIM REMEDIAL ACTION EXCECUTION

7.1 ACTIONS PERFORMED BY THE INTERIM REMEDIAL ACTION WORK PLAN

Actions performed are listed below

- Installation of approximately 75′ of silt fencing for erosion control
- Removal and disposal of trees and shrubs
- Excavation and disposal of an area approximately 128′ x 3′ to a depth of 2′
- Collection of confirmatory samples along each sidewall for analysis of pesticides and/or arsenic
- Restoration of site by backfilling, grading to surrounding area, and hydroseeding

7.2 OBSERVATIONS NOTES

7.2.1 Soil Conditions

From ground surface to the bottom of the excavation the soil was dark silty sand.

7.3 PLAN MODIFICATIONS AND JUSTIFICATION

- The OPT instructed the DET not to excavate sample point 09S009 for arsenic contamination.

8.0 INTERIM REMEDIAL ACTION OUTCOME

8.1 SITE CONDITIONS FOLLOWING COMPLETION OF WORK

Following completion of work, the DET had removed 32 tons of pesticide contaminated soil. The site was backfilled, graded to surrounding area and hydroseeded. Site photographs are included in Appendix H1.

9.0 SAMPLING

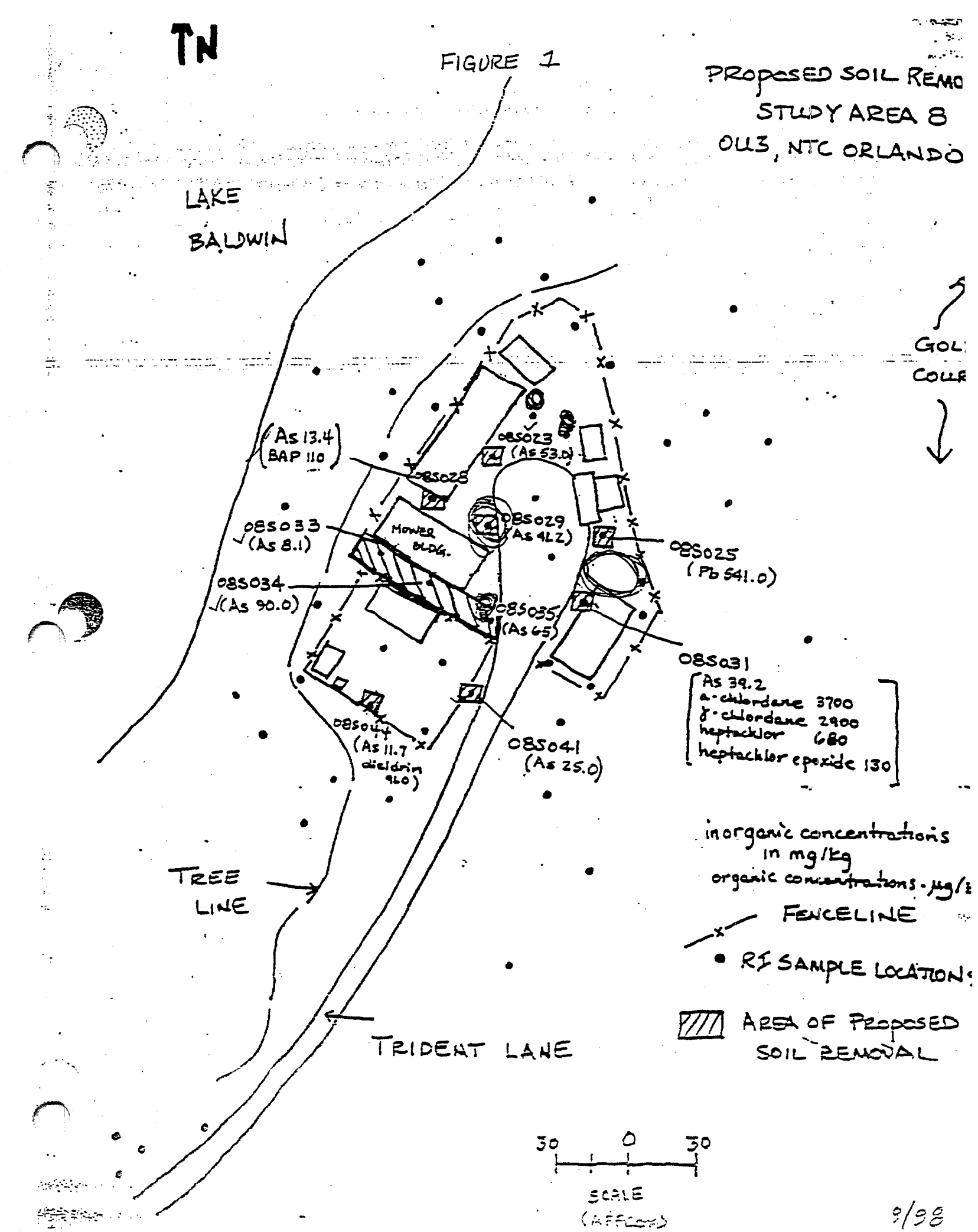
9.1 CONFIRMATION SAMPLING

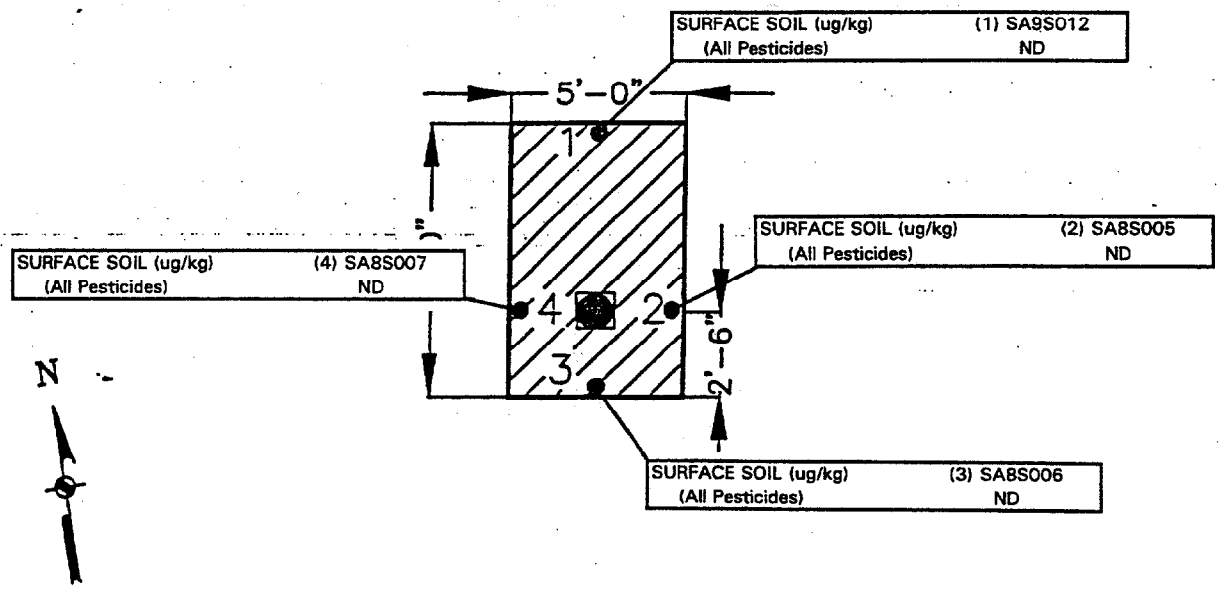
Upon completion of work a confirmation sample was taken on each sidewall testing for arsenic and/or pesticides (Figure 6). See appendix H2 for sampling documentation.

10.0 WASTE GENERATION

10.1 Hazardous Waste

A total of 32 tons of hazardous pesticide contaminated soil was disposed of to a permitted treatment, storage and disposal facility. Waste Manifests are in appendix H3.


TN
FIGURE 1
PROPOSED SOIL REMO
STUDY AREA 8
OL13, NTC ORLANDO
LAKE
BALDWIN
GOL
COUR
(As 13.4
BAP 110)
085023
(As 53.0)
085028
085033
(As 8.1)
MOWER
BLDG.
085029
(As 412)
085025
(Pb 541.0)
085034
(As 90.0)
085035
(As 65)
085031
As 39.2
α-chlordane 3700
γ-chlordane 2900
heptachlor 680
heptachlor epoxide 130
085044
(As 11.7
dieldrin
410)
085041
(As 25.0)
TREE
LINE
TRIDENT LANE
inorganic concentrations
in mg/kg
organic concentrations - µg/k
FENCELINE
RI SAMPLE LOCATION
AREA OF PROPOSED
SOIL REMOVAL
30
0
30
SCALE
(AFFLOAT)
9/98



LEGEND

1 ● CONFIRMATORY SAMPLE ID SA9S012

2 ● CONFIRMATORY SAMPLE ID SA8S005

3 ● CONFIRMATORY SAMPLE ID SA8S006

4 ● CONFIRMATORY SAMPLE ID SAS8007

SAMPLE POINT OBS044

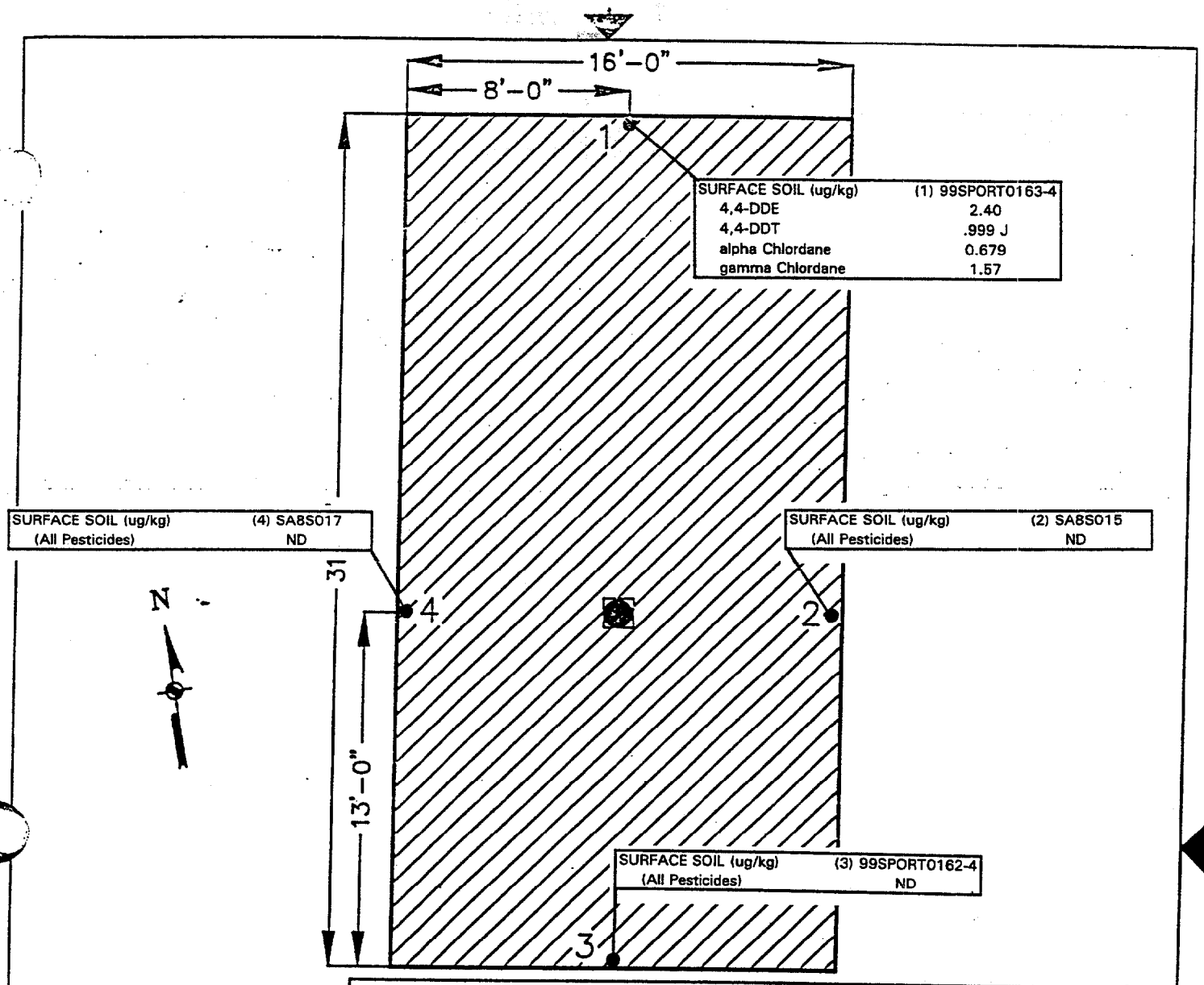
EXCAVATED TO 2 FEET DEEP

ENVIRONMENTAL DETACHMENT CHARLESTON
1899 NORTH HOBSON AVENUE – BUILDING 30
NORTH CHARLESTON, SOUTH CAROLINA 29405-2106

FIGURE 2
NAVAL TRAINING CENTER ORLANDO OU3 SA 8
EXCAVATION BOUNDARIES AND
CONFIRMATORY SAMPLE LOCATIONS

DATE:	PREPARED BY:	REV
25 AUGUST 1999	A. J. MOYER	–

SCALE: NONE | SHEET: –



LEGEND

1 ● CONFIRMATORY SAMPLE ID 99SPORT0163--4

2 ● CONFIRMATORY SAMPLE ID SA8S015

3 ● CONFIRMATORY SAMPLE ID 99SPORT0162--4

4 ● CONFIRMATORY SAMPLE ID SAS8017

SAMPLE POINT 08S031

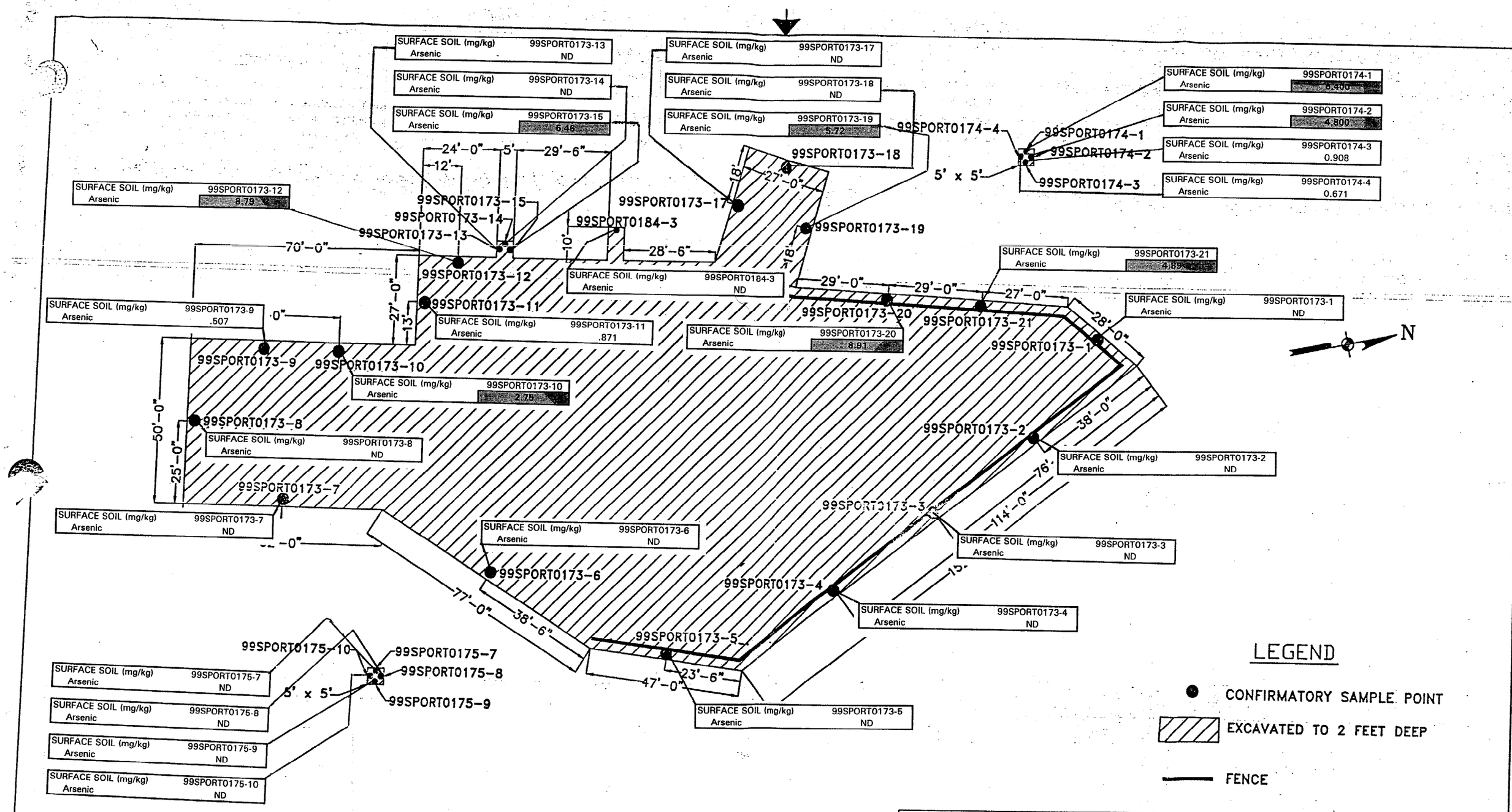
EXCAVATED TO 2 FEET DEEP

ENVIRONMENTAL DETACHMENT CHARLESTON
1899 NORTH HOBSON AVENUE – BUILDING 30
NORTH CHARLESTON, SOUTH CAROLINA 29405-2106

FIGURE 5
NAVAL TRAINING CENTER ORLANDO OU3 SA 8
EXCAVATION BOUNDARIES AND CONFIRMATORY SAMPLE LOCATIONS

DATE:	PREPARED BY:	REV
25 AUGUST 1999	A. J. MOYER	–

SCALE: NONE SHEET: –



LEGEND

- CONFIRMATORY SAMPLE POINT
- EXCAVATED TO 2 FEET DEEP
- FENCE

ENVIRONMENTAL DETACHMENT CHARLESTON
1899 NORTH HOBSON AVENUE – BUILDING 30
NORTH CHARLESTON, SOUTH CAROLINA 29405-2105

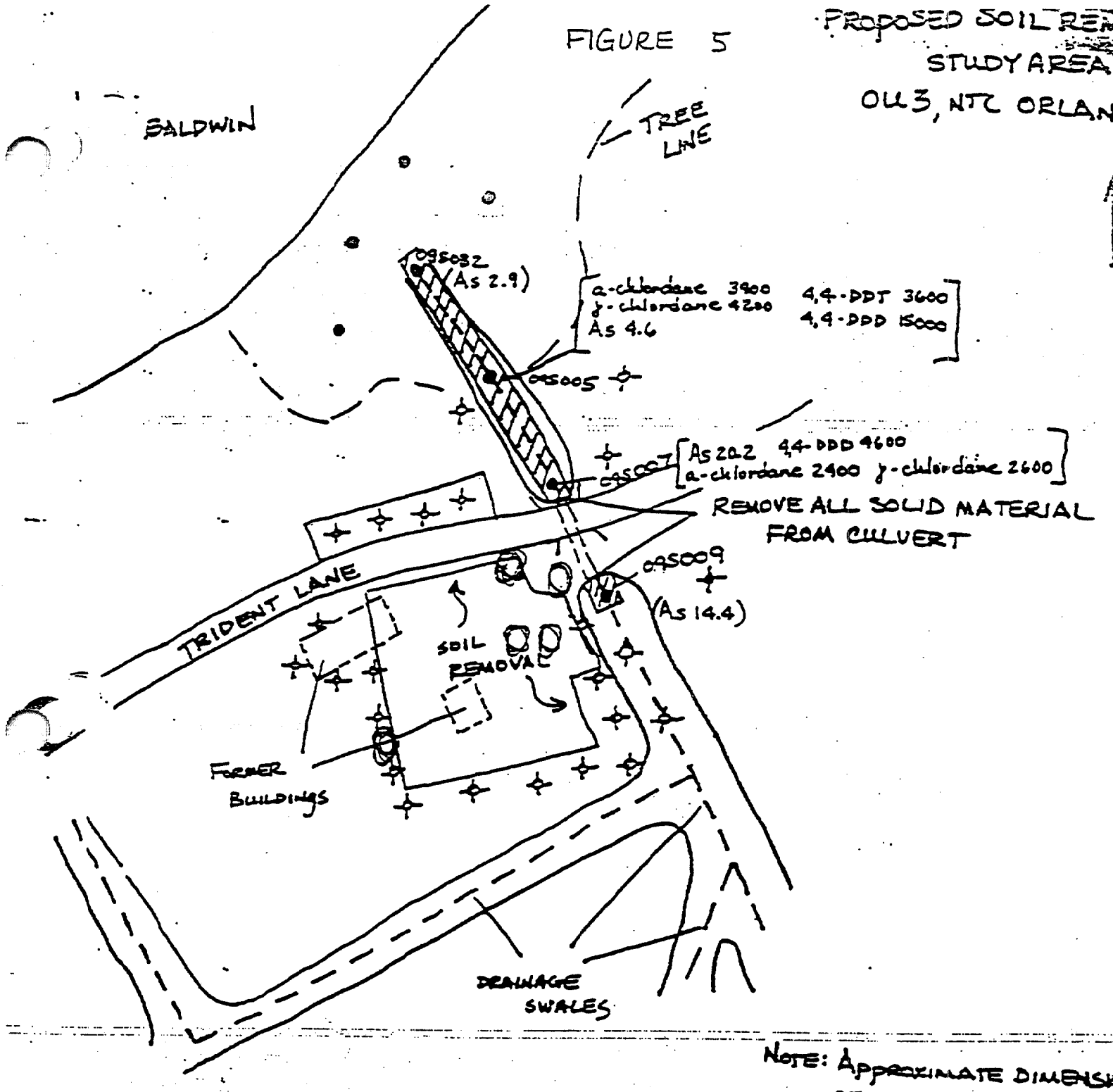
FIGURE 4
NAVAL TRAINING CENTER ORLANDO CU3 SA 8
EXCAVATION BOUNDARIES AND
CONFIRMATORY SAMPLE LOCATIONS

DATE	PREPARED BY:	REV
25 AUGUST 1999	A. J. MOYER	–
SCALE: NONE		SHEET

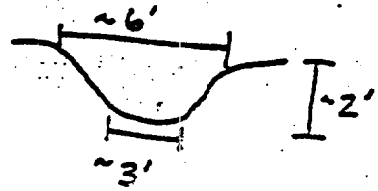
00222A03Z

FIGURE 5

PROPOSED SOIL REM
STUDY AREA
OU3, NTC ORLAN



NOTE: APPROXIMATE DIMENSIO
OF DRAINAGE SWALE



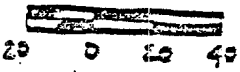
● SAMPLE LOCATIONS EXCEEDING CRITERIA

⊕ RI SAMPLE LOCATIONS BELOW SCREENING CRITERIA

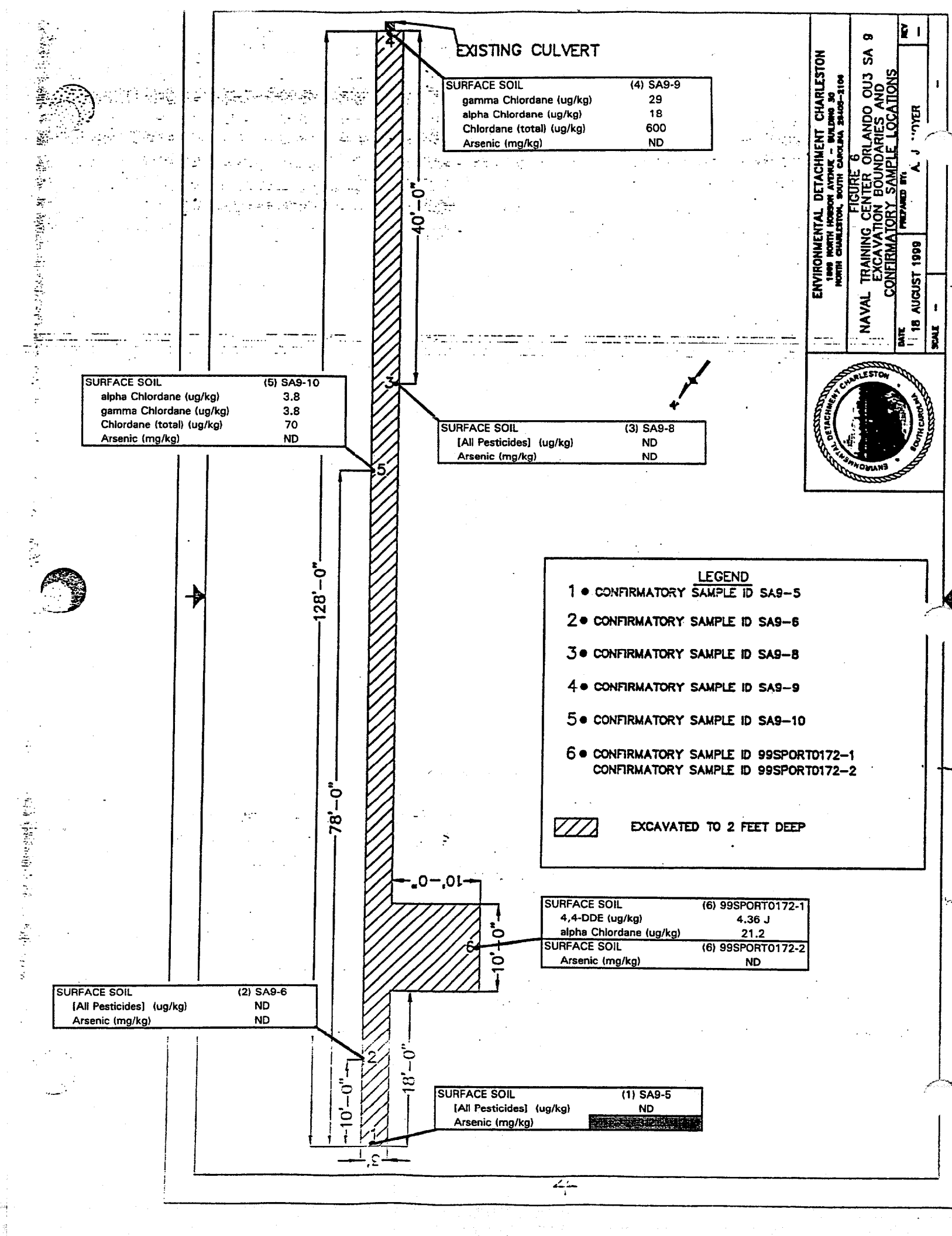
AREA OF PROPOSED SOIL REMOVAL

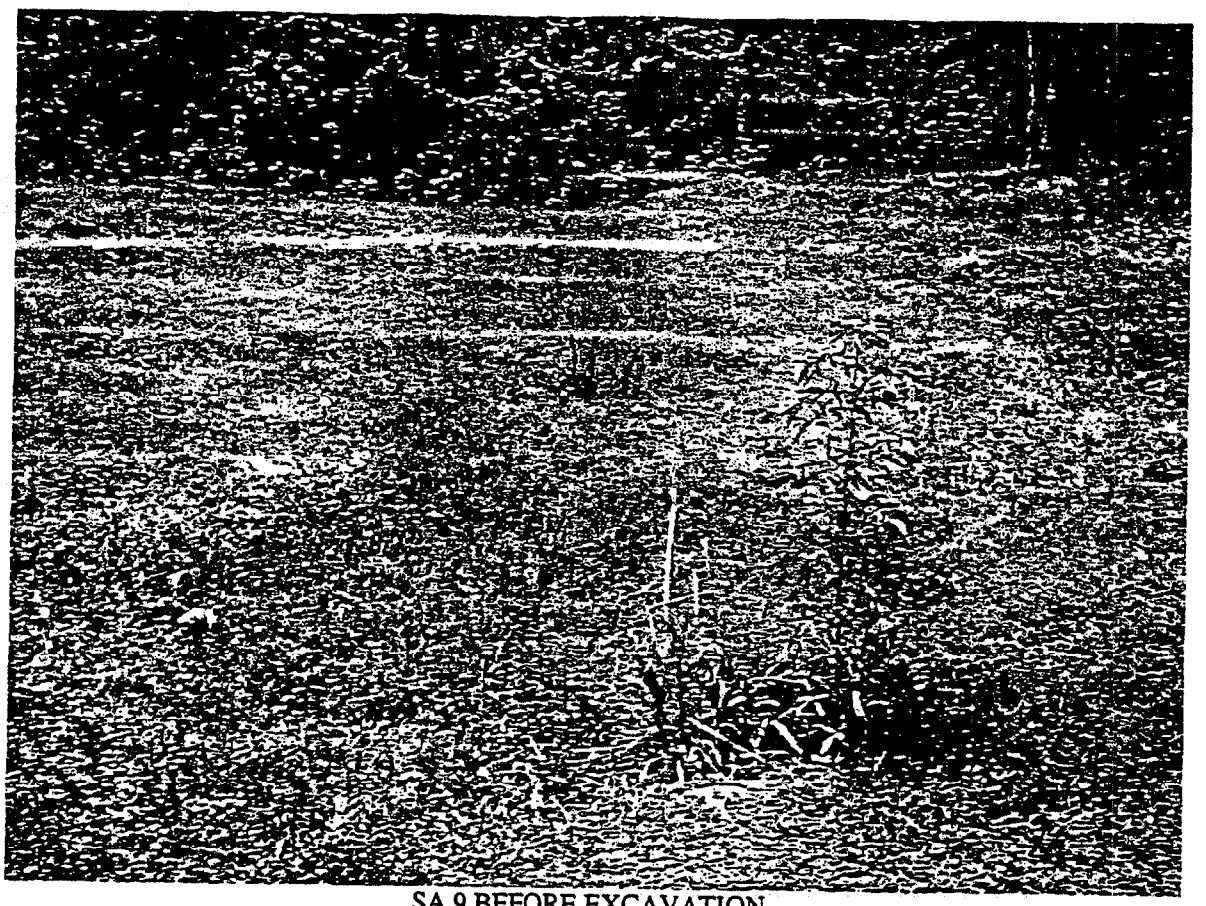
INORGANICS - mg/kg
ORGANICS - µg/kg

SCALE: 1 INCH = 60 FEET

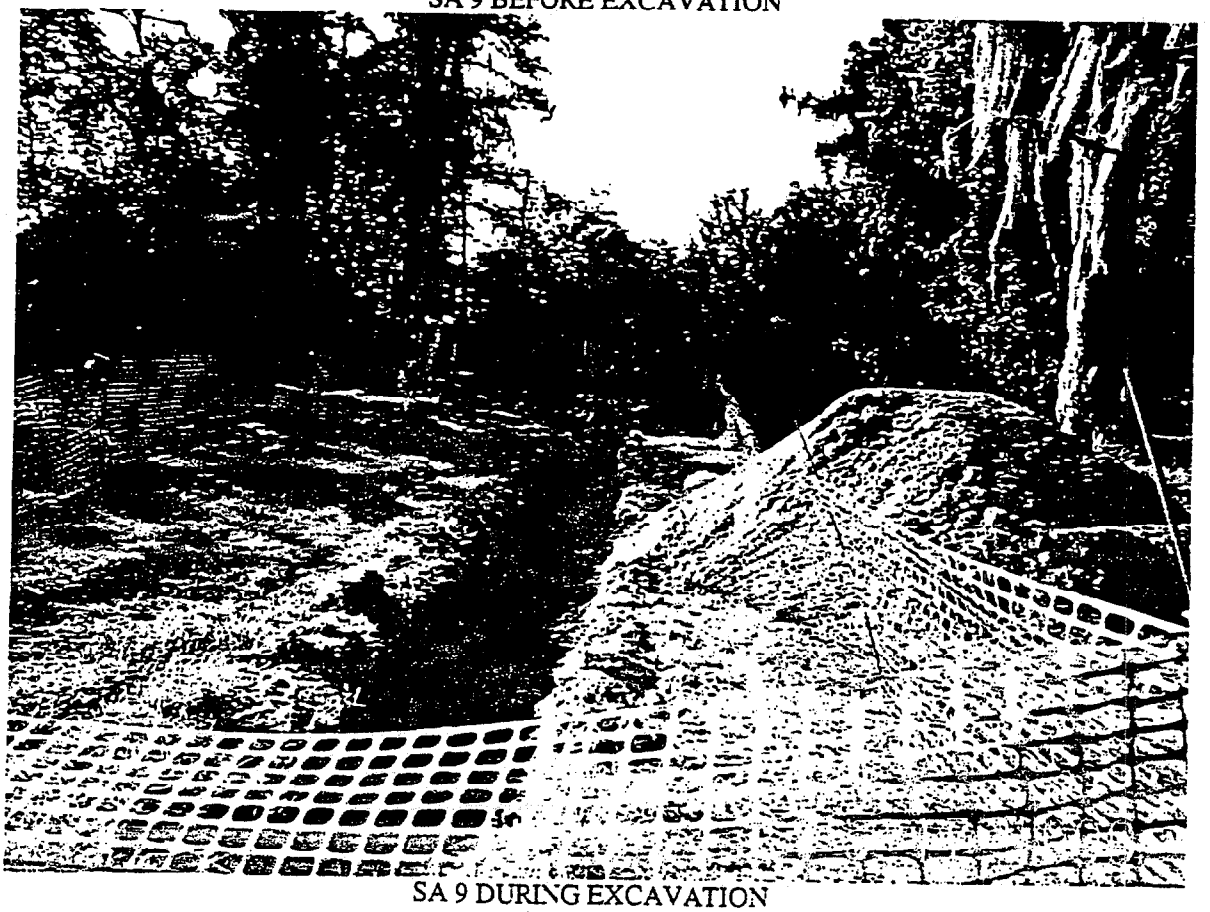


9/98


EXISTING CULVERT
SURFACE SOIL (4) SA9-9
gamma Chlordane (ug/kg) 29
alpha Chlordane (ug/kg) 18
Chlordane (total) (ug/kg) 600
Arsenic (mg/kg) ND
SURFACE SOIL (5) SA9-10
alpha Chlordane (ug/kg) 3.8
gamma Chlordane (ug/kg) 3.8
Chlordane (total) (ug/kg) 70
Arsenic (mg/kg) ND
SURFACE SOIL (3) SA9-8
[All Pesticides] (ug/kg) ND
Arsenic (mg/kg) ND
SURFACE SOIL (6) 99SPORT0172-1
4,4-DDE (ug/kg) 4.36 J
alpha Chlordane (ug/kg) 21.2
SURFACE SOIL (6) 99SPORT0172-2
Arsenic (mg/kg) ND
SURFACE SOIL (2) SA9-6
[All Pesticides] (ug/kg) ND
Arsenic (mg/kg) ND
SURFACE SOIL (1) SA9-5
[All Pesticides] (ug/kg) ND
Arsenic (mg/kg)
40'-0"
128'-0"
78'-0"
10'-0"
10'-0"
18'-0"
10'-0"
LEGEND
1 ● CONFIRMATORY SAMPLE ID SA9-5
2 ● CONFIRMATORY SAMPLE ID SA9-6
3 ● CONFIRMATORY SAMPLE ID SA9-8
4 ● CONFIRMATORY SAMPLE ID SA9-9
5 ● CONFIRMATORY SAMPLE ID SA9-10
6 ● CONFIRMATORY SAMPLE ID 99SPORT0172-1
CONFIRMATORY SAMPLE ID 99SPORT0172-2
EXCAVATED TO 2 FEET DEEP
ENVIRONMENTAL DETACHMENT CHARLESTON
1899 NORTH HOBSON AVENUE - BUILDING 30
NORTH CHARLESTON, SOUTH CAROLINA 29405-2104
FIGURE 6
NAVAL TRAINING CENTER ORLANDO OU3 SA 9
EXCAVATION BOUNDARIES AND
CONFIRMATORY SAMPLE LOCATIONS
DATE 18 AUGUST 1999
PREPARED BY: A. J. TYER
SCALE -
REV -



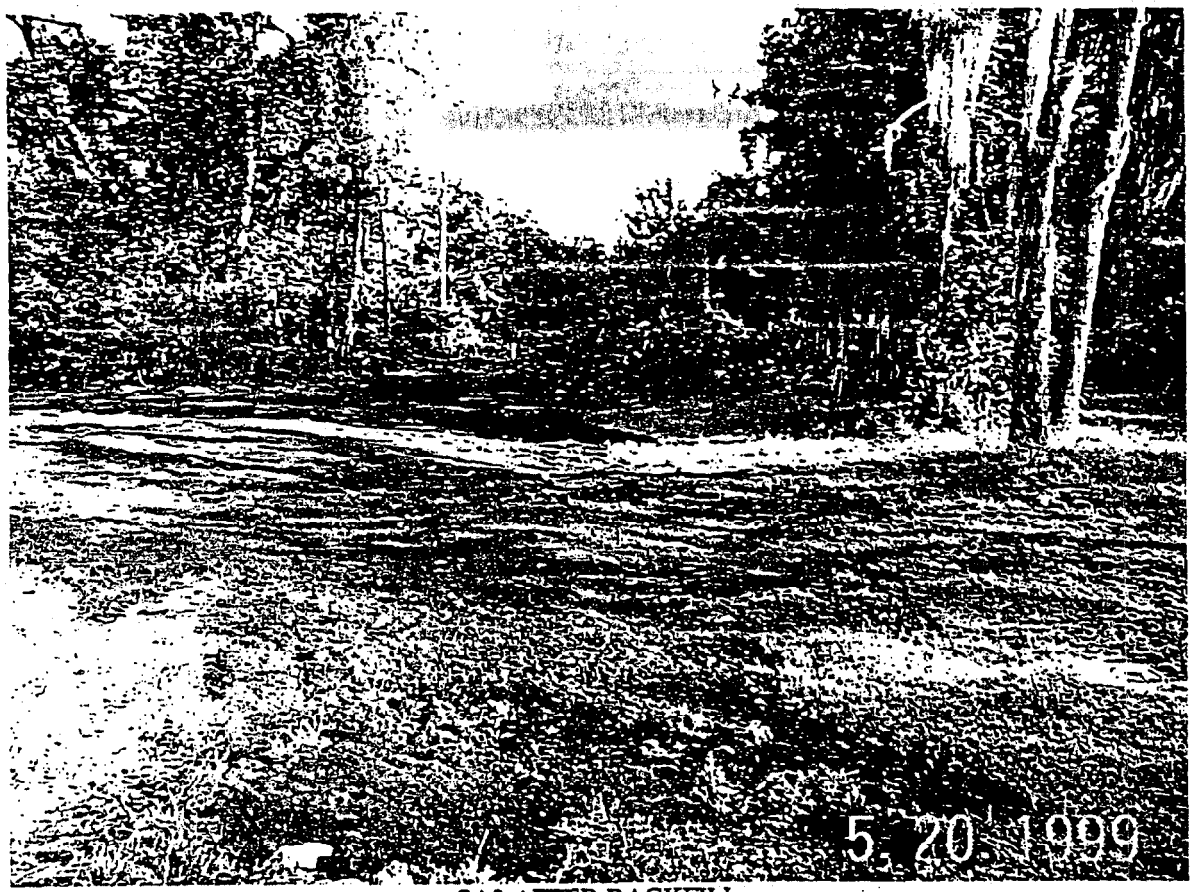
SA 9 BEFORE EXCAVATION



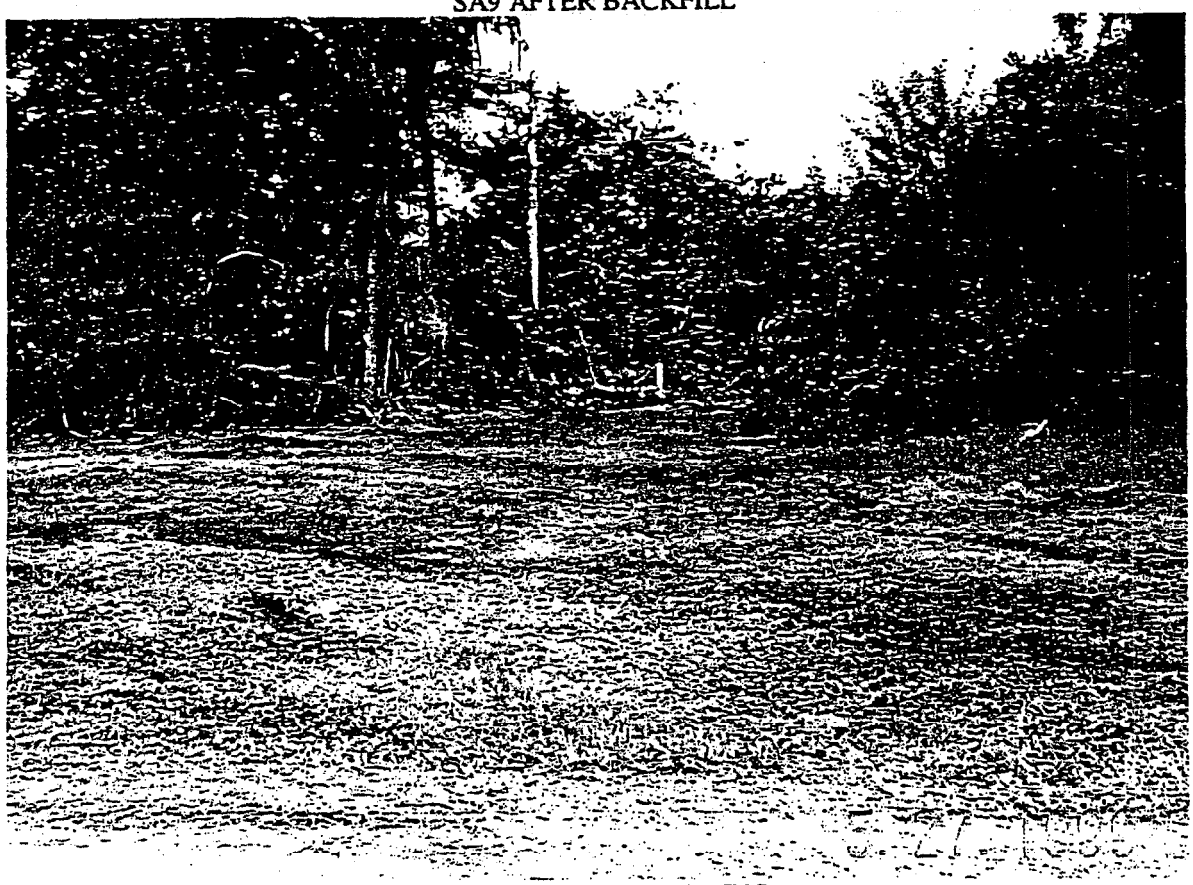
SA 9 DURING EXCAVATION

SA 9 AFTER BACKFILL

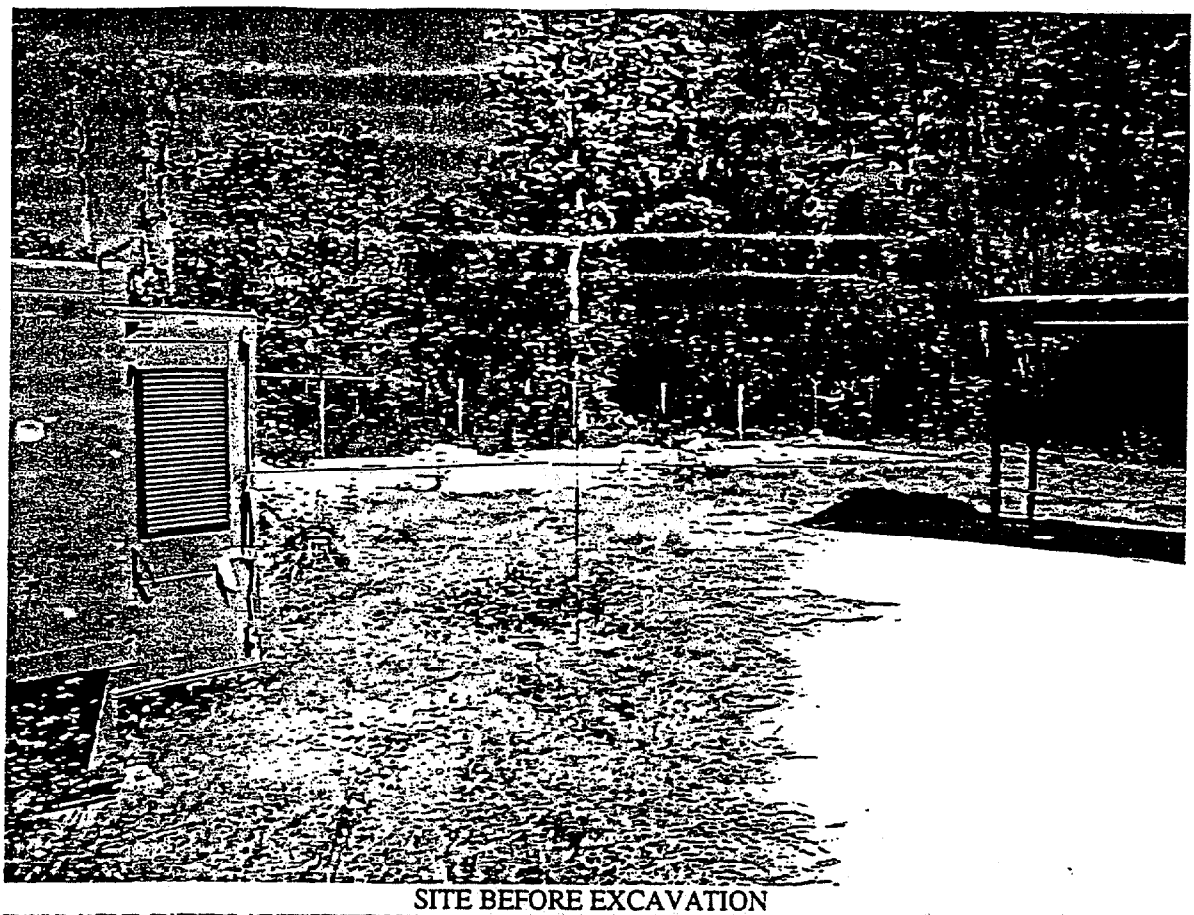
SA9 SILT FENCING



SA9 AFTER BACKFILL



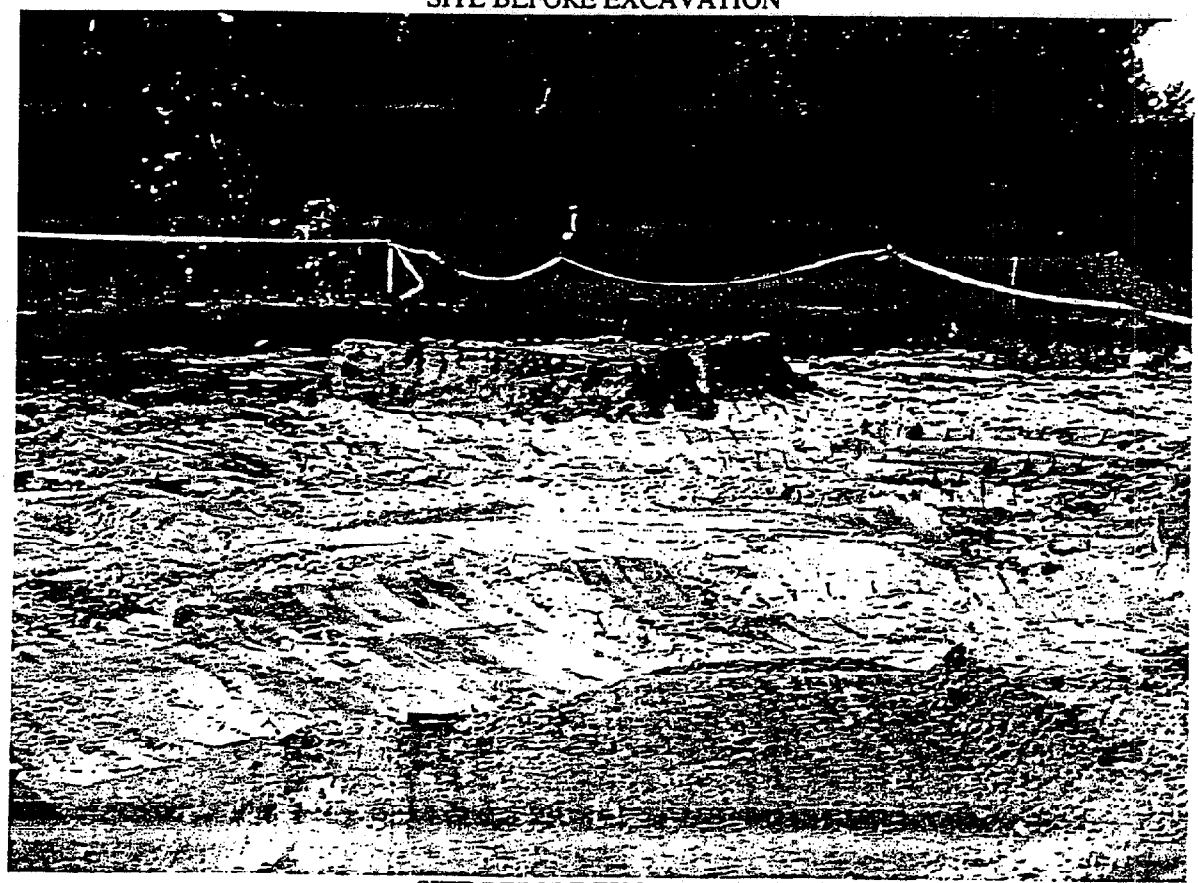
SA9 ATER HYDROSEEDING



SITE BEFORE EXCAVATION

SITE BEFORE EXCAVATION

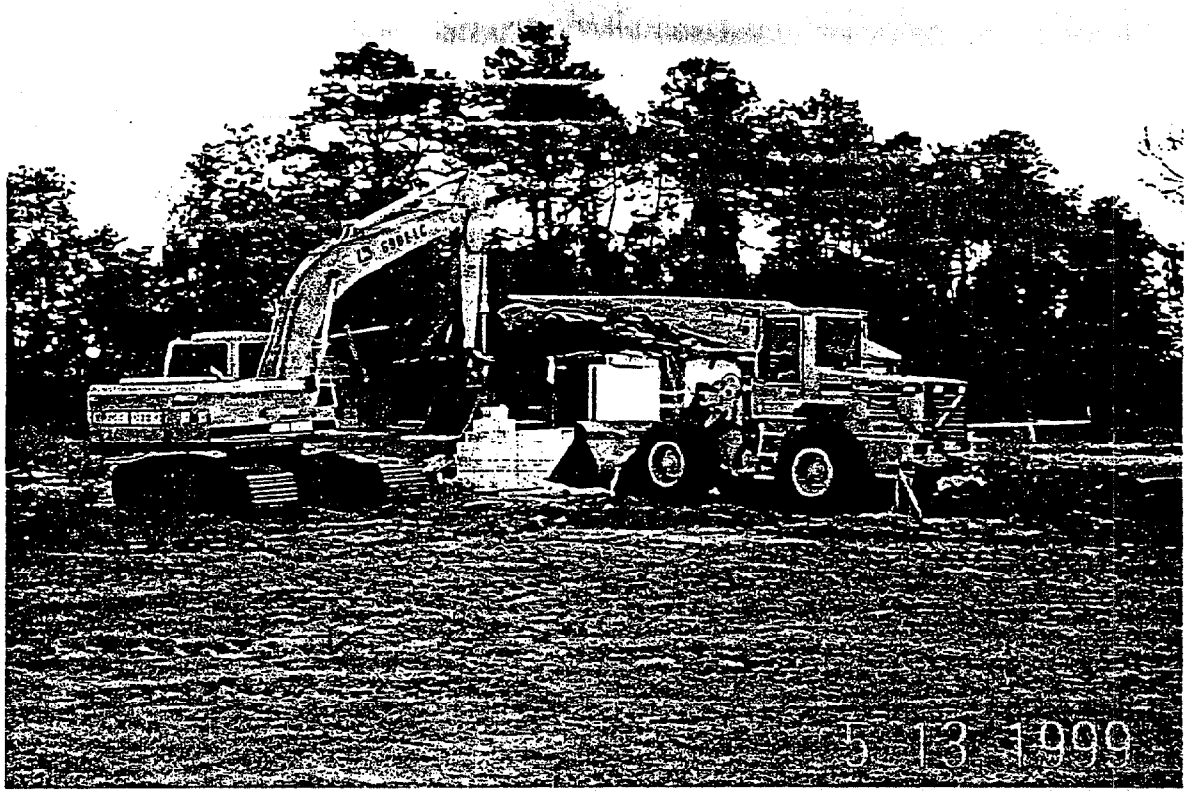
SITE BEFORE EXCAVATION



SITE BEFORE EXCAVATION

SITE DURING EXCAVATION

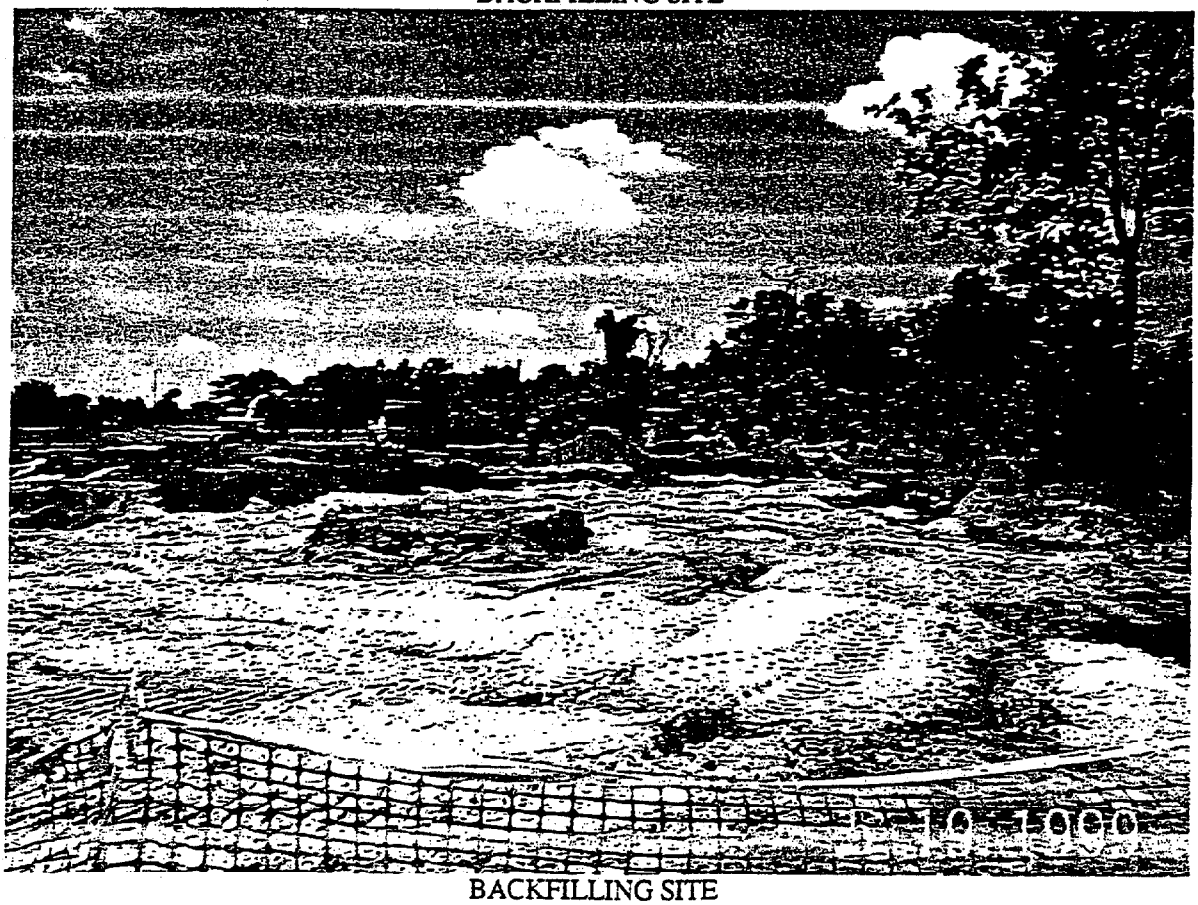
SITE DURING EXCAVATION



BUILDING DEMO

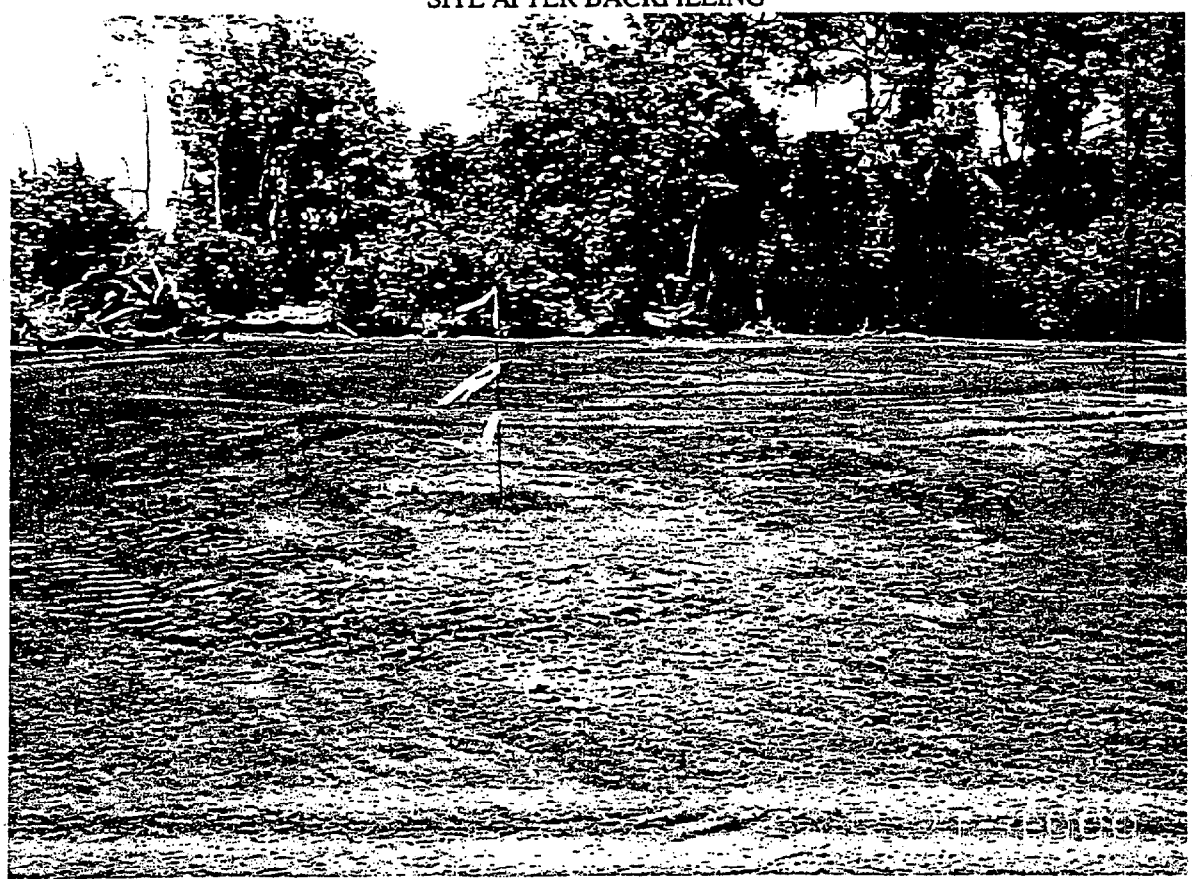
BUILDING DEMO

BACKFILLING SITE



BACKFILLING SITE

SITE AFTER BACKFILLING



SITE AFTER BACKFILLING

SITE AFTER HYDROSEEDED

CONFIRMATION SAMPLES

Environmental Conservation Laboratories
10207 General Drive
Orlando, Florida 32824-8529
407 / 826-5314
Fax 407 / 850-6945
www.encolabs.com

ENCO Laboratories

DHRS Certification No. E83182

Client: Environmental Detachment Charleston
Address: 1899 N. Hobson Ave Charleston, SC 29405-2106

Report #: OR6392
Date Submitted: 27-Apr-99
Date Reported: 5-May-99
Project Name: NTC Orlando

SAMPLE ID	CLIENT ID	COLLECT DATE	METHOD	PARAMETER	RESULTS	QUAL	DIL	UNITS	RDL	MDL
OR6392-1	SA8S012	4/27/99 11:00	8081	alpha-BHC	1.9	U		µg/Kg	1.9	1.9
OR6392-1	SA8S012	4/27/99 11:00	8081	beta-BHC	1.9	U		µg/Kg	1.9	1.9
OR6392-1	SA8S012	4/27/99 11:00	8081	gamma-BHC (Lindane)	1.9	U		µg/Kg	1.9	1.5
OR6392-1	SA8S012	4/27/99 11:00	8081	Heptachlor	1.9	U		µg/Kg	1.9	1.9
OR6392-1	SA8S012	4/27/99 11:00	8081	delta-BHC	1.9	U		µg/Kg	1.9	1.9
OR6392-1	SA8S012	4/27/99 11:00	8081	Aldrin	1.9	U		µg/Kg	1.9	0.37
OR6392-1	SA8S012	4/27/99 11:00	8081	Heptachlor Epoxide	1.9	U		µg/Kg	1.9	1.5
OR6392-1	SA8S012	4/27/99 11:00	8081	Chlordane gamma	1.9	U		µg/Kg	1.9	0.3
OR6392-1	SA8S012	4/27/99 11:00	8081	Chlordane alpha	1.9	U		µg/Kg	1.9	0.37
OR6392-1	SA8S012	4/27/99 11:00	8081	Endosulfan I	1.9	U		µg/Kg	1.9	1.9
OR6392-1	SA8S012	4/27/99 11:00	8081	4,4'-DDE	1.9	U		µg/Kg	1.9	1.9
OR6392-1	SA8S012	4/27/99 11:00	8081	Dieldrin	1.9	U		µg/Kg	1.9	1.9
OR6392-1	SA8S012	4/27/99 11:00	8081	Endrin	1.9	U		µg/Kg	1.9	1.9
OR6392-1	SA8S012	4/27/99 11:00	8081	4,4'-DDD	1.9	U		µg/Kg	1.9	1.5
OR6392-1	SA8S012	4/27/99 11:00	8081	Endosulfan II	1.9	U		µg/Kg	1.9	1.9
OR6392-1	SA8S012	4/27/99 11:00	8081	4,4'-DDT	1.9	U		µg/Kg	1.9	1.9
OR6392-1	SA8S012	4/27/99 11:00	8081	Endrin aldehyde	1.9	U		µg/Kg	1.9	1.5
OR6392-1	SA8S012	4/27/99 11:00	8081	Endosulfan sulfate	1.9	U		µg/Kg	1.9	0.75
OR6392-1	SA8S012	4/27/99 11:00	8081	Methoxychlor	11	U		µg/Kg	2	11
OR6392-1	SA8S012	4/27/99 11:00	8081	Endrin Ketone	2.6	U		µg/Kg	1.9	2.6
OR6392-1	SA8S012	4/27/99 11:00	8081	Chlordane (Total)	37	U		µg/Kg	37	1.9
OR6392-1	SA8S012	4/27/99 11:00	8081	Toxaphene	75	U		µg/Kg	75	3.7
OR6392-1	SA8S012	4/27/99 11:00	8081	Isodrin	3.7	U		µg/Kg	3.7	3.7
OR6392-1	SA8S012	4/27/99 11:00	8081	Mirex	3.7	U		µg/Kg	3.7	3.7
OR6392-1	SA8S012	4/27/99 11:00	8081	2,4,5,6-TCMX	90			%		
OR6392-1	SA8S012	4/27/99 11:00	8081	DBC	67			%		

SAMPLE ID	CLIENT ID	COLLECT DATE	METHOD	PARAMETER	RESULTS	QUAL	DIL	UNITS	RDL	MDL
OR6392-1	SA8S012	4/27/99 11:00	SM2540G	Percent Solids	89			%		

NOTE: Analyte values are reported on a dry weight basis.

U = Compound was analyzed for but not detected to the level shown.
I = Analyte detected; value is between the Method Detection Level (MDL) and the Practical Quantitation Level (PQL).

ENVIRONMENTAL CONSERVATION LABORATORIES

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Orlando, Florida 32824
Ph. (407) 826-5314 • Fax (407) 850-6945

ENCO CompQAP No.: 960038G/0

CHAIN OF CUSTODY RECORD

PROJECT REFERENCE	PROJECT NO.	P.O. NUMBER
NTC Orlando		

PROJECT LOC. (State)	SAMPLER(s) NAME	PHONE	FAX
FL	Kurt Cope	496-2173	

CLIENT NAME	CLIENT PROJECT MANAGER
ENV DET Chas	A. Moyer

CLIENT ADDRESS (CITY, STATE, ZIP): 899 N. Hobson Ave N Chas. SC 29405

PAGE 1 OF 1

☐ STANDARD REPORT DELIVERY

☐ EXPEDITED REPORT DELIVERY (surcharge)

Date Due: 4/30/99

STATION	SAMPLE DATE	SAMPLE TIME	GRAB	COMP	SAMPLE IDENTIFICATION	MATRIX TYPE: SURFACE WATER	GROUND WATER	WASTEWATER	DRINKING WATER	SOIL/SOLID/SEDIMENT	NONAQUEOUS LIQUID (oil, solvent, etc.)	AIR	SLUDGE	OTHER	REQUIRED ANALYSIS: Pesticides	PRESERVATIVE	NUMBER OF CONTAINERS SUBMITTED	REMARKS
1	4/27/99	1100	X		SA85012					X					1			
2	4/27/99	1105	X		SA85013					X					1			
3	4/27/99	1110	X		SA85014					X					1			
4	4/27/99	1115	X		SA85015					X					1			
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		

SAMPLE KIT PREPARED BY: ☐JACKSONVILLE ☐ORLANDO	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
RELINQUISHED BY: (SIGNATURE) Kurt Cope	DATE 4/27/99	TIME 1530	RECEIVED BY: (SIGNATURE) James N. Gregory	DATE 4/27/99	TIME 1530	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
RECEIVED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	ENCO LOG NO.	REMARKS
T. Pickman ☐ Jacksonville ■ Orlando	4-27-99	17:00	☐ YES ☐ NO	OR623	

Client: Environmental Detachment Charleston

Address: 1899 N. Hobson Ave Charleston, SC 29405-2106

Report #: OR6391
Date Submitted: 27-Apr-99
Date Reported: 5-May-99
Project Name: NTC Orlando

SAMPLE ID	CLIENT ID	COLLECT DATE	METHOD	PARAMETER	RESULTS	QUAL	DIL	UNITS	RDL	MDL
OR6391-2	SA8S005	4/27/99 10:15	8081	alpha-BHC	1.8	U		µg/Kg	1.8	1.8
OR6391-2	SA8S005	4/27/99 10:15	8081	beta-BHC	1.8	U		µg/Kg	1.8	1.8
OR6391-2	SA8S005	4/27/99 10:15	8081	gamma-BHC (Lindane)	1.8	U		µg/Kg	1.8	1.4
OR6391-2	SA8S005	4/27/99 10:15	8081	Heptachlor	1.8	U		µg/Kg	1.8	1.8
OR6391-2	SA8S005	4/27/99 10:15	8081	delta-BHC	1.8	U		µg/Kg	1.8	1.8
OR6391-2	SA8S005	4/27/99 10:15	8081	Aldrin	1.8	U		µg/Kg	1.8	0.35
OR6391-2	SA8S005	4/27/99 10:15	8081	Heptachlor Epoxide	1.8	U		µg/Kg	1.8	1.4
OR6391-2	SA8S005	4/27/99 10:15	8081	Chlordane gamma	1.8	U		µg/Kg	1.8	0.3
OR6391-2	SA8S005	4/27/99 10:15	8081	Chlordane alpha	1.8	U		µg/Kg	1.8	0.35
OR6391-2	SA8S005	4/27/99 10:15	8081	Endosulfan I	1.8	U		µg/Kg	1.8	1.8
OR6391-2	SA8S005	4/27/99 10:15	8081	4,4'-DDE	1.8	U		µg/Kg	1.8	1.8
OR6391-2	SA8S005	4/27/99 10:15	8081	Dieldrin	1.8	U		µg/Kg	1.8	1.8
OR6391-2	SA8S005	4/27/99 10:15	8081	Endrin	1.8	U		µg/Kg	1.8	1.8
OR6391-2	SA8S005	4/27/99 10:15	8081	4,4'-DDD	1.8	U		µg/Kg	1.8	1.4
OR6391-2	SA8S005	4/27/99 10:15	8081	Endosulfan II	1.8	U		µg/Kg	1.8	1.8
OR6391-2	SA8S005	4/27/99 10:15	8081	4,4'-DDT	1.8	U		µg/Kg	1.8	1.8
OR6391-2	SA8S005	4/27/99 10:15	8081	Endrin aldehyde	1.8	U		µg/Kg	1.8	1.4
OR6391-2	SA8S005	4/27/99 10:15	8081	Endosulfan sulfate	1.8	U		µg/Kg	1.8	0.7
OR6391-2	SA8S005	4/27/99 10:15	8081	Methoxychlor	10	U		µg/Kg	2	10
OR6391-2	SA8S005	4/27/99 10:15	8081	Endrin Ketone	2.4	U		µg/Kg	1.8	2.4
OR6391-2	SA8S005	4/27/99 10:15	8081	Chlordane (Total)	35	U		µg/Kg	35	1.8
OR6391-2	SA8S005	4/27/99 10:15	8081	Toxaphene	70	U		µg/Kg	70	3.5
OR6391-2	SA8S005	4/27/99 10:15	8081	Isodrin	3.5	U		µg/Kg	3.5	3.5
OR6391-2	SA8S005	4/27/99 10:15	8081	Mirex	3.5	U		µg/Kg	3.5	3.5
OR6391-2	SA8S005	4/27/99 10:15	8081	2,4,5,6-TCMX	97			%		
OR6391-2	SA8S005	4/27/99 10:15	8081	DBC	97			%		

SAMPLE ID	CLIENT ID	COLLECT DATE	METHOD	PARAMETER	RESULTS	QUAL	DIL	UNITS	RDL	MDL
OR6391-2	SA8S005	4/27/99 10:15	SM2540G	Percent Solids	95			%		

NOTE: Analyte values are reported on a dry weight basis.

U = Compound was analyzed for but not detected to the level shown.

Client: Environmental Detachment Charleston

Address: 1899 N. Hobson Ave Charleston, SC 29405-2106

Report #: OR6391
Date Submitted: 27-Apr-99
Date Reported: 5-May-99
Project Name: NTC Orlando

SAMPLE ID	CLIENT ID	COLLECT DATE	METHOD	PARAMETER	RESULTS	QUAL	DIL	UNITS	RDL	MDL
OR6391-3	SA8S006	4/27/99 10:18	8081	alpha-BHC	1.9	U		µg/Kg	1.9	1.9
OR6391-3	SA8S006	4/27/99 10:18	8081	beta-BHC	1.9	U		µg/Kg	1.9	1.9
OR6391-3	SA8S006	4/27/99 10:18	8081	gamma-BHC (Lindane)	1.9	U		µg/Kg	1.9	1.5
OR6391-3	SA8S006	4/27/99 10:18	8081	Heptachlor	1.9	U		µg/Kg	1.9	1.9
OR6391-3	SA8S006	4/27/99 10:18	8081	delta-BHC	1.9	U		µg/Kg	1.9	1.9
OR6391-3	SA8S006	4/27/99 10:18	8081	Aldrin	1.9	U		µg/Kg	1.9	0.37
OR6391-3	SA8S006	4/27/99 10:18	8081	Heptachlor Epoxide	1.9	U		µg/Kg	1.9	1.5
OR6391-3	SA8S006	4/27/99 10:18	8081	Chlordane gamma	1.9	U		µg/Kg	1.9	0.3
OR6391-3	SA8S006	4/27/99 10:18	8081	Chlordane alpha	1.9	U		µg/Kg	1.9	0.37
OR6391-3	SA8S006	4/27/99 10:18	8081	Endosulfan I	1.9	U		µg/Kg	1.9	1.9
OR6391-3	SA8S006	4/27/99 10:18	8081	4,4'-DDE	1.9	U		µg/Kg	1.9	1.9
OR6391-3	SA8S006	4/27/99 10:18	8081	Dieldrin	1.9	U		µg/Kg	1.9	1.9
OR6391-3	SA8S006	4/27/99 10:18	8081	Endrin	1.9	U		µg/Kg	1.9	1.9
OR6391-3	SA8S006	4/27/99 10:18	8081	4,4'-DDD	1.9	U		µg/Kg	1.9	1.5
OR6391-3	SA8S006	4/27/99 10:18	8081	Endosulfan II	1.9	U		µg/Kg	1.9	1.9
OR6391-3	SA8S006	4/27/99 10:18	8081	4,4'-DDT	1.9	U		µg/Kg	1.9	1.9
OR6391-3	SA8S006	4/27/99 10:18	8081	Endrin aldehyde	1.9	U		µg/Kg	1.9	1.5
OR6391-3	SA8S006	4/27/99 10:18	8081	Endosulfan sulfate	1.9	U		µg/Kg	1.9	0.74
OR6391-3	SA8S006	4/27/99 10:18	8081	Methoxychlor	11	U		µg/Kg	2	11
OR6391-3	SA8S006	4/27/99 10:18	8081	Endrin Ketone	2.6	U		µg/Kg	1.9	2.6
OR6391-3	SA8S006	4/27/99 10:18	8081	Chlordane (Total)	37	U		µg/Kg	37	1.9
OR6391-3	SA8S006	4/27/99 10:18	8081	Toxaphene	74	U		µg/Kg	74	3.7
OR6391-3	SA8S006	4/27/99 10:18	8081	Isodrin	3.7	U		µg/Kg	3.7	3.7
OR6391-3	SA8S006	4/27/99 10:18	8081	Mirex	3.7	U		µg/Kg	3.7	3.7
OR6391-3	SA8S006	4/27/99 10:18	8081	2,4,5,6-TCMX	100			%		
OR6391-3	SA8S006	4/27/99 10:18	8081	DBC	129			%		

SAMPLE ID	CLIENT ID	COLLECT DATE	METHOD	PARAMETER	RESULTS	QUAL	DIL	UNITS	RDL	MDL
OR6391-3	SA8S006	4/27/99 10:18	SM2540G	Percent Solids	90			%		

NOTE: Analyte values are reported on a dry weight basis.

U = Compound was analyzed for but not detected to the level shown.

Client: Environmental Detachment Charleston

Address: 1899 N. Hobson Ave
Charleston, SC 29405-2106

Report #: OR6391
Date Submitted: 27-Apr-99
Date Reported: 5-May-99
Project Name: NTC Orlando

SAMPLE ID	CLIENT ID	COLLECT DATE	METHOD	PARAMETER	RESULTS	QUAL	DIL	UNITS	RDL	MDL
OR6391-4	SA8S007	4/27/99 10:22	8081	alpha-BHC	1.8	U		µg/Kg	1.8	1.8
OR6391-4	SA8S007	4/27/99 10:22	8081	beta-BHC	1.8	U		µg/Kg	1.8	1.8
OR6391-4	SA8S007	4/27/99 10:22	8081	gamma-BHC (Lindane)	1.8	U		µg/Kg	1.8	1.4
OR6391-4	SA8S007	4/27/99 10:22	8081	Heptachlor	1.8	U		µg/Kg	1.8	1.8
OR6391-4	SA8S007	4/27/99 10:22	8081	delta-BHC	1.8	U		µg/Kg	1.8	1.8
OR6391-4	SA8S007	4/27/99 10:22	8081	Aldrin	1.8	U		µg/Kg	1.8	0.35
OR6391-4	SA8S007	4/27/99 10:22	8081	Heptachlor Epoxide	1.8	U		µg/Kg	1.8	1.4
OR6391-4	SA8S007	4/27/99 10:22	8081	Chlordane gamma	1.8	U		µg/Kg	1.8	0.3
OR6391-4	SA8S007	4/27/99 10:22	8081	Chlordane alpha	1.8	U		µg/Kg	1.8	0.35
OR6391-4	SA8S007	4/27/99 10:22	8081	Endosulfan I	1.8	U		µg/Kg	1.8	1.8
OR6391-4	SA8S007	4/27/99 10:22	8081	4,4'-DDE	1.8	U		µg/Kg	1.8	1.8
OR6391-4	SA8S007	4/27/99 10:22	8081	Dieldrin	1.8	U		µg/Kg	1.8	1.8
OR6391-4	SA8S007	4/27/99 10:22	8081	Endrin	1.8	U		µg/Kg	1.8	1.8
OR6391-4	SA8S007	4/27/99 10:22	8081	4,4'-DDD	1.8	U		µg/Kg	1.8	1.4
OR6391-4	SA8S007	4/27/99 10:22	8081	Endosulfan II	1.8	U		µg/Kg	1.8	1.8
OR6391-4	SA8S007	4/27/99 10:22	8081	4,4'-DDT	1.8	U		µg/Kg	1.8	1.8
OR6391-4	SA8S007	4/27/99 10:22	8081	Endrin aldehyde	1.8	U		µg/Kg	1.8	1.4
OR6391-4	SA8S007	4/27/99 10:22	8081	Endosulfan sulfate	1.8	U		µg/Kg	1.8	0.71
OR6391-4	SA8S007	4/27/99 10:22	8081	Methoxychlor	11	U		µg/Kg	2	11
OR6391-4	SA8S007	4/27/99 10:22	8081	Endrin Ketone	2.4	U		µg/Kg	1.8	2.5
OR6391-4	SA8S007	4/27/99 10:22	8081	Chlordane (Total)	35	U		µg/Kg	35	1.8
OR6391-4	SA8S007	4/27/99 10:22	8081	Toxaphene	71	U		µg/Kg	71	3.5
OR6391-4	SA8S007	4/27/99 10:22	8081	Isodrin	3.5	U		µg/Kg	3.5	3.5
OR6391-4	SA8S007	4/27/99 10:22	8081	Mirex	3.5	U		µg/Kg	3.5	3.5
OR6391-4	SA8S007	4/27/99 10:22	8081	2,4,5,6-TCMX	106			%		
OR6391-4	SA8S007	4/27/99 10:22	8081	DBC	106			%		

SAMPLE ID	CLIENT ID	COLLECT DATE	METHOD	PARAMETER	RESULTS	QUAL	DIL	UNITS	RDL	MDL
OR6391-4	SA8S007	4/27/99 10:22	SM2540G	Percent Solids	94			%		

NOTE: Analyte values are reported on a dry weight basis.

U = Compound was analyzed for but not detected to the level shown.

ENVIRONMENTAL CONSERVATION LABORATORIES

4810 Executive Park Court, Suite 211
Jacksonville, Florida 32216-6069
Ph. (904) 296-3007 • Fax (904) 296-6210

10207 General Drive
Orlando, Florida 32824
Ph. (407) 826-5314 • Fax (407) 850-6945

ENCO CompQAP No.: 960038G/0

CHAIN OF CUSTODY RECORD

PROJECT REFERENCE: NTC Orlando	PROJECT NO.	P.O. NUMBER	PAGE / OF
PROJECT LOC. (State): FL.	SAMPLER(s) NAME: Rusty Cope	PHONE: 496-2173 / FAX: 849-5468	
CLIENT NAME: Env Det Chas	CLIENT PROJECT MANAGER: A. Moyer		
CLIENT ADDRESS (CITY, STATE, ZIP): 1899 N. Hobson Ave N. Chas. SC 29405			

☐ STANDARD REPORT DELIVERY
☐ EXPEDITED REPORT DELIVERY (surcharge)
Date Due: 4-30-99

STATION	SAMPLE DATE	SAMPLE TIME	GRAB	COMP	SAMPLE IDENTIFICATION	MATRIX TYPE: SURFACE WATER	GROUND WATER	WASTEWATER	DRINKING WATER	SOIL/SOLID/SEDIMENT	NONAQUEOUS LIQUID (oil, solvent, etc.)	AIR	SLUDGE	OTHER	REQUIRED ANALYSIS: Pesticides	FL TRPH	PH SEPARATE	NUMBER OF CONTAINERS SUBMITTED	REMARKS
1	4/27/99	1010			SA8S004					X					1				
2		1015			SA8S005					X					1				
3		1018			SA8S006					X					1				
4		1022			SA8S007					X					1				
5		1027			SA8S008					X					1				
6		1033			SA8S009					X					1				
7		1038			SA8S010					X					1				
8		1044			SA8S011					X					1				
9	4/26/99	1630			Back Fill FL TRPH					X						1			
10																			
11																			
12																			
13																			
14																			

SAMPLE KIT PREPARED BY: ☐JACKSONVILLE ☐ORLANDO	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
RELINQUISHED BY: (SIGNATURE) Rusty Cope	DATE 4/27/99	TIME 1530	RECEIVED BY: (SIGNATURE) James W. Gregory	DATE 4/27/99	TIME 1530	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
RECEIVED BY (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	ENCO LOG NO.	REMARKS
T. McClenan ☐ Jacksonville ☐ Orlando	4-27-99	17:00	☐ YES ☐ NO	ORG3[illegible]	

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/874
NC	233	
NJ	79002	79002
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: May 08, 1999

Sample ID	: 99SPORT0163-4
Lab ID	: 9905055-11
Matrix	: Soil
Date Collected	: 05/03/99
Date Received	: 05/04/99
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
Pesticides - 21 items											
4,4'-DDD	U	ND	0.596	1.33	ug/kg	1.0	SJ	05/07/99	0654	148299	1
4,4'-DDE		2.40	0.556	1.33	ug/kg	1.0					
4,4'-DDT	J	0.999	0.806	1.33	ug/kg	1.0					
Aldrin	U	ND	0.263	0.670	ug/kg	1.0					
Dieldrin	U	ND	0.743	1.33	ug/kg	1.0					
Endosulfan I	U	ND	0.460	0.670	ug/kg	1.0					
Endosulfan II	U	ND	0.689	1.33	ug/kg	1.0					
Endosulfan sulfate	U	ND	0.922	0.922	ug/kg	1.0					
Endrin	U	ND	0.689	1.33	ug/kg	1.0					
Endrin aldehyde	U	ND	1.01	1.33	ug/kg	1.0					
Endrin ketone	U	ND	0.816	1.33	ug/kg	1.0					
Heptachlor	U	ND	0.440	0.670	ug/kg	1.0					
Heptachlor epoxide	U	ND	0.220	0.670	ug/kg	1.0					
Methoxychlor	U	ND	3.59	6.70	ug/kg	1.0					
Toxaphene	U	ND	11.1	33.3	ug/kg	1.0					
alpha-BHC	U	ND	0.266	0.670	ug/kg	1.0					
alpha-Chlordane		0.679	0.446	0.670	ug/kg	1.0					
beta-BHC	U	ND	0.393	0.670	ug/kg	1.0					
delta-BHC	U	ND	0.286	0.670	ug/kg	1.0					
gamma-BHC	U	ND	0.353	0.670	ug/kg	1.0					
gamma-Chlordane		1.57	0.473	0.670	ug/kg	1.0					

The following prep procedures were performed:
Pesticides CPU 05/05/99 1700 148299 1

P O Box 30712 • Charleston, SC 29417 • 2040 Savage Road • 29407
(843) 556-8171 • Fax (843) 766-1178

9905055-11

Client:	Environmental Detachment Charleston	Report #:	OR6392
		Date Submitted:	27-Apr-99
		Date Reported:	5-May-99
Address:	1899 N. Hobson Ave Charleston, SC 29405-2106	Project Name:	NTC Orlando

SAMPLE ID	CLIENT ID	COLLECT DATE	METHOD	PARAMETER	RESULTS	QUAL	DIL	UNITS	RDL	MDL
OR6392-4	SA8S015	4/27/99 11:15	8081	alpha-BHC	2.5	U		µg/Kg	2.5	2.5
OR6392-4	SA8S015	4/27/99 11:15	8081	beta-BHC	2.5	U		µg/Kg	2.5	2.5
OR6392-4	SA8S015	4/27/99 11:15	8081	gamma-BHC (Lindane)	2.5	U		µg/Kg	2.5	2
OR6392-4	SA8S015	4/27/99 11:15	8081	Heptachlor	2.5	U		µg/Kg	2.5	2.5
OR6392-4	SA8S015	4/27/99 11:15	8081	delta-BHC	2.5	U		µg/Kg	2.5	2.5
OR6392-4	SA8S015	4/27/99 11:15	8081	Aldrin	2.5	U		µg/Kg	2.5	0.48
OR6392-4	SA8S015	4/27/99 11:15	8081	Heptachlor Epoxide	2.5	U		µg/Kg	2.5	2
OR6392-4	SA8S015	4/27/99 11:15	8081	Chlordane gamma	2.5	U		µg/Kg	2.5	0.4
OR6392-4	SA8S015	4/27/99 11:15	8081	Chlordane alpha	2.5	U		µg/Kg	2.5	0.48
OR6392-4	SA8S015	4/27/99 11:15	8081	Endosulfan I	2.5	U		µg/Kg	2.5	2.5
OR6392-4	SA8S015	4/27/99 11:15	8081	4,4'-DDE	2.5	U		µg/Kg	2.5	2.5
OR6392-4	SA8S015	4/27/99 11:15	8081	Dieldrin	2.5	U		µg/Kg	2.5	2.5
OR6392-4	SA8S015	4/27/99 11:15	8081	Endrin	2.5	U		µg/Kg	2.5	2.5
OR6392-4	SA8S015	4/27/99 11:15	8081	4,4'-DDD	2.5	U		µg/Kg	2.5	2
OR6392-4	SA8S015	4/27/99 11:15	8081	Endosulfan II	2.5	U		µg/Kg	2.5	2.5
OR6392-4	SA8S015	4/27/99 11:15	8081	4,4'-DDT	2.5	U		µg/Kg	2.5	2.5
OR6392-4	SA8S015	4/27/99 11:15	8081	Endrin aldehyde	2.5	U		µg/Kg	2.5	2
OR6392-4	SA8S015	4/27/99 11:15	8081	Endosulfan sulfate	2.5	U		µg/Kg	2.5	0.98
OR6392-4	SA8S015	4/27/99 11:15	8081	Methoxychlor	15	U		µg/Kg	3	15
OR6392-4	SA8S015	4/27/99 11:15	8081	Endrin Ketone	3.4	U		µg/Kg	2.5	3.4
OR6392-4	SA8S015	4/27/99 11:15	8081	Chlordane (Total)	49	U		µg/Kg	49	2.5
OR6392-4	SA8S015	4/27/99 11:15	8081	Toxaphene	98	U		µg/Kg	98	4.8
OR6392-4	SA8S015	4/27/99 11:15	8081	Isodrin	4.8	U		µg/Kg	4.8	4.8
OR6392-4	SA8S015	4/27/99 11:15	8081	Mirex	4.8	U		µg/Kg	4.8	4.8
OR6392-4	SA8S015	4/27/99 11:15	8081	2,4,5,6-TCMX	118			%		
OR6392-4	SA8S015	4/27/99 11:15	8081	DBC	88			%		

SAMPLE ID	CLIENT ID	COLLECT DATE	METHOD	PARAMETER	RESULTS	QUAL	DIL	UNITS	RDL	MDL
OR6392-4	SA8S015	4/27/99 11:15	SM2540G	Percent Solids	68			%		

NOTE: Analyte values are reported on a dry weight basis.

U = Compound was analyzed for but not detected to the level shown.

ENVIRONMENTAL CONSERVATION LABORATORIES

RF #_____

4810 Executive Park Court, Suite 211
Jacksonville, Florida 32216-6069
Ph. (904) 296-3007 • Fax (904) 296-6210

10207 General Drive
Orlando, Florida 32824
Ph. (407) 826-5314 • Fax (407) 850-6945

ENCO CompQAP No.: 960038G/0

CHAIN OF CUSTODY RECORD

PROJECT REFERENCE	PROJECT NO.	P.O. NUMBER
NTC Orlando		

PROJECT LOC. (State)	SAMPLER(s) NAME	PHONE	FAX
FL	Kurty Cope	496-2173	

CLIENT NAME	CLIENT PROJECT MANAGER
Env Det Chas.	A. Moyer

CLIENT ADDRESS (CITY, STATE, ZIP): 1899 N. Hobson Ave N Chas. SC 29405

PAGE 1 OF 1

☐ STANDARD REPORT DELIVERY

☐ EXPEDITED REPORT DELIVERY (surcharge)

Date Due: 4/30/99

STATION	SAMPLE DATE	SAMPLE TIME	GRAB	COMP	SAMPLE IDENTIFICATION	MATRIX: SURFACE WATER	GROUND WATER	WASTEWATER	DRINKING WATER	SOIL/SOLID/SEDIMENT	NONAQUEOUS LIQUID (oil, solvent, etc.)	AIR	SLUDGE	OTHER	REQUIRED ANALYSIS: Pesticides	PRESERVATIVE	NUMBER OF CONTAINERS SUBMITTED	REMARKS
1	4/27/99	1100	X		SA8S012					X					1			
2	4/27/99	1105	X		SA8S013					X					1			
3	4/27/99	1110	X		SA8S014					X					1			
4	4/27/99	1115	X		SA8S015					X					1			
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		

SAMPLE KIT PREPARED BY: ☐JACKSONVILLE ☐ORLANDO	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
RELINQUISHED BY: (SIGNATURE) Kurt Cope	4/27/99	1530	RECEIVED BY: (SIGNATURE) James W. Gregory	4/27/99	1530	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
RECEIVED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

RECEIVED FOR LABORATORY BY: (SIGNATURE) ☐ Jacksonville ■ Orlando	DATE	TIME	CUSTODY INTACT ☐ YES ☐ NO	ENCO LOG NO.	REMARKS
T. Pickerson	4-27-99	17:00		OR63[illegible]	

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/874
NC	233	
NJ	79002	79002
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: May 08, 1999

Sample ID : 99SPORT0162-4
Lab ID : 9905055-04
Matrix : Soil
Date Collected : 05/03/99
Date Received : 05/04/99
Priority : Rush
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
Pesticides - 21 items											
4,4'-DDD	U	ND	5.96	13.3	ug/kg	10.	SJ	05/07/99	0249	148299	1
4,4'-DDE	U	ND	5.56	13.3	ug/kg	10.					
4,4'-DDT	U	ND	8.06	13.3	ug/kg	10.					
Aldrin	U	ND	2.63	6.66	ug/kg	10.					
Dieldrin	U	ND	7.43	13.3	ug/kg	10.					
Endosulfan I	U	ND	4.60	6.66	ug/kg	10.					
Endosulfan II	U	ND	6.89	13.3	ug/kg	10.					
Endosulfan sulfate	U	ND	9.22	9.22	ug/kg	10.					
Endrin	U	ND	6.89	13.3	ug/kg	10.					
Endrin aldehyde	U	ND	10.1	13.3	ug/kg	10.					
Endrin ketone	U	ND	8.16	13.3	ug/kg	10.					
Heptachlor	U	ND	4.40	6.66	ug/kg	10.					
Heptachlor epoxide	U	ND	2.20	6.66	ug/kg	10.					
Methoxychlor	U	ND	35.9	66.6	ug/kg	10.					
Toxaphene	U	ND	111	333	ug/kg	10.					
alpha-BHC	U	ND	2.66	6.66	ug/kg	10.					
alpha-Chlordane	U	ND	4.46	6.66	ug/kg	10.					
beta-BHC	U	ND	3.93	6.66	ug/kg	10.					
delta-BHC	U	ND	2.86	6.66	ug/kg	10.					
gamma-BHC	U	ND	3.53	6.66	ug/kg	10.					
gamma-Chlordane	U	ND	4.73	6.66	ug/kg	10.					

The following prep procedures were performed:
Pesticides CPU 05/05/99 1700 148299 :

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/874
NC	233	
NJ	79002	79002
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

Sample ID : 99SPORT0162-4

Surrogate Recovery	Test	Percent%	Acceptable Limits
4CMX	PEST-8081A	89.5	(36.5 - 131.)
Decachlorobiphenyl	PEST-8081A	105.	(50.7 - 135.)

M = Method	Method-Description
M 1	EPA 8081A
M 2	EPA 3550

Notes:
The qualifiers in this report are defined as follows:
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed
in accordance with General Engineering Laboratories
standard operating procedures. Please direct
any questions to your Project Manager, Elise Hanson at 843-556-8171.

E Hanson

Reviewed By

General Engineering Lab[illegible]ries, Inc.
2040 Savage Road
Charleston, South Caroli[illegible]07
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

CHAIN OF CUSTODY RECORD

Page 1 of 1 — 3 DAY TURNAROUND

Client Name/Facility Name: NTC ORlando

Collected by/Company: Env Det Chas

SAMPLE ANALYSIS REQUIRED (x) - use remarks area to specify specific compounds or methods

Use F or P in the boxes to indicate whether sample was filtered and/or preserved

SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	METALS - specify	Pesticide 8081	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type		Remarks
99Sport0162-1	4/27/99	1355		X	X		1								X									Split SA-9-9 SA95I9
99Sport0162-2	5/1/99	1200	X				1								X									Equip Rinsate Blank SA37501
99Sport0162-3	5/1/99	1210		X	X		1								X									Split SA37SI02
99Sport0162-4	5/2/99	1630		X	X		1								X									SA85021
99Sport0162-5	5/3/99	1637		X	X		1								X									SA85022
99Sport0162-6	5/3/99	1643		X	X		1								X									SA85023
99Sport0162-7	5/3/99	1650		X	X		1								X									SA85024

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
K W Cope	5/3/99	1805	W. R. Hiers, Jr	W. R. Hiers, Jr.	5/4/99	1336	—
Relinquished by: —	Date: —	Time: —	Received by lab by: Ryan R Bat	Date: 5/4/99	Time: 1336	Remarks:	

White = [illegible]le collector Yellow = file Pink = with report

Client:	Environmental Detachment Charleston	Report #:	OR6393
		Date Submitted:	27-Apr-99
		Date Reported:	5-May-99
Address:	1899 N. Hobson Ave Charleston, SC 29405-2106	Project Name:	NTC Orlando

SAMPLE ID	CLIENT ID	COLLECT DATE	METHOD	PARAMETER	RESULTS	QUAL	DIL	UNITS	RDL	MDL
OR6393-2	SA8S017	4/27/99 11:35	8081	alpha-BHC	1.7	U		µg/Kg	1.7	1.7
OR6393-2	SA8S017	4/27/99 11:35	8081	beta-BHC	1.7	U		µg/Kg	1.7	1.7
OR6393-2	SA8S017	4/27/99 11:35	8081	gamma-BHC (Lindane)	1.7	U		µg/Kg	1.7	1.4
OR6393-2	SA8S017	4/27/99 11:35	8081	Heptachlor	1.7	U		µg/Kg	1.7	1.7
OR6393-2	SA8S017	4/27/99 11:35	8081	delta-BHC	1.7	U		µg/Kg	1.7	1.7
OR6393-2	SA8S017	4/27/99 11:35	8081	Aldrin	1.7	U		µg/Kg	1.7	0.34
OR6393-2	SA8S017	4/27/99 11:35	8081	Heptachlor Epoxide	1.7	U		µg/Kg	1.7	1.4
OR6393-2	SA8S017	4/27/99 11:35	8081	Chlordane gamma	1.7	U		µg/Kg	1.7	0.3
OR6393-2	SA8S017	4/27/99 11:35	8081	Chlordane alpha	1.7	U		µg/Kg	1.7	0.34
OR6393-2	SA8S017	4/27/99 11:35	8081	Endosulfan I	1.7	U		µg/Kg	1.7	1.7
OR6393-2	SA8S017	4/27/99 11:35	8081	4,4'-DDE	1.7	U		µg/Kg	1.7	1.7
OR6393-2	SA8S017	4/27/99 11:35	8081	Dieldrin	1.7	U		µg/Kg	1.7	1.7
OR6393-2	SA8S017	4/27/99 11:35	8081	Endrin	1.7	U		µg/Kg	1.7	1.7
OR6393-2	SA8S017	4/27/99 11:35	8081	4,4'-DDD	1.7	U		µg/Kg	1.7	1.4
OR6393-2	SA8S017	4/27/99 11:35	8081	Endosulfan II	1.7	U		µg/Kg	1.7	1.7
OR6393-2	SA8S017	4/27/99 11:35	8081	4,4'-DDT	1.7	U		µg/Kg	1.7	1.7
OR6393-2	SA8S017	4/27/99 11:35	8081	Endrin aldehyde	1.7	U		µg/Kg	1.7	1.4
OR6393-2	SA8S017	4/27/99 11:35	8081	Endosulfan sulfate	1.7	U		µg/Kg	1.7	0.68
OR6393-2	SA8S017	4/27/99 11:35	8081	Methoxychlor	10	U		µg/Kg	2	10
OR6393-2	SA8S017	4/27/99 11:35	8081	Endrin Ketone	2.3	U		µg/Kg	1.7	2.4
OR6393-2	SA8S017	4/27/99 11:35	8081	Chlordane (Total)	34	U		µg/Kg	34	1.7
OR6393-2	SA8S017	4/27/99 11:35	8081	Toxaphene	68	U		µg/Kg	68	3.4
OR6393-2	SA8S017	4/27/99 11:35	8081	Isodrin	3.4	U		µg/Kg	3.4	3.4
OR6393-2	SA8S017	4/27/99 11:35	8081	Mirex	3.4	U		µg/Kg	3.4	3.4
OR6393-2	SA8S017	4/27/99 11:35	8081	2,4,5,6-TCMX	102			%		
OR6393-2	SA8S017	4/27/99 11:35	8081	DBC	82			%		

SAMPLE ID	CLIENT ID	COLLECT DATE	METHOD	PARAMETER	RESULTS	QUAL	DIL	UNITS	RDL	MDL
OR6393-2	SA8S017	4/27/99 11:35	SM2540G	Percent Solids	98			%		

NOTE: Analyte values are reported on a dry weight basis.

U = Compound was analyzed for but not detected to the level shown.

QSARF # _____

ENVIRONMENTAL CONSERVATION LABORATORIES

4810 Executive Park Court, Suite 211
Jacksonville, Florida 32216-6069
Ph. (904) 296-3007 • Fax (904) 296-6210

10207 General Drive
Orlando, Florida 32824
Ph. (407) 826-5314 • Fax (407) 850-6945

ENCO CompQAP No.: 960038G/0

CHAIN OF CUSTODY RECORD

PROJECT REFERENCE	PROJECT NO.	P.O. NUMBER
NTC Orlando		

PROJECT LOC. (State)	SAMPLER(s) NAME	PHONE	FAX
FL	Rusty Cope	496-2173	

CLIENT NAME	CLIENT PROJECT MANAGER
ENV DET CHAS	A. Moyer

CLIENT ADDRESS (CITY, STATE, ZIP): 899 N. Hobson Ave N. Chas SC 29405

PAGE ____ OF ____

☐ STANDARD REPORT DELIVERY

☐ EXPEDITED REPORT DELIVERY (surcharge)

Date Due: _____

STATION	SAMPLE DATE	SAMPLE TIME	GRAB	COMP	SAMPLE IDENTIFICATION	MATRIX TYPE: SURFACE WATER	GROUND WATER	WASTEWATER	DRINKING WATER	SOIL/SOLID/SEDIMENT	NONAQUEOUS LIQUID (oil, solvent, etc.)	AIR	SLUDGE	OTHER	REQUIRED ANALYSIS: Pesticides	PRESERVATIVE	NUMBER OF CONTAINERS SUBMITTED	REMARKS
1	4/27/99	1130	X		SA85016					X					1			
2	4/27/99	1135	X		SA85017					X					1			
3	4/27/99	1140	X		SA85018					X					1			
4					~~SA85019 PWS~~													
5	4/27/99	1500																
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		

SAMPLE KIT PREPARED BY: ☐JACKSONVILLE ☐ORLANDO	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
RELINQUISHED BY: (SIGNATURE) Rusty Cope	4/27/99	15:30	RECEIVED BY: (SIGNATURE) Damon Gregory	4/27/99	15:30	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
RECEIVED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

RECEIVED FOR LABORATORY BY: (SIGNATURE) ☐ Jacksonville ☐ Orlando	DATE	TIME	CUSTODY INTACT ☐ YES ☐ NO	ENCO LOG NO.	REMARKS
TERRS PCher	4.27.99	17.00		ORC[illegible]B	

General Engineering Labo[illegible]ries, Inc.
2040 Savage Road
Charleston, South Carol[illegible]97
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

Page 1 of 1

CHAIN OF CUSTODY RECORD

— 3 DAY TURNAROUND —

Client Name/Facility Name: ENV D NTC Orlando

Collected by/Company: ENV DOT Chaen

SAMPLE ANALYSIS REQUIRED (x) - use remarks area to specify specific compounds or methods

Use F or P in the boxes to indicate whether sample was filtered and/or preserved

SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	METALS - specify	Pesticide 8081	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type			Remarks
99Sport0163-1	5/3/99	1700		X		X	1								X										SA85025
99Sport0163-2	5/3/99	1708		X		X	1								X										SA85026
99Sport0163-3	5/3/99	1715		X		X	1								X										SA85027
99Sport0163-4	5/3/99	1723		X		X	1								X										SA85028

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
K.W. Cope	5/3/99	1805	W.R. Hiers, Jr.	W.R. Hiers, Jr.	5/4/99	1336	—
Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:	
—	—	—	Kyra D. Butt	5/4/99	1336		

White = sample collector Yellow = file Pink = with report

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/874:
NC	233	
NJ	79002	79002
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
)escription: SUPSHIP-Portsmouth Detachment

Report Date: May 08, 1999

Sample ID : 99SPORT0163-4

ery	Test	Percent%	Acceptable Limits
	PEST-8081A	105000*	(36.5 - 131.)
yl	PEST-8081A	90.0	(50.7 - 135.)

Method-Description
EPA 8081A
EPA 3550

report are defined as follows:
: analyte was not detected at a concentration greater than the detection limit.
of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
nalyte was not detected at a concentration greater than the detection limit.
lity control analyte recovery is outside of specified acceptance criteria.

)een prepared and reviewed
eneral Engineering Laboratories
ocedures. Please direct
Project Manager, Elise Hanson at 843-556-8171.

P O Box 30712 • Charleston, SC 29417 • 2040 Savage Road • 29407
(843) 556-8171 • Fax (843) 766-1178

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87
NC	233	
NJ	79002	79002
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston. South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: May 13, 1999

Sample ID	: 99SPORT0173-2
Lab ID	: 9905273-02
Matrix	: Soil
Date Collected	: 05/09/99
Date Received	: 05/10/99
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Arsenic	U	ND	425	467	ug/kg	2.0	MBL	05/11/99	1556	148766	
The following prep procedures were performed:											
TRACE							AJM	05/10/99	1800	148766	2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed
in accordance with General Engineering Laboratories
standard operating procedures. Please direct
any questions to your Project Manager. Elise Hanson at 843-556-8171.

Reviewed By

P O Box 30712 • Charleston. SC 29417 • 2040 Savage Road • 29407
(843) 556-8171 • Fax (843) 766-1178

9905273-02

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/874.
NC	233	
NJ	79002	79002
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: May 13, 1999

Sample ID	: 99SPORT0173-3
Lab ID	: 9905273-03
Matrix	: Soil
Date Collected	: 05/09/99
Date Received	: 05/10/99
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Arsenic	U	ND	441	485	ug/kg	2.0	MBL	05/11/99	1602	148766	1
The following prep procedures were performed:											
TRACE							AJM	05/10/99	1800	148766	2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed
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standard operating procedures. Please direct
any questions to your Project Manager, Elise Hanson at 843-556-8171.

E. Hanson

viewed By

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(843) 556-8171 • Fax (843) 766-1178

9905273-03

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/874.
NC	233	
NJ	79002	79002
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: May 13, 1999 Page 1 of 1

Sample ID	: 99SPORT0173-3
Lab ID	: 9905273-03
Matrix	: Soil
Date Collected	: 05/09/99
Date Received	: 05/10/99
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Arsenic	U	ND	441	485	ug/kg	2.0	MBL	05/11/99	1602	148766	1
The following prep procedures were performed:											
TRACE							AJM	05/10/99	1800	148766	2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

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E. Hanson

Reviewed By

P O Box 30712 • Charleston, SC 29417 • 2040 Savage Road • 29407
(843) 556-8171 • Fax (843) 766-1178

9905273-03

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87
NC	233	
NJ	79002	79002
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: May 13, 1999 Page 1 of 1

Sample ID	: 99SPORT0173-5
Lab ID	: 9905273-05
Matrix	: Soil
Date Collected	: 05/09/99
Date Received	: 05/10/99
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Arsenic	U	ND	450	495	ug/kg	2.0	MBL	05/11/99	1614	148766	1
The following prep procedures were performed:											
TRACE							AJM	05/10/99	1800	148766	2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

Notes:
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* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

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Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: May 13, 1999

Sample ID	: 99SPORT0173-4
Lab ID	: 9905273-04
Matrix	: Soil
Date Collected	: 05/09/99
Date Received	: 05/10/99
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Arsenic	U	ND	425	467	ug/kg	2.0	MBL	05/11/99	1608	148766	
The following prep procedures were performed:											
TRACE							AJM	05/10/99	1800	148766	2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: May 13, 1999

Sample ID	: 99SPORT0173-6
Lab ID	: 9905273-06
Matrix	: Soil
Date Collected	: 05/09/99
Date Received	: 05/10/99
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Arsenic	U	ND	441	485	ug/kg	2.0	MBL	05/11/99	1620	148766	
The following prep procedures were performed:											
TRACE							AJM	05/10/99	1800	148766	2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

Notes:
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NJ	79002	79002
SC	10120	10582
TN	02934	02934

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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston. South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: May 13, 1999

Sample ID	: 99SPORT0173-7
Lab ID	: 9905273-07
Matrix	: Soil
Date Collected	: 05/09/99
Date Received	: 05/10/99
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Arsenic	U	ND	441	485	ug/kg	2.0	MBL	05/11/99	1626	148766	
The following prep procedures were performed:											
TRACE							AJM	05/10/99	1800	148766	2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

Notes:
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NJ	79002	79002
SC	10120	10582
TN	02934	02934

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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

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Sample ID	: 99SPORT0173-8
Lab ID	: 9905273-08
Matrix	: Soil
Date Collected	: 05/09/99
Date Received	: 05/10/99
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Arsenic	U	ND	430	472	ug/kg	2.0	MBL	05/11/99	1633	148766	1
The following prep procedures were performed:											
TRACE							AJM	05/10/99	1800	148766	2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

Notes:
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NC	233	
NJ	79002	79002
SC	10120	10582
TN	02934	02934

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1899 North Hobson Ave.
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Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: May 13, 1999 Page 1 of 1

Sample ID	: 99SPORT0173-9
Lab ID	: 9905273-09
Matrix	: Soil
Date Collected	: 05/09/99
Date Received	: 05/10/99
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Arsenic		507	450	495	ug/kg	2.0	MBL	05/11/99	1654	148766	1
The following prep procedures were performed:											
TRACE							AJM	05/10/99	1800	148766	2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

Notes:
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TN	02934	02934

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cc: NPWC00197 Report Date: May 13. 1999

Sample ID	: 99SPORT0173-10
Lab ID	: 9905273-10
Matrix	: Soil
Date Collected	: 05/09/99
Date Received	: 05/10/99
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Arsenic		2750	414	455	ug/kg	2.0	MBL	05/11/99	1700	148766	
The following prep procedures were performed:											
TRACE							AJM	05/10/99	1800	148766	2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

Notes:
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SC	10120	10582
TN	02934	02934

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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

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Sample ID	: 99SPORT0173-11
Lab ID	: 9905273-11
Matrix	: Soil
Date Collected	: 05/09/99
Date Received	: 05/10/99
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Arsenic		871	425	467	ug/kg	2.0	MBL	05/11/99	1706	148766	
The following prep procedures were performed:											
TRACE							AJM	05/10/99	1800	148766	2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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NJ	79002	79002
SC	10120	10582
TN	02934	02934

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Contact: Mr. Bill Hiers
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Sample ID	: 99SPORT0173-12
Lab ID	: 9905273-12
Matrix	: Soil
Date Collected	: 05/09/99
Date Received	: 05/10/99
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Arsenic		8790	2090	2300	ug/kg	10.	MBL	05/11/99	1712	148766	1
The following prep procedures were performed:											
TRACE							AJM	05/10/99	1800	148766	2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

Notes:
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SC	10120	10582
TN	02934	02934

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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
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cc: NPWC00197 Report Date: May 13, 1999

Sample ID	: 99SPORT0173-13
Lab ID	: 9905273-13
Matrix	: Soil
Date Collected	: 05/09/99
Date Received	: 05/10/99
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Arsenic	U	ND	2090	2300	ug/kg	10	MBL	05/11/99	1718	148766	1
The following prep procedures were performed:											
TRACE							AJM	05/10/99	1800	148766	2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

Notes:
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SC	10120	10582
TN	02934	02934

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North Charleston, South Carolina 29405-2106
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cc: NPWC00197 Report Date: May 13, 1999 Page 1 of 1

Sample ID	: 99SPORT0173-14
Lab ID	: 9905273-14
Matrix	: Soil
Date Collected	: 05/09/99
Date Received	: 05/10/99
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Arsenic	U	ND	2170	2380	ug/kg	10.	MBL	05/11/99	1724	148766	
The following prep procedures were performed:											
TRACE							AJM	05/10/99	1800	148766	2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

Notes:
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NC	233	
NJ	79002	79002
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TN	02934	02934

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Contact: Mr. Bill Hiers
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cc: NPWC00197 Report Date: May 13, 1999

Sample ID	: 99SPORT0173-15
Lab ID	: 9905273-15
Matrix	: Soil
Date Collected	: 05/09/99
Date Received	: 05/10/99
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Arsenic		6460	2170	2380	ug/kg	10.	MBL	05/11/99	1731	148766	1
The following prep procedures were performed:											
TRACE							AJM	05/10/99	1800	148766	2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

Notes:
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SC	10120	10582
TN	02934	02934

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Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: May 13, 1999 Page 1 of 1

Sample ID	: 99SPORT0173-18
Lab ID	: 9905273-18
Matrix	: Soil
Date Collected	: 05/09/99
Date Received	: 05/10/99
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Arsenic	U	ND	2280	2500	ug/kg	10.	MBL	05/11/99	1749	148766	
The following prep procedures were performed:											
TRACE							AJM	05/10/99	1800	148766	2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

Notes:
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NC	233	
NJ	79002	79002
SC	10120	10582
TN	02934	02934

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1899 North Hobson Ave.
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Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: May 13, 1999

Sample ID	: 99SPORT0173-17
Lab ID	: 9905273-17
Matrix	: Soil
Date Collected	: 05/09/99
Date Received	: 05/10/99
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Arsenic	U	ND	2110	2320	ug/kg	10.	MBL	05/11/99	1743	148766	
The following prep procedures were performed:											
TRACE							AJM	05/10/99	1800	148766	2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

Notes:
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NJ	79002	79002
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: May 13, 1999

Sample ID	: 99SPORT0173-19
Lab ID	: 9905273-19
Matrix	: Soil
Date Collected	: 05/09/99
Date Received	: 05/10/99
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Arsenic		5720	2090	2300	ug/kg	10.	MBL	05/11/99	1811	148766	1
The following prep procedures were performed:											
TRACE							AJM	05/10/99	1800	148766	2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Elise Hanson at 843-556-8171.

Reviewed By

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(843) 556-8171 • Fax (843) 766-1178

9905273-19

GENERAL ENGINEERING LABORATORIES

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87-
NC	233	
NJ	79002	79002
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: May 13, 1999

Sample ID	: 99SPORT0173-20
Lab ID	: 9905273-20
Matrix	: Soil
Date Collected	: 05/09/99
Date Received	: 05/10/99
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Arsenic		8910	2210	2430	ug/kg	10.	MBL	05/11/99	1817	148766	
The following prep procedures were performed:											
TRACE							AJM	05/10/99	1800	148766	2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

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E Hanson

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9905273-20

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/874
NC	233	
NJ	79002	79002
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: May 13, 1999

Sample ID	: 99SPORT0173-21
Lab ID	: 9905273-21
Matrix	: Soil
Date Collected	: 05/09/99
Date Received	: 05/10/99
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Arsenic		4890	430	472	ug/kg	2.0	MBL	05/11/99	1334	148767	1
The following prep procedures were performed:											
TRACE							AJM	05/10/99	1800	148767	2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

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9905273-21

Page 1 of 2

CHAIN OF CUSTODY RECORD

9905273

General Engineering Laboratories, Inc.
2040 Savage Road
Charleston, South Carolina 29417
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

Client Name/Facility Name: NTC Orlando

Collected by/Company: ENV DET Chm

SAMPLE ANALYSIS REQUIRED (x) - use remarks area to specify specific compounds or methods

Use F or P in the boxes to indicate whether sample was filtered and/or preserved

40139

	SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type	Arsenic	Remarks
1	99Sport0173-1	5/9/99	0800		X		X	1																X	SPLIT-TO ENCO SA850211
2	99Sport0173-2	5/9/99	0805		X		X	1																X	SA850221
3	99Sport0173-3	5/9/99	0809		X		X	1																X	SA850231
4	99Sport0173-4	5/9/99	0814		X		X	1																X	SA850241
5	99Sport0173-5	5/9/99	0819		X		X	1																X	SA850251
6	99Sport0173-6	5/9/99	0825		X		X	1																X	SA850261
7	99Sport0173-7	5/9/99	0829		X		X	1																X	SA850271
8	99Sport0173-8	5/9/99	0835		X		X	1																X	SA850281
9	99Sport0173-9	5/9/99	0840		X		X	1																X	SA850291
10	99Sport0173-10	5/9/99	0845		X		X	1																X	SA850301
11	99Sport0173-11	5/9/99	0849		X		X	1																X	SA850311
12	99Sport0173-12	5/9/99	0855		X		X	1																X	SA850321
13	99Sport0173-13	5/9/99	0859		X		X	1																X	SA850331

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
Kelly Cole	5/9/99	1600					
Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:	
			P. Nowell	5-10-99	10:00		

White = sample collector Yellow = file Pink = with report

NTCC 0014 1

CHAIN OF CUSTODY RECORD

General Engineering La[illegible]ries, Inc.
2040 Savage Road
Charleston, South Carolin[illegible]407
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

Page 2 of 2

#705273?

Client Name/Facility Name: NTC Orlando

Collected by/Company: Env. Det Chas.

	SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrate/Nitrate	VOC - Specify Method required	METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type	Arsenic	Remarks
11	99Spot0173-14	5/9/99	0906		X		X	1																X	SA85034 .1
15	99Spot0173-15	5/9/99	0912		X		X	1																X	SA85035 .1
16	99Spot0173-16	5/9/99	0918		X		X	1																X	SA85036 .1
17	99Spot0173-17	5/9/99	0925		X		X	1																X	SA85037 .1
18	99Spot0173-18	5/9/99	0930		X		X	1																X	SA85038 .1
19	99Spot0173-19	5/9/99	0936		X		X	1																X	SA85039 .1
20	99Spot0173-20	5/9/99	0942		X		X	1																X	SA85040 .1
21	99Spot0173-21	5/9/99	0950		X		X	1																X	SA85041 .1
22	99Spot0173-26	5/9/99	0800		X		X	1		1	1													X	Duplicate 99Spot0173-1 .1
13	99Spot0173-27	5/9/99	1300		X		X	3						1											SA-17 VOC 8021/5035 .3
14	99Spot0173-28	5/9/99	1310		X		X	1							1										SA-17 RCRA-8 Metals .2

Relinquished by: R.W. Pope — Date: 5/9/99 — Time: 1600 — Received by: [illegible]

Relinquished by: — Date: — Time: — Received by lab by: T. Maher

Relinquished by: — Date: — Time: — Received by: — Remarks:

Use F or P in the boxes to indicate whether sample was filtered and/or preserved

40139

Remarks

S

White = sam[illegible]llector Yellow = file Pink = with report

GENERAL ENGINEERING LABORATORIES

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87
NC	233	
NJ	79002	79002
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: May 19, 1999

Sample ID	: 99SPORT0184-3
Lab ID	: 9905531-03
Matrix	: Soil
Date Collected	: 05/14/99
Date Received	: 05/17/99
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Arsenic	U	ND	2170	2380	ug/kg	10.	MBL	05/18/99	0939	149233	1
The following prep procedures were performed:											
TRACE							FGD	05/17/99	1900	149233	2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Elise Hanson at 843-556-8171.

Reviewed By

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Printed on recycled paper.

9905531-03

NPWC00197

Page 1 of 1

CHAIN OF CUSTODY RECORD

9905531.

General Engineering Laboratories, Inc.
2040 Savage Road
Charleston, South Carolina 29407
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

Client Name/Facility Name: McCoy Orlando NTC

Collected by/Company: Env Det Chas

	SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type	PAH	Arsenic	Remarks
01	99Sport0184-1	5/14/99	1120		X		X	1																X		SA17S031+32
52	99Sport0184-2	5/14/99	1520		X		X	1																X		SA17S034@60' .1
53	99Sport0184-3	5/14/99	1620		X		X	1																	X	99Sport0175-1+2 SA35SA65@20' .2
																									X	99Sport0173-16 SA85055@10' .2

Relinquished by: KW Cole — Date: 5/14/99 — Time: 1745 — Received by:

Relinquished by: — Date: — Time: — Received by lab by: P. Power

Relinquished by: — Date: — Time: — Received by:

Date: 5/17/99 — Time: 08:30 — Remarks:

White = sa[illegible] collector Yellow = file Pink = with report

GENERAL ENGINEERING LABORATORIES

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87
NC	233	
NJ	79002	79002
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: May 13, 1999

Sample ID	: 99SPORT0174-1
Lab ID	: 9905275-01
Matrix	: Soil
Date Collected	: 05/09/99
Date Received	: 05/10/99
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Arsenic		6400	441	485	ug/kg	2.0	MBL	05/11/99	1353	148767	
The following prep procedures were performed:											
TRACE							AJM	05/10/99	1800	148767	2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

Notes:
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J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
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Reviewed By

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9905275-01

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472
NC	233	
NJ	79002	79002
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: May 13, 1999

Sample ID	: 99SPORT0174-2
Lab ID	: 9905275-02
Matrix	: Soil
Date Collected	: 05/09/99
Date Received	: 05/10/99
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Arsenic		4800	438	481	ug/kg	2.0	MBL	05/11/99	1359	148767	
The following prep procedures were performed:											
TRACE							AJM	05/10/99	1800	148767	2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
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* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

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in accordance with General Engineering Laboratories
standard operating procedures. Please direct
any questions to your Project Manager, Elise Hanson at 843-556-8171.

Reviewed By

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9905275-02

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87
NC	233	
NJ	79002	79002
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: May 13, 1999

Sample ID	: 99SPORT0174-3
Lab ID	: 9905275-03
Matrix	: Soil
Date Collected	: 05/09/99
Date Received	: 05/10/99
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Arsenic		908	433	476	ug/kg	2.0	MBL	05/11/99	1405	148767	1
The following prep procedures were performed:											
TRACE							AJM	05/10/99	1800	148767	2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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9905275-03

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/874
NC	233	
NJ	79002	79002
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: May 13, 1999

Sample ID	: 99SPORT0174-4
Lab ID	: 9905275-04
Matrix	: Soil
Date Collected	: 05/09/99
Date Received	: 05/10/99
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Arsenic		671	430	472	ug/kg	2.0	MBL	05/11/99	1411	148767	1

The following prep procedures were performed:

TRACE	AJM	05/10/99	1800	148767 2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
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* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

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Reviewed By

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9905275-04

General Engineering Laboratories, Inc.
2040 Savage Road
Charleston, South Carolina 29407
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

CHAIN OF CUSTODY RECORD

Page 1 of 1

9905275

Client Name/Facility Name: NTC Orlando

Collected by/Company: Env Det Chas

	SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type	Air Sample	Remarks
1	99Spot0174-1	5/9/99	1010		X		X	1																X	SA85042
2	99Spot0174-2	5/9/99	1014		X		X	1																X	SA85043
3	99Spot0174-3	5/9/99	1018		X		X	1																X	SA85044
4	99Spot0174-4	5/9/99	1023		X		X	1																X	SA85045
																									Separate Grid in Back Approx. 10'X10'

Use F or P in the boxes to indicate whether sample was filtered and/or preserved

40140

SAMPLE ANALYSIS REQUIRED (x) - use remarks area to specify specific compounds or methods

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
K W Cole	5/9/99	1600					
Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:	
			P. Powell	5-10-99	10:00		

White = [illegible]e collector Yellow = file Pink = with report

GENERAL ENGINEERING LABORATORIES

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/874
NC	233	
NJ	79002	79002
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: May 14, 1999

Sample ID	: 99SPORT0175-7
Lab ID	: 9905315-07
Matrix	: Soil
Date Collected	: 05/10/99
Date Received	: 05/11/99
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Arsenic	U	ND	425	467	ug/kg	2.0	MBL	05/12/99	1115	148886	1
The following prep procedures were performed:											
TRACE							FGD	05/11/99	2000	148886	2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Elise Hanson at 843-556-8171.

Reviewed By

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9905315-07

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87
NC	233	
NJ	79002	79002
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: May 14, 1999 Page 1 of 1

Sample ID	: 99SPORT0175-8
Lab ID	: 9905315-08
Matrix	: Soil
Date Collected	: 05/10/99
Date Received	: 05/11/99
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Arsenic	U	ND	430	472	ug/kg	2.0	MBL	05/12/99	1121	148886	
The following prep procedures were performed:											
TRACE							FGD	05/11/99	2000	148886	2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed
in accordance with General Engineering Laboratories
standard operating procedures. Please direct
any questions to your Project Manager, Elise Hanson at 843-556-8171.

Reviewed By

P O Box 30712 • Charleston, SC 29417 • 2040 Savage Road • 29407
(843) 556-8171 • Fax (843) 766-1178

9905315-08

Client: Environmental Detachment Charleston

Address: 1899 N. Hobson Ave
Charleston, SC 29405-2106

Report #: OR6394
Date Submitted: 27-Apr-99
Date Reported: 5-May-99
Project Name: NTC Orlando

SAMPLE ID	CLIENT ID	COLLECT DATE	METHOD	PARAMETER	RESULT	QUAL	DIL	UNITS	RDL	MDL
OR6394-8	SA9-8	4/27/99 13:50	8081	alpha-BHC	2	U		µg/Kg	1.9	1.9
OR6394-8	SA9-8	4/27/99 13:50	8081	beta-BHC	2	U		µg/Kg	1.9	1.9
OR6394-8	SA9-8	4/27/99 13:50	8081	gamma-BHC (Lindane)	1.9	U		µg/Kg	1.9	1.5
OR6394-8	SA9-8	4/27/99 13:50	8081	Heptachlor	2	U		µg/Kg	1.9	1.9
OR6394-8	SA9-8	4/27/99 13:50	8081	delta-BHC	2	U		µg/Kg	1.9	1.9
OR6394-8	SA9-8	4/27/99 13:50	8081	Aldrin	1.9	U		µg/Kg	1.9	0.38
OR6394-8	SA9-8	4/27/99 13:50	8081	Heptachlor Epoxide	1.9	U		µg/Kg	1.9	1.5
OR6394-8	SA9-8	4/27/99 13:50	8081	Chlordane gamma	2	U		µg/Kg	2	0.3
OR6394-8	SA9-8	4/27/99 13:50	8081	Chlordane alpha	1.9	U		µg/Kg	1.9	0.38
OR6394-8	SA9-8	4/27/99 13:50	8081	Endosulfan I	2	U		µg/Kg	1.9	1.9
OR6394-8	SA9-8	4/27/99 13:50	8081	4,4'-DDE	2	U		µg/Kg	1.9	1.9
OR6394-8	SA9-8	4/27/99 13:50	8081	Dieldrin	2	U		µg/Kg	1.9	1.9
OR6394-8	SA9-8	4/27/99 13:50	8081	Endrin	2	U		µg/Kg	1.9	1.9
OR6394-8	SA9-8	4/27/99 13:50	8081	4,4'-DDD	1.9	U		µg/Kg	1.9	1.6
OR6394-8	SA9-8	4/27/99 13:50	8081	Endosulfan II	2	U		µg/Kg	1.9	1.9
OR6394-8	SA9-8	4/27/99 13:50	8081	4,4'-DDT	2	U		µg/Kg	1.9	1.9
OR6394-8	SA9-8	4/27/99 13:50	8081	Endrin aldehyde	1.9	U		µg/Kg	1.9	1.6
OR6394-8	SA9-8	4/27/99 13:50	8081	Endosulfan sulfate	1.9	U		µg/Kg	1.9	0.78
OR6394-8	SA9-8	4/27/99 13:50	8081	Methoxychlor	12	U		µg/Kg	2	12
OR6394-8	SA9-8	4/27/99 13:50	8081	Endrin Ketone	2.7	U		µg/Kg	1.9	2.7
OR6394-8	SA9-8	4/27/99 13:50	8081	Chlordane (Total)	39	U		µg/Kg	39	1.9
OR6394-8	SA9-8	4/27/99 13:50	8081	Toxaphene	78	U		µg/Kg	78	3.8
OR6394-8	SA9-8	4/27/99 13:50	8081	Isodrin	3.8	U		µg/Kg	3.8	3.8
OR6394-8	SA9-8	4/27/99 13:50	8081	Mirex	3.8	U		µg/Kg	3.8	3.8
OR6394-8	SA9-8	4/27/99 13:50	8081	2,4,5,6-TCMX	116			%		
OR6394-8	SA9-8	4/27/99 13:50	8081	DBC	93			%		

SAMPLE ID	CLIENT ID	COLLECT DATE	METHOD	PARAMETER	RESULT	QUAL	DIL	UNITS	RDL	MDL
OR6394-8	SA9-8	4/27/99 13:50	7060	Arsenic	0.9	U	2	mg/Kg	0.9	0.1

SAMPLE ID	CLIENT ID	COLLECT DATE	METHOD	PARAMETER	RESULT	QUAL	DIL	UNITS	RDL	MDL
OR6394-8	SA9-8	4/27/99 13:50	SM2540G	Percent Solids	86			%		

NOTE: Analyte values are reported on a dry weight basis.

U = Compound was analyzed for but not detected to the level shown.

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87
NC	233	
NJ	79002	79002
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: May 14, 1999

Sample ID	: 99SPORT0175-9
Lab ID	: 9905315-09
Matrix	: Soil
Date Collected	: 05/10/99
Date Received	: 05/11/99
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Arsenic	U	ND	438	481	ug/kg	2.0	MBL	05/12/99	1139	148886	
The following prep procedures were performed:											
TRACE							FGD	05/11/99	2000	148886	2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Elise Hanson at 843-556-8171.

Reviewed By

P O Box 30712 • Charleston, SC 29417 • 2040 Savage Road • 29407
(843) 556-8171 • Fax (843) 766-1178

9905315-09

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/874
NC	233	
NJ	79002	79002
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: May 14, 1999

Sample ID	: 99SPORT0175-10
Lab ID	: 9905315-10
Matrix	: Soil
Date Collected	: 05/10/99
Date Received	: 05/11/99
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Arsenic	U	ND	455	500	ug/kg	2.0	MBL	05/12/99	1145	148886	1
The following prep procedures were performed:											
TRACE							FGD	05/11/99	2000	148886	2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Elise Hanson at 843-556-8171.

Reviewed By

P O Box 30712 • Charleston, SC 29417 • 2040 Savage Road • 29407
(843) 556-8171 • Fax (843) 766-1178

9905315-10

NPWC00197 99 3159

CHAIN OF CUSTODY RECORD

General Engineering Lab[illegible]es, Inc.
2040 Savage Road
Charleston, South Carol.
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

Page 1 of 1

Client Name/Facility Name: NTC ORLANDO

Collected by/Company: ENV DET CHASN

	SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	Arsenic	Remarks
01	99Sport0175-1	5/10/99	1720		X	X		1	X	SA35SA54
02	99Sport0175-2	5/10/99	1725		X	X		1	X	SA35SA55
03	99Sport0175-3	5/10/99	1730		X	X		1	X	SA35SB56
04	99Sport0175-4	5/10/99	1735		X	X		1	X	SA35SB57
05	99Sport0175-5	5/10/99	1740		X	X		1	X	SA35SI58
06	99Sport0175-6	5/10/99	1745		X	X		1	X	SA35SI59
07	99Sport0175-7	5/10/99	1755		X	X		1	X	SA8S046
08	99Sport0175-8	5/10/99	1800		X	X		1	X	SA8S047
09	99Sport0175-9	5/10/99	1805		X	X		1	X	SA8S048
10	99Sport0175-10	5/10/99	1810		X	X		1	X	SA8S049
										2½' from Stake

SAMPLE ANALYSIS REQUIRED (x) - use remarks area to specify specific compounds or methods

pH, conductivity | TOC/DOC | TOX | Chloride, Fluoride, Sulfide | Nitrite/Nitrate | VOC - Specify Method required | METALS - specify | Pesticide | Herbicide | Total Phenol | Acid Extractables | B/N Extractables | PCB's | Cyanide | Coliform - specify type | Arsenic

Use F or P in the boxes to indicate whether sample was filtered and/or preserved

40172

Relinquished by:	Date:	Time:	Received by:
R W Cope	5/10/99	1900	
Relinquished by:	Date:	Time:	Received by lab by:
			Kristand Hand

Relinquished by:	Date:	Time:	Received by:
Date:	Time:	Remarks:	
5-11-99	0700		

White = collector Yellow = file Pink = with report

Client: Environmental Detachment
Charleston

Address:
1899 N. Hobson Ave
Charleston, SC 29405-2106

Report #: OR6394
Date Submitted: 27-Apr-99
Date Reported: 5-May-99
Project Name: NTC Orlando

SAMPLE ID	CLIENT ID	COLLECT DATE	METHOD	PARAMETER	RESULT	QUAL	DIL	UNITS	RDL	MDL
OR6394-5	SA9-5	4/27/99 13:35	8081	alpha-BHC	2.3	U		µg/Kg	1.9	1.9
OR6394-5	SA9-5	4/27/99 13:35	8081	beta-BHC	2.3	U		µg/Kg	1.9	1.9
OR6394-5	SA9-5	4/27/99 13:35	8081	gamma-BHC (Lindane)	2.2	U		µg/Kg	1.9	1.5
OR6394-5	SA9-5	4/27/99 13:35	8081	Heptachlor	2.3	U		µg/Kg	1.9	1.9
OR6394-5	SA9-5	4/27/99 13:35	8081	delta-BHC	2.3	U		µg/Kg	1.9	1.9
OR6394-5	SA9-5	4/27/99 13:35	8081	Aldrin	2.2	U		µg/Kg	1.9	0.38
OR6394-5	SA9-5	4/27/99 13:35	8081	Heptachlor Epoxide	2.2	U		µg/Kg	1.9	1.5
OR6394-5	SA9-5	4/27/99 13:35	8081	Chlordane gamma	2.3	U		µg/Kg	2.3	0.4
OR6394-5	SA9-5	4/27/99 13:35	8081	Chlordane alpha	2.2	U		µg/Kg	2.2	0.44
OR6394-5	SA9-5	4/27/99 13:35	8081	Endosulfan I	2.3	U		µg/Kg	2.2	2.2
OR6394-5	SA9-5	4/27/99 13:35	8081	4,4'-DDE	2.3	U		µg/Kg	2.2	2.2
OR6394-5	SA9-5	4/27/99 13:35	8081	Dieldrin	2.3	U		µg/Kg	2.2	2.2
OR6394-5	SA9-5	4/27/99 13:35	8081	Endrin	2.3	U		µg/Kg	2.2	2.2
OR6394-5	SA9-5	4/27/99 13:35	8081	4,4'-DDD	2.2	U		µg/Kg	2.2	1.8
OR6394-5	SA9-5	4/27/99 13:35	8081	Endosulfan II	2.3	U		µg/Kg	2.2	2.2
OR6394-5	SA9-5	4/27/99 13:35	8081	4,4'-DDT	2.3	U		µg/Kg	2.2	2.2
OR6394-5	SA9-5	4/27/99 13:35	8081	Endrin aldehyde	2.2	U		µg/Kg	2.2	1.8
OR6394-5	SA9-5	4/27/99 13:35	8081	Endosulfan sulfate	2.2	U		µg/Kg	2.2	0.89
OR6394-5	SA9-5	4/27/99 13:35	8081	Methoxychlor	13	U		µg/Kg	3	13
OR6394-5	SA9-5	4/27/99 13:35	8081	Endrin Ketone	3.1	U		µg/Kg	2.2	3.1
OR6394-5	SA9-5	4/27/99 13:35	8081	Chlordane (Total)	44	U		µg/Kg	44	2.2
OR6394-5	SA9-5	4/27/99 13:35	8081	Toxaphene	89	U		µg/Kg	89	4.4
OR6394-5	SA9-5	4/27/99 13:35	8081	Isodrin	4.4	U		µg/Kg	4.4	4.4
OR6394-5	SA9-5	4/27/99 13:35	8081	Mirex	4.4	U		µg/Kg	4.4	4.4
OR6394-5	SA9-5	4/27/99 13:35	8081	2,4,5,6-TCMX	160			%		
OR6394-5	SA9-5	4/27/99 13:35	8081	DBC	107			%		

SAMPLE ID	CLIENT ID	COLLECT DATE	METHOD	PARAMETER	RESULT	QUAL	DIL	UNITS	RDL	MDL
OR6394-5	SA9-5	4/27/99 13:35	7060	Arsenic	3.2		2	mg/Kg	1.1	0.1

SAMPLE ID	CLIENT ID	COLLECT DATE	METHOD	PARAMETER	RESULT	QUAL	DIL	UNITS	RDL	MDL
OR6394-5	SA9-5	4/27/99 13:35	SM2540G	Percent Solids	75			%		

NOTE: Analyte values are reported on a dry weight basis.

U = Compound was analyzed for but not detected to the level shown.

Client: Environmental Detachment Charleston
Address: 1899 N. Hobson Ave Charleston, SC 29405-2106

Report #: OR6394
Date Submitted: 27-Apr-99
Date Reported: 5-May-99
Project Name: NTC Orlando

SAMPLE ID	CLIENT ID	COLLECT DATE	METHOD	PARAMETER	RESULT	QUAL	DIL	UNITS	RDL	MDL
OR6394-6	SA9-6	4/27/99 13:40	8081	alpha-BHC	2	U		µg/Kg	1.9	1.9
OR6394-6	SA9-6	4/27/99 13:40	8081	beta-BHC	2	U		µg/Kg	1.9	1.9
OR6394-6	SA9-6	4/27/99 13:40	8081	gamma-BHC (Lindane)	1.9	U		µg/Kg	1.9	1.5
OR6394-6	SA9-6	4/27/99 13:40	8081	Heptachlor	2	U		µg/Kg	1.9	1.9
OR6394-6	SA9-6	4/27/99 13:40	8081	delta-BHC	2	U		µg/Kg	1.9	1.9
OR6394-6	SA9-6	4/27/99 13:40	8081	Aldrin	1.9	U		µg/Kg	1.9	0.38
OR6394-6	SA9-6	4/27/99 13:40	8081	Heptachlor Epoxide	1.9	U		µg/Kg	1.9	1.5
OR6394-6	SA9-6	4/27/99 13:40	8081	Chlordane gamma	2	U		µg/Kg	2	0.3
OR6394-6	SA9-6	4/27/99 13:40	8081	Chlordane alpha	1.9	U		µg/Kg	1.9	0.38
OR6394-6	SA9-6	4/27/99 13:40	8081	Endosulfan I	2	U		µg/Kg	1.9	1.9
OR6394-6	SA9-6	4/27/99 13:40	8081	4,4'-DDE	2	U		µg/Kg	1.9	1.9
OR6394-6	SA9-6	4/27/99 13:40	8081	Dieldrin	2	U		µg/Kg	1.9	1.9
OR6394-6	SA9-6	4/27/99 13:40	8081	Endrin	2	U		µg/Kg	1.9	1.9
OR6394-6	SA9-6	4/27/99 13:40	8081	4,4'-DDD	1.9	U		µg/Kg	1.9	1.6
OR6394-6	SA9-6	4/27/99 13:40	8081	Endosulfan II	2	U		µg/Kg	1.9	1.9
OR6394-6	SA9-6	4/27/99 13:40	8081	4,4'-DDT	2	U		µg/Kg	1.9	1.9
OR6394-6	SA9-6	4/27/99 13:40	8081	Endrin aldehyde	1.9	U		µg/Kg	1.9	1.6
OR6394-6	SA9-6	4/27/99 13:40	8081	Endosulfan sulfate	1.9	U		µg/Kg	1.9	0.78
OR6394-6	SA9-6	4/27/99 13:40	8081	Methoxychlor	12	U		µg/Kg	2	12
OR6394-6	SA9-6	4/27/99 13:40	8081	Endrin Ketone	2.7	U		µg/Kg	1.9	2.7
OR6394-6	SA9-6	4/27/99 13:40	8081	Chlordane (Total)	39	U		µg/Kg	39	1.9
OR6394-6	SA9-6	4/27/99 13:40	8081	Toxaphene	78	U		µg/Kg	78	3.8
OR6394-6	SA9-6	4/27/99 13:40	8081	Isodrin	3.8	U		µg/Kg	3.8	3.8
OR6394-6	SA9-6	4/27/99 13:40	8081	Mirex	3.8	U		µg/Kg	3.8	3.8
OR6394-6	SA9-6	4/27/99 13:40	8081	2,4,5,6-TCMX	116			%		
OR6394-6	SA9-6	4/27/99 13:40	8081	DBC	93			%		

SAMPLE ID	CLIENT ID	COLLECT DATE	METHOD	PARAMETER	RESULT	QUAL	DIL	UNITS	RDL	MDL
OR6394-6	SA9-6	4/27/99 13:40	7060	Arsenic	2		2	mg/Kg	0.9	0.1

SAMPLE ID	CLIENT ID	COLLECT DATE	METHOD	PARAMETER	RESULT	QUAL	DIL	UNITS	RDL	MDL
OR6394-6	SA9-6	4/27/99 13:40	SM2540G	Percent Solids	86			%		

NOTE: Analyte values are reported on a dry weight basis

U = Compound was analyzed for but not detected to the level shown

Client: Environmental Detachment Charleston

Address: 1899 N. Hobson Ave
Charleston, SC 29405-2106

Report #: OR6394
Date Submitted: 27-Apr-99
Date Reported: 5-May-99
Project Name: NTC Orlando

SAMPLE ID	CLIENT ID	COLLECT DATE	METHOD	PARAMETER	RESULT	QUAL	DIL	UNITS	RDL	MDL
OR6394-9	SA9-9	4/27/99 13:55	8081	alpha-BHC	1.8	U		µg/Kg	1.9	1.9
OR6394-9	SA9-9	4/27/99 13:55	8081	beta-BHC	1.8	U		µg/Kg	1.9	1.9
OR6394-9	SA9-9	4/27/99 13:55	8081	gamma-BHC (Lindane)	1.8	U		µg/Kg	1.9	1.5
OR6394-9	SA9-9	4/27/99 13:55	8081	Heptachlor	1.8	U		µg/Kg	1.9	1.9
OR6394-9	SA9-9	4/27/99 13:55	8081	delta-BHC	1.8	U		µg/Kg	1.9	1.9
OR6394-9	SA9-9	4/27/99 13:55	8081	Aldrin	1.8	U		µg/Kg	1.9	0.38
OR6394-9	SA9-9	4/27/99 13:55	8081	Heptachlor Epoxide	1.8	U		µg/Kg	1.9	1.5
OR6394-9	SA9-9	4/27/99 13:55	8081	Chlordane gamma	29			µg/Kg	1.8	0.3
OR6394-9	SA9-9	4/27/99 13:55	8081	Chlordane alpha	18			µg/Kg	1.8	0.36
OR6394-9	SA9-9	4/27/99 13:55	8081	Endosulfan I	1.8	U		µg/Kg	1.8	1.8
OR6394-9	SA9-9	4/27/99 13:55	8081	4,4'-DDE	1.8	U		µg/Kg	1.8	1.8
OR6394-9	SA9-9	4/27/99 13:55	8081	Dieldrin	1.8	U		µg/Kg	1.8	1.8
OR6394-9	SA9-9	4/27/99 13:55	8081	Endrin	1.8	U		µg/Kg	1.8	1.8
OR6394-9	SA9-9	4/27/99 13:55	8081	4,4'-DDD	1.8	U		µg/Kg	1.8	1.4
OR6394-9	SA9-9	4/27/99 13:55	8081	Endosulfan II	1.8	U		µg/Kg	1.8	1.8
OR6394-9	SA9-9	4/27/99 13:55	8081	4,4'-DDT	1.8	U		µg/Kg	1.8	1.8
OR6394-9	SA9-9	4/27/99 13:55	8081	Endrin aldehyde	1.8	U		µg/Kg	1.8	1.4
OR6394-9	SA9-9	4/27/99 13:55	8081	Endosulfan sulfate	1.8	U		µg/Kg	1.8	0.73
OR6394-9	SA9-9	4/27/99 13:55	8081	Methoxychlor	11	U		µg/Kg	2	11
OR6394-9	SA9-9	4/27/99 13:55	8081	Endrin Ketone	2.5	U		µg/Kg	1.8	2.5
OR6394-9	SA9-9	4/27/99 13:55	8081	Chlordane (Total)	600			µg/Kg	36	1.8
OR6394-9	SA9-9	4/27/99 13:55	8081	Toxaphene	72	U		µg/Kg	72	3.6
OR6394-9	SA9-9	4/27/99 13:55	8081	Isodrin	3.6	U		µg/Kg	3.6	3.6
OR6394-9	SA9-9	4/27/99 13:55	8081	Mirex	3.6	U		µg/Kg	3.6	3.6
OR6394-9	SA9-9	4/27/99 13:55	8081	2,4,5,6-TCMX	130			%		
OR6394-9	SA9-9	4/27/99 13:55	8081	DBC	109			%		

SAMPLE ID	CLIENT ID	COLLECT DATE	METHOD	PARAMETER	RESULT	QUAL	DIL	UNITS	RDL	MDL
OR6394-9	SA9-9	4/27/99 13:55	7060	Arsenic	0.9	U	2	mg/Kg	0.9	0.1

SAMPLE ID	CLIENT ID	COLLECT DATE	METHOD	PARAMETER	RESULT	QUAL	DIL	UNITS	RDL	MDL
OR6394-9	SA9-9	4/27/99 13:55	SM2540G	Percent Solids	92			%		

NOTE: Analyte values are reported on a dry weight basis

U = Compound was analyzed for but not detected to the level shown.

Client: Environmental Detachment Charleston

Address: 1899 N. Hobson Ave
Charleston, SC 29405-2106

Report #: OR6394
Date Submitted: 27-Apr-99
Date Reported: 5-May-99
Project Name: NTC Orlando

SAMPLE ID	CLIENT ID	COLLECT DATE	METHOD	PARAMETER	RESULT	QUAL	DIL	UNITS	RDL	MDL
OR6394-10	SA9-10	4/27/99 14:00	8081	alpha-BHC	2	U		µg/Kg	1.9	1.9
OR6394-10	SA9-10	4/27/99 14:00	8081	beta-BHC	2	U		µg/Kg	1.9	1.9
OR6394-10	SA9-10	4/27/99 14:00	8081	gamma-BHC (Lindane)	1.9	U		µg/Kg	1.9	1.5
OR6394-10	SA9-10	4/27/99 14:00	8081	Heptachlor	2	U		µg/Kg	1.9	1.9
OR6394-10	SA9-10	4/27/99 14:00	8081	delta-BHC	2	U		µg/Kg	1.9	1.9
OR6394-10	SA9-10	4/27/99 14:00	8081	Aldrin	1.9	U		µg/Kg	1.9	0.38
OR6394-10	SA9-10	4/27/99 14:00	8081	Heptachlor Epoxide	1.9	U		µg/Kg	1.9	1.5
OR6394-10	SA9-10	4/27/99 14:00	8081	Chlordane gamma	3.8			µg/Kg	2	0.3
OR6394-10	SA9-10	4/27/99 14:00	8081	Chlordane alpha	3.8			µg/Kg	1.9	0.38
OR6394-10	SA9-10	4/27/99 14:00	8081	Endosulfan I	2	U		µg/Kg	1.9	1.9
OR6394-10	SA9-10	4/27/99 14:00	8081	4,4'-DDE	2	U		µg/Kg	1.9	1.9
OR6394-10	SA9-10	4/27/99 14:00	8081	Dieldrin	2	U		µg/Kg	1.9	1.9
OR6394-10	SA9-10	4/27/99 14:00	8081	Endrin	2	U		µg/Kg	1.9	1.9
OR6394-10	SA9-10	4/27/99 14:00	8081	4,4'-DDD	1.9	U		µg/Kg	1.9	1.5
OR6394-10	SA9-10	4/27/99 14:00	8081	Endosulfan II	2	U		µg/Kg	1.9	1.9
OR6394-10	SA9-10	4/27/99 14:00	8081	4,4'-DDT	2	U		µg/Kg	1.9	1.9
OR6394-10	SA9-10	4/27/99 14:00	8081	Endrin aldehyde	1.9	U		µg/Kg	1.9	1.5
OR6394-10	SA9-10	4/27/99 14:00	8081	Endosulfan sulfate	1.9	U		µg/Kg	1.9	0.77
OR6394-10	SA9-10	4/27/99 14:00	8081	Methoxychlor	11	U		µg/Kg	2	11
OR6394-10	SA9-10	4/27/99 14:00	8081	Endrin Ketone	2.6	U		µg/Kg	1.9	2.7
OR6394-10	SA9-10	4/27/99 14:00	8081	Chlordane (Total)	70			µg/Kg	38	1.9
OR6394-10	SA9-10	4/27/99 14:00	8081	Toxaphene	77	U		µg/Kg	77	3.8
OR6394-10	SA9-10	4/27/99 14:00	8081	Isodrin	3.8	U		µg/Kg	3.8	3.8
OR6394-10	SA9-10	4/27/99 14:00	8081	Mirex	3.8	U		µg/Kg	3.8	3.8
OR6394-10	SA9-10	4/27/99 14:00	8081	2,4,5,6-TCMX	115			%		
OR6394-10	SA9-10	4/27/99 14:00	8081	DBC	92			%		

SAMPLE ID	CLIENT ID	COLLECT DATE	METHOD	PARAMETER	RESULT	QUAL	DIL	UNITS	RDL	MDL
OR6394-10	SA9-10	4/27/99 14:00	7060	Arsenic	0.9	U	2	mg/Kg	0.9	0.1

SAMPLE ID	CLIENT ID	COLLECT DATE	METHOD	PARAMETER	RESULT	QUAL	DIL	UNITS	RDL	MDL
OR6394-10	SA9-10	4/27/99 14:00	SM2540G	Percent Solids	87			%		

NOTE: Analyte values are reported on a dry weight basis.

U = Compound was analyzed for but not detected to the level shown.

QSARF #_____

ENVIRONMENTAL CONSERVATION LABORATORIES

4810 Executive Park Court, Suite 211
Jacksonville, Florida 32216-6069
Ph. (904) 296-3007 • Fax (904) 296-6210

10207 General Drive
Orlando, Florida 32824
Ph. (407) 826-5314 • Fax (407) 850-6945

ENCO CompQAP No.: 960038G/0

CHAIN OF CUSTODY RECORD

PROJECT REFERENCE	PROJECT NO.	P.O. NUMBER
NTC Orlando		

PROJECT LOC. (State)	SAMPLER(s) NAME	PHONE	FAX
FL	Rusty Cope	296-2173	

CLIENT NAME	CLIENT PROJECT MANAGER
ENV DET CHAS	A Moyer

CLIENT ADDRESS (CITY, STATE, ZIP): 1899 N Hobson Ave N Chas SC 29405

PAGE ____ OF ____

☐ STANDARD REPORT DELIVERY

☐ EXPEDITED REPORT DELIVERY (surcharge)

Date Due: _____

SAMPLE STATION	DATE	TIME	GRAB	COMP	SAMPLE IDENTIFICATION	MATRIX TYPE: SURFACE WATER	GROUND WATER	WASTEWATER	DRINKING WATER	SOIL/SOLID/SEDIMENT	NONAQUEOUS LIQUID (oil, solvent, etc.)	AIR	SLUDGE	OTHER	REQUIRED ANALYSIS: Arsenic	Pesticides	NUMBER OF CONTAINERS SUBMITTED	REMARKS
1	4/27/99	1			SA9S00					X					1	X		
2		1315	X		SA9-1					X					1	X		
3		1320	X		SA9-2					X					1	X		
4		1325	X		SA9-3					X					1	X		
5		1330	X		SA9-4					X					1	X		
6		1335	X		SA9-5					X					1	X		
7		1340	X		SA9-6					X					1	X		
8		1344	X		SA9-7					X					1	X		
9		1350	X		SA9-8					X					1	X		
10		1355	X		SA9-9					X					1	X		
11		1400	X		SA9-10					X					1	X		
12	↓	1350	X		SA9C8					X					1	X		Dup.
13																		
14																		

SAMPLE KIT PREPARED BY: ☐JACKSONVILLE ☐ORLANDO	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
RELINQUISHED BY: (SIGNATURE) K W Cope	DATE 4/27/99	TIME 1530	RECEIVED BY: (SIGNATURE) James H. Gregory	DATE 4/27/99	TIME 1530	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
RECEIVED BY (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

RECEIVED FOR LABORATORY BY: (SIGNATURE) ☐ Jacksonville ☐ Orlando	DATE	TIME	CUSTODY INTACT ☐ YES ☐ NO	ENCO LOG NO.	REMARKS
T. Pick[illegible]	4279	17.00		OR63[illegible]	

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87
NC	233	
NJ	79002	79002
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston. South Caroiina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: May 14. 1999

Sample ID : 99SPORT0172-1
Lab ID : 9905240-01
Matrix : Soil
Date Collected : 05/06/99
Date Received : 05/07/99
Priority : Rush
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
Pesticides - 21 items											
4,4'-DDD	U	ND	2.94	6.56	ug/kg	5.0	SJ	05/12/99	0339	148661	1
4,4'-DDE	J	4.36	2.74	6.56	ug/kg	5.0					
4,4'-DDT	U	ND	3.97	6.56	ug/kg	5.0					
Aldrin	U	ND	1.30	3.28	ug/kg	5.0					
Dieldrin	U	ND	3.66	6.56	ug/kg	5.0					
Endosulfan I	U	ND	2.26	3.28	ug/kg	5.0					
Endosulfan II	U	ND	3.39	6.56	ug/kg	5.0					
Endosulfan sulfate	U	ND	4.54	4.54	ug/kg	5.0					
Endrin	U	ND	3.39	6.56	ug/kg	5.0					
Endrin aldehyde	U	ND	4.95	6.56	ug/kg	5.0					
Endrin ketone	U	ND	4.02	6.56	ug/kg	5.0					
Heptachlor	U	ND	2.16	3.28	ug/kg	5.0					
Heptachlor epoxide	U	ND	1.08	3.28	ug/kg	5.0					
Methoxychlor	U	ND	17.7	32.8	ug/kg	5.0					
Toxaphene	U	ND	54.5	164	ug/kg	5.0					
alpha-BHC	U	ND	1.31	3.28	ug/kg	5.0					
alpha-Chlordane		21.2	2.20	3.28	ug/kg	5.0					
beta-BHC	U	ND	1.94	3.28	ug/kg	5.0					
delta-BHC	U	ND	1.41	3.28	ug/kg	5.0					
gamma-BHC	U	ND	1.74	3.28	ug/kg	5.0					
gamma-Chlordane		27.1	2.33	3.28	ug/kg	5.0					

The following prep procedures were performed:

:sticides	RDH	05/10/99	1200	148661

GENERAL ENGINEERING LABORATORIES

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	ES7472/8
NC	233	
NJ	79002	79002
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston. South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: May 14, 1999

Sample ID : 99SPORT0172-1

Surrogate Recovery	Test	Percent%	Acceptable Limits
4CMX	PEST-8081A	72.5	(36.5 - 131.)
Decachlorobiphenyl	PEST-8081A	78.2	(50.7 - 135.)

M = Method	Method-Description
M 1	EPA 8081A
M 2	EPA 3550

Notes:
The qualifiers in this report are defined as follows:
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed
in accordance with General Engineering Laboratories
standard operating procedures. Please direct
any questions to your Project Manager, Elise Hanson at 843-556-8171.

Reviewed By

P O Box 30712 • Charleston, SC 29417 • 2040 Savage Road • 29407

(843) 556-8171 • Fax (843) 766-1178

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87
NC	233	
NJ	79002	79002
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: May 11, 1999

Sample ID	: 99SPORT0172-2
Lab ID	: 9905240-02
Matrix	: Soil
Date Collected	: 05/06/99
Date Received	: 05/07/99
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Arsenic	U	ND	425	467	ug/kg	2.0	MBL	05/10/99	1407	148650	1
The following prep procedures were performed:											
TRACE							FGD	05/10/99	1000	148650	2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

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Reviewed By

P O Box 30712 • Charleston, SC 29417 • 2040 Savage Road • 29407
(843) 556-8171 • Fax (843) 766-1178

9905240-02

1KWC0014 1

CHAIN OF CUSTODY RECORD

9905240 1

General Engineering Labo ries, Inc.
2040 Savage Road
Charleston, South Carol .07
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

Page 1 of 2

Client Name/Facility Name: NTC Orlando

Collected by/Company: Env Det Chas

SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	METALS - specify	Pesticide 8081	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type	Arsenic 7060	PAH 8270	Remarks
-01	99Sport0172-1	5/6/99	1350	X		X	1								X										SA9-11 .1
-02	99Sport0172-2	5/6/99	1352	X		X	1																X		SA9-12 .2
-03	99Sport0172-3	5/6/99	1615	X		X	1																	X	SA40S050 .3
-04	99Sport0172-4	5/6/99	1620	X		X	1																	X	SA40S051 .3
-05	99Sport0172-5	5/6/99	1625	X		X	1																	X	SA40S052 .3
-06	99Sport0172-6	5/6/99	1632	X		X	1																	X	SA40S053 .3
-07	99Sport0172-7	5/6/99	1640	X		X	1																	X	SA40S054 .3
-08	99Sport0172-8	5/6/99	1645	X		X	1																	X	SA40S055 .3
-09	99Sport0172-9	5/6/99	1652	X		X	1																	X	SA40S056 .3
-10	99Sport0172-10	5/6/99	1617	X		X	1																X		SA40S057 .2
-11	99Sport0172-11	5/6/99	1622	X		X	1																X		SA40S058 .2
-12	99Sport0172-12	5/6/99	1627	X		X	1																X		SA40S059 .2
-13	99Sport0172-13	5/6/99	1634	X		X	1																X		SA40S060 .2

Use F or P in the boxes to indicate whether sample was filtered and/or preserved

3 DAY 40090 Turnaround

Relinquished by:	Date:	Time:	Received by:
K W Cope	5/6/99	1845	
Relinquished by:	Date:	Time:	Received by lab by:

Relinquished by:	Date:	Time:	Received by:
Date: 5-7-99	Time: 10:30	Remarks:	

White = sample collector Yellow = file Pink = with report

General Engineering L[illegible]ries, Inc.
2040 Savage Road
Charleston, South Carol[illegible] 07
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

CHAIN OF CUST[illegible]DY RECORD

9905240%

Page 2 of 2

Client Name/Facility Name: NTC ORLando

Collected by/Company: ENV DET CHAS

	SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type	Arsenic ICP	Remarks
-14	99Sport0172-14	5/6/99	1643		X	X		1																X	SA40S061 .2
-15	99Sport0172-15	5/6/99	1648		X	X		1																X	SA40S062 .2
-16	99Sport0172-16	5/6/99	1655		X	X		1																X	SA40S063 .2

Use F or P in the boxes to indicate whether sample was filtered and/or preserved

3 DAY TURNAround 40090

Remarks

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
K W Pope	5/6/99	1845					
Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:	
			P. Power	5-7-99	10:30		

White = [illegible]le collector Yellow = file Pink = with report

WASTE CHARACTERIZATION

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/8745
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 02, 1999

Sample ID	: 99 SPORT0140-1
Lab ID	: 9903921-01
Matrix	: TCLP
Date Collected	: 03/18/99
Date Received	: 03/25/99
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Mercury	U	ND	0.000350	0.0200	mg/l	1.0	RMJ	03/31/99	1321	145698	1
Silver	J	14.8	7.30	50.0	ug/l	10.	MBL	03/31/99	1141	145709	2
Arsenic		207	45.1	50.0	ug/l	10.					
Barium		139	5.10	50.0	ug/l	10.					
Cadmium	J	18.7	4.40	50.0	ug/l	10.					
Chromium	J	14.5	5.60	50.0	ug/l	10.					
Lead		217	15.9	50.0	ug/l	10.					
Selenium	U	ND	27.1	50.0	ug/l	10.					

The following prep procedures were performed:

Mercury	RMJ	03/30/99	1820	145698 3
TCLP Prep for Metals	JJ	03/29/99	1720	145549 4

M = Method	Method-Description
M 1	EPA 7470
M 2	EPA 6010A
M 3	EPA 7470A
M 4	EPA 1311

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87
NC	233	
SC	10120	10582
TN	02934	02934

Client:	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env. 1899 North Hobson Ave. North Charleston, South Carolina 29405-2106
Contact:	Mr. Bill Hiers
Project Description:	SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 02, 1999

Sample ID : 99 SPORT0140-1

M = Method	Method-Description

Notes:
The qualifiers in this report are defined as follows:
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed
in accordance with General Engineering Laboratories
standard operating procedures. Please direct
any questions to your Project Manager, Elise Hanson at 843-556-8171.

Reviewed By

P O Box 30712 • Charleston, SC 29417 • 2040 Savage Road • 29414

(843) 556-8171 • Fax (843) 766-1178

QC Summary Report

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Lab. Sample ID: 9903921-01 Report Date: April 02, 1999

Sample/Parameter	Type	Batch	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Analyst	Date	Time
Metals Analysis													
QC598196	BLANK	145698											
Mercury						0.000253	mg/l				RMJ	03/31/99	1314
QC598197	BLANK	145698											
Mercury						-0.000104	mg/l				RMJ	03/31/99	1316
QC598199	LCS	145698											
Mercury			0.02			0.0208	mg/l		104	(81.5 - 124.)	RMJ	03/31/99	1318
QC598237	BLANK	145709											
Arsenic						1.61	ug/l				MBL	03/31/99	1118
Barium						0.129	ug/l						
Cadmium						-0.0610	ug/l						
Chromium						0.221	ug/l						
Lead						0.358	ug/l						
Selenium						0.179	ug/l						
Silver						0.974	ug/l						
QC598238	BLANK	145709											
Arsenic						4.90	ug/l				MBL	03/31/99	1124
Barium						0.959	ug/l						
Cadmium						-0.299	ug/l						
Chromium						0.647	ug/l						
Lead						1.38	ug/l						
Selenium						3.61	ug/l						
Silver						1.40	ug/l						
QC598239	LCS	145709											
Arsenic			5000			4910	ug/l		98.2	(89.5 - 112.)	MBL	03/31/99	1129
Barium			10000			9780	ug/l		97.8	(90.7 - 111.)			
Cadmium			1000			1010	ug/l		101	(90.7 - 115.)			
Chromium			5000			4990	ug/l		99.9	(90.0 - 112.)			
Lead			5000			5020	ug/l		100	(89.3 - 114.)			
Selenium			1000			921	ug/l		92.1	(87.2 - 109.)			
Silver			500			505	ug/l		101	(90.9 - 116.)			

Notes:
The qualifiers in this report are defined as follows:
J indicates presence of analyte < RL (Report Limit)
U indicates presence of analyte < DL (Detect Limit)

Va indicates that spike recovery limits do not apply when
sample concentration exceeds spike conc by a factor of 4 or more

GENERAL ENGINEERING LABORATORIES
PO Box 30712 • Charleston, SC 29417 • 2040 Savage Road • 29407
(803) 556-8171 • Fax (803) 766-1178

General Engineering Lab[illegible]ries, Inc.
2040 Savage Road
Charleston, South Caroli[illegible]407
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

Page 1 of 1

CHAIN OF CUSTODY RECORD

Client Name/Facility Name: SPORTENVDETCHASN

Collected by/Company: SPORTENVDETCHASN

SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	TCLP - RCRA METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type		Remarks
99SPORTØ14Ø-1	3/18/99	1315		X	X		1							X										SA-8 ORLANDO 085025

Use F or P in the boxes to indicate whether sample was filtered and/or preserved

SAMPLE ANALYSIS REQUIRED (x) - use remarks area to specify specific compounds or methods

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
Alan J Moya	3/25/99	0955	W.R. Hiers, Jr.	W.R. Hiers, Jr.	3/25/99	1535	Sophronia Bethea
Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:	

White = sample collector Yellow = file Pink = with report

RESULTS OF ANALYSIS

EPA METHOD 1311/8080 - TCLP PESTICIDES	SA-35015	SA-80001	Units
Chlordane (Total)	NR	1.0 U	µg/L
Endrin	NR	0.050 U	µg/L
Heptachlor	NR	0.050 U	µg/L
Heptachlor Epoxide	NR	0.050 U	µg/L
gamma-BHC (Lindane)	NR	0.050 U	µg/L
Methoxychlor	NR	1.0 U	µg/L
Toxaphene	NR	2.0 U	µg/L
Surrogate:		**% RECOV**	**LIMITS**
2,4,5,6-TCMX		80	30-150
		80	34-138
Date Extracted		04/28/99	
Date Analyzed		04/29/99	

= Analysis not requested for this sample.
Compound was analyzed for but not detected to the level shown.

RESULTS OF ANALYSIS

TCLP METALS	METHOD	SA-35015	SA-80001	Units
TCLP Arsenic	1311/7060	0.050 U	**0.060**	mg/L
Date Analyzed		04/23/99	04/23/99	
TCLP Barium	1311/7080	2.0 U	2.0 U	mg/L
Date Analyzed		04/23/99	04/23/99	
TCLP Cadmium	1311/7130	0.10 U	0.10 U	mg/L
Date Analyzed		04/23/99	04/23/99	
TCLP Chromium	1311/7190	0.50 U	0.50 U	mg/L
Date Analyzed		04/23/99	04/23/99	
TCLP Lead	1311/7420	0.50 U	**0.50**	mg/L
Date Analyzed		04/23/99	04/23/99	
TCLP Mercury	1311/7470	0.0050 U	0.0050 U	mg/L
Date Analyzed		04/26/99	04/26/99	
TCLP Selenium	1311/7740	0.050 U	0.050 U	mg/L
Date Analyzed		04/25/99	04/25/99	
TCLP Silver	1311/7760	0.20 U	0.20 U	mg/L
Date Analyzed		04/23/99	04/23/99	

U Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : OR6327
DATE REPORTED: April 30, 1999
PROJECT NAME : NTC-Orlando

RESULTS OF ANALYSIS

EPA METHOD 1311/8080 - TCLP PESTICIDES	SA-80002	SA-80003	Units
Chlordane (Total)	1.0 U	1.0 U	µg/L
Endrin	0.050 U	0.050 U	µg/L
Heptachlor	0.050 U	0.050 U	µg/L
Heptachlor Epoxide	0.050 U	0.050 U	µg/L
gamma-BHC (Lindane)	0.050 U	0.050 U	µg/L
Methoxychlor	1.0 U	1.0 U	µg/L
Toxaphene	2.0 U	2.0 U	µg/L
Surrogate:	**% RECOV**	**% RECOV**	**LIMITS**
2,4,5,6-TCMX	80	100	30-150
	60	80	34-138
[illegible] Extracted	04/28/99	04/28/99	
[illegible]te Analyzed	04/29/99	04/29/99	

U Compound was analyzed for but not detected to the level shown.

RESULTS OF ANALYSIS

TCLP METALS	METHOD	SA-80002	SA-80003	Units
TCLP Arsenic	1311/7060	**0.14**	0.050 U	mg/L
Date Analyzed		04/23/99	04/23/99	
TCLP Barium	1311/7080	2.0 U	2.0 U	mg/L
Date Analyzed		04/23/99	04/23/99	
TCLP Cadmium	1311/7130	0.10 U	0.10 U	mg/L
Date Analyzed		04/23/99	04/23/99	
TCLP Chromium	1311/7190	0.50 U	0.50 U	mg/L
Date Analyzed		04/23/99	04/23/99	
TCLP Lead	1311/7420	0.50 U	0.50 U	mg/L
Date Analyzed		04/23/99	04/23/99	
TCLP Mercury	1311/7470	0.0050 U	0.0050 U	mg/L
Date Analyzed		04/26/99	04/26/99	
TCLP Selenium	1311/7740	0.050 U	0.050 U	mg/L
Date Analyzed		04/25/99	04/25/99	
TCLP Silver	1311/7760	0.20 U	0.20 U	mg/L
Date Analyzed		04/23/99	04/23/99	

U Compound was analyzed for but not detected to the level shown.

QC CRF # _____

ENVIRONMENTAL CONSERVATION LABORATORIES

4810 Executive Park Court, Suite 211
Jacksonville, Florida 32216-6069
Ph. (904) 296-3007 • Fax (904) 296-6210

10207 General Drive
Orlando, Florida 32824
Ph. (407) 826-5314 • Fax (407) 850-6945

ENCO CompQAP No.: 960038G/0

CHAIN OF CUSTODY RECORD

PROJECT REFERENCE	PROJECT NO.	P.O. NUMBER
NTC Orlando		

PROJECT LOC. (State)	SAMPLER(s) NAME	PHONE	FAX
FL	R. Cope	496-2173	869-5468

CLIENT NAME	CLIENT PROJECT MANAGER
ENV DET CHASN	Ron Lumenton

CLIENT ADDRESS (CITY, STATE, ZIP)
1899 N. Hobson Ave N. Charleston, S.C 29405

PAGE ____ OF ____

☐ STANDARD REPORT DELIVERY

☐ EXPEDITED REPORT DELIVERY (surcharge)

Date Due: _____

STATION	SAMPLE DATE	SAMPLE TIME	GRAB	COMP	SAMPLE IDENTIFICATION	MATRIX TYPE: SURFACE WATER	GROUND WATER	WASTEWATER	DRINKING WATER	SOIL/SOLID/SEDIMENT	NONAQUEOUS LIQUID (oil, solvent, etc.)	AIR	SLUDGE	OTHER	REQUIRED ANALYSIS: TCLP Metals	TCLP Pesticides	NUMBER OF CONTAINERS SUBMITTED	REMARKS
1	4/20/99	1450	X		SA-35009					✓					X1			
2	4/20/99	1505	X		SA 35013					✓					X1			
3	4/20/99	1540	X		SA-35015					✓					X1			
4	4/20/99	1640		X	SA-80001					✓					1	X	TCLP Pesticides Requested	5 Locations Area A
5	4/20/99	1700		X	SA-80002					✓					1	X	on 4-28-99.	5 Locations Area B
6	4/20/99	1720		X	SA-80003					✓					1	X		5 Locations Area C
7	4/21/99	1010	X		SA-42002					✓					1			
8	4/21/99	1022	X		SA-42001					✓					1			
9	4/21/99	1120	X		SA-23005					✓					1			McCoy Annex
10	4/21/99	1145		X	SA-18008					✓						1		" 5 Locations
11	4/21/99	1201		X	SA-17035					✓						1		" 5 Locations
12																		
13																		
14																		

SAMPLE KIT PREPARED BY: ☐JACKSONVILLE ☐ORLANDO	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
	4/21/99	1240	K W Cope					
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
	4/21/99	1240	David Young					
RECEIVED BY (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	ENCO LOG NO.	REMARKS
Kim ☐ Jacksonville ☒ Orlando	4/21/99	12:40PM	☐ YES ☒ NO	ORL63[illegible]	

APPENDIX C

GROUNDWATER SAMPLING RESULTS REPORT
APRIL 2000 SAMPLING EVENT

TETRA TECH NUS, INC.
800 Oak Ridge Turnpike, A-600 ▪ Oak Ridge, Tennessee 37830
(865) 483-9900 ▪ FAX: (865) 483-2014 ▪ www.tetratech.com

0600-A101

July 7, 2000

Commanding Officer
SOUTHNAVFACENGCOM
ATTN: Ms. Barbara Nwokike, Code 1873
P.O. Box 190010
2155 Eagle Drive
North Charleston, SC 29419-9010

Subject: Operable Unit 3 Quarterly Groundwater Sampling, April 2000
McCoy Annex, NTC, Orlando

Dear Ms. Nwokike:

Enclosed are the results from the quarterly groundwater sampling conducted at OU 3 in April 2000. The results for this and previous sampling events, are summarized in the attached tables and figures. Copies of the field log sheets are included in Attachment A.

The next sampling at OU 3 will be completed in July 2000, and the results will be issued in October 2000. If you have any questions please contact me at (865) 220-4730.

Sincerely,

Steven B. McCoy, P.E.
Task Order Manager

SBM:ckf

Enclosure

c: Mr. Rick Allen, Harding Lawson Associates
Mr. David Grabka, FDEP
Mr. Wayne Hansel, SOUTHNAVFACENGCOM
Ms. Nancy Rodriguez, USEPA Region IV
Mr. Steve Tsangaris, CH2M Hill
Mr. Michael Campbell, Tetra Tech NUS
Mr. Mark Perry, Tetra Tech NUS (unbound)
Ms. Jacque Van Audenhove, Tetra Tech NUS (2)
Ms. Debbie Wroblewski, Tetra Tech NUS (cover letter only)
File/db

GROUNDWATER SAMPLING AT OPERABLE UNIT 3

Trip Dates: April 13-17, 2000

Site Name: Operable Unit 3: Study Areas 8 and 9
Main Base, Naval Training Center, Orlando, Florida

TO Manager: Steve McCoy

Field Team: Bobby Bobo
Roger Franklin
Bob Knight
Cher Morrison
Greg Sisco

Prepared by: Greg Sisco
Renna Warren

1. PURPOSE

Quarterly groundwater sampling was conducted at Operable Unit (OU) 3 (Study Areas 8 and 9) in April 2000. The fieldwork was performed in accordance with the Work Plan for Groundwater Sampling (Tetra Tech NUS, 1999a), and the Project Operations Plan (POP) (ABB-ES, 1997).

2. ACTIVITIES

Tetra Tech NUS mobilized to the field on April 10, 2000, to perform quarterly monitoring at Study Area (SA) 2, SA 52, and OU 3. Work at SA 9 began on April 13, 2000, with a water level survey and groundwater sampling. Work at SA 8 began on April 15, 2000 with installation of three drive-point wells.

Drive-point Well Installation - Three small-diameter, drive-point wells were installed on April 15, 2000 along the shoreline of Lake Baldwin in order to collect groundwater samples from the aquifer where it discharges into the lake. The three drive-point wells, OLD-08-19, OLD-08-20, and OLD-08-21, were located downgradient of existing wells that contained exceedances of the FL GCTLs during previous sampling events (see Figure 1).

The drive-point wells were constructed of 1.25-inch outside diameter, schedule 40 polyvinyl chloride (PVC) pipe. The factory-machined, 0.01-inch slot, PVC screen sections were 4-feet in length and finished with a conical-

shaped drive point. All screen and riser pipe were decontaminated prior to well installation. PVC riser pipe sections were cut to the required length and attached to the screen using PVC glue to provide a water-tight seal. The well pipe was driven into the lake bottom sediments using a hand-held sledge hammer. The top of the screened intervals were driven between 1 to 1.5 feet below the lake sediments. Water depth ranged from approximately 0.3 to 1.5 feet at the drive-point well locations, and 1 to 2 feet of riser pipe were left above the lake surface level.

Well development was not performed in the drive-point wells to reduce the potential for the introduction of fines into the well (no filter pack was installed). However, well purging was performed in order to remove any lake water that may have entered the well during installation.

Water Level Survey - Groundwater levels were measured at SA 8 on April 16, 2000, and at SA 9 on April 13, 2000. Groundwater elevations for this field event and previous events are summarized in Tables 1 and 2 for SA 8 and 9, respectively.

Sampling - Groundwater sampling was conducted on April 13-16, 2000. Sixteen wells (four 2-in wells, three 1½-in drive-point wells, and nine ½-in microwells) at SA 8 and 15 wells (five 2-in wells and ten ½-in microwells) at SA 9 were sampled. All wells were purged and sampled using the low-flow method described in the POP. Purging of wells consisted of removing groundwater with a peristaltic pump at flow rates ranging from 100 to 150 ml/min until field parameters (temperature, pH, conductivity, turbidity, dissolved oxygen, and oxidation-reduction potential) had stabilized. Water levels in the 2-inch wells were continuously monitored to maintain drawdown at less than 0.3 feet. In the 0.5-inch microwells, the small diameter of the well casing prevented simultaneous measurement of the depth to water during purging. Groundwater sample log sheets are included in Attachment A.

Of the 16 total groundwater samples from SA 8, eight (OLD-08-08, OLD-08-10, OLD-08-11, OLD-08-15, OLD-08-18, OLD-08-19, OLD-08-20, OLD-08-21) were analyzed for herbicides using SW 846 Method 8141A and Total Analyte List (TAL) metals using SW 846 Method 6010B; the remaining eight were analyzed for TAL metals only. All 15 samples from SA 9 were analyzed for TAL metals using SW846 Method 6010B, pesticides using SW846 Method 8181A, and herbicides using SW846 Method 8141A. Five samples (OLD-09-03, OLD-09-04, OLD-09-12, OLD-09-14, OLD-09-15) were also analyzed for semi-volatile organic compounds (SVOCs) using SW846 Method 8270C and polynuclear aromatic hydrocarbons (PAHs) using SW846 Method 8310. All samples for organic analyses were collected using vacuum jug methods to ensure that sample water did not contact non-Teflon-lined tubing surfaces. All samples were placed in ice-cooled coolers and shipped via overnight delivery to Severn-Trent Laboratories in North Canton, Ohio, for analysis.

3. PROBLEMS ENCOUNTERED

Turbidity readings were greater than 10 NTU in nine wells (OLD-08-02, OLD-08-13, OLD-08-18, OLD-08-19, OLD-08-20, OLD-08-21, OLD-09-02, OLD-09-04 and OLD-09-07). The turbidity in these wells stabilized at a range of 11 to 51.4 NTU. Only wells OLD-09-2, OLD-09-03 and OLD-09-04 exceeded the drawdown goal of 0.3 ft during purging. Micro-well OLD-08-014, located near the Lake Baldwin shoreline, was dry and no sample was collected.

4. RESULTS

Water Level Survey - Groundwater elevation data for SA 8 and 9 are presented in Tables 1 and 2, respectively, and the water table contours for the two sites are presented in Figures 1 and 2, respectively. Groundwater at SA 8 generally flows to the west toward Lake Baldwin. Groundwater at SA 9 shows divergent flow with groundwater north of Trident Lane generally flowing to the northeast toward Lake Baldwin and groundwater in the eastern portion of the site flowing to the southeast. These flow directions are consistent with those reported earlier by Tetra Tech (1999b, 2000a, 2000b) and HLA (1999).

The water levels in the completed drive-point wells were equal to the lake surface elevation. Water quality samples taken from the well and from the lake were field tested, and differences in the pH, dissolved oxygen, and oxidation-reduction potential indicated that lake water had not infiltrated the wells (see table below).

Location	pH	Specific Cond. mS/m	Temp. °C	NTUs	Dissolved Oxygen mg/L	Ox-Red. Potential mV
OLD-08-19	5.88	12	25.3	51.4	0.00	-98
Lake at 19	7.06	17	25.6	37.1	10.14	-24
OLD-08-20	6.50	21.1	21.1	13.5	1.42	-119
Lake at 20	7.58	21.1	21.9	4.8	10.32	-2
OLD-08-21	5.01	9.0	24.0	11.7	0.15	-9
Lake at 21	6.36	18.0	26.4	19.2	8.04	136.0

Data Validation – Qualification of the data was performed using the USEPA Contract Laboratory Program guidelines for inorganic and organic data review (USEPA, 1994 and 1999). The data validation evaluated data completeness, holding time compliance, calibration compliance, laboratory blank contamination, surrogate spike recovery, matrix spike recovery, blank spike recovery, internal standard

response, sample quantitation, and detection limits. The validation process results in qualifiers that are shown with the analyte concentrations in Tables 3, 4, 5, 6, and 7.

Analytical Results – The positive detections for this round of sampling are summarized in Tables 3 and 4. The historical positive detections are compiled in Table 5 and the validated analytical data for the April 2000 sampling event are included as Tables 6 and 7. Shaded cells indicate concentrations equal to or greater than Florida Groundwater Cleanup Target Levels (GCTLs) (FDEP, 1999) or established background concentrations (ABB-ES, 1995). The distributions of contaminants detected above these criteria are shown on Figures 3 and 4.

At SA 8, arsenic concentrations exceeded the screening criterion in 8 of the 16 wells sampled. The maximum arsenic concentration of 991 µg/L was measured in the duplicate sample from well OLD-08-11. Concentrations of arsenic measured in April increased from the levels measured in January in two wells and decreased in nine wells. The arsenic in well OLD-08-02 decreased significantly from 717 µg/L to 378 µg/L. The arsenic in well OLD-08-06 decreased below the GCTL for the first time since sampling began in 1997. The exceedances at SA 8 are summarized below.

Exceedances at SA 8 – July/August, October 1999, January 2000, and April 2000

Analyte	Screening Criteria (µg/L)	July/August 1999		October 1999		January 2000		April 2000	
		No. of Wells	Concentration Range (µg/L)	No. of Wells	Concentration Range (µg/L)	No. of Wells	Concentration Range (µg/L)	No. of Wells	Concentration Range (µg/L)
Primary Exceedances:									
Antimony	6	1	12.2	5	6 – 13.8	0	–	0	–
Arsenic	50	11	99.2 – 609	11	54 – 610	10	73.4 – 823	8	105 – 991
Lead	15	1	34.8	3	28.5 – 151	2	15 – 32	0	–
MCPA	3.5	0	–	0	–	1	68	0	–
MCPP	7	4	99 J – 280 J	1	180J	4	46J – 180J	0	–
Secondary Exceedances:									
Aluminum	4067	2	4300 J – 4310 J	0	–	0	–	0	–
Iron	1227	3	1650 – 5190	3	2150 – 10500	3	1250 – 6320	4	1270 – 2850
Manganese	50	5	68.1 – 338	5	55.4 – 185	3	83.7 – 164	3	64 – 41

At SA 9, arsenic was measured above the screening criterion in 4 of the 15 wells sampled. The maximum arsenic concentration was 266 µg/L in well OLD-09-04. Despite an increase from the maximum of 225 µg/L measured in January 2000, this represents a continued overall decrease in the

maximum concentrations from 650 µg/L measured in October 1999 and 1370 µg/L measured in July/August 1999. The exceedances at SA 9 are summarized below.

Exceedances at SA 9 – July/August, October 1999, January 2000, and April 2000

Analyte	Screening Criteria (µg/L)	July/August 1999		October 1999		January 2000		April 2000	
		No. of Wells	Concentration Range (µg/L)	No. of Wells	Concentration Range (µg/L)	No. of Wells	Concentration Range (µg/L)	No. of Wells	Concentration Range (µg/L)
Primary Exceedances:									
Aldrin	0.005	0	–	0	–	0	–	1	0.48 J
Antimony	6	1	17.7	0	–	0	–	0	–
Arsenic	50	5	141 – 1370	4	53.8 – 650	3	72.4 – 225	4	50.5 – 266
a-BHC	0.006	1	2.5 J	1	0.39	1	1.4	1	4.2
4,4-DDE	0.1	0	–	0	–	0	–	1	0.76 J
DEHP	6	0	–	0	–	1	8.9 J	0	–
2,4-Dichlorophenol	0.5	1	45/30	1	4.9 J	1	11	1	2.3 J
Lead	0.2	0	–	0	–	2	15 – 32	0	–
Lindane	0.2	1	1.9 J/1.7 J	1	0.46	1	1.5	2	1.3 – 5.7
MCPA	3.5	0	–	3	33 J – 120 J	0	–	0	–
MCPP	7	3	170 J – 910 J	2	74 J – 520	2	32 J – 72 J	0	–
Naphthalene	20	0	–	0	–	0	–	1	21
Secondary Exceedances:									
Aluminum	4067	1	7740 J	0	–	0	–	0	–
Iron	1227	3	1290 – 6350	1	1940	3	1300 – 2220	2	1690 – 1900
Manganese	50	1	79.9	3	56.3 – 134	3	58 – 109	0	–

MCPA/MCPP Reporting and Method Detection Limits – Severn-Trent had taken steps to lower their MCPA and MCPP reporting limits beginning with the January 2000 sampling round. The reporting limits for the earlier July/August 1999 and October 1999 samples were 400 µg/L. Reporting limits for the April 2000 sampling round were 80 µg/L. This is higher than the GCTLs of 3.5 µg/L for MCPA and 7 µg/L for MCPP.

5. REFERENCES

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Tetra Tech NUS, Inc., 1999a. *Work Plan for Groundwater Sampling, Rev. 2.* Document No. R4707995, November 9, 1999.

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USEPA, 1994. *USEPA Contract Laboratory Program: National Functional Guidelines for Inorganic Data Review.* EPA/540/R-94/013, Office of Solid Waste and Emergency Response, Washington, D.C., February.

USEPA, 1999. *Contract Laboratory Program: National Functional Guidelines for Organic Data Review.* EPA/540/R-99/008, Office of Solid Waste and Emergency Response, Washington, D.C., October.

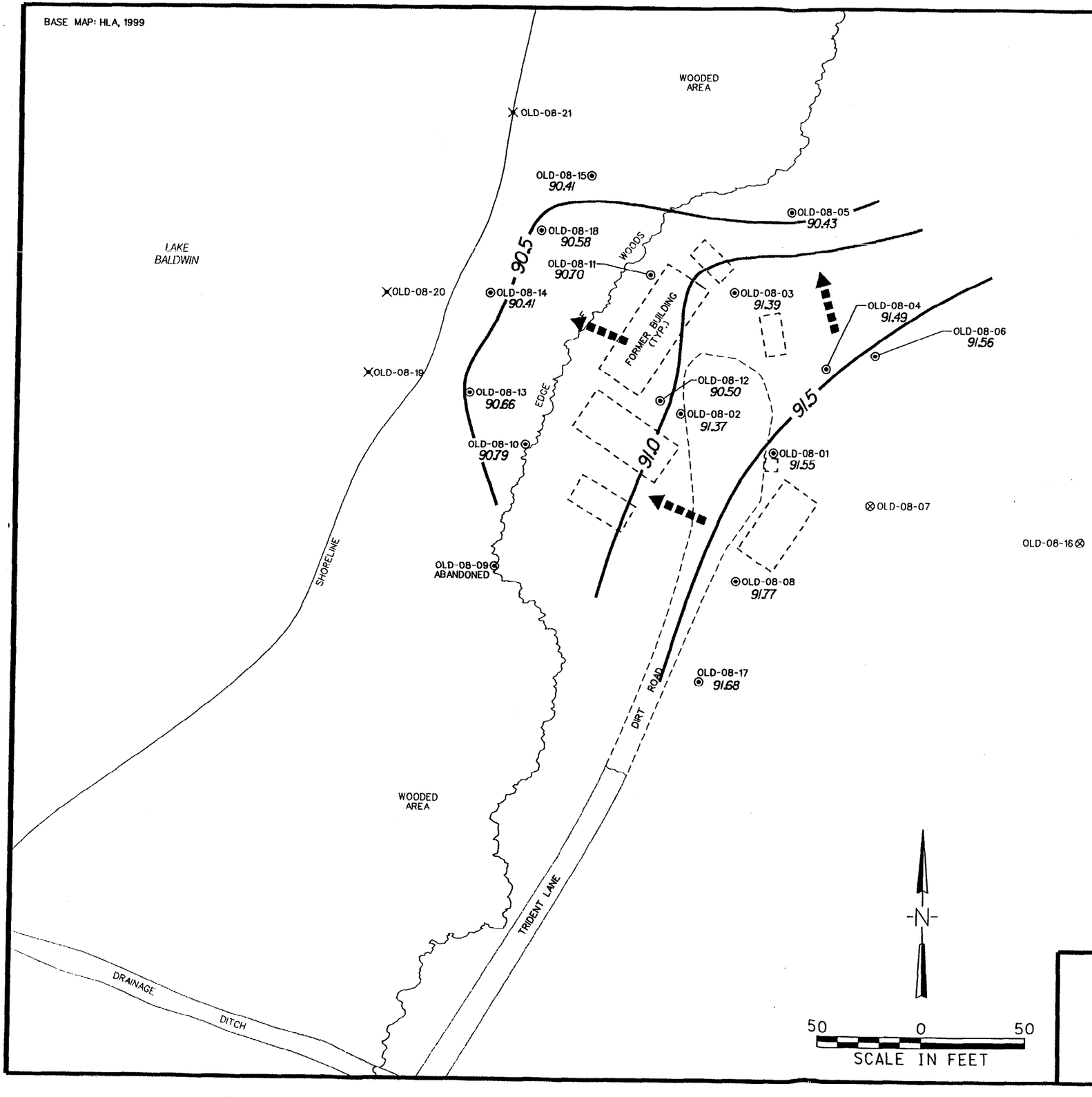
FIGURES

No.

1 Groundwater Elevation Map on April 16, 2000, Operable Unit 3 – Study Area 8
2 Groundwater Elevation Map on April 13, 2000, Operable Unit 3 – Study Area 9
3 Groundwater Exceedances, April 2000, Operable Unit 3 – Study Area 8
4 Groundwater Exceedances, April 2000, Operable Unit 3 – Study Area 9

00222AB42

BASE MAP: HLA, 1999



LEGEND

MONITORING WELL	⊙
DRIVE POINT WELL	×
DESTROYED WELL	⊗
GROUNDWATER ELEVATION [1]	91.56
GROUNDWATER CONTOUR [1] (DASHED WHERE APPROX.)	———
APPROX. GROUNDWATER FLOW DIRECTION	▪▪▪▪▶

1 - ELEVATION IN FEET ABOVE SEA LEVEL

NOTE:
WELL OLD-08-12 NOT INCLUDED IN CONTOURING.

-N-

50 0 50
SCALE IN FEET

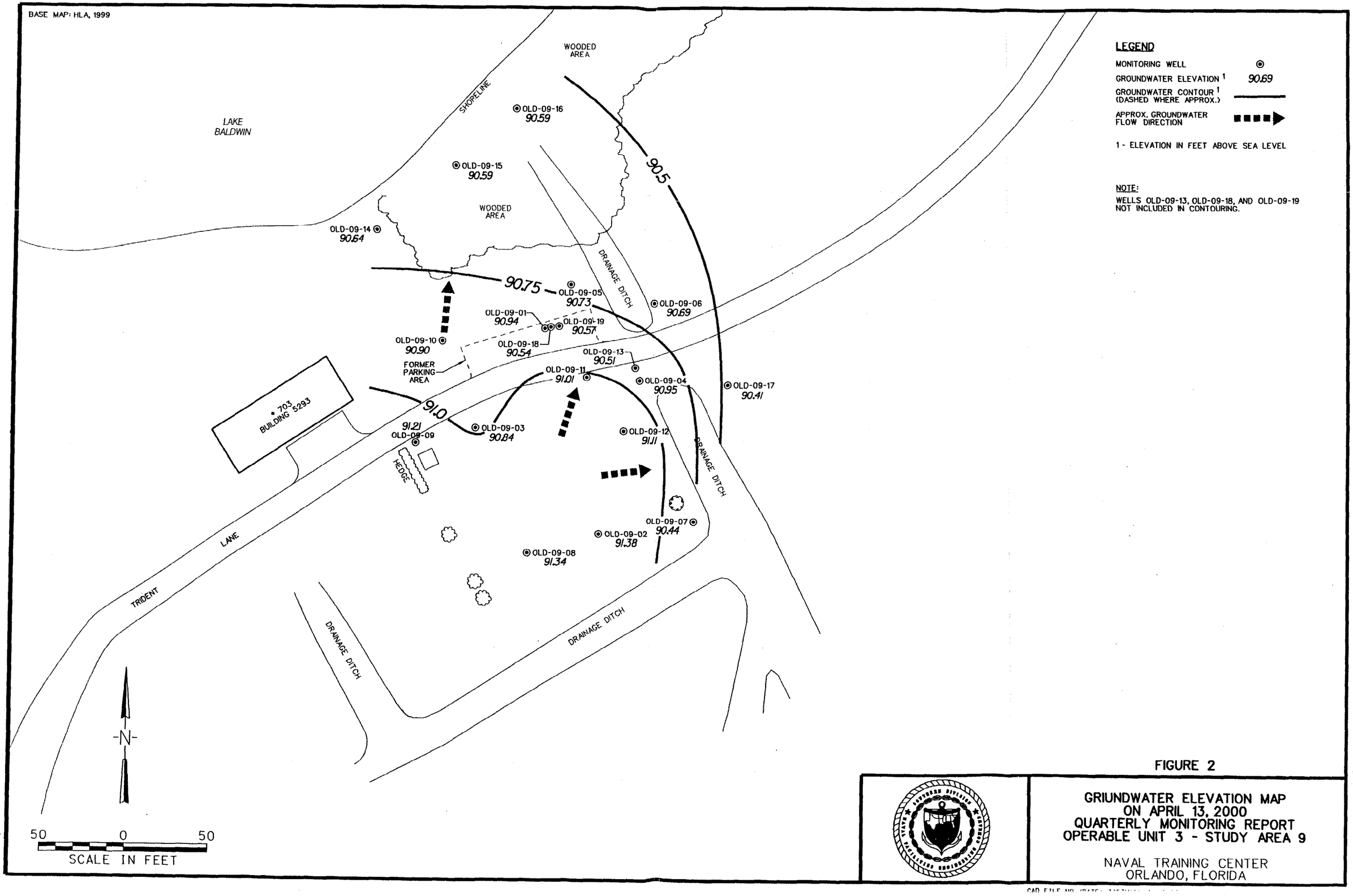
n11x17b.dgn

FIGURE 1

GROUNDWATER ELEVATION MAP
ON APRIL 16, 2000
QUARTERLY MONITORING REPORT
OPERABLE UNIT 3 - STUDY AREA 8

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

BASE MAP: HLA, 1999



LEGEND

MONITORING WELL ⊙

GROUNDWATER ELEVATION [1] 90.69

GROUNDWATER CONTOUR [1] (DASHED WHERE APPROX.) ——

APPROX. GROUNDWATER FLOW DIRECTION ■■■■▶

1 - ELEVATION IN FEET ABOVE SEA LEVEL

NOTE:

WELLS OLD-09-13, OLD-09-18, AND OLD-09-19 NOT INCLUDED IN CONTOURING.

FIGURE 2

GRIUNDWATER ELEVATION MAP
ON APRIL 13, 2000
QUARTERLY MONITORING REPORT
OPERABLE UNIT 3 - STUDY AREA 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

n11x17b.dgn

CAD FILE NO. (DATE: [illegible])

OLD-08-15					
1 TO 7	3/13/99	8/1/99	10/20/99	1/22/00	4/15/00
Fe	**1980**	853/806	652	1020	**2000**
MCPA	**<50**	**<400/<400**	**<400-J**	**<40**	**<80**
MCPP	**<50**	**<400/280-J**	**<400-J**	**68**	**<80**
Mn	**83.9**	32.6/30.1	<9.4	<15.3	38.7
Pb	NS	<2.8/<2.4	**28.5**	2.1	<1.4

OLD-08-18					
2 TO 11	3/12/99	7/31/99	10/20/99	1/22/00	4/16/00
Fe	NS	**3550**	**3360**	**3260**	**2850**
MCPP	NS	**320-R**	**180-J**	**50-J**	**<80**
Mn	NS	**204**	**185**	**164**	**141**

OLD-08-14					
1 TO 7	3/15/99	7/31/99	10/20/99	1/22/00	4/16/00
As	9.5	**100**	**224**	**85.5**	
Fe	**7340-J**	**5190**	**10500**	**6320**	
MCPP	**<50**	**190-J**	**<400-J**	R	DRY
Mn	**132-J**	**304**	**119**	**83.7**	
Pb	**21.1**	**34.8**	**151**	**32**	
Sb	<3.3	**<6.8**	**11.2**	<3.2	

OLD-08-13					
1 TO 7	3/15/99	7/31/99	10/21/99	1/22/00	4/15/00
As	19	24.3/22.6	30.7	20.7	20.5
Fe	**2470-J**	**1660/1650**	**2150**	**1250**	**1800**
MCPA	**<100**	NA	NA	NA	NA
Mn	**124-J**	**68.1/68.7**	**75.1**	42.8	**64**

OLD-08-10					
1 TO 10	3/12/99	7/30/99	10/21/99	1/20/00	4/15/00
As	**122-J**	**189**	**276**	**166/172**	**122**
Fe	**1400**	<104	120	521/535	809
MCPP	**<51**	**540-R**	**<400**	**<40/48-J**	**<80**
Mn	**56.8**	<14.7	29.3	**85.1/87**	**85.9**

OLD-08-11					
1 TO 10	3/12/99	7/30/99	10/19/99	1/20/00	4/16/00
As	**315-J**	**170**	**114**	**823**	**959/991**
Dieldrin	NA	NA	NA	NA	NA/NA
MCPA	<50	<400-J	<400-J	**140-J**	**<80/<80**
MCPP	**<50**	**110-J**	**<400-J**	**<40**	**<80/<80**

OLD-08-02						
3 TO 13	3/11/99	7/28/99	10/19/99	1/19/00	4/15/00
As	**294**	**609**	**581**	**717**	**378**
Sb	<3.3	<3.4	**6**	**<21.3**	5.2

OLD-08-17					
1 TO 10	3/11/99	7/30/99	10/19/99	1/20/00	4/15/00
As	**167**	**191**	**156**	**145**	**150**
Mn	10.1	<6	**59.1**	<4.5	<2.6
Sb	<3.3	**12.2**	4.6	**<7.9**	<1.6

OLD-08-05					
1 TO 10	3/10/99	7/29/99	10/21/99	1/20/00	4/15/00
Al	126	**4310-J**	289/276	<110	<74.1
As	**56.9**	**284**	**54/55.3**	37.9	25.7
Mn	**146-J**	**338**	25.2/25.5	24.8	19
Pb	<1.4	3.7	**35.7/34.1**	**15**	<1.4

OLD-08-03						
3 TO 13	3/11/99	7/28/99	10/19/99	1/19/00	4/15/00
Al	168	**4300-J**	721	<115	<118
As	**260**	**234**	**610**	**248**	**159**
Fe	**1260**	750	201	479	**1270**
MCPA	**<50**	NA	NA	NA	NA
Mn	19.6	12.2	**55.4**	39.2	29.3
Sb	<4.7	**<8.1**	**13.8**	**<7.6**	2.7

OLD-08-06						
1 TO 10	3/11/99	7/29/99	10/19/99	1/20/00	4/15/00
As	**88.5**	**138**	**71.8**	**73.4**	42.3
Fe	**33300**	<61.9	185	97.3	152
Mn	**110**	**89.6**	11.7	<3.1	5.9

OLD-08-04						
3 TO 13	3/11/99	7/28/99	10/19/99	1/19/00	4/15/00
As	**102/106**	**99.2**	**381**	**202**	**132**

OLD-08-07		
1 TO 10	10/23/97	3/15/99
As	**56.4**	47.9

OLD-08-01						
3 TO 13	3/13/99	7/28/99	10/19/99	1/19/00	4/15/00
As	**138-J/128-J**	**163**	**229**	**150**	**105**
Fe	<311/<451	155	<98.3	76.2	69.9
MCPP	**<50/<50**	NA	NA	NA	NA
Naph	NA	NA	NA	NA	NA
Sb	<5.6	<3.6	**7.4**	**<11.3**	3.5

OLD-08-08						
1 TO 10	3/11/99	8/1/99	10/19/99	1/20/00	4/15/00
As	**175**	**154**	**194**	**214**	**200**
MCPA	<50	<400	<400-J	**180-J**	**<80**
MCPP	**<50**	**99-J**	**<400-J**	R	**<80**
Sb	<14	<3.6	**10.1**	<3.2	4.9

OLD-08-21 OLD-08-15 OLD-08-18 OLD-08-11 OLD-08-20 OLD-08-14 OLD-08-19 OLD-08-13 OLD-08-10 OLD-08-09 ABANDONED OLD-08-02 OLD-08-17 OLD-08-12 OLD-08-08 OLD-08-01 OLD-08-07 OLD-08-16 OLD-08-05 OLD-08-03 OLD-08-04 OLD-08-06

WOODED AREA

WOODED AREA

LAKE BALDWIN

WOODS

EDGE OF

FORMER BUILDING (TYP.)

DIRT ROAD

TRIDENT LANE

DRAINAGE DITCH

LAKEVIEW AVENUE

BASE MAP: HLA, 1999

LEGEND

ASTERISK INDICATES WELLS SAMPLED	✱OLD-08-01
MONITORING WELL	⊙
DRIVE POINT WELL	✕
DESTROYED WELL	⊗

SCREEN INTERVAL TO NEAREST FOOT — SAMPLE COLLECTION DATE — DUPLICATE SAMPLE

3 TO 13	10/22/97	3/13/99	7/28/99
As	**133**	**138-J/128-J**	**163**
Fe	**1460**	<311/<451	155
MCPP	**790-J**	**<50/<50**	NA
Naph	25	NA	NA

ANALYTE — ANALYTE 1,2 CONCENTRATION

ESTIMATED CONCENTRATION	J
VALUE FROM DILUTION	D
NOT ANALYZED	NA
REJECTED	R
NOT SAMPLED	NS

1-CONCENTRATION IN MICROGRAMS PER LITER (ug/L)
2-BOLD CONCENTRATION INDICATES EXCEEDANCE

SCREENING CRITERIA

ANALYTE	GCTL[1]	BGSV[1]
Al	200	4067
As	50	5
Dieldrin	0.005	-
Fe	300	1227
MCPA	3.5	-
MCPP	7	-
Mn	50	17
Naph	20	-
Pb	15	4
Sb	6	4.1

GCTL-GROUNDWATER CLEANUP TARGET LEVEL
BGSV-BACKGROUND SCREENING VALUE

NOTE:
DATA ARE SHOWN FOR LOCATIONS WITH PAST OR CURRENT SCREENING CRITERIA EXCEEDANCES.

50 0 50
SCALE IN FEET

FIGURE 3

GROUNDWATER EXCEEDANCES APRIL 2000 QUARTERLY MONITORING REPORT OPERABLE UNIT 3 - STUDY AREA 8

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

n11x17b.dgn

BASE MAP: HLA, 1999

OLD-09-19					
26 TO 31	3/16/99	8/4/99	10/27/99	1/22/00	4/13/00
Al	NOT INSTALLED	**7740-J**	402	693	<382
Fe		**1290**	645	762	689
Sb		**17.7**	<2.2	<1.6	<5.6

OLD-09-15					
1 TO 7	3/13/99	8/2/99	10/22/99	1/23/00	4/14/00
Fe	<706	2580	312	**1300**	515
Mn	9.746.4	<4.6	<4.7	34	<7.8

OLD-09-14					
1 TO 7	3/15/99	8/1/99	10/22/99	1/23/00	4/14/00
MCPA	**<50**	**<400**	**<400**	**<40**	**<80**
Mn	27.6	<5	**120**	**98.7/109**	36.5
Naph	**67.5**	2.1	4.8-J	9.9/7.7	**21**

OLD-09-18		
24 TO 30	2/12/98	3/16/99
Fe	**4680/5490**	753-J
MCPA	**630-J/460-J**	**<50**

OLD-09-10					
1 TO 10	10/21/97	8/3/99	10/21/99	1/23/00	4/13/00
MCPA	<60	<400-J	**37-J**	**<40**	**<80**

OLD-09-01					
3 TO 13	3/13/99	8/4/99	10/21/99	1/22/00	4/13/00
4,4-DDE	**<0.10**	<0.05	<0.1-J/<0.1-J	<0.05	<0.05/<0.05
MCPA	**<100**	NA	**<400**	**<40**	**<80/<80**

OLD-09-03					
7 TO 12	10/20/97	8/14/99	10/20/99	1/23/00	4/13/00
DEHP	**<10**	**<10**	**<10**	**8.9-J**	**<10/<10**

OLD-09-11						
1 TO 10	3/16/99	8/3/99	10/20/99	1/22/00	4/13/00	
As	**71.5**	**180/180**	44.9	41.4	34.1	
Fe	**1520-J**	**1490/1420**	833	**2220**	**1690**	
Lindane	**0.4**	0.18-J/0.19-J	0.057-J	0.034-J	**1.3**	
MCPP	**<50**	**<400/<400**	**<400-J**	**72-J**	**<80**	
Mn	**121-J**	22.3/21.5	25.7	34.5	28.8	

OLD-09-13		
23 TO 29	10/21/97	3/16/99
Fe	**2400**	741-J
Mn	**82.9**	29.4-J

OLD-09-08		
2 TO 11	10/24/97	
Mn	**53.6**	

OLD-09-16					
1 TO 7	3/13/99	8/3/99	10/21/99	1/23/00	4/13/00
Fe	**1320**	637	572	1080	580
MCPA	**<100**	**<400**	**33-J**	**<40**	**<80**
Mn	**69**	41.5	30	38.3	17

OLD-09-05					
1 TO 10	3/15/99	8/3/99	10/22/99	1/22/00	4/14/00
As	**152/153**	**475**	**101**	**72.4/72.3**	**104**
MCPA	**<100/<100**	**<400**	**<400-R**	**<40**	**<80**
MCPP	**<100/<100**	**<290-R**	**<400-R**	**67-J/32-J**	**<80**

OLD-09-06					
1 TO 10	3/16/99	8/3/99	10/22/99	1/22/00	4/13/00
As	**54.6**	**191**	**94.1**	42.9	**50.5**
Dieldrin	**<0.1**	**<0.25**	**<0.05-R**	**<0.05**	**<0.05**
MCPA	<50	**<400-J**	**120-J**	**<40**	**<80**
Mn	39.6-J	35.4	**56.3**	**63.6**	15.9

OLD-09-17					
1 TO 10	3/13/99	8/3/99	10/23/99	1/22/00	4/13/00
MCPA	NS	**<400**	**<400**	**<40**	**<80**
MCPP	NS	<400-J	**74-J**	**<40**	**<80**

OLD-09-04					
7 TO 12	3/13/99	8/4/99	10/21/99	1/22/00	4/13/00
2,4-DCP	**<4**	**<10**	**<25**	0.085-J	**<10**
4,4'-DDE	**<0.5**	**<2.5**	**<0.25**	<0.05	**0.76-J**
Aldrin	**<0.25**	**<2.5**	**<0.25**	**<0.05**	**0.48-J**
As	**186-J**	**1370**	**850**	**225**	**266**
Fe	861	**6350**	**1940**	**2160**	**1900**
MCPA	**<100**	**<400**	**<400**	**<40**	**<80**
MCPP	**<100**	**170-J**	**520**	**<40**	**<80**
Mn	**63.1**	**79.9**	35.3	**58**	47.6

OLD-09-12					
1 TO 10	3/16/99	8/2/99	10/22/99	1/23/00	4/13/00
2,4 DCP	**13.2/13.3**	**45/30**	**4.9-J**	**11**	**2.3-J**
a-BHC	**2.1/2.3**	**2.5-J/<5**	**0.39**	**1.4**	**4.2**
As	**135/136**	**141/147**	**53.8**	**127**	**90**
Fe	**1390-J**/786-J	629/762	477	317	396
Lindane	**3/3.2**	**1.9-J/1.7-J**	**0.46**	**1.5**	**5.7**
MCPA	**<50/<50**	**<400/<400**	**<400**	**<40**	**<80**
MCPP	**<50/<50**	**190-J/220-J**	**<400**	**<40**	**<80**
Mn	19-J/20.9-J	8.3	**134**	15.1	<6.2

OLD-09-07					
3 TO 12	3/16/99	8/3/99	10/23/99	1/22/00	4/13/00
Fe	**1840-J**	<317	470	<274	366
MCPP	**<100**	**910-J**	**550-R**	R	**<80**

OLD-09-02					
7 TO 12	3/13/99	8/3/99	10/22/99	1/22/00	4/13/00
MCPA	**<100**	**<400**	**<400**	**<40**	**<80**
MCPP	**<100**	**<400**	**<400**	R	**<80**

SHORELINE
WOODED AREA
DRAINAGE DITCH
FORMER PARKING AREA
HEDGE
BUILDING 5293
SE DITCH

OLD-09-01, OLD-09-02, OLD-09-03, OLD-09-04, OLD-09-05, OLD-09-06, OLD-09-07, OLD-09-08, OLD-09-09, OLD-09-10, OLD-09-11, OLD-09-12, OLD-09-13, OLD-09-14, OLD-09-15, OLD-09-16, OLD-09-17, OLD-09-18, OLD-09-19

-N-

50 0 50
SCALE IN FEET

LEGEND

ASTERISK INDICATES WELLS SAMPLED — ✱OLD-09-05

MONITORING WELL — ⊙

SCREEN INTERVAL TO NEAREST FOOT — SAMPLE COLLECTION DATE

1 TO 10	10/21/97	3/16/99	8/3/99
As	**93.9**	**71.5**	**180/180**
Fe	570	**1520-J**	**1490/1420**
Lindane	0.034-J	**0.4**	0.18-J/0.19-J
MCPP	**1200-J**	**<50**	**<400/<400**
Mn	11.6-J	**121-J**	22.3/21.5

ANALYTE — ANALYTE CONCENTRATION 1,2 — DUPLICATE SAMPLE

ESTIMATED CONCENTRATION — J

VALUE FROM DILUTION — D

REJECTED — R

NOT SAMPLED — NS

1-CONCENTRATION IN MICROGRAMS PER LITER (ug/L)
2-BOLD CONCENTRATION INDICATES EXCEEDANCE

SCREENING CRITERIA

ANALYTE	GCTL[1]	BGSV[1]
Al	200	4067
Aldrin	0.005	-
As	50	5
DEHP	6	-
Dieldrin	0.005	-
Fe	300	1227
MCPA	3.5	-
MCPP	7	-
Mn	50	17
Sb	6	4.1
a-BHC	0.006	-
2,4-DCP	0.5	-
4,4'-DDE	0.1	-
Lindane	0.2	-
Naph	20	-

GCTL-GROUNDWATER CLEANUP TARGET LEVEL
BGSV-BACKGROUND SCREENING VALUE
DEHP-Bis(2-ethylhexyl)phthalate
2,4-DCP-2,4-Dichlorophenol

NOTE:
DATA ARE SHOWN FOR LOCATIONS WITH PAST OR CURRENT SCREENING CRITERIA EXCEEDANCES.

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FIGURE 4

GROUNDWATER EXCEEDANCES
APRIL 2000
QUARTERLY MONITORING REPORT
OPERABLE UNIT 3 - STUDY AREA 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

TABLES

No.

1 Water-Level Elevations Summary Operable Unit 3 – Study Area 8
2 Water-Level Elevations Summary Operable Unit 3 – Study Area 9
3 Positive Detections in Groundwater - April 2000 – Study Area 8
4 Positive Detections in Groundwater - April 2000 – Study Area 9
5 Historical Detections in Groundwater Operable Unit 3 – Study Areas 8 and 9
6 Validated Groundwater Analytical Results - April 2000 – Study Area 8
7 Validated Groundwater Analytical Results - April 2000 – Study Area 9

TABLE 1

WATER-LEVEL ELEVATIONS SUMMARY
OPERABLE UNIT 3 - STUDY AREA 8

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well	Well Type	Screen Interval (BGS)	TOC Elevation (AMSL)	3/14/99		7/20/99		10/19/99		1/20/00		4/16/00	
				Depth to Water (BTOC)	Groundwater Elevation (AMSL)	Depth to Water (BTOC)	Groundwater Elevation (AMSL)	Depth to Water (BTOC)	Groundwater Elevation (AMSL)	Depth to Water (BTOC)	Groundwater Elevation (AMSL)	Depth to Water (BTOC)	Groundwater Elevation (AMSL)
OLD-08-01	2" well	3-13	94.96	3.70	91.26	2.23	92.73	0.85	94.11	2.39	92.57	3.41	91.55
OLD-08-02	2" well	3-13	94.77	3.65	91.12	2.30	92.47	1.19	93.58	2.40	92.37	3.40	91.37
OLD-08-03	2" well	3-13	94.31	3.21	91.10	1.89	92.42	0.83	93.48	1.95	92.36	2.92	91.39
OLD-08-04	2" well	3-13	94.62	3.45	91.17	1.99	92.63	0.74	93.88	2.13	92.49	3.13	91.49
OLD-08-05	½" µ well	1-10	93.64	2.35	91.29	1.02	92.62	0.80	92.84	2.17	91.47	3.21	90.43
OLD-08-06	½" µ well	1-10	95.06	3.75	91.31	1.99	93.07	0.62	94.44	2.40	92.66	3.50	91.56
OLD-08-08	½" µ well	1-10	95.22	3.67	91.55	2.29	92.93	0.83	94.39	2.39	92.83	3.45	91.77
OLD-08-10	½" µ well	1-10	93.07	2.31	90.76	1.58	91.49	0.45	92.62	1.49	91.58	2.28	90.79
OLD-08-11	½" µ well	1-10	93.00	2.57	90.43	1.28	91.72	0.45	92.55	1.33	91.67	2.30	90.70
OLD-08-12	½" µ well	23-29	94.50	4.27	90.23	3.32	91.18	1.88	92.62	3.15	91.35	4.00	90.50
OLD-08-13	½" µ well	1.13-7.13	95.98	5.34	90.64	4.66	91.32	3.43	92.55	4.72	91.26	5.32	90.66
OLD-08-14	½" µ well	1.12-7.12	97.12	6.44	90.68	5.59	91.53	4.55	92.57	5.66	91.46	6.71	90.41
OLD-08-15	½" µ well	1.22-7.22	96.41	5.89	90.52	5.33	91.08	3.83	92.58	5.15	91.26	6.00	90.41
OLD-08-17	½" µ well	09-9.9	94.92	3.43	91.49	2.10	92.82	0.55	94.37	2.13	92.79	3.24	91.68
OLD-08-18	½" µ well	1.5-10.5	95.32	5.10	90.22	4.13	91.19	2.77	92.55	4.97	90.35	4.74	90.58

Notes:
Monitoring wells -07 and -16 have been destroyed. Monitoring well -09 has been abandoned.
All measurements are in units of feet.
AMSL - Above mean sea level
BGS - Below ground surface
BTOC - Below top of casing

TABLE 2

WATER-LEVEL ELEVATIONS SUMMARY
OPERABLE UNIT 3 - STUDY AREA 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well	Well Type	Screen Interval (BGS)	TOC Elevation (AMSL)	3/16/99		7/19/99		10/20/99		1/21/00		4/13/00	
				Depth to Water (BTOC)	Groundwater Elevation (AMSL)	Depth to Water (BTOC)	Groundwater Elevation (AMSL)	Depth to Water (BTOC)	Groundwater Elevation (AMSL)	Depth to Water (BTOC)	Groundwater Elevation (AMSL)	Depth to Water (BTOC)	Groundwater Elevation (AMSL)
OLD-09-01	2" well	3-13	94.66	3.82	90.84	2.65	92.01	1.11	93.55	2.72	91.94	3.72	90.94
OLD-09-02	2" well	7-12	97.72	6.71	91.01	5.43	92.29	3.56	94.16	5.30	92.42	6.34	91.38
OLD-09-03	2" well	7-12	97.81	7.08	90.73	6.13	91.68	4.60	93.21	5.43	92.38	6.97	90.84
OLD-09-04	2" well	7-12	97.18	6.48	90.70	5.23	91.95	2.68	94.50	5.31	91.87	6.23	90.95
OLD-09-05	½" m well	1-10	94.16	3.36	90.80	2.33	91.83	0.85	93.31	2.40	91.76	3.43	90.73
OLD-09-06	½" m well	1-10	93.87	2.74	91.13	1.63	92.24	0.60	93.27	2.25	91.62	3.18	90.69
OLD-09-07	½" m well	3-12	95.69	5.15	90.54	4.29	91.40	2.12	93.57	4.38	91.31	5.25	90.44
OLD-09-08	½" m well	2-11	95.59	4.27	91.32	3.00	92.59	1.23	94.36	3.06	92.53	4.25	91.34
OLD-09-09	½" m well	1-10	95.17	3.81	91.36	2.62	92.55	1.34	93.83	2.95	92.22	3.96	91.21
OLD-09-10	½" m well	1-10	94.63	3.59	91.04	2.38	92.25	0.91	93.72	2.71	91.92	3.73	90.90
OLD-09-11	½" m well	1-10	95.05	3.77	91.28	2.65	92.40	1.41	93.64	3.08	91.97	4.04	91.01
OLD-09-12	½" m well	1-10	95.21	4.02	91.19	2.92	92.29	1.32	93.89	3.10	92.11	4.10	91.11
OLD-09-13	½" m well	23-29	94.91	22.64	72.27	3.45	91.46	1.60	93.31	3.64	91.27	4.40	90.51
OLD-09-14	½" m well	1.39-7.39	97.11	6.29	90.82	5.73	91.38	4.38	92.73	5.72	91.39	6.47	90.64
OLD-09-15	½" m well	1.18-7.18	96.62	5.86	90.76	5.33	91.29	5.20	91.42	5.28	91.34	6.03	90.59
OLD-09-16	½" m well	1.11-7.11	96.61	5.86	90.75	5.29	91.32	3.95	92.66	5.25	91.36	6.02	90.59
OLD-09-17	½" m well	0.93-9.93	95.00	4.46	90.54	3.64	91.36	1.65	93.35	3.72	91.28	4.59	90.41
OLD-09-18	½" m well	23.6-29.6	94.74	23.38	71.36	3.30	91.44	1.61	93.13	3.40	91.34	4.20	90.54
OLD-09-19	2" well	25.5-30.5	94.59	Not Installed		Not Installed		1.57	93.02	3.30	91.29	4.02	90.57

Notes:
All measurements are in units of feet.
AMSL - Above mean sea level
BGS - Below ground surface
BTOC - Below top of casing

R47060018

TABLE 3

POSITIVE DETECTIONS IN GROUNDWATER - APRIL 2000
OPERABLE UNIT 3 STUDY AREA 8

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS Number	Screening Criteria [a]		OLD-08-01	OLD-08-02	OLD-08-03	OLD-08-04	OLD-08-05	OLD-08-06	OLD-08-08	OLD-08-10	OLD-08-11
SAMPLE ID		Florida GCTL [b]	NTC BGSV [c]	NTC08G00114	NTC08G00214	NTC08G00314	NTC08G00414	NTC08G00514	NTC08G00614	NTC08G00814	NTC08G01014	NTC08G01114
LAB ID				A0D180174001	A0D180174010	A0D180174005	A0D180174004	A0D180174009	A0D180174008	A0D180174003	A0D180174006	A0D180174013
SAMPLE DATE				4/15/00	4/15/00	4/15/00	4/15/00	4/15/00	4/15/00	4/15/00	4/15/00	4/16/00
Herbicides (µg/L)												
Pentachlorophenol	87-86-5	1		NA	NA	NA	NA	NA	NA			
Inorganics (µg/L)												
Aluminum	7429-90-5	200	4067		292		230				379	194
Antimony	7440-36-0	6	4.1	3.5	5.2	2.7			2.5	4.9	2.6	3.2
Arsenic	7440-38-2	50	5	105	1370	169	182	25.7	42.3	200	122	959
Barium	7440-39-3	2000	31.4		23	15.4				6.7	13.6	
Calcium	7440-70-2	*	36830	30900	58800	36100	24900	15000	20300	79300	24600	41000
Chromium	7440-47-3	100	7.8	2.9		4.1	2.9					3.5
Copper	7440-50-8	1000	5.4	4.2		3.1	11	9.5				9.2
Iron	7439-89-6	300	1227	69.9	291	1270		73.3	152		809	44.5
Lead	7439-92-1	15	4									
Magnesium	7439-95-4	*	4560	2400	3830	3170	2940	1510	1690	3400	2060	3890
Manganese	7439-96-5	50	17		26.6	29.3	18.8	19	5.9		85.8	5.4
Mercury	7439-97-6	2	0.12	0.04								0.05
Nickel	7440-02-0	100	*		1.8	24.2	7.4					
Potassium	7440-09-7	*	5400	4980	3080	5320	5350	2410	2150	6550	532	12100
Sodium	7440-23-5	160000	18222	1540	1390	1630	1550	1570	1420	1810	5650	3940
Vanadium	7440-62-2	49	20.6									
Zinc	7440-66-6	5000	4			394	156					

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TABLE 3

POSITIVE DETECTIONS IN GROUNDWATER - APRIL 2000
OPERABLE UNIT 3 STUDY AREA 8

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS Number	Screening Criteria [a]		OLD-08-11	OLD-08-13	OLD-08-15	OLD-08-17	OLD-08-18	OLD-08-19	OLD-08-20	OLD-08-21
SAMPLE ID		Florida GCTL [b]	NTC BGSV [c]	NTC08G01114-D	NTC08G01314	NTC08G01514	NTC08G01714	NTC08G01814	NTC08G01914	NTC08G02014	NTC08G02114
LAB ID				A0D180174015	A0D180174007	A0D180174011	A0D180174002	A0D180174016	A0D180174012	A0D180174014	A0D180174017
SAMPLE DATE				4/16/00	4/15/00	4/15/00	4/15/00	4/16/00	4/15/00	4/16/00	4/16/00
Herbicides (µg/L)											
Pentachlorophenol	87-86-5	1			NA		NA			0.07 J	
Inorganics (µg/L)											
Aluminum	7429-90-5	200	4067	195	1450	732		700	2790	524	661
Antimony	7440-36-0	6	4.1								
Arsenic	7440-38-2	50	5	991	20.5	4.1	150		2.9		2.6
Barium	7440-39-3	2000	31.4		20.8	22		29.3	18.5	7.2	5.5
Calcium	7440-70-2	*	36830	42200	11000	7050	58400	4910	12200	19000	3640
Chromium	7440-47-3	100	7.8	5.3					3.2		
Copper	7440-50-8	1000	5.4	6.6	7.3				5.1		
Iron	7439-89-6	300	1227	51.6	1800	2000		2850	135		105
Lead	7439-92-1	15	4		2.6				4.7		
Magnesium	7439-95-4	*	4560	4040	2380	3930	2940	2400	2130	3740	2980
Manganese	7439-96-5	50	17	5.7	84	38.7		184			
Mercury	7439-97-6	2	0.12		0.04	0.05					0.06
Nickel	7440-02-0	100	*	2.9	3.7	2.1		2.5			
Potassium	7440-09-7	*	5400	12600	875	385	6440	1090	1610	1760	987
Sodium	7440-23-5	160000	18222	4130	10300	17400	1850	8590	9860	6820	7290
Vanadium	7440-62-2	49	20.6		2.1			5.5			2.8
Zinc	7440-66-6	5000	4								

Notes:

* indicates that the screening value is not available.
Empty cells indicate non-detects.
"J" qualifier indicates an estimated value.
NA Not analyzed.
Only chemicals detected in at least one sample are shown.
Values in shaded cells are equal to or exceed the screening criteria.

[a] For an organic analyte, the screening criterion is the GCTL; for an inorganic analyte with an established GCTL and BGSV, the screening criterion is the greater of the GCTL or the BGSV. Analytes with no GCTL are not considered to have exceedances.

[b] Groundwater Cleanup Target Level (Development of Soil Cleanup Target Levels (SCTLs) for Chapter 62-777, F.A.C., May 26, 1999).

[c] Background Screening Value (Background Sampling Report for NTC, Orlando, Florida; ABB Environmental Services, August 1995) for inorganics only.

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TABLE 4

POSITIVE DETECTIONS IN GROUNDWATER - APRIL 2000
OPERABLE UNIT 3 - STUDY AREA 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS Number	Screening Criteria[a]		OLD-09-01		OLD-09-02	OLD-09-03		OLD-09-04	OLD-09-05	OLD-09-06	OLD-09-07
SAMPLE ID				NTC09G00114	NTC09G00114-D	NTC09G00214	NTC09G00314	NTC09G00314-D	NTC09G00414	NTC09G00514	NTC09G00614	NTC09G00714
LAB ID		Florida GCTL[b]	NTC BGSV[c]	A0D150148003	A0D150148004	A0D150148005	A0D150148006	A0D150148007	A0D150148008	A0D150148009	A0D150148010	A0D150148011
SAMPLE DATE				4/13/00	4/13/00	4/13/00	4/13/00	4/13/00	4/13/00	4/14/00	4/13/00	4/13/00
Semivolatiles (µg/L)				NA	NA	NA				NA	NA	NA
2,4,5-Trichlorophenol	95-95-4	4										
2,4,6-Trichlorophenol	88-06-2	3.2										
2,4-Dichlorophenol	120-83-2	0.5										
PAHs (µg/L)				NA	NA	NA				NA	NA	NA
1-Methylnaphthalene	90-12-0	20							3.5			
2-Methylnaphthalene	91-57-6	20							3.6			
Naphthalene	91-20-3	20							4.2			
Pesticides (µg/L)												
4,4'-DDE	72-55-9	0.1							0.076 J			
4,4'-DDT	50-29-3	0.1									0.053 J	
Aldrin	309-00-2	0.005							0.48 J			
alpha-BHC	319-84-6	0.2										
alpha-Chlordane[d]	5103-71-9	2							0.56			
Endosulfan I	959-98-8	42										
Endrin	72-20-8	2							0.16			
Endrin Aldehyde	7421-93-4	*							0.24 J			
gamma-BHC (Lindane)	58-89-9	0.2										
gamma-Chlordane[d]	5103-74-2	2		0.04 J	0.044 J				0.7 J			
Herbicides (µg/L)												
2,4,5-TP (Silvex)	93-72-1	50									0.52 J	
2,4-D	94-75-7	70										
Dicamba	1918-00-9	210							0.27 J		8.7 J	
Inorganics (µg/L)												
Aluminum	7429-90-5	200	4067			1490					1400	945
Arsenic	7440-38-2	50	5	18.2	18.1				1.2 B	1.4 B	60.5	
Barium	7440-39-3	2000	31.4	46.9	46.4							
Calcium	7440-70-2	*	36830	122000	121000	7780	10400	10300	37400	49000	12000	5890
Chromium	7440-47-3	100	7.8									3.2
Copper	7440-50-8	1000	5.4						5.2			
Iron	7439-89-6	300	1227	304	307	151	151	157	1900	301	749	366
Lead	7439-92-1	15	4									
Magnesium	7439-95-4	*	4560	7220	7170	1960	2130	2140	3260	4420	2240	811
Manganese	7439-96-5	50	17	25.1	24.9				47.6		15.9	
Potassium	7440-09-7	*	5400	6170	6160	3050	3290	3260	7190	8170	2660	720
Sodium	7440-23-5	160000	18222	1500	1550	1720	1670	1670		1370	4190	1510
Vanadium	7440-62-2	49	20.6								2.8	2.1

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TABLE 4

POSITIVE DETECTIONS IN GROUNDWATER - APRIL 2000
OPERABLE UNIT 3 - STUDY AREA 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS Number	Screening Criteria[a]		OLD-09-10	OLD-09-11	OLD-09-12	OLD-09-14	OLD-09-15	OLD-09-16	OLD-09-17	OLD-09-19
SAMPLE ID				NTC09G01014	NTC09G01114	NTC09G01214	NTC09G01414	NTC09G01514	NTC09G01614	NTC09G01714	NTC09G01914
LAB ID		Florida GCTL[b]	NTC BGSV[c]	A0D150148012	A0D150148013	A0D150148014	A0D150148018	A0D150148019	A0D150148015	A0D150148016	A0D150148017
SAMPLE DATE				4/13/00	4/13/00	4/13/00	4/14/00	4/14/00	4/13/00	4/14/00	4/13/00
Semivolatiles (µg/L)				NA	NA				NA	NA	NA
2,4,5-Trichlorophenol	95-95-4	4				1.4 J					
2,4,6-Trichlorophenol	88-06-2	3.2				1.2 J					
2,4-Dichlorophenol	120-83-2	0.5				2.3 J					
PAHs (µg/L)				NA	NA				NA	NA	NA
1-Methylnaphthalene	90-12-0	20				0.46 J	0.58 J				
2-Methylnaphthalene	91-57-6	20				0.75 J	0.69 J				
Naphthalene	91-20-3	20				2.3	21	6.6			
Pesticides (µg/L)											
4,4'-DDE	72-55-9	0.1			0.063 J						
4,4'-DDT	50-29-3	0.1									
Aldrin	309-00-2	0.005									
alpha-BHC	319-84-6	0.2			0.092 J	42					
alpha-Chlordane[d]	5103-71-9	2			0.098 J						
Endosulfan I	959-98-8	42				1.2 J		0.02 J			
Endrin	72-20-8	2									
Endrin Aldehyde	7421-93-4	*									
gamma-BHC (Lindane)	58-89-9	0.2			13	617					
gamma-Chlordane[d]	5103-74-2	2			0.065 J						
Herbicides (µg/L)											
2,4,5-TP (Silvex)	93-72-1	50				0.69 J					
2,4-D	94-75-7	70			0.19 J	6.2 J					
Dicamba	1918-00-9	210									
Inorganics (µg/L)											
Aluminum	7429-90-5	200	4067		1440	1020					
Arsenic	7440-38-2	50	5		34.1	90.2				16.9	
Barium	7440-39-3	2000	31.4		15.5				13.2		
Calcium	7440-70-2	*	36830	26600	27700	5950	15900			39800	
Chromium	7440-47-3	100	7.8		2.9						
Copper	7440-50-8	1000	5.4								
Iron	7439-89-6	300	1227	723	1660	396	392	515	580	114	689
Lead	7439-92-1	15	4		11.2						
Magnesium	7439-95-4	*	4560	2420	1510	970	1530	501	830	770	1070
Manganese	7439-96-5	50	17	17.2	28.8		36.5		17		
Potassium	7440-09-7	*	5400	2980	6960	7260	366		461	1020	642
Sodium	7440-23-5	160000	18222	1650	1520		4420	4380	7780	691	6660
Vanadium	7440-62-2	49	20.6				2.7		2.5		5.1

TABLE 4

POSITIVE DETECTIONS IN GROUNDWATER – APRIL 2000
OPERABLE UNIT 3 – STUDY AREA 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Notes:

* indicates that the screening value is not available.
Empty cells indicate non-detects.
"J" qualifier indicates an estimated value.
NA Not analyzed.
Only chemicals detected in at least one sample are shown.
Values in shaded cells are equal to or exceed the screening criteria.
(a) For an organic analyte, the screening criterion is the GCTL; for an inorganic analyte with an established GCTL and BGSV, the screening criterion is the greater of the GCTL or the BGSV. Analytes with no GCTL are not considered to have exceedances.
(b) Groundwater Cleanup Target Level (Development of Soil Cleanup Target Levels (SCTLs) for Chapter 62-777, F.A.C., May 26, 1999).
(c) Background Screening Value (Background Sampling Report for NTC, Orlando, Florida; ABB Environmental Services, August 1995) for inorganics only.
(d) Screening Criteria Substitution – Chlordane for alpha-Chlordane and gamma-Chlordane, and Endosulfan for Endosulfan II.

TABLE 5

HISTORICAL DETECTIONS IN GROUNDWATER
OPERABLE UNIT 3 - STUDY AREAS 8 AND 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]		OLD-08-01						
Sample ID			08G00102	NTC08G00110	NTC08G00110-D	NTC08G00111	NTC08G0112	NTC08G00113	NTC08G00114
Lab ID	Florida	NTC	873054	F3846-7	F3846-11	A9G29018006	A9J210106004	A0A240125001	A0D180174001
Sample Date	GCTL[b]	BGSV[c]	10/22/97	3/13/99	3/13/99	7/28/99	10/19/99	1/19/00	4/15/00
Semivolatiles/PAHs (µg/L)				NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	20		NA						
2,4,5-Trichlorophenol									
2,4,6-Trichlorophenol	3.2								
2,4-Dichlorophenol	0.5								
2,4-Dimethylphenol	140								
2-Methylnaphthalene	20								
2-Methylphenol	35								
4-Methylphenol	4								
Acenaphthene	20								
Bis(2-ethylhexyl)phthalate	6								
Naphthalene	20		25						
Pentachlorophenol	1								
Phenol	10								
Pesticides/PCBs (µg/L)				NA	NA	NA	NA	NA	NA
4,4'-DDD	0.1								
4,4'-DDE	0.1								
4,4'-DDT	0.1		0.0056 J						
Aldrin	0.005								
alpha-BHC	0.2								
alpha-Chlordane[d]	2								
delta-BHC	2.1								
Dieldrin	0.005								
Endosulfan	42								
Endosulfan II[d]	42								
Endosulfan Sulfate	*								
Endrin	2		0.01 J						
Endrin Aldehyde	*								
gamma-BHC (Lindane)	0.2								
gamma-Chlordane[d]	2								
Toxaphene	3								
Herbicides (µg/L)						NA	NA	NA	NA
2,4 5-TP (Silvex)	50								
2,4-D	70		0.095 J						
2,4-DB	56		0.046 J						
Dalapon	200								
Dicamba	210								
Dichloroprop	35								
Dinoseb	7								
MCPA	3.5								
MCPP	7		790 J						
Pentachlorophenol	1								
Inorganics (µg/L)									
Aluminum	200	4067		199	235	192 J	156		
Antimony	6	4.1	3.7 J				7.4		3.5
Arsenic	50	5	133	138 J	128 J	189	229	150	105
Arsenic (III)									
Arsenic (v)									
Barium	2000	31.4	19 J				11.9	6.9	
Cadmium	5	5.6							
Calcium	*	36830	101000	35500	34500	55000 J	56300	46100	30900
Chromium	100	7.8	2.6 J	13.7	10.7		3.6	4	2.9
Cobalt	420	*							
Copper	1000	5.4					5.2	3	4.2
Iron	300	1227	1460			155		76.2	69.9
Lead	15	4							
Magnesium	*	4560		2810	2920	3980	4510	2800	2400
Manganese	50	17	12.6 J		5.8	4.8	21.8	10.5	
Mercury	2	0.12							0.04
Nickel	100	*	1.7 J	6.2	6.9				
Potassium	*	5400	16000	6200	5780	6390	12600	5400	4980
Selenium	50	9.7							
Silver	100	*							
Sodium	160000	18222		3500	3620	6050	3560	1120	1540
Vanadium	49	20.6	0.86 J	13.6	11.8		2.3	3.2	
Zinc	5000	4				129		41	
General Chemistry (mg/L)				NA	NA	NA	NA	NA	NA
Total Organic Carbon			27.4						
Total Suspended Solids			5						

TABLE 5

HISTORICAL DETECTIONS IN GROUNDWATER
OPERABLE UNIT 3 - STUDY AREAS 8 AND 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]		OLD-08-02					
Sample ID			08G00202	NTC08G00210	NTC08G00211	NTC08G00212	NTC08G00213	NTC08G00214
Lab ID	Florida	NTC	873055	F3841-4	A9G2901198009	A9J210106003	A0A240125002	A0D180174010
Sample Date	GCTL[b]	BGSV[c]	10/22/97	3/11/99	7/28/99	10/19/99	1/19/00	4/15/00
Semivolatiles/PAHs (µg/L)				NA	NA	NA	NA	NA
1-Methylnaphthalene	20		NA					
2,4,5-Trichlorophenol								
2,4,6-Trichlorophenol	3.2							
2,4-Dichlorophenol	0.5							
2,4-Dimethylphenol	140							
2-Methylnaphthalene	20							
2-Methylphenol	35							
4-Methylphenol	4							
Acenaphthene	20							
Bis(2-ethylhexyl)phthalate	6							
Naphthalene	20							
Pentachlorophenol	1							
Phenol	10							
Pesticides/PCBs (µg/L)				NA	NA	NA	NA	NA
4,4'-DDD	0.1							
4,4'-DDE	0.1							
4,4'-DDT	0.1							
Aldrin	0.005							
alpha-BHC	0.2							
alpha-Chlordane[d]	2							
delta-BHC	2.1							
Dieldrin	0.005							
Endosulfan	42							
Endosulfan II[d]	42							
Endosulfan Sulfate	*		0.012 J					
Endrin	2							
Endrin Aldehyde	*							
gamma-BHC (Lindane)	0.2							
gamma-Chlordane[d]	2							
Toxaphene	3							
Herbicides (µg/L)					NA	NA	NA	NA
2,4 5-TP (Silvex)	50							
2,4-D	70		0.0051 J					
2,4-DB	56		0.09 J					
Dalapon	200							
Dicamba	210							
Dichloroprop	35							
Dinoseb	7							
MCPA	3.5							
MCPP	7							
Pentachlorophenol	1							
Inorganics (µg/L)								
Aluminum	200	4067		207	918 J	515	352	292
Antimony	6	4.1						5.2
Arsenic	50	5	295	294	609	581	717	378
Arsenic (III)								
Arsenic (v)								
Barium	2000	31.4	25.1 J	21.5 J	24.5	36	25.3	23
Cadmium	5	5.6				0.23		
Calcium	*	36830	104000	62100	74200 J	81600	62200	58800
Chromium	100	7.8	1.4 J			2.4	4.2	
Cobalt	420	*						
Copper	1000	5.4		2.1		6.7		
Iron	300	1227		250	148	332	188	291
Lead	15	4				3.2		
Magnesium	*	4560		3710	4360	5550	4640	3830
Manganese	50	17	6.7 J	13.1	13.3	27.2	40.3	26.6
Mercury	2	0.12						
Nickel	100	*	1.4 J	1.4			2.3	1.8
Potassium	*	5400	10800	6710	10100	11000	6450	3080
Selenium	50	9.7						
Silver	100	*						
Sodium	160000	18222		6470	5850	8220	2600	1390
Vanadium	49	20.6		0.50		1		
Zinc	5000	4		47.1 J		131	43.6	
General Chemistry (mg/L)				NA	NA	NA	NA	NA
Total Organic Carbon			28.8					
Total Suspended Solids								

TABLE 5

HISTORICAL DETECTIONS IN GROUNDWATER
OPERABLE UNIT 3 - STUDY AREAS 8 AND 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]		OLD-08-03					
Sample ID			08G00302	NTC08G00310	NTC08G00311	NTC08G0312	NTC08G00313	NTC08G00314
Lab ID	Florida	NTC	873056	F3841-6	A9G290198008	A9J210106007	A0A240125003	A0D180174005
Sample Date	GCTL[b]	BGSV[c]	10/22/97	3/11/99	7/28/99	10/19/99	1/19/00	4/15/00
Semivolatiles/PAHs (µg/L)				NA	NA	NA	NA	NA
1-Methylnaphthalene	20		NA					
2,4,5-Trichlorophenol								
2,4,6-Trichlorophenol	3.2							
2,4-Dichlorophenol	0.5							
2,4-Dimethylphenol	140							
2-Methylnaphthalene	20							
2-Methylphenol	35							
4-Methylphenol	4							
Acenaphthene	20							
Bis(2-ethylhexyl)phthalate	6							
Naphthalene	20							
Pentachlorophenol	1							
Phenol	10							
Pesticides/PCBs (µg/L)				NA	NA	NA	NA	NA
4,4'-DDD	0.1							
4,4'-DDE	0.1							
4,4'-DDT	0.1							
Aldrin	0.005							
alpha-BHC	0.2							
alpha-Chlordane[d]	2							
delta-BHC	2.1							
Dieldrin	0.005							
Endosulfan	42							
Endosulfan II[d]	42							
Endosulfan Sulfate	*							
Endrin	2							
Endrin Aldehyde	*							
gamma-BHC (Lindane)	0.2							
gamma-Chlordane[d]	2							
Toxaphene	3							
Herbicides (µg/L)					NA	NA	NA	NA
2,4 5-TP (Silvex)	50							
2,4-D	70							
2,4-DB	56		0.6 J					
Dalapon	200							
Dicamba	210							
Dichloroprop	35							
Dinoseb	7							
MCPA	3.5		640 J					
MCPP	7							
Pentachlorophenol	1							
Inorganics (µg/L)								
Aluminum	200	4067		168	4300 J	721		
Antimony	6	4.1				13.8		2.7
Arsenic	50	5	79.9	260	234	810	248	159
Arsenic (III)								
Arsenic (v)								
Barium	2000	31.4	14.7 J	20.9 J	38.3	51.6	18.2	15.4
Cadmium	5	5.6						
Calcium	*	36830	37500	28600	67600 J	89600	42500	36100
Chromium	100	7.8	1.7 J		5.2	4.5	6.7	4.1
Cobalt	420	*				1.3		
Copper	1000	5.4	1.5 J	3.3	15.7	2.9	3.6	3.1
Iron	300	1227	231	1260	750	201	479	1270
Lead	15	4			2.8			
Magnesium	*	4560		2440	3450	8120	3470	3170
Manganese	50	17	15.3	19.6	12.2	55.4	39.2	29.3
Mercury	2	0.12						
Nickel	100	*	1.6 J	10.0	15	27.4	33.5	24.2
Potassium	*	5400	9130	6400	9610	20900	5830	5320
Selenium	50	9.7						
Silver	100	*						
Sodium	160000	18222		4290	5790	5970	1850	1630
Vanadium	49	20.6		0.77		1.2		
Zinc	5000	4		180 J	254	561	568	394
General Chemistry (mg/L)				NA	NA	NA	NA	NA
Total Organic Carbon			30.6					
Total Suspended Solids								

TABLE 5

HISTORICAL DETECTIONS IN GROUNDWATER
OPERABLE UNIT 3 - STUDY AREAS 8 AND 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]		OLD-08-04						
Sample ID			08G00402	NTC08G00410	NTC08G00410-D	NTC08G00411	NTC08G0412	NTC08G00413	NTC08G00414
Lab ID	Florida	NTC	873064	F3841-5	F3841-7	A9G290198007	A9J210106005	A0A240125004	A0D180174004
Sample Date	GCTL[b]	BGSV[c]	10/22/97	3/11/99	3/11/99	7/28/99	10/19/99	1/19/00	4/15/00
Semivolatiles/PAHs (µg/L)				NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	20		NA						
2,4,5-Trichlorophenol									
2,4,6-Trichlorophenol	3.2								
2,4-Dichlorophenol	0.5								
2,4-Dimethylphenol	140								
2-Methylnaphthalene	20								
2-Methylphenol	35								
4-Methylphenol	4								
Acenaphthene	20								
Bis(2-ethylhexyl)phthalate	6								
Naphthalene	20								
Pentachlorophenol	1								
Phenol	10								
Pesticides/PCBs (µg/L)				NA	NA	NA	NA	NA	NA
4,4'-DDD	0.1								
4,4'-DDE	0.1								
4,4'-DDT	0.1								
Aldrin	0.005								
alpha-BHC	0.2								
alpha-Chlordane[d]	2								
delta-BHC	2.1								
Dieldrin	0.005								
Endosulfan	42								
Endosulfan II[e]	42								
Endosulfan Sulfate	*								
Endrin	2								
Endrin Aldehyde	*								
gamma-BHC (Lindane)	0.2								
gamma-Chlordane[d]	2								
Toxaphene	3								
Herbicides (µg/L)						NA	NA	NA	NA
2,4 5-TP (Silvex)	50								
2,4-D	70		0.023 J						
2,4-DB	56		0.18 J						
Dalapon	200								
Dicamba	210								
Dichloroprop	35								
Dinoseb	7								
MCPA	3.5								
MCPP	7								
Pentachlorophenol	1								
Inorganics (µg/L)									
Aluminum	200	4067		240	304	918 J	261		230
Antimony	6	4.1					3.6		
Arsenic	50	5	170 J	102	106	90.2	381	202	182
Arsenic (III)									
Arsenic (v)									
Barium	2000	31.4					8.4	3.2	
Cadmium	5	5.6					0.44		
Calcium	*	36830	28900	21700	22900	26600 J	59000	27700	24900
Chromium	100	7.8	1.5 J				4.1	4.3	2.9
Cobalt	420	*							
Copper	1000	5.4	1.3 J	5.0	37.6	8.5	11.1	5.1	11
Iron	300	1227			222			53.6	
Lead	15	4							
Magnesium	*	4560		2230	2420	2220	6740	3200	2940
Manganese	50	17	16.4	19.8	18.1	10.3	39.2	22.2	18.8
Mercury	2	0.12							
Nickel	100	*	3 J	6.8	7.5	9.5		6.9	7.4
Potassium	*	5400	9940	6430	6750	5380	19500	8100	5350
Selenium	50	9.7							
Silver	100	*							
Sodium	160000	18222		4580	5070	6630	4370	1870	1550
Vanadium	49	20.6		2.1	2.4		3.1		
Zinc	5000	4		295 J	337 J	627	310	202	156
General Chemistry (mg/L)				NA	NA	NA	NA	NA	NA
Total Organic Carbon			27						
Total Suspended Solids									

TABLE 5

HISTORICAL DETECTIONS IN GROUNDWATER
OPERABLE UNIT 3 - STUDY AREAS 8 AND 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]		OLD-08-05							
Sample ID			08G00501	08G00501D	NTC08G00510	NTC08G00511	NTC08G0512	NTC08G0512-D	NTC08G00513	NTC08G00514
Lab ID	Florida	NTC	873270	873272	F3832-1	A9G300236003	A9J220158007	A9J220158008	A0A240125013	A0D180174009
Sample Date	GCTL[b]	BGSV[c]	10/23/97	10/23/97	3/10/99	7/29/99	10/21/99	10/21/99	1/20/00	4/15/00
Semivolatiles/PAHs (µg/L)					NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	20		NA	NA						
2,4,5-Trichlorophenol										
2,4,6-Trichlorophenol	3.2									
2,4-Dichlorophenol	0.5									
2,4-Dimethylphenol	140									
2-Methylnaphthalene	20									
2-Methylphenol	35									
4-Methylphenol	4									
Acenaphthene	20									
Bis(2-ethylhexyl)phthalate	6									
Naphthalene	20									
Pentachlorophenol	1									
Phenol	10									
Pesticides/PCBs (µg/L)					NA	NA	NA	NA	NA	NA
4,4'-DDD	0.1									
4,4'-DDE	0.1									
4,4'-DDT	0.1									
Aldrin	0.005									
alpha-BHC	0.2									
alpha-Chlordane[d]	2									
delta-BHC	2.1									
Dieldrin	0.005									
Endosulfan	42									
Endosulfan II[d]	42									
Endosulfan Sulfate	*									
Endrin	2									
Endrin Aldehyde	*									
gamma-BHC (Lindane)	0.2									
gamma-Chlordane[d]	2									
Toxaphene	3									
Herbicides (µg/L)						NA	NA	NA	NA	NA
2,4 5-TP (Silvex)	50									
2,4-D	70									
2,4-DB	56		1.4 J							
Dalapon	200									
Dicamba	210									
Dichloroprop	35									
Dinoseb	7		0.098 J							
MCPA	3.5									
MCPP	7									
Pentachlorophenol	1									
Inorganics (µg/L)										
Aluminum	200	4067			126	4310 J	289	276		
Antimony	6	4.1								
Arsenic	50	5	57.3	57.3	56.9	284	56	55.3	37.9	25.7
Arsenic (III)										
Arsenic (v)										
Barium	2000	31.4	11.8 J	11.3 J	17.8	77.8	7.7	8.1	6.9	
Cadmium	5	5.6					0.42	0.39		
Calcium	*	36830	33200	33100	19800	101000 J	17800	18200	17300	15000
Chromium	100	7.8	1.8 J	2.3 J	10.5	6.8	10.1	10.7	6.2	
Cobalt	420	*								
Copper	1000	5.4	1.2 J	0.96 J	2.3	9.3	30.8	29.2	45.4	9.5
Iron	300	1227					590	583	134	73.3
Lead	15	4				3.7	3.7	3.1	1.5	
Magnesium	*	4560			2640	8500	1510	1550	1450	1510
Manganese	50	17	160	162	146 J	338	25.2	25.5	24.8	19
Mercury	2	0.12								
Nickel	100	*			1.4				2.3	
Potassium	*	5400	11200	11200	5910 J	12900	3100	3240	2460	2410
Selenium	50	9.7								
Silver	100	*					1.7	1.8		
Sodium	160000	18222			3850	8540	1220	1290	1940	1570
Vanadium	49	20.6			0.43		4.3	4.2	2.9	
Zinc	5000	4			40.9 J	74.1			84.5	
General Chemistry (mg/L)				NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon			31.2							
Total Suspended Solids										

TABLE 5

HISTORICAL DETECTIONS IN GROUNDWATER
OPERABLE UNIT 3 - STUDY AREAS 8 AND 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]		OLD-08-06						OLD-08-07	
Sample ID			08G00601	NTC08G00610	NTC08G00611	NTC08G0612	NTC08G00613	NTC08G00614	08G00701	NTC08G00710
Lab ID	Florida	NTC	873268	F3841-1	A9G300236004	A9J210106008	A0A240125017	A0D180174008	873267	F3849-1
Sample Date	GCTL[b]	BGSV[c]	10/23/97	3/11/99	7/29/99	10/19/99	1/20/00	4/15/00	10/23/97	3/15/99
Semivolatiles/PAHs (µg/L)				NA	NA	NA	NA	NA		NA
1-Methylnaphthalene	20		NA						NA	
2,4,5-Trichlorophenol										
2,4,6-Trichlorophenol	3.2									
2,4-Dichlorophenol	0.5									
2,4-Dimethylphenol	140									
2-Methylnaphthalene	20									
2-Methylphenol	35									
4-Methylphenol	4									
Acenaphthene	20									
Bis(2-ethylhexyl)phthalate	6									
Naphthalene	20									
Pentachlorophenol	1									
Phenol	10									
Pesticides/PCBs (µg/L)				NA	NA	NA	NA	NA		NA
4,4'-DDD	0.1									
4,4'-DDE	0.1									
4,4'-DDT	0.1									
Aldrin	0.005									
alpha-BHC	0.2									
alpha-Chlordane[d]	2									
delta-BHC	2.1									
Dieldrin	0.005									
Endosulfan	42									
Endosulfan II[d]	42									
Endosulfan Sulfate	*									
Endrin	2									
Endrin Aldehyde	*									
gamma-BHC (Lindane)	0.2									
gamma-Chlordane[d]	2									
Toxaphene	3									
Herbicides (µg/L)					NA	NA	NA	NA		
2,4,5-TP (Silvex)	50									
2,4-D	70		0.22 J							
2,4-DB	56		0.57 J							
Dalapon	200									
Dicamba	210									
Dichloroprop	35									
Dinoseb	7		0.28 J							
MCPA	3.5									
MCPP	7									
Pentachlorophenol	1									
Inorganics (µg/L)										
Aluminum	200	4067		150	744 J	94.6				
Antimony	6	4.1						2.5		
Arsenic	50	5	53	88.5	138	71.8	73.4	42.3	56.1	47.9
Arsenic (III)										
Arsenic (v)										
Barium	2000	31.4	12.3 J	27.8 J	38.3	7.4	2.9		8 J	
Cadmium	5	5.6								
Calcium	*	36830	28100	21000	67800 J	30800	29500	20300	45300	26800 J
Chromium	100	7.8	3.4 J	22.0		4.9	3.6		1.1 J	
Cobalt	420	*								
Copper	1000	5.4	6.7 J	13.3	13.3	4.6			3.3 J	8.6
Iron	300	1227	198	33300		185	97.3	152	529	
Lead	15	4	6.6	13.2	9.8					
Magnesium	*	4560		2610	5720	2030	2070	1690		2750 J
Manganese	50	17	24.2	110	69.6	11.7		5.9	11 J	
Mercury	2	0.12								
Nickel	100	*		16.8						
Potassium	*	5400	11700	5450	13200	3270	3350	2150	11000	3140 J
Selenium	50	9.7								
Silver	100	*								
Sodium	160000	18222		4690	3630	1200	1670	1420		3930
Vanadium	49	20.6	2 J	0.53		3.7			1.8 J	
Zinc	5000	4		38.2 J	177					
General Chemistry (mg/L)				NA	NA	NA	NA	NA		NA
Total Organic Carbon			33.7						22.9	
Total Suspended Solids										

TABLE 5

HISTORICAL DETECTIONS IN GROUNDWATER
OPERABLE UNIT 3 - STUDY AREAS 8 AND 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]		OLD-08-08						
Sample ID			08G00801	08G00801D	NTC08G00810	NTC08G00811	NTC08G0812	NTC08G00813	NTC08G00814
Lab ID	Florida GCTL[b]	NTC BGSV[c]	873069	873074	F3841-3	A9H030166007	A9J210106002	A0A240125014	A0D180174003
Sample Date			10/22/97	10/22/97	3/11/99	8/1/99	10/19/99	1/20/00	4/15/00
Semivolatiles/PAHs (µg/L)					NA	NA	NA	NA	NA
1-Methylnaphthalene	20		NA	NA					
2,4,5-Trichlorophenol									
2,4,6-Trichlorophenol	3.2								
2,4-Dichlorophenol	0.5								
2,4-Dimethylphenol	140								
2-Methylnaphthalene	20								
2-Methylphenol	35								
4-Methylphenol	4								
Acenaphthene	20								
Bis(2-ethylhexyl)phthalate	6								
Naphthalene	20								
Pentachlorophenol	1								
Phenol	10								
Pesticides/PCBs (µg/L)					NA	NA	NA	NA	NA
4,4'-DDD	0.1								
4,4'-DDE	0.1								
4,4'-DDT	0.1								
Aldrin	0.005								
alpha-BHC	0.2								
alpha-Chlordane[d]	2								
delta-BHC	2.1								
Dieldrin	0.005								
Endosulfan	42								
Endosulfan II[e]	42								
Endosulfan Sulfate	*								
Endrin	2								
Endrin Aldehyde	*								
gamma-BHC (Lindane)	0.2								
gamma-Chlordane[d]	2								
Toxaphene	3								
Herbicides (µg/L)									
2,4 5-TP (Silvex)	50								
2,4-D	70		0.12 J	0.11 J					
2,4-DB	56		0.16 J	0.11 J					
Dalapon	200								
Dicamba	210								
Dichloroprop	35		0.69 J	0.66 J					
Dinoseb	7								
MCPA	3.5							180 J	
MCPP	7			710 J		99 J			
Pentachlorophenol	1					NA	NA		
Inorganics (µg/L)									
Aluminum	200	4067							
Antimony	6	4.1					10.1		4.9
Arsenic	50	5	122	120	175	154	194	214	200
Arsenic (III)									
Arsenic (v)									
Barium	2000	31.4	26.6 J	26.1 J	10.4 J	18.9	37.3	14.3	6.7
Cadmium	5	5.6							
Calcium	*	36830	131000	134000	58800	71400	116000	106000	79300
Chromium	100	7.8							
Cobalt	420	*							
Copper	1000	5.4	1.5 J	1.4 J	7.1				
Iron	300	1227				370			
Lead	15	4							
Magnesium	*	4560			2620	2550	4600	4080	3400
Manganese	50	17	6.3 J	6.4 J	3.4				
Mercury	2	0.12							
Nickel	100	*			2.5				
Potassium	*	5400	8670	8900	8780	7600	11100	9890	6550
Selenium	50	9.7							
Silver	100	*							
Sodium	160000	18222			5310	3840	4830	2270	1810
Vanadium	49	20.6			0.96		0.62		
Zinc	5000	4			42.1 J				
General Chemistry (mg/L)				NA	NA	NA	NA	NA	NA
Total Organic Carbon			20.7						
Total Suspended Solids									

TABLE 5

HISTORICAL DETECTIONS IN GROUNDWATER
OPERABLE UNIT 3 - STUDY AREAS 8 AND 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]		OLD-08-09		OLD-08-10				
Sample ID			08F00901	08G00901	08G01001	NTC08G01010	NTC08G01011	NTC08G1012	NTC08G01013
Lab ID	Florida	NTC	873053	873070	873269	F3846-3	A9H020124009	A9J220158006	A0A240125010
Sample Date	GCTL[b]	BGSV[c]	10/22/97	10/22/97	10/23/97	3/12/99	7/30/99	10/21/99	1/20/00
Semivolatiles/PAHs (µg/L)			NA			NA	NA	NA	NA
1-Methylnaphthalene	20			NA	NA				
2,4,5-Trichlorophenol									
2,4,6-Trichlorophenol	3.2								
2,4-Dichlorophenol	0.5								
2,4-Dimethylphenol	140								
2-Methylnaphthalene	20								
2-Methylphenol	35								
4-Methylphenol	4								
Acenaphthene	20								
Bis(2-ethylhexyl)phthalate	6								
Naphthalene	20								
Pentachlorophenol	1								
Phenol	10								
Pesticides/PCBs (µg/L)			NA			NA	NA	NA	NA
4,4'-DDD	0.1								
4,4'-DDE	0.1								
4,4'-DDT	0.1								
Aldrin	0.005								
alpha-BHC	0.2								
alpha-Chlordane[d]	2								
delta-BHC	2.1								
Dieldrin	0.005								
Endosulfan	42								
Endosulfan II[d]	42								
Endosulfan Sulfate	*								
Endrin	2								
Endrin Aldehyde	*								
gamma-BHC (Lindane)	0.2								
gamma-Chlordane[d]	2								
Toxaphene	3								
Herbicides (µg/L)			NA						
2,4 5-TP (Silvex)	50								
2,4-D	70			0.076 J					
2,4-DB	56			0.061 J					
Dalapon	200						2J		
Dicamba	210								
Dichloroprop	35								
Dinoseb	7								
MCPA	3.5								
MCPP	7				900 J				
Pentachlorophenol	1								
Inorganics (µg/L)								NA	
Aluminum	200	4067	252	372	614	409			
Antimony	6	4.1							
Arsenic	50	5	96.4	117	208	122 J	189	276	166
Arsenic (III)									
Arsenic (v)									
Barium	2000	31.4	4.9 J		15 J		8.8	9.7	16.2
Cadmium	5	5.6							
Calcium	*	36830	43300	45600	7230	17100	42800	53500	63000
Chromium	100	7.8	1.3 J				16.5		
Cobalt	420	*							
Copper	1000	5.4		1.2 J	6.5 J		1.7		
Iron	300	1227	410	455	825	1400		120	521
Lead	15	4							
Magnesium	*	4560				1970	3870	4740	5110
Manganese	50	17	18.9	18.5	54.4	58.8		29.3	85.3
Mercury	2	0.12							
Nickel	100	*	1.7 J						
Potassium	*	5400	4720 J	4980 J		822	3620	2680	762
Selenium	50	9.7							
Silver	100	*							
Sodium	160000	18222				5910	9180	2750	7660
Vanadium	49	20.6	2.3 J	2.3 J	2.8 J		3.1		
Zinc	5000	4					13.6		
General Chemistry (mg/L)			NA			NA	NA	NA	NA
Total Organic Carbon				31.5	21.1				
Total Suspended Solids									

TABLE 5

HISTORICAL DETECTIONS IN GROUNDWATER
OPERABLE UNIT 3 - STUDY AREAS 8 AND 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]		OLD-08-10		OLD-08-11				
Sample ID			NTC08G01013-D	NTC08G01014	08G01101	NTC08G01110	NTC08G01111	NTC08G1112	NTC08G01113
Lab ID	Florida GCTL[b]	NTC BGSV[c]	A0A240125011	A0D180174006	873271	F3846-2	A9H020124010	A9J210106006	A0A240125015
Sample Date			1/20/00	4/15/00	10/23/97	3/12/99	7/30/99	10/19/99	1/20/00
Semivolatiles/PAHs (µg/L)			NA	NA		NA	NA	NA	NA
1-Methylnaphthalene	20				NA				
2,4,5-Trichlorophenol									
2,4,6-Trichlorophenol	3.2								
2,4-Dichlorophenol	0.5								
2,4-Dimethylphenol	140								
2-Methylnaphthalene	20								
2-Methylphenol	35								
4-Methylphenol	4								
Acenaphthene	20								
Bis(2-ethylhexyl)phthalate	6								
Naphthalene	20								
Pentachlorophenol	1								
Phenol	10								
Pesticides/PCBs (µg/L)			NA	NA		NA	NA	NA	NA
4,4'-DDD	0.1								
4,4'-DDE	0.1								
4,4'-DDT	0.1								
Aldrin	0.005								
alpha-BHC	0.2								
alpha-Chlordane[d]	2								
delta-BHC	2.1								
Dieldrin	0.005				0.019 J				
Endosulfan	42								
Endosulfan II[d]	42								
Endosulfan Sulfate	*								
Endrin	2								
Endrin Aldehyde	*								
gamma-BHC (Lindane)	0.2								
gamma-Chlordane[d]	2								
Toxaphene	3								
Herbicides (µg/L)									
2,4 5-TP (Silvex)	50								
2,4-D	70				0.048 J				
2,4-DB	56								
Dalapon	200							1.3 J	
Dicamba	210								
Dichloroprop	35								
Dinoseb	7								
MCPA	3.5								140 J
MCPP	7		46 J		660 J		110 J		
Pentachlorophenol	1							NA	
Inorganics (µg/L)									
Aluminum	200	4067		379		171		404	
Antimony	6	4.1		2.6					
Arsenic	50	5	172	122	223	315	170	214	823
Arsenic (III)									
Arsenic (v)									
Barium	2000	31.4	16.7	13.6		63.4 J		3.8	2
Cadmium	5	5.6							
Calcium	*	36830	65100	24600	89800	60000	64700	34100	50200
Chromium	100	7.8						3.6	3.6
Cobalt	420	*							
Copper	1000	5.4			0.9 J				
Iron	300	1227	535	809					68
Lead	15	4							
Magnesium	*	4560	5270	2060		4740	4300	2740	4500
Manganese	50	17	87	65.9	5.3 J	6.4			7.2
Mercury	2	0.12							
Nickel	100	*							
Potassium	*	5400	783	532	11600	5130	10600	6990	10900
Selenium	50	9.7							
Silver	100	*							
Sodium	160000	18222	7930	5650		7330	9370	5570	5070
Vanadium	49	20.6							
Zinc	5000	4							
General Chemistry (mg/L)			NA	NA		NA	NA	NA	NA
Total Organic Carbon					20.9				
Total Suspended Solids									

TABLE 5

HISTORICAL DETECTIONS IN GROUNDWATER
OPERABLE UNIT 3 - STUDY AREAS 8 AND 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]		OLD-08-11		OLD-08-12		OLD-08-13		
Sample ID			NTC08G01114	NTC08G01114-D	08F01201	08G01201	08F01301	08G01301	NTC08G01310
Lab ID	Florida	NTC	A0D180174013	A0D180174015	873265	873266	876944	876943	F3849-3
Sample Date	GCTL[b]	BGSV[c]	4/16/00	4/16/00	10/23/97	10/23/97	12/5/97	12/5/97	3/15/99
Semivolatiles/PAHs (µg/L)			NA	NA	NA		NA		NA
1-Methylnaphthalene	20					NA		NA	
2,4,5-Trichlorophenol									
2,4,6-Trichlorophenol	3.2								
2,4-Dichlorophenol	0.5								
2,4-Dimethylphenol	140								
2-Methylnaphthalene	20								
2-Methylphenol	35								
4-Methylphenol	4								
Acenaphthene	20								
Bis(2-ethylhexyl)phthalate	6								
Naphthalene	20								
Pentachlorophenol	1								
Phenol	10								
Pesticides/PCBs (µg/L)			NA	NA	NA		NA		NA
4,4'-DDD	0.1								
4,4'-DDE	0.1								
4,4'-DDT	0.1								
Aldrin	0.005								
alpha-BHC	0.2								
alpha-Chlordane[d]	2								
delta-BHC	2.1							0.0051 J	
Dieldrin	0.005								
Endosulfan	42								
Endosulfan II[d]	42								
Endosulfan Sulfate	*								
Endrin	2								
Endrin Aldehyde	*								
gamma-BHC (Lindane)	0.2								
gamma-Chlordane[d]	2								
Toxaphene	3								
Herbicides (µg/L)					NA		NA		
2,4 5-TP (Silvex)	50								
2,4-D	70					0.082 J		0.16 J	
2,4-DB	56							0.31 J	
Dalapon	200								
Dicamba	210								
Dichloroprop	35							0.4 J	
Dinoseb	7								
MCPA	3.5							660 J	
MCPP	7								
Pentachlorophenol	1								
Inorganics (µg/L)									
Aluminum	200	4067	194	195	412	1450	529	1870	527
Antimony	6	4.1	3.2						
Arsenic	50	5	959	991			7.1	88.2	19.0
Arsenic (III)									
Arsenic (v)									
Barium	2000	31.4			18.2 J	38.5 J	25.6 J	42.1 J	76.4 J
Cadmium	5	5.6							
Calcium	*	36830	41000	42200			11400	12900	9170 J
Chromium	100	7.8	3.5	5.3		0.83 J			
Cobalt	420	*					1.5 J	1.9 J	
Copper	1000	5.4	9.2	6.6	0.95 J	1.5 J	4.5 J	5.5 J	23.1
Iron	300	1227	44.5	51.6	4060	5800	293	447	2470 J
Lead	15	4						3.2	6.5
Magnesium	*	4560	3890	4040					1770 J
Manganese	50	17	5.4	5.7	51	718	94.1	138	124 J
Mercury	2	0.12	0.05						
Nickel	100	*		2.9			7.3 J	9.6 J	
Potassium	*	5400	12100	12600					848 J
Selenium	50	9.7							
Silver	100	*							
Sodium	160000	18222	3940	4130					8490
Vanadium	49	20.6			2.6 J	4.2 J	1.2 J	2 J	
Zinc	5000	4							
General Chemistry (mg/L)			NA	NA	NA		NA		NA
Total Organic Carbon						8.47		22.1	
Total Suspended Solids						8		22	

TABLE 5

HISTORICAL DETECTIONS IN GROUNDWATER
OPERABLE UNIT 3 - STUDY AREAS 8 AND 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]		OLD-08-13				
Sample ID			NTC08G01311	NTC08G01311-D	NTC08G1312	NTC08G01313	NTC08G01314
Lab ID	Florida	NTC	A9H030166001	A9H030166002	A9J220158005	A0A250128011	A0D180174007
Sample Date	GCTL[b]	BGSV[c]	7/31/99	7/31/99	10/21/99	1/22/00	4/15/00
Semivolatiles/PAHs (µg/L)			NA	NA	NA	NA	NA
1-Methylnaphthalene	20						
2,4,5-Trichlorophenol							
2,4,6-Trichlorophenol	3.2						
2,4-Dichlorophenol	0.5						
2,4-Dimethylphenol	140						
2-Methylnaphthalene	20						
2-Methylphenol	35						
4-Methylphenol	4						
Acenaphthene	20						
Bis(2-ethylhexyl)phthalate	6						
Naphthalene	20						
Pentachlorophenol	1						
Phenol	10						
Pesticides/PCBs (µg/L)			NA	NA	NA	NA	NA
4,4'-DDD	0.1						
4,4'-DDE	0.1						
4,4'-DDT	0.1						
Aldrin	0.005						
alpha-BHC	0.2						
alpha-Chlordane[d]	2						
delta-BHC	2.1						
Dieldrin	0.005						
Endosulfan	42						
Endosulfan II[d]	42						
Endosulfan Sulfate	*						
Endrin	2						
Endrin Aldehyde	*						
gamma-BHC (Lindane)	0.2						
gamma-Chlordane[d]	2						
Toxaphene	3						
Herbicides (µg/L)			NA	NA	NA	NA	NA
2,4 5-TP (Silvex)	50						
2,4-D	70						
2,4-DB	56						
Dalapon	200						
Dicamba	210						
Dichloroprop	35						
Dinoseb	7						
MCPA	3.5						
MCPP	7						
Pentachlorophenol	1						
Inorganics (µg/L)							
Aluminum	200	4067	823	729	447	504	1450
Antimony	6	4.1					
Arsenic	50	5	24.3	22.6	30.7	20.7	20.5
Arsenic (III)							
Arsenic (v)							
Barium	2000	31.4	17.9	17.7	16.6	13.4	20.8
Cadmium	5	5.6					
Calcium	*	36830	12100	11500	14000	10100	11000
Chromium	100	7.8					
Cobalt	420	*	0.98		0.96		
Copper	1000	5.4	1.9	1.4			7.3
Iron	300	1227	1660	1650	2150	1250	1800
Lead	15	4					2.6
Magnesium	*	4560	2320	2230	3140	2140	2380
Manganese	50	17	68.1	66.7	75.1	42.8	64
Mercury	2	0.12					0.04
Nickel	100	*					3.7
Potassium	*	5400	277	284	669		875
Selenium	50	9.7					
Silver	100	*					
Sodium	160000	18222	7980	7720	7200	11300	10300
Vanadium	49	20.6	1.4	0.92	0.72		2.1
Zinc	5000	4				29	
General Chemistry (mg/L)			NA	NA	NA	NA	NA
Total Organic Carbon							
Total Suspended Solids							

TABLE 5

HISTORICAL DETECTIONS IN GROUNDWATER
OPERABLE UNIT 3 - STUDY AREAS 8 AND 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]		OLD-08-14				
Sample ID			08G01401	NTC08G01410	NTC08G01411	NTC08G1412	NTC08G01413
Lab ID	Florida	NTC	878090	F3849-2	A9H030166003	A9J210231004	A0A250128012
Sample Date	GCTL[b]	BGSV[c]	12/8/97	3/15/99	7/31/99	10/20/99	1/22/00
Semivolatiles/PAHs (µg/L)				NA	NA	NA	NA
1-Methylnaphthalene	20		NA				
2,4,5-Trichlorophenol							
2,4,6-Trichlorophenol	3.2						
2,4-Dichlorophenol	0.5						
2,4-Dimethylphenol	140						
2-Methylnaphthalene	20						
2-Methylphenol	35						
4-Methylphenol	4						
Acenaphthene	20						
Bis(2-ethylhexyl)phthalate	6						
Naphthalene	20						
Pentachlorophenol	1						
Phenol	10						
Pesticides/PCBs (µg/L)				NA	NA	NA	NA
4,4'-DDD	0.1						
4,4'-DDE	0.1						
4,4'-DDT	0.1						
Aldrin	0.005						
alpha-BHC	0.2						
alpha-Chlordane[d]	2						
delta-BHC	2.1						
Dieldrin	0.005						
Endosulfan	42						
Endosulfan II[d]	42						
Endosulfan Sulfate	*						
Endrin	2						
Endrin Aldehyde	*		0.0066 J				
gamma-BHC (Lindane)	0.2						
gamma-Chlordane[d]	2						
Toxaphene	3						
Herbicides (µg/L)							
2,4 5-TP (Silvex)	50						
2,4-D	70						
2,4-DB	56						
Dalapon	200		1.4 J		7.5 J		
Dicamba	210						
Dichloroprop	35		0.14 J				
Dinoseb	7						
MCPA	3.5						
MCPP	7		200 J		190 J		
Pentachlorophenol	1				NA	NA	
Inorganics (µg/L)							
Aluminum	200	4067	1380 J	1800	1340	2230	1910
Antimony	6	4.1				11.2	
Arsenic	50	5	7.1 J	9.5	100	224	85.5
Arsenic (III)							
Arsenic (v)							
Barium	2000	31.4	39.2 J	99.5 J	53.3	20.7	16
Cadmium	5	5.6				0.96	
Calcium	*	36830	34200	12200 J	65600	30500	10800
Chromium	100	7.8				6.7	
Cobalt	420	*	2.3 J		2.2	2.2	
Copper	1000	5.4	9.5 J	17.5	4.3	56.5	58.9
Iron	300	1227	1730 J	7340 J	5190	10500	6320
Lead	15	4	3.1	21.1	34.8	151	82.7
Magnesium	*	4560		3190 J	20000	6670	2200
Manganese	50	17	172	132 J	804	110	88.7
Mercury	2	0.12					0.069
Nickel	100	*	5.8 J			85	
Potassium	*	5400		1240 J	1050	4070	1730
Selenium	50	9.7					
Silver	100	*				2.4	
Sodium	160000	18222		15600	41200	31200	15000
Vanadium	49	20.6	2.5 J		4.7	7	4.2
Zinc	5000	4			439	341	94.2
General Chemistry (mg/L)				NA	NA	NA	NA
Total Organic Carbon			46.8				
Total Suspended Solids			20				

TABLE 5

HISTORICAL DETECTIONS IN GROUNDWATER
OPERABLE UNIT 3 - STUDY AREAS 8 AND 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]		OLD-08-15						
Sample ID			08G01501	NTC08G01510	NTC08G01511	NTC08G01511-D	NTC08G1512	NTC08G01513	NTC08G01514
Lab ID	Florida	NTC	876942	F3846-1	A9H030166005	A9H030166006	A9J210231006	A0A250128009	A0D180174011
Sample Date	GCTL[b]	BGSV[c]	12/5/97	3/13/99	8/1/99	8/1/99	10/20/99	1/22/00	4/15/00
Semivolatiles/PAHs (µg/L)				NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	20		NA						
2,4,5-Trichlorophenol									
2,4,6-Trichlorophenol	3.2								
2,4-Dichlorophenol	0.5								
2,4-Dimethylphenol	140								
2-Methylnaphthalene	20								
2-Methylphenol	35								
4-Methylphenol	4								
Acenaphthene	20								
Bis(2-ethylhexyl)phthalate	6								
Naphthalene	20								
Pentachlorophenol	1								
Phenol	10								
Pesticides/PCBs (µg/L)				NA	NA	NA	NA	NA	NA
4,4'-DDD	0.1								
4,4'-DDE	0.1								
4,4'-DDT	0.1								
Aldrin	0.005								
alpha-BHC	0.2								
alpha-Chlordane[d]	2								
delta-BHC	2.1		0.0077 J						
Dieldrin	0.005								
Endosulfan	42								
Endosulfan II[d]	42								
Endosulfan Sulfate	*								
Endrin	2								
Endrin Aldehyde	*								
gamma-BHC (Lindane)	0.2								
gamma-Chlordane[d]	2								
Toxaphene	3								
Herbicides (µg/L)									
2,4 5-TP (Silvex)	50								
2,4-D	70		0.16 J						
2,4-DB	56		0.29 J						
Dalapon	200				36 J				
Dicamba	210								
Dichloroprop	35								
Dinoseb	7								
MCPA	3.5		1200 DJ						
MCPP	7					280 J		88	
Pentachlorophenol	1				NA	NA	NA		
Inorganics (µg/L)									
Aluminum	200	4067	1420	811	2430	2360	4010	1550	732
Antimony	6	4.1					4.9		
Arsenic	50	5			3.6	2.5	14.7	5.6	4.1
Arsenic (III)									
Arsenic (v)									
Barium	2000	31.4	21.6 J		15.4	13.9	7.3	8.3	22
Cadmium	5	5.6							
Calcium	*	36830	18100	5440	8880	8590	7510	5160	7050
Chromium	100	7.8					2.1		
Cobalt	420	*	1.2 J						
Copper	1000	5.4	8.3 J		2.6	1.5	6.7		
Iron	300	1227	498	1960	853	806	652	1020	2000
Lead	15	4	2.3 J				28.5	2.1	
Magnesium	*	4560		2810	4040	4000	3250	2300	3930
Manganese	50	17	72.9	83.9	32.6	30.1			38.7
Mercury	2	0.12							0.05
Nickel	100	*	5.9 J						2.1
Potassium	*	5400		806	2010	1890	3860	2830	385
Selenium	50	9.7							
Silver	100	*							
Sodium	160000	18222	28900	13200	30600	28500	40900	26100	17400
Vanadium	49	20.6	3 J		2.5	2.9	3	2.4	
Zinc	5000	4			11.7				
General Chemistry (mg/L)				NA	NA	NA	NA	NA	NA
Total Organic Carbon			27.2						
Total Suspended Solids			13						

TABLE 5

HISTORICAL DETECTIONS IN GROUNDWATER
OPERABLE UNIT 3 - STUDY AREAS 8 AND 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]		OLD-08-16	OLD-08-17					
Sample ID			08G01601	08G01701	NTC08G01710	NTC08G01711	NTC08G1712	NTC08G01713	NTC08G01714
Lab ID	Florida GCTL[b]	NTC BGSV[c]	882951	882943	F3841-2	A9H020124011	A9J210106001	A0A240125016	A0D180174002
Sample Date			2/18/98	2/18/98	3/11/99	7/30/99	10/19/99	1/20/00	4/15/00
Semivolatiles/PAHs (µg/L)			NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	20								
2,4,5-Trichlorophenol									
2,4,6-Trichlorophenol	3.2								
2,4-Dichlorophenol	0.5								
2,4-Dimethylphenol	140								
2-Methylnaphthalene	20								
2-Methylphenol	35								
4-Methylphenol	4								
Acenaphthene	20								
Bis(2-ethylhexyl)phthalate	6								
Naphthalene	20								
Pentachlorophenol	1								
Phenol	10								
Pesticides/PCBs (µg/L)			NA	NA	NA	NA	NA	NA	NA
4,4'-DDD	0.1								
4,4'-DDE	0.1								
4,4'-DDT	0.1								
Aldrin	0.005								
alpha-BHC	0.2								
alpha-Chlordane[d]	2								
delta-BHC	2.1								
Dieldrin	0.005								
Endosulfan	42								
Endosulfan II[d]	42								
Endosulfan Sulfate	*								
Endrin	2								
Endrin Aldehyde	*								
gamma-BHC (Lindane)	0.2								
gamma-Chlordane[d]	2								
Toxaphene	3								
Herbicides (µg/L)			NA	NA	NA	NA	NA	NA	NA
2,4 5-TP (Silvex)	50								
2,4-D	70								
2,4-DB	56								
Dalapon	200								
Dicamba	210								
Dichloroprop	35								
Dinoseb	7								
MCPA	3.5								
MCPP	7								
Pentachlorophenol	1								
Inorganics (µg/L)									
Aluminum	200	4067	454	88.3 J	88.1				
Antimony	6	4.1				12.2	4.6		
Arsenic	50	5	3.9 J	98.8	167	191	158	145	150
Arsenic (III)									
Arsenic (v)									
Barium	2000	31.4	27.7 J	20 J		18.7	29.8	10.1	
Cadmium	5	5.6							
Calcium	*	36830			38300	53500	99300	66800	58400
Chromium	100	7.8					2.3	2.8	
Cobalt	420	*	1.9 J						
Copper	1000	5.4			5.5	3	2.4		
Iron	300	1227	580				257		
Lead	15	4					13.4	1.9	
Magnesium	*	4560			2220	2180	3820	3080	2940
Manganese	50	17	164		10.1		50.1		
Mercury	2	0.12							
Nickel	100	*	11.4 J	4.4 J	8.0				
Potassium	*	5400		10900	7580	12100	6640	4600	6440
Selenium	50	9.7							
Silver	100	*							
Sodium	160000	18222			6340	4770	2730	2140	1850
Vanadium	49	20.6	3.5 J	4.4 J		10.3	4.1	5	
Zinc	5000	4			30.2 J				
General Chemistry (mg/L)					NA	NA	NA	NA	NA
Total Organic Carbon			25.2	19.9					
Total Suspended Solids									

TABLE 5

HISTORICAL DETECTIONS IN GROUNDWATER
OPERABLE UNIT 3 - STUDY AREAS 8 AND 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]		OLD-08-18					OLD-08-19	OLD-08-20
Sample ID			08G01801	NTC08G01811	NTC08G1812	NTC08G01813	NTC08G01814	NTC08G01914	NTC08G02014
Lab ID	Florida GCTL[b]	NTC BGSV[c]	882980	A9H030166004	A9J210231005	A0A250128010	A0D180174016	A0D180174012	A0D180174014
Sample Date			2/19/98	7/31/99	10/20/99	1/22/00	4/16/00	4/15/00	4/16/00
Semivolatiles/PAHs (µg/L)			NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	20								
2,4,5-Trichlorophenol									
2,4,6-Trichlorophenol	3.2								
2,4-Dichlorophenol	0.5								
2,4-Dimethylphenol	140								
2-Methylnaphthalene	20								
2-Methylphenol	35								
4-Methylphenol	4								
Acenaphthene	20								
Bis(2-ethylhexyl)phthalate	6								
Naphthalene	20								
Pentachlorophenol	1								
Phenol	10								
Pesticides/PCBs (µg/L)			NA	NA	NA	NA	NA	NA	NA
4,4'-DDD	0.1								
4,4'-DDE	0.1								
4,4'-DDT	0.1								
Aldrin	0.005								
alpha-BHC	0.2								
alpha-Chlordane[d]	2								
delta-BHC	2.1								
Dieldrin	0.005								
Endosulfan	42								
Endosulfan II[d]	42								
Endosulfan Sulfate	*								
Endrin	2								
Endrin Aldehyde	*								
gamma-BHC (Lindane)	0.2								
gamma-Chlordane[d]	2								
Toxaphene	3								
Herbicides (µg/L)			NA	NA					
2,4 5-TP (Silvex)	50								
2,4-D	70								
2,4-DB	56								
Dalapon	200								
Dicamba	210								
Dichloroprop	35								
Dinoseb	7				180 J				
MCPA	3.5								
MCPP	7					50 J			
Pentachlorophenol	1				NA				0.07 J
Inorganics (µg/L)									
Aluminum	200	4067	87.3 J	1780	835	574	700	2790	524
Antimony	6	4.1	2.9 J						
Arsenic	50	5						2.9	
Arsenic (III)									
Arsenic (v)									
Barium	2000	31.4	12.1 J	42.8	35.6	30.9	29.3	18.5	7.2
Cadmium	5	5.6							
Calcium	*	36830		5910	5240	5130	4910	12200	19000
Chromium	100	7.8			3			3.2	
Cobalt	420	*		0.95					
Copper	1000	5.4		2.5	2.8			5.1	
Iron	300	1227	550	3550	3360	3260	2850	135	
Lead	15	4			1.6			4.7	
Magnesium	*	4560		1730	1880	1910	2400	2130	3740
Manganese	50	17		204	185	184	141		
Mercury	2	0.12							
Nickel	100	*	3 J				2.5		
Potassium	*	5400		741	801	1010	1090	1610	1760
Selenium	50	9.7							
Silver	100	*							
Sodium	160000	18222		9730	8770	7620	8590	9860	6820
Vanadium	49	20.6	2.4 J	6.2	4.6	5.9	5.5		
Zinc	5000	4							
General Chemistry (mg/L)				NA	NA	NA	NA	NA	NA
Total Organic Carbon			23.5						
Total Suspended Solids									

TABLE 5

HISTORICAL DETECTIONS IN GROUNDWATER
OPERABLE UNIT 3 - STUDY AREAS 8 AND 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]		OLD-08-21	OLD-09-01				
Sample ID			NTC08G02114	09G00102	NTC09G00110	NTC09G00111	NTC09G0112	NTC09G0112-D
Lab ID	Florida	NTC	A0D180174017	872936	F3846-8	A9H050202002	A9J220158002	A9J220158003
Sample Date	GCTL[b]	BGSV[c]	4/16/00	10/20/97	3/13/99	8/4/99	10/21/99	10/21/99
Semivolatiles/PAHs (µg/L)			NA			NA	NA	NA
1-Methylnaphthalene	20			NA	NA			
2,4,5-Trichlorophenol								
2,4,6-Trichlorophenol	3.2							
2,4-Dichlorophenol	0.5							
2,4-Dimethylphenol	140							
2-Methylnaphthalene	20							
2-Methylphenol	35							
4-Methylphenol	4							
Acenaphthene	20							
Bis(2-ethylhexyl)phthalate	6							
Naphthalene	20							
Pentachlorophenol	1							
Phenol	10							
Pesticides/PCBs (µg/L)			NA		(e)	(e)	(e)	(e)
4,4'-DDD	0.1							
4,4'-DDE	0.1			0.1 J				
4,4'-DDT	0.1							
Aldrin	0.005							
alpha-BHC	0.2							
alpha-Chlordane[d]	2							
delta-BHC	2.1							
Dieldrin	0.005							
Endosulfan	42							
Endosulfan II[d]	42							
Endosulfan Sulfate	*							
Endrin	2							
Endrin Aldehyde	*							
gamma-BHC (Lindane)	0.2							
gamma-Chlordane[d]	2					0.067 J	0.034 J	
Toxaphene	3					2.1 J		
Herbicides (µg/L)								
2,4 5-TP (Silvex)	50							
2,4-D	70			0.0018 J				
2,4-DB	56			0.42 J				
Dalapon	200							
Dicamba	210							
Dichloroprop	35							
Dinoseb	7							
MCPA	3.5			640				
MCPP	7							
Pentachlorophenol	1					NA		
Inorganics (µg/L)								
Aluminum	200	4067	661	318	102			
Antimony	6	4.1						
Arsenic	50	5	2.6	13.2	31.8 J	34.9	30	30.8
Arsenic (III)								
Arsenic (v)								
Barium	2000	31.4	5.5	24.5 J		53.5	55.4	55
Cadmium	5	5.6						
Calcium	*	36830	3640	24600	119000	79900	94400	93700
Chromium	100	7.8		0.81 J	15.3			
Cobalt	420	*						
Copper	1000	5.4				0.85		
Iron	300	1227	105	391		289	285	283
Lead	15	4						
Magnesium	*	4560	2980		10200	6640	6550	6530
Manganese	50	17		6.7 J	16.1		18.1	19.4
Mercury	2	0.12	0.06					
Nickel	100	*		2.5 J	7.9			
Potassium	*	5400	987		12200	8180 J	5200	5140
Selenium	50	9.7						
Silver	100	*						
Sodium	160000	18222	7290		2000	2350	1520	1520
Vanadium	49	20.6	2.8				0.58	
Zinc	5000	4						
General Chemistry (mg/L)			NA		NA	NA	NA	NA
Total Organic Carbon				37.2				
Total Suspended Solids								

TABLE 5

HISTORICAL DETECTIONS IN GROUNDWATER
OPERABLE UNIT 3 - STUDY AREAS 8 AND 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]		OLD-09-01			OLD-09-02			
Sample ID			NTC09G00113	NTC09G00114	NTC09G00114-D	09G00202	09G00202D	NTC09G00210	NTC09G00211
Lab ID	Florida	NTC	A0A250128004	A0D150148003	A0D150148004	872937	872939	F3846-9	A9H040126009
Sample Date	GCTL[b]	BGSV[c]	1/22/00	4/13/00	4/13/00	10/20/97	10/20/97	3/13/99	8/3/99
Semivolatiles/PAHs (µg/L)			NA	NA	NA				NA
1-Methylnaphthalene	20					NA	NA	NA	
2,4,5-Trichlorophenol									
2,4,6-Trichlorophenol	3.2								
2,4-Dichlorophenol	0.5								
2,4-Dimethylphenol	140						2 J		
2-Methylnaphthalene	20								
2-Methylphenol	35						1 J		
4-Methylphenol	4						3 J		
Acenaphthene	20								
Bis(2-ethylhexyl)phthalate	6								
Naphthalene	20								
Pentachlorophenol	1								
Phenol	10						2 J		
Pesticides/PCBs (µg/L)			(e)	(e)	(e)			(e)	(e)
4,4'-DDD	0.1								
4,4'-DDE	0.1								
4,4'-DDT	0.1								
Aldrin	0.005								
alpha-BHC	0.2								
alpha-Chlordane[d]	2								
delta-BHC	2.1								
Dieldrin	0.005								
Endosulfan	42								
Endosulfan II[d]	42								0.047 J
Endosulfan Sulfate	*								
Endrin	2								
Endrin Aldehyde	*								
gamma-BHC (Lindane)	0.2								
gamma-Chlordane[d]	2			0.04 J	0.044 J				
Toxaphene	3								
Herbicides (µg/L)									
2,4 5-TP (Silvex)	50								
2,4-D	70								
2,4-DB	56					0.44 J	0.33 J		
Dalapon	200								
Dicamba	210								
Dichloroprop	35						3.1 J		
Dinoseb	7								
MCPA	3.5					870 J	670 J		
MCPP	7					840 J			
Pentachlorophenol	1								NA
Inorganics (µg/L)									
Aluminum	200	4067				731	781	1810	2140 J
Antimony	6	4.1							
Arsenic	50	5	20.5	18.2	18.1				
Arsenic (III)									
Arsenic (v)									
Barium	2000	31.4	55.4	46.9	46.4	1.8 J	2.4 J		
Cadmium	5	5.6							
Calcium	*	36830	97700	122000	121000	5830	6350	7500	10100
Chromium	100	7.8				1.3 J	1.1 J		
Cobalt	420	*							
Copper	1000	5.4							3.8
Iron	300	1227	331	304	307				
Lead	15	4							
Magnesium	*	4560	5790	7220	7170			1630	2240
Manganese	50	17	22.1	25.1	24.9				
Mercury	2	0.12							
Nickel	100	*							1.6
Potassium	*	5400	6310	6170	6160			2970	2500 J
Selenium	50	9.7						3.5	
Silver	100	*				1.1 J			
Sodium	160000	18222		1500	1550			2500	5690
Vanadium	49	20.6				0.73 J	0.73 J		
Zinc	5000	4							43.6
General Chemistry (mg/L)			NA	NA	NA		NA	NA	NA
Total Organic Carbon						34.5			
Total Suspended Solids									

TABLE 5

HISTORICAL DETECTIONS IN GROUNDWATER
OPERABLE UNIT 3 - STUDY AREAS 8 AND 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]		OLD-09-02			OLD-09-03			
Sample ID			NTC09G0212	NTC09G00213	NTC09G00214	09G00302	NTC09G00311	NTC09G0312	NTC09G0312-D
Lab ID	Florida GCTL[b]	NTC BGSV[c]	A9J230148006	A0A250128005	A0D150148005	872938	A9H050202001	A9J210231001	A9J210231002
Sample Date			10/22/99	1/22/00	4/13/00	10/20/97	8/4/99	10/20/99	10/20/99
Semivolatiles/PAHs (µg/L)			NA	NA	NA				
1-Methylnaphthalene	20					NA		NA	NA
2,4,5-Trichlorophenol									
2,4,6-Trichlorophenol	3.2								
2,4-Dichlorophenol	0.5								
2,4-Dimethylphenol	140								
2-Methylnaphthalene	20								
2-Methylphenol	35								
4-Methylphenol	4								
Acenaphthene	20								
Bis(2-ethylhexyl)phthalate	6								
Naphthalene	20					1 J			
Pentachlorophenol	1								
Phenol	10								
Pesticides/PCBs (µg/L)			(e)	(e)	(e)		(e)	(e)	(e)
4,4'-DDD	0.1								
4,4'-DDE	0.1								
4,4'-DDT	0.1					0.0039 J			
Aldrin	0.005								
alpha-BHC	0.2								
alpha-Chlordane[d]	2								
delta-BHC	2.1								
Dieldrin	0.005								
Endosulfan	42								
Endosulfan II[d]	42								
Endosulfan Sulfate	*								
Endrin	2								
Endrin Aldehyde	*								
gamma-BHC (Lindane)	0.2								
gamma-Chlordane[d]	2								
Toxaphene	3								
Herbicides (µg/L)									
2,4 5-TP (Silvex)	50								
2,4-D	70					0.0035 J			
2,4-DB	56					0.17 J			
Dalapon	200								
Dicamba	210								
Dichloroprop	35								
Dinoseb	7								
MCPA	3.5								
MCPP	7								
Pentachlorophenol	1							NA	NA
Inorganics (µg/L)									
Aluminum	200	4067	1510	1380	1490	471	452 J	455	472
Antimony	6	4.1							
Arsenic	50	5							
Arsenic (III)									
Arsenic (v)									
Barium	2000	31.4	2.7			4 J		2.2	2.9
Cadmium	5	5.6							
Calcium	*	36830	5540	6710	7780	10600	11200	11000	11300
Chromium	100	7.8	2.7			0.88 J			
Cobalt	420	*							0.82
Copper	1000	5.4					0.96		
Iron	300	1227	121		151			131	139
Lead	15	4	1.8						
Magnesium	*	4560	1230	1520	1960		2230	2300	2370
Manganese	50	17							
Mercury	2	0.12							
Nickel	100	*							
Potassium	*	5400	3580	3140	3050		3420 J	3650	3770
Selenium	50	9.7							
Silver	100	*							
Sodium	160000	18222	4200		1720		2710	2360	2530
Vanadium	49	20.6	1.5						0.7
Zinc	5000	4							
General Chemistry (mg/L)			NA	NA	NA		NA	NA	NA
Total Organic Carbon						47.5			
Total Suspended Solids									

TABLE 5

HISTORICAL DETECTIONS IN GROUNDWATER
OPERABLE UNIT 3 - STUDY AREAS 8 AND 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]		OLD-09-03			OLD-09-04			
Sample ID			NTC09G00313	NTC09G00314	NTC09G00314-D	09F00402	09G00402	NTC09G00410	NTC09G00411
Lab ID	Florida	NTC	A0A250149003	A0D150148006	A0D150148007	872971	872975	F3846-10	A9H050202003
Sample Date	GCTL[b]	BGSV[c]	1/23/00	4/13/00	4/13/00	10/21/97	2/12/98	3/13/99	8/4/99
Semivolatiles/PAHs (µg/L)						NA			
1-Methylnaphthalene	20						NA	NA	3.9 J
2,4,5-Trichlorophenol									
2,4,6-Trichlorophenol	3.2								
2,4-Dichlorophenol	0.5						2 J		
2,4-Dimethylphenol	140								
2-Methylnaphthalene	20						14 J		2 J
2-Methylphenol	35								
4-Methylphenol	4								
Acenaphthene	20								
Bis(2-ethylhexyl)phthalate	6		8.9 J						
Naphthalene	20						6 J	3.3 J	0.96 J
Pentachlorophenol	1								
Phenol	10								
Pesticides/PCBs (µg/L)			(e)	(e)	(e)	NA		(e)	(e)
4,4'-DDD	0.1						0.088 J		
4,4'-DDE	0.1								
4,4'-DDT	0.1								
Aldrin	0.005						0.051 J		
alpha-BHC	0.2								
alpha-Chlordane[d]	2							0.34 J	
delta-BHC	2.1								
Dieldrin	0.005								
Endosulfan	42						0.094 J		
Endosulfan II[d]	42								
Endosulfan Sulfate	*								
Endrin	2								
Endrin Aldehyde	*								
gamma-BHC (Lindane)	0.2						0.011 J		
gamma-Chlordane[d]	2						0.67	0.43 J	
Toxaphene	3								
Herbicides (µg/L)						NA			
2,4,5-TP (Silvex)	50								
2,4-D	70						0.099 J		
2,4-DB	56						1.8 J		
Dalapon	200								9.9 J
Dicamba	210								
Dichloroprop	35								
Dinoseb	7						0.098 J		
MCPA	3.5						3100 J		
MCPP	7						1900 J		170 J
Pentachlorophenol	1								
Inorganics (µg/L)									
Aluminum	200	4067	350			373	448	176	
Antimony	6	4.1				3.5 J			
Arsenic	50	5				252	264	186 J	1970
Arsenic (III)									
Arsenic (v)									
Barium	2000	31.4	2.4			8.6 J	8.6 J		17.8
Cadmium	5	5.6							
Calcium	*	36830	11100	10400	10300	48000	43800	41600	52100
Chromium	100	7.8				1.7 J	1.6 J		
Cobalt	420	*				0.75 J			
Copper	1000	5.4				42.7	56		4.2
Iron	300	1227	133	151	157	1380	1290	861	6350
Lead	15	4				4.2	6.1		
Magnesium	*	4560	2160	2130	2140			2020	3000
Manganese	50	17				82.7	53.7	63.1	79.9
Mercury	2	0.12				0.12 J	0.11 J		
Nickel	100	*				2 J	2.2 J		
Potassium	*	5400	3510	3290	3260			6680	7490 J
Selenium	50	9.7							
Silver	100	*							
Sodium	160000	18222	1980	1670	1670			1700	1440
Vanadium	49	20.6				1.5 J	0.99 J		
Zinc	5000	4							
General Chemistry (mg/L)			NA	NA	NA	NA		NA	NA
Total Organic Carbon							54.6		
Total Suspended Solids									

TABLE 5

HISTORICAL DETECTIONS IN GROUNDWATER
OPERABLE UNIT 3 - STUDY AREAS 8 AND 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]		OLD-09-04			OLD-09-05			
Sample ID			NTC09G0412	NTC09G00413	NTC09G00414	09G00501	NTC09G00510	NTC09G00510-D	NTC09G00511
Lab ID	Florida	NTC	A9J220158004	A0A250149001	A0D150148008	872976	F3849-6	F3849-7	A9H040126007
Sample Date	GCTL[b]	BGSV[c]	10/21/99	1/22/00	4/13/00	10/21/97	3/15/99	3/15/99	8/3/99
Semivolatiles/PAHs (µg/L)									NA
1-Methylnaphthalene	20		NA	2.5		NA	NA	NA	
2,4,5-Trichlorophenol									
2,4,6-Trichlorophenol	3.2								
2,4-Dichlorophenol	0.5								
2,4-Dimethylphenol	140								
2-Methylnaphthalene	20			1.7 J					
2-Methylphenol	35								
4-Methylphenol	4								
Acenaphthene	20			0.74 J					
Bis(2-ethylhexyl)phthalate	6								
Naphthalene	20			3					
Pentachlorophenol	1								
Phenol	10								
Pesticides/PCBs (µg/L)			(e)	(e)	(e)		(e)	(e)	(e)
4,4'-DDD	0.1					0.029 J			
4,4'-DDE	0.1				0.76 J	0.0081 J			
4,4'-DDT	0.1								
Aldrin	0.005				0.48 J				
alpha-BHC	0.2								
alpha-Chlordane[d]	2			0.15 J	0.56	0.11 J			
delta-BHC	2.1					0.021 J			
Dieldrin	0.005								
Endosulfan	42								
Endosulfan II[d]	42								
Endosulfan Sulfate	*								
Endrin	2				0.16	0.022 J			
Endrin Aldehyde	*				0.24 J				
gamma-BHC (Lindane)	0.2					0.0076 J			
gamma-Chlordane[d]	2			0.063	0.7 J	0.17			
Toxaphene	3								
Herbicides (µg/L)									
2,4 5-TP (Silvex)	50								
2,4-D	70			0.085 J		0.11 J			
2,4-DB	56					0.83 J			
Dalapon	200								
Dicamba	210		0.4 J	0.14 J	0.27 J				
Dichloroprop	35								
Dinoseb	7			0.19 J					
MCPA	3.5					2900 J			
MCPP	7		520			830 J			
Pentachlorophenol	1		0.06 J						NA
Inorganics (µg/L)									
Aluminum	200	4067	253	29.5		224			
Antimony	6	4.1							3.1
Arsenic	50	5	650	225	266	6130	152	153	475
Arsenic (III)									
Arsenic (v)									
Barium	2000	31.4	9.5	12.1		7.6 J			8.8
Cadmium	5	5.6							
Calcium	*	36830	30800	42800	37400	53400	62500 J	64300 J	94500
Chromium	100	7.8				1.4 J			
Cobalt	420	*							
Copper	1000	5.4	3.2		5.2				
Iron	300	1227	1940	2160	1900	188	962 J	966 J	
Lead	15	4					1.6	2.1	
Magnesium	*	4560	1980	3260	3260		5080 J	5210 J	5870
Manganese	50	17	35.3	58	47.6	11.3 J	27.4 J	27.8 J	12
Mercury	2	0.12							
Nickel	100	*							
Potassium	*	5400	5550	7430	7190		12100 J	12000 J	6570 J
Selenium	50	9.7							
Silver	100	*							
Sodium	160000	18222	678	1050			3630	3910	3620
Vanadium	49	20.6				3.4 J			
Zinc	5000	4							55.2
General Chemistry (mg/L)			NA	NA	NA		NA	NA	NA
Total Organic Carbon						33.1			
Total Suspended Solids									

TABLE 5

HISTORICAL DETECTIONS IN GROUNDWATER
OPERABLE UNIT 3 - STUDY AREAS 8 AND 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]		OLD-09-05				OLD-09-06		
Sample ID			NTC09G0512	NTC09G00513	NTC09G00513-D	NTC09G00514	09F00601	09G00601	NTC09G00610
Lab ID	Florida	NTC	A9J230148001	A0A250128001	A0A250128003	A0D150148009	872655	872659	F3854-1
Sample Date	GCTL[b]	BGSV[c]	10/22/99	1/22/00	1/22/00	4/14/00	10/17/97	10/17/97	3/16/99
Semivolatiles/PAHs (µg/L)			NA	NA	NA	NA	NA		
1-Methylnaphthalene	20							NA	NA
2,4,5-Trichlorophenol									
2,4,6-Trichlorophenol	3.2								
2,4-Dichlorophenol	0.5								
2,4-Dimethylphenol	140								
2-Methylnaphthalene	20								
2-Methylphenol	35								
4-Methylphenol	4								
Acenaphthene	20								
Bis(2-ethylhexyl)phthalate	6								
Naphthalene	20								
Pentachlorophenol	1								
Phenol	10								
Pesticides/PCBs (µg/L)			(e)	(e)	(e)	(e)	NA		(e)
4,4'-DDD	0.1								
4,4'-DDE	0.1								
4,4'-DDT	0.1							0.0067 J	
Aldrin	0.005								
alpha-BHC	0.2								
alpha-Chlordane[d]	2								
delta-BHC	2.1								
Dieldrin	0.005							0.012 J	
Endosulfan	42								
Endosulfan II[d]	42							0.0093 J	
Endosulfan Sulfate	*								
Endrin	2							0.019 J	
Endrin Aldehyde	*								
gamma-BHC (Lindane)	0.2								
gamma-Chlordane[d]	2							0.03 J	
Toxaphene	3								
Herbicides (µg/L)							NA		
2,4 5-TP (Silvex)	50								
2,4-D	70							0.9 J	
2,4-DB	56								
Dalapon	200								
Dicamba	210								
Dichloroprop	35								
Dinoseb	7								
MCPA	3.5								
MCPP	7			87 J	32 J				
Pentachlorophenol	1								
Inorganics (µg/L)									
Aluminum	200	4067						538	797
Antimony	6	4.1					5.1 J		
Arsenic	50	5	101	72.4	72.8	104	51.5	53	54.8
Arsenic (III)									
Arsenic (v)									
Barium	2000	31.4	28.1	9	9		13.7 J	9.5 J	
Cadmium	5	5.6							
Calcium	*	36830	105000	70900	68300	49000	53400	55000	21000 J
Chromium	100	7.8					0.85 J	1 J	
Cobalt	420	*					1.5 J		
Copper	1000	5.4					6.3 J		
Iron	300	1227	157			301	740	638	1120 J
Lead	15	4							
Magnesium	*	4560	6580	6090	5870	4420			2360 J
Manganese	50	17	33.6				39	32.9	39.6 J
Mercury	2	0.12		0.052					
Nickel	100	*					2.7 J		
Potassium	*	5400	4610	9830	9380	8170			2820
Selenium	50	9.7							
Silver	100	*					0.95 J		
Sodium	160000	18222	2710			1370			2740
Vanadium	49	20.6	0.59	2.5	2.4		1.7 J	0.86 J	
Zinc	5000	4							
General Chemistry (mg/L)			NA	NA	NA	NA	NA		NA
Total Organic Carbon								24.3	
Total Suspended Solids								20	

TABLE 5

HISTORICAL DETECTIONS IN GROUNDWATER
OPERABLE UNIT 3 - STUDY AREAS 8 AND 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]		OLD-09-06				OLD-09-07		
Sample ID			NTC09G00611	NTC09G0612	NTC09G00613	NTC09G00614	09F00701	09G00701	NTC09G00710
Lab ID	Florida GCTL[b]	NTC BGSV[c]	A9H040126003	A9J230148003	A0A250128007	A0D150148010	872972	872977	F3854-4
Sample Date			8/3/99	10/22/99	1/22/00	4/13/00	10/21/97	10/21/97	3/16/99
Semivolatiles/PAHs (µg/L)			NA	NA	NA	NA	NA		
1-Methylnaphthalene	20							NA	NA
2,4,5-Trichlorophenol									
2,4,6-Trichlorophenol	3.2								
2,4-Dichlorophenol	0.5								
2,4-Dimethylphenol	140								
2-Methylnaphthalene	20								
2-Methylphenol	35								
4-Methylphenol	4								
Acenaphthene	20								
Bis(2-ethylhexyl)phthalate	6								
Naphthalene	20								
Pentachlorophenol	1								
Phenol	10								
Pesticides/PCBs (µg/L)			(e)	(e)	(e)	(e)	NA		(e)
4,4'-DDD	0.1								
4,4'-DDE	0.1								
4,4'-DDT	0.1					0.053 J			
Aldrin	0.005								
alpha-BHC	0.2								
alpha-Chlordane[d]	2								
delta-BHC	2.1								
Dieldrin	0.005								
Endosulfan	42								
Endosulfan II[d]	42								
Endosulfan Sulfate	*								
Endrin	2								
Endrin Aldehyde	*								
gamma-BHC (Lindane)	0.2								
gamma-Chlordane[d]	2								
Toxaphene	3								
Herbicides (µg/L)							NA		
2,4 5-TP (Silvex)	50					0.52 J			
2,4-D	70							0.0047 J	
2,4-DB	56							0.18 J	
Dalapon	200								
Dicamba	210					8.7 J			
Dichloroprop	35			120 J					
Dinoseb	7								
MCPA	3.5								
MCPP	7							1100 J	
Pentachlorophenol	1		NA						
Inorganics (µg/L)									
Aluminum	200	4067				1400	1600	2040	1500
Antimony	6	4.1							
Arsenic	50	5	191	94.1	42.9	50.5			
Arsenic (III)									
Arsenic (v)									
Barium	2000	31.4	11	27.2	8.2		11.5 J	13.8 J	
Cadmium	5	5.6							
Calcium	*	36830	62600	72300	43000	12000			10200 J
Chromium	100	7.8					2.6 J	3.7 J	
Cobalt	420	*						1.1 J	
Copper	1000	5.4							
Iron	300	1227	465	797	419	749	1640	1870	1840 J
Lead	15	4							
Magnesium	*	4560	3090	2620	3220	2240			1760 J
Manganese	50	17	35.4	56.3	63.6	15.9	38.4	48.9	19.7 J
Mercury	2	0.12							
Nickel	100	*					4.9 J	5.4 J	
Potassium	*	5400	3010 J	8440	3980	2660			2360
Selenium	50	9.7							
Silver	100	*							
Sodium	160000	18222	2340	4140		4190			3950
Vanadium	49	20.6		0.92		2.8	0.8 J	1.3 J	
Zinc	5000	4							
General Chemistry (mg/L)			NA	NA	NA	NA	NA		NA
Total Organic Carbon								41.1	
Total Suspended Solids									

TABLE 5

HISTORICAL DETECTIONS IN GROUNDWATER
OPERABLE UNIT 3 - STUDY AREAS 8 AND 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]		OLD-09-07				OLD-09-08	OLD-09-09
Sample ID			NTC09G00711	NTC09G0712	NTC09G00713	NTC09G00714	09G00801	09G00901
Lab ID	Florida	NTC	A9H040126001	A9J260203001	A0A250128002	A0D150148011	873307	873310
Sample Date	GCTL[b]	BGSV[c]	8/3/99	10/23/99	1/22/00	4/13/00	10/24/97	10/24/97
Semivolatiles/PAHs (µg/L)			NA	NA	NA	NA		
1-Methylnaphthalene	20						NA	NA
2,4,5-Trichlorophenol								
2,4,6-Trichlorophenol	3.2							
2,4-Dichlorophenol	0.5							
2,4-Dimethylphenol	140							
2-Methylnaphthalene	20							
2-Methylphenol	35							
4-Methylphenol	4							
Acenaphthene	20							
Bis(2-ethylhexyl)phthalate	6							
Naphthalene	20							
Pentachlorophenol	1							
Phenol	10							
Pesticides/PCBs (µg/L)			(e)	(e)	(e)	(e)		
4,4'-DDD	0.1							
4,4'-DDE	0.1							
4,4'-DDT	0.1							
Aldrin	0.005							
alpha-BHC	0.2							
alpha-Chlordane[d]	2							
delta-BHC	2.1							
Dieldrin	0.005							
Endosulfan	42							
Endosulfan II[d]	42							
Endosulfan Sulfate	*							
Endrin	2							
Endrin Aldehyde	*							
gamma-BHC (Lindane)	0.2							
gamma-Chlordane[d]	2							
Toxaphene	3							
Herbicides (µg/L)								
2,4 5-TP (Silvex)	50							
2,4-D	70						0.21 J	0.24 J
2,4-DB	56							
Dalapon	200							
Dicamba	210		0.87 J					
Dichloroprop	35						0.59 J	0.37 J
Dinoseb	7							0.099 J
MCPA	3.5							
MCPP	7		910 J					
Pentachlorophenol	1		NA					
Inorganics (µg/L)								
Aluminum	200	4067	1180 J	547	586	945	290	243
Antimony	6	4.1						3.5 J
Arsenic	50	5	5.3	2.3	3			
Arsenic (III)								
Arsenic (v)								
Barium	2000	31.4		6.4	5.1		12.5 J	
Cadmium	5	5.6						
Calcium	*	36830	10200	8760	8000	5890	17900	31100
Chromium	100	7.8	8.6			3.2		
Cobalt	420	*						1 J
Copper	1000	5.4	5.1	4.1			0.76 J	2.6 J
Iron	300	1227		470		366	1000	200
Lead	15	4		1.4				
Magnesium	*	4560	1110	790	826	811		
Manganese	50	17					53.6	3 J
Mercury	2	0.12						
Nickel	100	*	5.8					
Potassium	*	5400	588 J	895	968	720		
Selenium	50	9.7						
Silver	100	*						
Sodium	160000	18222	6340	1450		1510		
Vanadium	49	20.6		1.7	3.1	2.1	0.91 J	1.8 J
Zinc	5000	4	70.4	33 J	37.6			
General Chemistry (mg/L)			NA	NA	NA	NA		
Total Organic Carbon							47.8	62.3
Total Suspended Solids								

TABLE 5

HISTORICAL DETECTIONS IN GROUNDWATER
OPERABLE UNIT 3 - STUDY AREAS 8 AND 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]		OLD-09-10					
Sample ID			09G01001	NTC09G01010	NTC09G01011	NTC09G1012	NTC09G01013	NTC09G01014
Lab ID	Florida	NTC	872978	F3849-5	A9H040126008	A9J220158001	A0A250149004	A0D150148012
Sample Date	GCTL[b]	BGSV[c]	10/21/97	3/15/99	8/3/99	10/21/99	1/23/00	4/13/00
Semivolatiles/PAHs (µg/L)					NA	NA	NA	NA
1-Methylnaphthalene	20		NA	NA				
2,4,5-Trichlorophenol								
2,4,6-Trichlorophenol	3.2							
2,4-Dichlorophenol	0.5							
2,4-Dimethylphenol	140							
2-Methylnaphthalene	20							
2-Methylphenol	35							
4-Methylphenol	4							
Acenaphthene	20							
Bis(2-ethylhexyl)phthalate	6							
Naphthalene	20							
Pentachlorophenol	1							
Phenol	10							
Pesticides/PCBs (µg/L)				(e)	(e)	(e)	(e)	(e)
4,4'-DDD	0.1							
4,4'-DDE	0.1							
4,4'-DDT	0.1							
Aldrin	0.005							
alpha-BHC	0.2							
alpha-Chlordane[d]	2							
delta-BHC	2.1							
Dieldrin	0.005							
Endosulfan	42							
Endosulfan II[d]	42							
Endosulfan Sulfate	*							
Endrin	2							
Endrin Aldehyde	*							
gamma-BHC (Lindane)	0.2							
gamma-Chlordane[d]	2							
Toxaphene	3							
Herbicides (µg/L)								
2,4 5-TP (Silvex)	50							
2,4-D	70							
2,4-DB	56		0.14 J					
Dalapon	200							
Dicamba	210							
Dichloroprop	35							
Dinoseb	7							
MCPA	3.5					37 J		
MCPP	7							
Pentachlorophenol	1				NA			
Inorganics (µg/L)								
Aluminum	200	4067	212	502			228	
Antimony	6	4.1						
Arsenic	50	5						
Arsenic (III)								
Arsenic (v)								
Barium	2000	31.4	5.4 J			24.8	8.2	
Cadmium	5	5.6						
Calcium	*	36830	33700	23900 J	44700	81800	41300	26600
Chromium	100	7.8	0.91 J					
Cobalt	420	*						
Copper	1000	5.4						
Iron	300	1227	1030	959 J	570	630	1030	723
Lead	15	4					2.5	
Magnesium	*	4560		2690 J	2960	4640	2380	2420
Manganese	50	17	16.7	18.5 J	17.4	18.4		17.2
Mercury	2	0.12						
Nickel	100	*						
Potassium	*	5400		3000 J	2100 J	3420	4400	2980
Selenium	50	9.7						
Silver	100	*						
Sodium	160000	18222		2880	4020	3380	1980	1650
Vanadium	49	20.6				0.83		
Zinc	5000	4			43.8	83.1	121	
General Chemistry (mg/L)				NA	NA	NA	NA	NA
Total Organic Carbon			28					
Total Suspended Solids								

TABLE 5

HISTORICAL DETECTIONS IN GROUNDWATER
OPERABLE UNIT 3 - STUDY AREAS 8 AND 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]		OLD-09-11						
Sample ID			09G01101	NTC09G01110	NTC09G01111	NTC09G01111-D	NTC09G1112	NTC09G01113	NTC09G01114
Lab ID	Florida	NTC	B72979	F3854-5	A9H040126004	A9H040126005	A9J210231003	A0A250128008	A0D150148013
Sample Date	GCTL[b]	BGSV[c]	10/21/97	3/16/99	8/3/99	8/3/99	10/20/99	1/22/00	4/13/00
Semivolatiles/PAHs (µg/L)					NA	NA	NA	NA	NA
1-Methylnaphthalene	20		NA	NA					
2,4,5-Trichlorophenol									
2,4,6-Trichlorophenol	3.2								
2,4-Dichlorophenol	0.5								
2,4-Dimethylphenol	140								
2-Methylnaphthalene	20								
2-Methylphenol	35								
4-Methylphenol	4								
Acenaphthene	20								
Bis(2-ethylhexyl)phthalate	6								
Naphthalene	20								
Pentachlorophenol	1								
Phenol	10								
Pesticides/PCBs (µg/L)				(e)	(e)	(e)	(e)	(e)	(e)
4,4'-DDD	0.1								
4,4'-DDE	0.1		0.0051 J						0.063 J
4,4'-DDT	0.1		0.0092 J						
Aldrin	0.005								
alpha-BHC	0.2		0.0042 J						0.092 J
alpha-Chlordane[d]	2					0.3 J	0.062 J	0.021 J	0.098 J
delta-BHC	2.1								
Dieldrin	0.005								
Endosulfan	42								
Endosulfan II[d]	42								
Endosulfan Sulfate	*								
Endrin	2								
Endrin Aldehyde	*		0.078 J						
gamma-BHC (Lindane)	0.2		0.034 J	0.40	0.18 J	0.19 J	0.057 J	0.034 J	1.3
gamma-Chlordane[d]	2					0.21 J			0.065 J
Toxaphene	3								
Herbicides (µg/L)									
2,4 5-TP (Silvex)	50								
2,4-D	70		1.4 J						0.19 J
2,4-DB	56		1 J						
Dalapon	200								
Dicamba	210								
Dichloroprop	35								
Dinoseb	7								
MCPA	3.5								
MCPP	7		1200 J					72.1	
Pentachlorophenol	1				NA	NA	NA		
Inorganics (µg/L)									
Aluminum	200	4067	539						1440
Antimony	6	4.1			2.7	4			
Arsenic	50	5	83.9	71.5	180	180	44.9	41.4	34.1
Arsenic (III)									
Arsenic (v)									
Barium	2000	31.4	6.8 J		18.1	18	10.5	16.3	15.5
Cadmium	5	5.6							
Calcium	*	36830	36900	32100 J	55000	54700	70800	74300	27700
Chromium	100	7.8	1 J	43.6	11.4				2.9
Cobalt	420	*							
Copper	1000	5.4							
Iron	300	1227	570	1520 J	1490	1420	833	2220	1690
Lead	15	4					1.9		11.2
Magnesium	*	4560		2100 J	2740	2720	3190	4020	1510
Manganese	50	17	11.6 J	121 J	22.3	21.5	25.7	34.5	28.8
Mercury	2	0.12							
Nickel	100	*		24.2	9.2				
Potassium	*	5400		6230	9220 J	9320 J	10200	9790	6960
Selenium	50	9.7							
Silver	100	*							
Sodium	160000	18222		2940	1240	1320	6440		1520
Vanadium	49	20.6					0.99		
Zinc	5000	4							
General Chemistry (mg/L)				NA	NA	NA	NA	NA	NA
Total Organic Carbon			36						
Total Suspended Solids			28						

TABLE 5

HISTORICAL DETECTIONS IN GROUNDWATER
OPERABLE UNIT 3 - STUDY AREAS 8 AND 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]		OLD-09-12					
Sample ID			09G01201	NTC09G01210	NTC09G01210-D	NTC09G01211	NTC09G01211-D	NTC09G1212
Lab ID	Florida	NTC	872980	F3854-6	F3854-7	A9H030173002	A9H030173004	A9J230148005
Sample Date	GCTL[b]	BGSV[c]	10/21/97	3/16/99	3/16/99	8/2/99	8/2/99	10/22/99
Semivolatiles/PAHs (µg/L)								
1-Methylnaphthalene	20		NA	NA	NA			NA
2,4,5-Trichlorophenol								
2,4,6-Trichlorophenol	3.2		2 J					
2,4-Dichlorophenol	0.5		200	13.2	13.3	45	30	4.9 J
2,4-Dimethylphenol	140							
2-Methylnaphthalene	20							
2-Methylphenol	35							
4-Methylphenol	4							
Acenaphthene	20							
Bis(2-ethylhexyl)phthalate	6							
Naphthalene	20		8 J	4.3 J	3.7 J	2.4	2.4	
Pentachlorophenol	1							
Phenol	10							
Pesticides/PCBs (µg/L)				(e)	(e)	(e)	(e)	(e)
4,4'-DDD	0.1							
4,4'-DDE	0.1							
4,4'-DDT	0.1							
Aldrin	0.005							
alpha-BHC	0.2		1 J	2.1	2.3	2.5 J		0.39
alpha-Chlordane[d]	2		0.028 J					
delta-BHC	2.1		0.3					
Dieldrin	0.005							
Endosulfan	42		0.046 J					
Endosulfan II[d]	42							
Endosulfan Sulfate	*							
Endrin	2							
Endrin Aldehyde	*							
gamma-BHC (Lindane)	0.2		0.69	3.0	3.2	1.9 J	17.4	0.46
gamma-Chlordane[d]	2		0.013 J					
Toxaphene	3							
Herbicides (µg/L)				NA				
2,4 5-TP (Silvex)	50					1.6 J	1.5 J	
2,4-D	70		110 J			33 J	31 J	
2,4-DB	56							
Dalapon	200						21 J	
Dicamba	210							
Dichloroprop	35							
Dinoseb	7							
MCPA	3.5		750 J					
MCPP	7		1500 J			190 J	220 J	
Pentachlorophenol	1							
Inorganics (µg/L)								
Aluminum	200	4067	1030	1830	1340	1040 J	1710 J	103
Antimony	6	4.1						
Arsenic	50	5	138	135	136	141	147	53.8 J
Arsenic (III)								
Arsenic (v)								
Barium	2000	31.4	10.3 J			9.1	13.1	22.4
Cadmium	5	5.6						
Calcium	*	36830	11700	15700 J	15700 J	15900	16500	81100
Chromium	100	7.8	3.3 J					
Cobalt	420	*						0.83
Copper	1000	5.4	6.1 J				3.5	1.7
Iron	300	1227	540	1390 J	786 J	629	762	477
Lead	15	4	1.9 J					
Magnesium	*	4560		2340 J	2340 J	2220	2280	3990
Manganese	50	17	24.9	19.0 J	20.9 J	8.3	10.2	134 J
Mercury	2	0.12						
Nickel	100	*	3.4 J					
Potassium	*	5400		11100	11400	13200 J	13200 J	5980
Selenium	50	9.7						
Silver	100	*						
Sodium	160000	18222		2560	2510	2320	5850	1370
Vanadium	49	20.6	0.79 J					1.8
Zinc	5000	4				75.5	92	
General Chemistry (mg/L)				NA	NA	NA	NA	NA
Total Organic Carbon			38.5					
Total Suspended Solids								

TABLE 5

HISTORICAL DETECTIONS IN GROUNDWATER
OPERABLE UNIT 3 - STUDY AREAS 8 AND 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]		OLD-09-12		OLD-09-13		OLD-09-14		
Sample ID			NTC09G01213	NTC09G01214	09G01301	NTC09G01310	09G01401	09G01401D	NTC09G01410
Lab ID	Florida GCTL[b]	NTC BGSV[c]	A0A250149005	A0D150148014	872981	F3854-3	876803	876821	F3849-4
Sample Date			1/23/00	4/13/00	10/21/97	3/16/99	12/4/97	12/4/97	3/15/99
Semivolatiles/PAHs (µg/L)									
1-Methylnaphthalene	20		0.58 J	0.46 J	NA	NA			NA
2,4,5-Trichlorophenol				1.4 J					
2,4,6-Trichlorophenol	3.2			1.2 J					
2,4-Dichlorophenol	0.5		11	2.3 J					
2,4-Dimethylphenol	140								
2-Methylnaphthalene	20		0.67 J	0.75 J					
2-Methylphenol	35								
4-Methylphenol	4								
Acenaphthene	20								
Bis(2-ethylhexyl)phthalate	6								
Naphthalene	20		1.9 J	2.3	2 J		160 D		67.5
Pentachlorophenol	1								
Phenol	10								
Pesticides/PCBs (µg/L)			(e)	(e)		(e)			(e)
4,4'-DDD	0.1								
4,4'-DDE	0.1								
4,4'-DDT	0.1								
Aldrin	0.005								
alpha-BHC	0.2		1.4	4.2					
alpha-Chlordane[d]	2								
delta-BHC	2.1								
Dieldrin	0.005								
Endosulfan	42			1.2 J					
Endosulfan II[d]	42								
Endosulfan Sulfate	*								
Endrin	2								
Endrin Aldehyde	*								
gamma-BHC (Lindane)	0.2		15	57					
gamma-Chlordane[d]	2								
Toxaphene	3								
Herbicides (µg/L)									
2,4 5-TP (Silvex)	50		0.62 J	0.69 J					
2,4-D	70		8	6.2 J	0.0012 J		0.26 J		
2,4-DB	56				0.38 J		0.21 J		
Dalapon	200								
Dicamba	210								
Dichloroprop	35								
Dinoseb	7								
MCPA	3.5						890 J	840 J	
MCPP	7								
Pentachlorophenol	1								
Inorganics (µg/L)									
Aluminum	200	4067	477	1020	353	536	315	294	448
Antimony	6	4.1							
Arsenic	50	5	127	90					
Arsenic (III)									
Arsenic (v)									
Barium	2000	31.4	5		19.7 J		47.2 J	38 J	
Cadmium	5	5.6							
Calcium	*	36830	9780	5950			105000	80800	12900 J
Chromium	100	7.8			1.3 J				
Cobalt	420	*			0.88 J		1.7 J	2.1 J	
Copper	1000	5.4					4.5 J	5.6 J	
Iron	300	1227	317	396	2400	741 J	430	451	
Lead	15	4							1.6
Magnesium	*	4560	1520	970		882 J	9780	7410	1230 J
Manganese	50	17	15.1		82.9	29.4 J	150	145	27.6 J
Mercury	2	0.12							
Nickel	100	*			3.5 J		9.9 J	9.4 J	
Potassium	*	5400	11000	7260					
Selenium	50	9.7							
Silver	100	*							
Sodium	160000	18222	940			7400			5050
Vanadium	49	20.6			1.3 J		1.6 J	1.6 J	
Zinc	5000	4	49.6						
General Chemistry (mg/L)			NA	NA		NA		NA	NA
Total Organic Carbon					10.1		21.2		
Total Suspended Solids							7		

TABLE 5

HISTORICAL DETECTIONS IN GROUNDWATER
OPERABLE UNIT 3 - STUDY AREAS 8 AND 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]		OLD-09-14				
Sample ID			NTC09G01411	NTC09G1412	NTC09G01413	NTC09G01413-D	NTC09G01414
Lab ID	Florida	NTC	A9H030173001	A9J230148004	A0A250149006	A0A250149009	A0D150148018
Sample Date	GCTL[b]	BGSV[c]	8/1/99	10/22/99	1/23/00	1/23/00	4/14/00
Semivolatiles/PAHs (µg/L)							
1-Methylnaphthalene	20			NA		0.44 J	0.58 J
2,4,5-Trichlorophenol							
2,4,6-Trichlorophenol	3.2						
2,4-Dichlorophenol	0.5						
2,4-Dimethylphenol	140						
2-Methylnaphthalene	20						0.69 J
2-Methylphenol	35						
4-Methylphenol	4						
Acenaphthene	20						
Bis(2-ethylhexyl)phthalate	6						
Naphthalene	20		2.1	4.8 J	9.9	7.7	2.21
Pentachlorophenol	1						
Phenol	10						
Pesticides/PCBs (µg/L)			(e)	(e)	(e)	(e)	(e)
4,4'-DDD	0.1						
4,4'-DDE	0.1						
4,4'-DDT	0.1						
Aldrin	0.005						
alpha-BHC	0.2						
alpha-Chlordane[d]	2						
delta-BHC	2.1						
Dieldrin	0.005						
Endosulfan	42						
Endosulfan II[d]	42						
Endosulfan Sulfate	*						
Endrin	2						
Endrin Aldehyde	*						
gamma-BHC (Lindane)	0.2						
gamma-Chlordane[d]	2						
Toxaphene	3						
Herbicides (µg/L)							
2,4 5-TP (Silvex)	50						
2,4-D	70						
2,4-DB	56						
Dalapon	200						
Dicamba	210						
Dichloroprop	35						
Dinoseb	7						
MCPA	3.5						
MCPP	7						
Pentachlorophenol	1						
Inorganics (µg/L)							
Aluminum	200	4067		509	312	615	
Antimony	6	4.1					
Arsenic	50	5					
Arsenic (III)							
Arsenic (v)							
Barium	2000	31.4	18.1	25.2	47.8	54.6	
Cadmium	5	5.6					
Calcium	*	36830	45800	37600	59600	67100	15900
Chromium	100	7.8		4.6		3.2	
Cobalt	420	*					
Copper	1000	5.4					
Iron	300	1227		786	828	941	392
Lead	15	4					
Magnesium	*	4560	4620	4000	6250	6850	1530
Manganese	50	17		120	88.7	100	36.5
Mercury	2	0.12					
Nickel	100	*	5		2.5	4.1	
Potassium	*	5400	574 J	2340	1480	1620	366
Selenium	50	9.7					
Silver	100	*					
Sodium	160000	18222	32200	16600	32200	35100	4420
Vanadium	49	20.6		3.1	2.8	3.3	2.7
Zinc	5000	4					
General Chemistry (mg/L)			NA	NA	NA	NA	NA
Total Organic Carbon							
Total Suspended Solids							

TABLE 5

HISTORICAL DETECTIONS IN GROUNDWATER
OPERABLE UNIT 3 - STUDY AREAS 8 AND 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]		OLD-09-15						
Sample ID			09F01501	09G01501	NTC09G01510	NTC09G01511	NTC09G1512	NTC09G01513	NTC09G01514
Lab ID	Florida	NTC	876945	876940	F3846-5	A9H030173003	A9J230148002	A0A250149007	A0D150148019
Sample Date	GCTL[b]	BGSV[c]	12/5/97	12/5/97	3/13/99	8/2/99	10/22/99	1/23/00	4/14/00
Semivolatiles/PAHs (µg/L)			NA						
1-Methylnaphthalene	20				NA		NA		
2,4,5-Trichlorophenol									
2,4,6-Trichlorophenol	3.2								
2,4-Dichlorophenol	0.5								
2,4-Dimethylphenol	140								
2-Methylnaphthalene	20								
2-Methylphenol	35								
4-Methylphenol	4								
Acenaphthene	20								
Bis(2-ethylhexyl)phthalate	6								
Naphthalene	20			5 J	11.2	6.7 J	8 J	5	6.6
Pentachlorophenol	1								
Phenol	10								
Pesticides/PCBs (µg/L)			NA		(e)	(e)	(e)	(e)	(e)
4,4'-DDD	0.1								
4,4'-DDE	0.1								
4,4'-DDT	0.1								
Aldrin	0.005								
alpha-BHC	0.2								
alpha-Chlordane[d]	2								
delta-BHC	2.1								
Dieldrin	0.005								
Endosulfan	42								0.02 J
Endosulfan II[d]	42			0.0075 J					
Endosulfan Sulfate	*								
Endrin	2								
Endrin Aldehyde	*								
gamma-BHC (Lindane)	0.2								
gamma-Chlordane[d]	2								
Toxaphene	3								
Herbicides (µg/L)			NA						
2,4 5-TP (Silvex)	50								
2,4-D	70			0.068 J					
2,4-DB	56			0.18 J					
Dalapon	200								
Dicamba	210								
Dichloroprop	35			0.42 J					
Dinoseb	7								
MCPA	3.5								
MCPP	7								
Pentachlorophenol	1								
Inorganics (µg/L)									
Aluminum	200	4067	872	3260	470		421	1470	
Antimony	6	4.1							
Arsenic	50	5							
Arsenic (III)									
Arsenic (v)									
Barium	2000	31.4	13.3 J	18.3 J			5.3	9.6	
Cadmium	5	5.6							
Calcium	*	36830	8060	9800					
Chromium	100	7.8							
Cobalt	420	*	0.63 J	0.8 J					
Copper	1000	5.4	4.4 J	7.2 J					
Iron	300	1227	284	374			312	1300	515
Lead	15	4		2.8 J					
Magnesium	*	4560			807		602	709	501
Manganese	50	17	46.4	557	9.7			34	
Mercury	2	0.12							
Nickel	100	*	5.6 J	7.5 J					
Potassium	*	5400						151	
Selenium	50	9.7							
Silver	100	*							
Sodium	160000	18222	7890		6970	5320	5650	10900	4380
Vanadium	49	20.6	0.93 J	1.9 J			0.53		
Zinc	5000	4							
General Chemistry (mg/L)			NA		NA	NA	NA	NA	NA
Total Organic Carbon				25.3					
Total Suspended Solids				58					

TABLE 5

HISTORICAL DETECTIONS IN GROUNDWATER
OPERABLE UNIT 3 - STUDY AREAS 8 AND 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]		OLD-09-16						
Sample ID			09F01601	09G01601	NTC09G01610	NTC09G01611	NTC09G1612	NTC09G01613	NTC09G01614
Lab ID	Florida	NTC	876946	876941	F3846-6	A9H040126006	A9J220158009	A0A250149008	A0D150148015
Sample Date	GCTL[b]	BGSV[c]	12/5/97	12/5/97	3/13/99	8/3/99	10/21/99	1/23/00	4/13/00
Semivolatiles/PAHs (µg/L)			NA			NA	NA	NA	NA
1-Methylnaphthalene	20			NA	NA				
2,4,5-Trichlorophenol									
2,4,6-Trichlorophenol	3.2								
2,4-Dichlorophenol	0.5								
2,4-Dimethylphenol	140								
2-Methylnaphthalene	20								
2-Methylphenol	35								
4-Methylphenol	4								
Acenaphthene	20								
Bis(2-ethylhexyl)phthalate	6								
Naphthalene	20								
Pentachlorophenol	1								
Phenol	10								
Pesticides/PCBs (µg/L)			NA		(e)	(e)	(e)	(e)	(e)
4,4'-DDD	0.1								
4,4'-DDE	0.1								
4,4'-DDT	0.1								
Aldrin	0.005								
alpha-BHC	0.2								
alpha-Chlordane[d]	2								
delta-BHC	2.1								
Dieldrin	0.005								
Endosulfan	42								
Endosulfan II[d]	42								
Endosulfan Sulfate	*								
Endrin	2								
Endrin Aldehyde	*								
gamma-BHC (Lindane)	0.2								
gamma-Chlordane[d]	2								
Toxaphene	3								
Herbicides (µg/L)			NA						
2,4 5-TP (Silvex)	50								
2,4-D	70								
2,4-DB	56			0.31 J					
Dalapon	200								
Dicamba	210								
Dichloroprop	35			0.36 J					
Dinoseb	7			0.12 J					
MCPA	3.5			820 J			33 J		
MCPP	7			0.36 J					
Pentachlorophenol	1					NA			
Inorganics (µg/L)									
Aluminum	200	4067	405	1840	443	1670 J	309	264	
Antimony	6	4.1							
Arsenic	50	5	2.4 J	2.2 J					
Arsenic (III)									
Arsenic (v)									
Barium	2000	31.4	10.5 J	17.8 J		22.3	12.6	15.5	13.2
Cadmium	5	5.6							
Calcium	*	36830	13100	15000	5740	8250	4500	4660	
Chromium	100	7.8							
Cobalt	420	*	0.75 J	0.55 J					
Copper	1000	5.4	4 J	5.1 J		2.6			
Iron	300	1227		249	1320	637	572	1080	580
Lead	15	4							
Magnesium	*	4560			750	1220	990	1070	830
Manganese	50	17	44.5	70.8	69.0	41.5	30	38.3	17
Mercury	2	0.12							
Nickel	100	*	3 J	5.1 J		2.8			
Potassium	*	5400			584	586 J	693	679	461
Selenium	50	9.7							
Silver	100	*							
Sodium	160000	18222			9040	12000	8620	9040	7780
Vanadium	49	20.6	3.1 J	5.1 J			3.2	2.5	2.5
Zinc	5000	4				41.5			
General Chemistry (mg/L)			NA		NA	NA	NA	NA	NA
Total Organic Carbon				22					
Total Suspended Solids				4					

TABLE 5

HISTORICAL DETECTIONS IN GROUNDWATER
OPERABLE UNIT 3 - STUDY AREAS 8 AND 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]		OLD-09-17					OLD-09-18		
Sample ID			09G01701	NTC09G01711	NTC09G1712	NTC09G01713	NTC09G01714	09G01801	09G01801D	NTC09G01810
Lab ID	Florida	NTC	882644	A9H040126002	A9J260203002	A0A250149002	A0D150148016	882638	882641	F3854-2
Sample Date	GCTL[b]	BGSV[c]	2/12/98	8/3/99	10/23/99	1/22/00	4/14/00	2/12/98	2/12/98	3/16/99
Semivolatiles/PAHs (µg/L)			NA	NA	NA	NA	NA	NA	NA	
1-Methylnaphthalene	20									NA
2,4,5-Trichlorophenol										
2,4,6-Trichlorophenol	3.2									
2,4-Dichlorophenol	0.5									
2,4-Dimethylphenol	140									
2-Methylnaphthalene	20									
2-Methylphenol	35									
4-Methylphenol	4									
Acenaphthene	20									
Bis(2-ethylhexyl)phthalate	6									
Naphthalene	20									
Pentachlorophenol	1									
Phenol	10									
Pesticides/PCBs (µg/L)			NA	(e)	(e)	(e)	(e)	NA	NA	(e)
4,4'-DDD	0.1									
4,4'-DDE	0.1									
4,4'-DDT	0.1									
Aldrin	0.005									
alpha-BHC	0.2									
alpha-Chlordane[d]	2									
delta-BHC	2.1									
Dieldrin	0.005									
Endosulfan	42									
Endosulfan II[d]	42									
Endosulfan Sulfate	*									
Endrin	2									
Endrin Aldehyde	*									
gamma-BHC (Lindane)	0.2									
gamma-Chlordane[d]	2									
Toxaphene	3									
Herbicides (µg/L)										
2,4 5-TP (Silvex)	50									
2,4-D	70		0.32 J							
2,4-DB	56		0.55 J							
Dalapon	200		0.69 J					0.3 J		
Dicamba	210									
Dichloroprop	35		0.29 J					0.24 J	0.12 J	
Dinoseb	7									
MCPA	3.5		680 J					630 J	460 J	
MCPP	7				74 J					
Pentachlorophenol	1									
Inorganics (µg/L)										
Aluminum	200	4067	349			260		567	667	2180
Antimony	6	4.1				2				
Arsenic	50	5	4.3 J	8.3	5.4	14.3	16.9			
Arsenic (III)										
Arsenic (v)										
Barium	2000	31.4			19.4	5.3		20.8 J	23.4 J	
Cadmium	5	5.6								
Calcium	*	36830		42500	74000	28500	39800			
Chromium	100	7.8						1.5 J	1.9 J	
Cobalt	420	*								
Copper	1000	5.4		1.3	1.8					
Iron	300	1227	53.6 J			92.6	114	4880	5490	753 J
Lead	15	4								
Magnesium	*	4560			821	569	770			997 J
Manganese	50	17								
Mercury	2	0.12								
Nickel	100	*	1.4 J	1.7						
Potassium	*	5400		2950 J	554	906	1020			
Selenium	50	9.7								
Silver	100	*								
Sodium	160000	18222		1300		1050	691			7670
Vanadium	49	20.6	4.3 J	8.9	4.8	5.9		1.6 J	1.6 J	
Zinc	5000	4								
General Chemistry (mg/L)			NA	NA	NA	NA	NA			NA
Total Organic Carbon								7.05	5.94	
Total Suspended Solids										

TABLE 5

HISTORICAL DETECTIONS IN GROUNDWATER
OPERABLE UNIT 3 - STUDY AREAS 8 AND 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]		OLD-09-19			
Sample ID			NTC09G01911	NTC09G1912	NTC09G01913	NTC09G01914
Lab ID	Florida	NTC	A9H050202004	A9J300126002	A0A250128006	A0D150148017
Sample Date	GCTL[b]	BGSV[c]	8/4/99	10/27/99	1/22/00	4/13/00
Semivolatiles/PAHs (µg/L)					NA	NA
1-Methylnaphthalene	20			NA		
2,4,5-Trichlorophenol						
2,4,6-Trichlorophenol	3.2					
2,4-Dichlorophenol	0.5					
2,4-Dimethylphenol	140					
2-Methylnaphthalene	20					
2-Methylphenol	35					
4-Methylphenol	4					
Acenaphthene	20					
Bis(2-ethylhexyl)phthalate	6					
Naphthalene	20					
Pentachlorophenol	1					
Phenol	10					
Pesticides/PCBs (µg/L)			(e)	NA	(e)	(e)
4,4'-DDD	0.1					
4,4'-DDE	0.1					
4,4'-DDT	0.1					
Aldrin	0.005					
alpha-BHC	0.2					
alpha-Chlordane[d]	2					
delta-BHC	2.1					
Dieldrin	0.005					
Endosulfan	42					
Endosulfan II[d]	42					
Endosulfan Sulfate	*					
Endrin	2					
Endrin Aldehyde	*					
gamma-BHC (Lindane)	0.2					
gamma-Chlordane[d]	2					
Toxaphene	3					
Herbicides (µg/L)						
2,4 5-TP (Silvex)	50					
2,4-D	70					
2,4-DB	56					
Dalapon	200					
Dicamba	210					
Dichloroprop	35					
Dinoseb	7					
MCPA	3.5					
MCPP	7					
Pentachlorophenol	1					
Inorganics (µg/L)						
Aluminum	200	4067	7740 J	402	693	
Antimony	6	4.1	17.7			
Arsenic	50	5				
Arsenic (III)						
Arsenic (v)						
Barium	2000	31.4	51.5	18.1 J	20.8	
Cadmium	5	5.6				
Calcium	*	36830	51600	29300	23300	
Chromium	100	7.8	3.4	1.4		
Cobalt	420	*				
Copper	1000	5.4	6.6			
Iron	300	1227	1290	645	762	689
Lead	15	4				
Magnesium	*	4560	1660	3210	2400	1070
Manganese	50	17		37.9	31.5	
Mercury	2	0.12				
Nickel	100	*		1.7		
Potassium	*	5400		1600	1700	642
Selenium	50	9.7				
Silver	100	*				
Sodium	160000	18222	8260	7080	7740	6660
Vanadium	49	20.6		5.1	7.3	5.1
Zinc	5000	4				
General Chemistry (mg/L)			NA	NA	NA	NA
Total Organic Carbon						
Total Suspended Solids						

TABLE 5

HISTORICAL DETECTIONS IN GROUNDWATER
OPERABLE UNIT 3 – STUDY AREAS 8 AND 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Notes:

* Indicates that the screening value is not available.
"D" qualifier indicates the reported value is from a dilution.
"J" qualifier indicates an estimated value.
Empty cells indicate non-detects.
NA Not analyzed.
Only chemicals detected in at least one sample are shown.
Values in shaded cells are equal to or exceed the screening criteria.

(a) For an organic analyte, the screening criterion is the GCTL; for an inorganic analyte with an established GCTL and BGSV, the screening criterion is the greater of the GCTL or the BGSV.
(b) Groundwater Cleanup Target Level (Development of Soil Cleanup Target Levels (SCTLs) for Chapter 62-777, F.A.C., May 26, 1999).
(c) Background Screening Value (Background Sampling Report for NTC, Orlando, Florida; ABB Environmental Services, August 1995) for inorganics only.
(d) Screening Criteria Substitution – Chlordane for alpha-Chlordane and gamma-Chlordane, and Endosulfan for Endosulfan II.
(e) PCBs not analyzed for.

TABLE 6

VALIDATED GROUNDWATER ANALYTICAL RESULTS - APRIL 2000
OPERABLE UNIT 3 - STUDY AREA 8

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS Number	Screening Criteria [a]		OLD-08-01	OLD-08-02	OLD-08-03	OLD-08-04	OLD-08-05
SAMPLE ID		Florida GCTL [b]	NTC BGSV [c]	NTC08G00114	NTC08G00214	NTC08G00314	NTC08G00414	NTC08G00514
LAB ID				A0D180174001	A0D180174010	A0D180174005	A0D180174004	A0D180174009
SAMPLE DATE				4/15/00	4/15/00	4/15/00	4/15/00	4/15/00
Herbicides (µg/L)								
2,4,5-T	93-76-5	70		NA	NA	NA	NA	NA
2,4,5-TP (Silvex)	93-72-1	50		NA	NA	NA	NA	NA
2,4-D	94-75-7	70		NA	NA	NA	NA	NA
2,4-DB	94-82-6	56		NA	NA	NA	NA	NA
4-Nitrophenol	100-02-7	56		NA	NA	NA	NA	NA
Dalapon	75-99-0	200		NA	NA	NA	NA	NA
Dicamba	1918-00-9	210		NA	NA	NA	NA	NA
Dichlorprop	120-36-5	35		NA	NA	NA	NA	NA
Dinoseb	88-85-7	7		NA	NA	NA	NA	NA
MCPA	94-74-6	3.5		NA	NA	NA	NA	NA
MCPP	7085-19-0	7		NA	NA	NA	NA	NA
Pentachlorophenol	87-86-5	1		NA	NA	NA	NA	NA
Inorganics (µg/L)								
Aluminum	7429-90-5	200	4067	148 U	292	118 U	230	74.1 U
Antimony	7440-36-0	6	4.1	3.5	5.2	2.7	1.6 U	1.6 U
Arsenic	7440-38-2	50	5	105	378	159	132	25.7
Barium	7440-39-3	2000	31.4	2.2 U	23	15.4	2.7 U	3.2 U
Beryllium	7440-41-7	4	*	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Cadmium	7440-43-9	5	5.6	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
Calcium	7440-70-2	*	36830	30900	58800	36100	24900	15000
Chromium	7440-47-3	100	7.8	2.9	2.6 U	4.1	2.9	2.6 U
Cobalt	7440-48-4	420	*	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
Copper	7440-50-8	1000	5.4	4.2	2.9 U	3.1	11	9.5
Iron	7439-89-6	300	1227	69.9	291	12702	43.7 U	73.3
Lead	7439-92-1	15	4	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
Magnesium	7439-95-4	*	4560	2400	3830	3170	2940	1510
Manganese	7439-96-5	50	17	1.5 U	26.6	29.3	18.8	19
Mercury	7439-97-6	2	0.12	0.04	0.04 U	0.04 U	0.04 U	0.04 U
Nickel	7440-02-0	100	*	1.7 U	1.8	24.2	7.4	1.7 U
Potassium	7440-09-7	*	5400	4980	3080	5320	5350	2410
Selenium	7782-49-2	50	9.7	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U
Silver	7440-22-4	100	*	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
Sodium	7440-23-5	160000	18222	1540	1390	1630	1550	1570
Thallium	7440-28-0	2	3.8	0.37 U	0.37 U	0.37 UJ	0.37 U	0.37 U
Vanadium	7440-62-2	49	20.6	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U
Zinc	7440-66-6	5000	4	24.8 U	19.7 U	394	156	29.7 U

TABLE 6

VALIDATED GROUNDWATER ANALYTICAL RESULTS - APRIL 2000
OPERABLE UNIT 3 - STUDY AREA 8

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS Number	Screening Criteria [a]		OLD-08-06	OLD-08-08	OLD-08-10	OLD-08-11	
SAMPLE ID		Florida GCTL [b]	NTC BGSV [c]	NTC08G00614	NTC08G00814	NTC08G01014	NTC08G01114	NTC08G01114-D
LAB ID				A0D180174008	A0D180174003	A0D180174006	A0D180174013	A0D180174015
SAMPLE DATE				4/15/00	4/15/00	4/15/00	4/16/00	4/16/00
Herbicides (µg/L)								
2,4,5-T	93-76-5	70		NA	2 U	2 U	2 U	2 U
2,4,5-TP (Silvex)	93-72-1	50		NA	2 U	2 U	2 U	2 U
2,4-D	94-75-7	70		NA	8 U	8 U	8 U	8 U
2,4-DB	94-82-6	56		NA	8 U	8 U	8 U	8 U
4-Nitrophenol	100-02-7	56		NA	4 U	4 U	4 U	4 U
Dalapon	75-99-0	200		NA	2 UR	20 UR	20 UR	20 UR
Dicamba	1918-00-9	210		NA	4 U	4 U	4 U	4 U
Dichlorprop	120-36-5	35		NA	8 U	8 U	8 U	8 U
Dinoseb	88-85-7	7		NA	1.2 U	1.2 U	1.2 U	1.2 U
MCPA	94-74-6	3.5		NA	80 U	80 U	80 U	80 U
MCPP	7085-19-0	7		NA	80 U	80 U	80 U	80 U
Pentachlorophenol	87-86-5	1		NA	0.2 U	0.2 U	0.2 U	0.2 U
Inorganics (µg/L)								
Aluminum	7429-90-5	200	4067	43 U	24.9 U	379	194	195
Antimony	7440-36-0	6	4.1	2.5	4.9	2.6	3.2	1.6 U
Arsenic	7440-38-2	50	5	42.3	200	122	959	991
Barium	7440-39-3	2000	31.4	1.7 U	6.7	13.6	1.6 U	1.5 U
Beryllium	7440-41-7	4	*	0.2 U	0.2 U	0.26 U	0.2 U	0.2 U
Cadmium	7440-43-9	5	5.6	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
Calcium	7440-70-2	*	36830	20300	79300	24600	41000	42200
Chromium	7440-47-3	100	7.8	2.6 U	2.6 U	2.6 U	3.5	5.3
Cobalt	7440-48-4	420	*	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
Copper	7440-50-8	1000	5.4	2.9 U	2.9 U	2.9 U	9.2	6.6
Iron	7439-89-6	300	1227	152	43.7 U	809	44.5	51.6
Lead	7439-92-1	15	4	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
Magnesium	7439-95-4	*	4560	1690	3400	2060	3890	4040
Manganese	7439-96-5	50	17	5.9	1.8 U	65.9	5.4	5.7
Mercury	7439-97-6	2	0.12	0.04 U	0.04 U	0.04 U	0.05	0.04 U
Nickel	7440-02-0	100	*	1.7 U	1.7 U	1.7 U	1.7 U	2.9
Potassium	7440-09-7	*	5400	2150	6550	532	12100	12600
Selenium	7782-49-2	50	9.7	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U
Silver	7440-22-4	100	*	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
Sodium	7440-23-5	160000	18222	1420	1810	5650	3940	4130
Thallium	7440-28-0	2	3.8	0.37 U	0.37 UJ	0.37 U	0.37 UJ	0.37 UJ
Vanadium	7440-62-2	49	20.6	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U
Zinc	7440-66-6	5000	4	2 U	13 U	28.4 U	26.3 U	10.8 U

TABLE 6

VALIDATED GROUNDWATER ANALYTICAL RESULTS - APRIL 2000
OPERABLE UNIT 3 - STUDY AREA 8

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS Number	Screening Criteria [a]		OLD-08-13	OLD-08-15	OLD-08-17	OLD-08-18	OLD-08-19
SAMPLE ID		Florida GCTL [b]	NTC BGSV [c]	NTC08G01314	NTC08G01514	NTC08G01714	NTC08G01814	NTC08G01914
LAB ID				A0D180174007	A0D180174011	A0D180174002	A0D180174016	A0D180174012
SAMPLE DATE				4/15/00	4/15/00	4/15/00	4/16/00	4/15/00
Herbicides (µg/L)								
2,4,5-T	93-76-5	70		NA	2 U	NA	2 U	2 U
2,4,5-TP (Silvex)	93-72-1	50		NA	2 U	NA	2 U	2 U
2,4-D	94-75-7	70		NA	8 U	NA	8 U	8 U
2,4-DB	94-82-6	56		NA	8 U	NA	8 U	8 U
4-Nitrophenol	100-02-7	56		NA	4 U	NA	4 U	4 U
Dalapon	75-99-0	200		NA	20 UR	NA	20 UR	20 UR
Dicamba	1918-00-9	210		NA	4 U	NA	4 U	4 U
Dichlorprop	120-36-5	35		NA	8 U	NA	8 U	8 U
Dinoseb	88-85-7	7		NA	1.2 U	NA	1.2 U	1.2 U
MCPA	94-74-6	3.5		NA	80 U	NA	80 U	80 U
MCPP	7085-19-0	7		NA	80 U	NA	80 U	80 U
Pentachlorophenol	87-86-5	1		NA	0.2 U	NA	0.2 U	0.2 U
Inorganics (µg/L)								
Aluminum	7429-90-5	200	4067	1450	732	25.3 U	700	2790
Antimony	7440-36-0	6	4.1	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U
Arsenic	7440-38-2	50	5	20.5	4.1	150	2.5 U	2.9
Barium	7440-39-3	2000	31.4	20.8	22	2.9 U	29.3	18.5
Beryllium	7440-41-7	4	*	0.2 U	0.2 U	0.2 U	0.25 U	0.2 U
Cadmium	7440-43-9	5	5.6	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
Calcium	7440-70-2	*	36830	11000	7050	58400	4910	12200
Chromium	7440-47-3	100	7.8	2.6 U	2.6 U	2.6 U	2.6 U	3.2
Cobalt	7440-48-4	420	*	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
Copper	7440-50-8	1000	5.4	7.3	2.9 U	2.9 U	2.9 U	5.1
Iron	7439-89-6	300	1227	1800	2000	43.7 U	2850	135
Lead	7439-92-1	15	4	2.6	1.4 U	1.4 U	1.4 U	4.7
Magnesium	7439-95-4	*	4560	2380	3930	2940	2400	2130
Manganese	7439-96-5	50	17	64	38.7	2.6 U	141	2.4 U
Mercury	7439-97-6	2	0.12	0.04	0.05	0.04 U	0.04 U	0.04 U
Nickel	7440-02-0	100	*	3.7	2.1	1.7 U	2.5	1.7 U
Potassium	7440-09-7	*	5400	875	385	6440	1090	1610
Selenium	7782-49-2	50	9.7	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U
Silver	7440-22-4	100	*	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
Sodium	7440-23-5	160000	18222	10300	17400	1850	8590	9860
Thallium	7440-28-0	2	3.8	0.37 UJ	0.37 U	0.37 UJ	0.37 U	0.37 U
Vanadium	7440-62-2	49	20.6	2.1	2.1 U	2.1 U	5.5	2.1 U
Zinc	7440-66-6	5000	4	28.4 U	4.8 U	8.2 U	4.2 U	22.1 U

TABLE 6

VALIDATED GROUNDWATER ANALYTICAL RESULTS - APRIL 2000
OPERABLE UNIT 3 - STUDY AREA 8

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS Number	Screening Criteria [a]		OLD-08-20	OLD-08-21
SAMPLE ID		Florida GCTL [b]	NTC BGSV [c]	NTC08G02014	NTC08G02114
LAB ID				A0D180174014	A0D180174017
SAMPLE DATE				4/16/00	4/16/00
Herbicides (µg/L)					
2,4,5-T	93-76-5	70		2 U	2 U
2,4,5-TP (Silvex)	93-72-1	50		2 U	2 U
2,4-D	94-75-7	70		8 U	8 U
2,4-DB	94-82-6	56		8 U	8 U
4-Nitrophenol	100-02-7	56		4 U	4 U
Dalapon	75-99-0	200		20 UR	20 UR
Dicamba	1918-00-9	210		4 U	4 U
Dichlorprop	120-36-5	35		8 U	8 U
Dinoseb	88-85-7	7		1.2 U	1.2 U
MCPA	94-74-6	3.5		80 U	80 U
MCPP	7085-19-0	7		80 U	80 U
Pentachlorophenol	87-86-5	1		0.07 J	0.2 U
Inorganics (µg/L)					
Aluminum	7429-90-5	200	4067	524	661
Antimony	7440-36-0	6	4.1	1.6 U	1.6 U
Arsenic	7440-38-2	50	5	2.5 U	2.6
Barium	7440-39-3	2000	31.4	7.2	5.5
Beryllium	7440-41-7	4	*	0.2 U	0.2 U
Cadmium	7440-43-9	5	5.6	0.7 U	0.7 U
Calcium	7440-70-2	*	36830	19000	3640
Chromium	7440-47-3	100	7.8	2.6 U	2.6 U
Cobalt	7440-48-4	420	*	1.5 U	1.5 U
Copper	7440-50-8	1000	5.4	2.9 U	2.9 U
Iron	7439-89-6	300	1227	43.7 U	105
Lead	7439-92-1	15	4	1.4 U	1.4 U
Magnesium	7439-95-4	*	4560	3740	2980
Manganese	7439-96-5	50	17	1.5 U	1.9 U
Mercury	7439-97-6	2	0.12	0.04 U	0.06
Nickel	7440-02-0	100	*	1.7 U	1.7 U
Potassium	7440-09-7	*	5400	1760	987
Selenium	7782-49-2	50	9.7	3.1 U	3.1 U
Silver	7440-22-4	100	*	1.9 U	1.9 U
Sodium	7440-23-5	160000	18222	6820	7290
Thallium	7440-28-0	2	3.8	0.37 U	0.37 U
Vanadium	7440-62-2	49	20.6	2.1 U	2.8
Zinc	7440-66-6	5000	4	2.3 U	8.3 U

Notes:

* indicates that the criteria or screening value not available.
"J" qualifier indicates an estimated value.
"U" qualifier indicates a non-detect.
"R" qualifier indicates rejected value.
NA Not analyzed.
Values in shaded cells are equal to or exceed the screening criteria.

(a) For an organic analyte, the screening criterion is the GCTL; for an inorganic analyte with an established GCTL and BGSV, the screening criterion is the greater of the GCTL or the BGSV.
(b) Groundwater Cleanup Target Level (Development of Soil Cleanup Target Levels (SCTLs) for Chapter 62-777, F.A.C., May 26, 1999)
(c) Background Screening Value (Background Sampling Report for NTC, Orlando, Florida; ABB Environmental Services, August 1995) for inorganics only.
(d) Screening Criteria Substitution – Chlordane for alpha-Chlordane and gamma-Chlordane, and Endosulfan for Endosulfan II.

TABLE 7

VALIDATED GROUNDWATER ANALYTICAL RESULTS - APRIL 2000
OPERABLE UNIT 3 - STUDY AREA 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS Number	Screening Criteria[a]		OLD-09-01		OLD-09-02	OLD-09-03		OLD-09-04
SAMPLE ID				NTC09G00114	NTC09G00114-D	NTC09G00214	NTC09G00314	NTC09G00314-D	NTC09G00414
LAB ID		Florida GCTL[b]	NTC BGSV[c]	A0D150148003	A0D150148004	A0D150148005	A0D150148006	A0D150148007	A0D150148008
SAMPLE DATE				4/13/00	4/13/00	4/13/00	4/13/00	4/13/00	4/13/00
Semivolatiles (µg/L)									
1,2,4-Trichlorobenzene	120-82-1	70		NA	NA	NA	10 U	10 U	10 U
1,2-Dichlorobenzene	95-50-1	600		NA	NA	NA	10 U	10 U	10 U
1,3-Dichlorobenzene	541-73-1	10		NA	NA	NA	10 U	10 U	10 U
1,4-Dichlorobenzene	106-46-7	75		NA	NA	NA	10 U	10 U	10 U
2,4,5-Trichlorophenol	95-95-4	4		NA	NA	NA	10 U	10 U	10 U
2,4,6-Trichlorophenol	88-06-2	3.2		NA	NA	NA	10 U	10 U	10 U
2,4-Dichlorophenol	120-83-2	0.5		NA	NA	NA	10 U	10 U	10 U
2,4-Dimethylphenol	105-67-9	140		NA	NA	NA	10 U	10 U	10 U
2,4-Dinitrophenol	51-28-5	14		NA	NA	NA	10 U	10 U	10 U
2,4-Dinitrotoluene	121-14-2	0.1		NA	NA	NA	25 U	25 U	25 U
2,6-Dinitrotoluene	606-20-2	0.1		NA	NA	NA	10 U	10 U	10 U
2-Chloronaphthalene	91-58-7	560		NA	NA	NA	10 U	10 U	10 U
2-Chlorophenol	95-57-8	35		NA	NA	NA	10 U	10 U	10 U
2-Methylphenol	95-48-7	35		NA	NA	NA	10 U	10 U	10 U
2-Nitroaniline	88-74-4	50		NA	NA	NA	10 U	10 U	10 U
2-Nitrophenol	88-75-5	*		NA	NA	NA	25 U	25 U	25 U
3,3'-Dichlorobenzidine	91-94-1	12		NA	NA	NA	10 U	10 U	10 U
3-Nitroaniline	99-09-2	50		NA	NA	NA	10 U	10 U	10 U
4,6-Dinitro-2-Methylphenol	534-52-1	*		NA	NA	NA	25 U	25 U	25 U
4-Bromophenyl Phenyl Ether	101-55-3	406		NA	NA	NA	25 U	25 U	25 U
4-Chloro-3-Methylphenol	59-50-7	63		NA	NA	NA	10 U	10 U	10 U
4-Chloroaniline	106-47-8	28		NA	NA	NA	10 U	10 U	10 U
4-Chlorophenyl Phenyl Ether	7005-72-3	*		NA	NA	NA	10 UR	10 UR	10 UR
4-Methylphenol	106-44-5	4		NA	NA	NA	10 U	10 U	10 U
Nitroaniline	100-01-6	21		NA	NA	NA	10 U	10 U	10 U
Nitrophenol	100-02-7	56		NA	NA	NA	25 U	25 U	25 U
Bis(2-Chloroethoxy)Methane	111-91-1	*		NA	NA	NA	25 U	25 U	25 U
Bis(2-Chloroethyl)Ether	111-44-4	4		NA	NA	NA	10 U	10 U	10 U
Bis(2-Chloroisopropyl)Ether	108-60-1	10		NA	NA	NA	10 U	10 U	10 U
Bis(2-Ethylhexyl)Phthalate	117-81-7	6		NA	NA	NA	10 U	10 U	10 U
Butylbenzyl Phthalate	85-68-7	140		NA	NA	NA	10 U	10 U	10 U
Carbazole	86-74-8	4		NA	NA	NA	10 U	10 U	10 U
Di-N-Butyl Phthalate	84-74-2	700		NA	NA	NA	10 U	10 U	10 U
Di-N-Octyl Phthalate	117-84-0	140		NA	NA	NA	10 U	10 U	10 U
Dibenzofuran	132-64-9	28		NA	NA	NA	10 U	10 U	10 U
Diethyl Phthalate	84-66-2	5600		NA	NA	NA	10 U	10 U	10 U
Dimethyl Phthalate	131-11-3	70000		NA	NA	NA	10 U	10 U	10 U
Hexachlorobenzene	118-74-1	1		NA	NA	NA	10 U	10 U	10 U
Hexachlorobutadiene	87-68-3	0.5		NA	NA	NA	10 U	10 U	10 U
Hexachlorocyclopentadiene	77-47-4	50		NA	NA	NA	10 U	10 U	10 U
Hexachloroethane	67-72-1	2.5		NA	NA	NA	10 U	10 U	10 U
Isophorone	78-59-1	37		NA	NA	NA	10 U	10 U	10 U
N-Nitroso-Di-N-Propylamine	621-64-7	4		NA	NA	NA	10 U	10 U	10 U
N-Nitrosodiphenylamine	86-30-6	7.1		NA	NA	NA	10 U	10 U	10 U
Nitrobenzene	98-95-3	4		NA	NA	NA	10 U	10 U	10 U
Pentachlorophenol	87-86-5	1		NA	NA	NA	10 U	10 U	10 U
Phenol	108-95-2	10		NA	NA	NA	25 U	25 U	25 U
PAHs (µg/L)							10 U	10 U	10 U
1-Methylnaphthalene	90-12-0	20		NA	NA	NA	2 U	2 U	3.5
2-Methylnaphthalene	91-57-6	20		NA	NA	NA	2 U	2 U	3.6
Acenaphthene	83-32-9	20		NA	NA	NA	1 U	1 U	1 U
Acenaphthylene	208-96-8	210		NA	NA	NA	1 U	1 U	1 U
Anthracene	120-12-7	2100		NA	NA	NA	1 U	1 U	1 U
Benzo(a)anthracene	56-55-3	0.2		NA	NA	NA	0.1 U	0.1 U	0.1 U
Benzo(a)pyrene	50-32-8	0.2		NA	NA	NA	0.1 U	0.1 U	0.1 U
Benzo(b)fluoranthene	205-99-2	0.2		NA	NA	NA	0.1 U	0.1 U	0.1 U
Benzo(g,h,i)perylene	191-24-2	210		NA	NA	NA	0.1 U	0.1 U	0.1 U
Benzo(k)fluoranthene	207-08-9	0.5		NA	NA	NA	0.3 U	0.3 U	0.3 U
Chrysene	218-01-9	4.8		NA	NA	NA	0.1 U	0.1 U	0.1 U
Dibenzo(a,h)anthracene	53-70-3	0.2		NA	NA	NA	0.1 U	0.1 U	0.1 U
Fluoranthene	206-44-0	280		NA	NA	NA	0.2 U	0.2 U	0.2 U

TABLE 7

VALIDATED GROUNDWATER ANALYTICAL RESULTS - APRIL 2000
OPERABLE UNIT 3 - STUDY AREA 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS Number	Screening Criteria[a]		OLD-09-01		OLD-09-02	OLD-09-03		OLD-09-04
SAMPLE ID				NTC09G00114	NTC09G00114-D	NTC09G00214	NTC09G00314	NTC09G00314-D	NTC09G00414
LAB ID		Florida GCTL[b]	NTC BGSV[c]	A0D150148003	A0D150148004	A0D150148005	A0D150148006	A0D150148007	A0D150148008
SAMPLE DATE				4/13/00	4/13/00	4/13/00	4/13/00	4/13/00	4/13/00
PAHs (µg/L) (Continued)									
Fluorene	86-73-7	280		NA	NA	NA	2 U	2 U	2 U
Indeno(1,2,3-cd)pyrene	193-39-5	0.2		NA	NA	NA	0.1 U	0.1 U	0.1 U
Naphthalene	91-20-3	20		NA	NA	NA	2 U	2 U	4.2
Phenanthrene	85-01-8	210		NA	NA	NA	1 U	1 U	1 U
Pyrene	129-00-0	210		NA	NA	NA	0.1 U	0.1 U	0.1 U
Pesticides (µg/L)									
4,4'-DDD	72-54-8	0.1		0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.27 R
4,4'-DDE	72-55-9	0.1		0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.76 J
4,4'-DDT	50-29-3	0.1		0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ
Aldrin	309-00-2	0.005		0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.48 J
alpha-BHC	319-84-6	0.2		0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U
alpha-Chlordane[d]	5103-71-9	2		0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.56
beta-BHC	319-85-7	0.02		0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U
delta-BHC	319-86-8	2.1		0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U
Dieldrin	60-57-1	0.005		0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U
Endosulfan I	959-98-8	42		0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.29 R
Endosulfan II[d]	33213-65-9	42		0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U
Endosulfan Sulfate	1031-07-8	*		0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U
Endrin	72-20-8	2		0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.16
Endrin Aldehyde	7421-93-4	*		0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.24 J
Endrin Ketone	53494-70-5	*		0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ
gamma-BHC (Lindane)	58-89-9	0.2		0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U
gamma-Chlordane[d]	5103-74-2	2		0.04 J	0.044 J	0.05 UJ	0.05 UJ	0.05 UJ	0.7 J
Heptachlor	76-44-8	0.4		0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ
Heptachlor Epoxide	1024-57-3	0.2		0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U
Methoxychlor	72-43-5	40		0.1 UJ	0.1 U	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ
Toxaphene	8001-35-2	3		2 UJ	2 U	2 UJ	2 UJ	2 UJ	2 U
Herbicides (µg/L)									
2,4,5-T	93-76-5	70		2 U	2 U	2 U	2 U	2 U	2 U
2,4,5-TP (Silvex)	93-72-1	50		2 U	2 U	2 U	2 U	2 U	2 U
2,4-D	94-75-7	70		8 U	8 U	8 U	8 U	8 U	8 U
2,4-DB	94-82-6	56		8 U	8 U	8 U	8 U	8 U	8 U
4-Nitrophenol	100-02-7	56		4 U	4 U	4 U	4 U	4 U	4 U
Dalapon	75-99-0	200		4 UR	4 UR	4 UR	4 UR	4 UR	4 UR
Dicamba	1918-00-9	210		4 U	4 U	4 U	4 U	4 U	0.27 J
Dichlorprop	120-36-5	35		8 U	8 U	8 U	8 U	8 U	8 U
Dinoseb	88-85-7	7		1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
MCPA	94-74-6	3.5		80 U	80 U	80 U	80 U	80 U	80 U
MCPP	7085-19-0	7		80 U	80 U	80 U	80 U	80 U	80 U
Pentachlorophenol	87-86-5	1		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Inorganics (µg/L)									
Aluminum	7429-90-5	200	4067	66.7 U	62.8 U	1490	634 U	632 U	297 U
Antimony	7440-36-0	6	4.1	5.7 U	6.2 U	4.8 U	5.3 U	5.3 U	5 U
Arsenic	7440-38-2	50	5	18.2	18.1	2.5 U	2.5 U	2.5 U	286
Barium	7440-39-3	2000	31.4	46.9	46.4	1.8 U	2.3 U	2.5 U	10.4 U
Beryllium	7440-41-7	4	*	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Cadmium	7440-43-9	5	5.6	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
Calcium	7440-70-2	*	36830	122000	121000	7780	10400	10300	37400
Chromium	7440-47-3	100	7.8	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U
Cobalt	7440-48-4	420	*	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
Copper	7440-50-8	1000	5.4	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	5.2
Iron	7439-89-6	300	1227	304	307	151	151	157	1900
Lead	7439-92-1	15	4	1.4 U	1.4 U	2.3 U	1.4 U	1.8 U	2.6 U
Magnesium	7439-95-4	*	4560	7220	7170	1960	2130	2140	3260
Manganese	7439-96-5	50	17	25.1	24.9	4 U	3.1 U	1.2 U	47.6
Mercury	7439-97-6	2	0.12	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Nickel	7440-02-0	100	*	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Potassium	7440-09-7	*	5400	6170	6160	3050	3290	3260	7190
Selenium	7782-49-2	50	9.7	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U
Silver	7440-22-4	100	*	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
Sodium	7440-23-5	160000	18222	1500	1550	1720	1670	1670	686 U
Thallium	7440-28-0	2	3.8	1.2 U	1.1 U	0.9 U	0.8 U	1.2 U	1.1 U
Vanadium	7440-62-2	49	20.6	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U
Zinc	7440-66-6	5000	4	10.6 U	11.4 U	9.1 U	8.9 U	11.3 U	19.6 U

TABLE 7

VALIDATED GROUNDWATER ANALYTICAL RESULTS - APRIL 2000
OPERABLE UNIT 3 - STUDY AREA 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS Number	Screening Criteria[a]		OLD-09-05	OLD-09-06	OLD-09-07	OLD-09-10	OLD-09-11	OLD-09-12
SAMPLE ID				NTC09G00514	NTC09G00614	NTC09G00714	NTC09G01014	NTC09G01114	NTC09G01214
LAB ID		Florida GCTL[b]	NTC BGSV[c]	A0D150148009	A0D150148010	A0D150148011	A0D150148012	A0D150148013	A0D150148014
SAMPLE DATE				4/14/00	4/13/00	4/13/00	4/13/00	4/13/00	4/13/00
Semivolatiles (µg/L)									
1,2,4-Trichlorobenzene	120-82-1	70		NA	NA	NA	NA	NA	10 U
1,2-Dichlorobenzene	95-50-1	600		NA	NA	NA	NA	NA	10 U
1,3-Dichlorobenzene	541-73-1	10		NA	NA	NA	NA	NA	10 U
1,4-Dichlorobenzene	106-46-7	75		NA	NA	NA	NA	NA	10 U
2,4,5-Trichlorophenol	95-95-4	4		NA	NA	NA	NA	NA	1.4 J
2,4,6-Trichlorophenol	88-06-2	3.2		NA	NA	NA	NA	NA	1.2 J
2,4-Dichlorophenol	120-83-2	0.5		NA	NA	NA	NA	NA	2.3 J
2,4-Dimethylphenol	105-67-9	140		NA	NA	NA	NA	NA	10 U
2,4-Dinitrophenol	51-28-5	14		NA	NA	NA	NA	NA	25 U
2,4-Dinitrotoluene	121-14-2	0.1		NA	NA	NA	NA	NA	10 U
2,6-Dinitrotoluene	606-20-2	0.1		NA	NA	NA	NA	NA	10 U
2-Chloronaphthalene	91-58-7	560		NA	NA	NA	NA	NA	10 U
2-Chlorophenol	95-57-8	35		NA	NA	NA	NA	NA	10 U
2-Methylphenol	95-48-7	35		NA	NA	NA	NA	NA	10 U
2-Nitroaniline	88-74-4	50		NA	NA	NA	NA	NA	25 U
2-Nitrophenol	88-75-5	*		NA	NA	NA	NA	NA	10 U
3,3'-Dichlorobenzidine	91-94-1	12		NA	NA	NA	NA	NA	10 U
3-Nitroaniline	99-09-2	50		NA	NA	NA	NA	NA	25 U
4,6-Dinitro-2-Methylphenol	534-52-1	*		NA	NA	NA	NA	NA	25 U
4-Bromophenyl Phenyl Ether	101-55-3	406		NA	NA	NA	NA	NA	10 U
4-Chloro-3-Methylphenol	59-50-7	63		NA	NA	NA	NA	NA	10 U
4-Chloroaniline	106-47-8	28		NA	NA	NA	NA	NA	10 UR
4-Chlorophenyl Phenyl Ether	7005-72-3	*		NA	NA	NA	NA	NA	10 U
4-Methylphenol	106-44-5	4		NA	NA	NA	NA	NA	10 U
Nitroaniline	100-01-6	21		NA	NA	NA	NA	NA	25 U
-Nitrophenol	100-02-7	56		NA	NA	NA	NA	NA	25 U
Bis(2-Chloroethoxy)Methane	111-91-1	*		NA	NA	NA	NA	NA	10 U
Bis(2-Chloroethyl)Ether	111-44-4	4		NA	NA	NA	NA	NA	10 U
Bis(2-Chloroisopropyl)Ether	108-60-1	10		NA	NA	NA	NA	NA	10 U
Bis(2-Ethylhexyl)Phthalate	117-81-7	6		NA	NA	NA	NA	NA	10 U
Butylbenzyl Phthalate	85-68-7	140		NA	NA	NA	NA	NA	10 U
Carbazole	86-74-8	4		NA	NA	NA	NA	NA	10 U
Di-N-Butyl Phthalate	84-74-2	700		NA	NA	NA	NA	NA	10 U
Di-N-Octyl Phthalate	117-84-0	140		NA	NA	NA	NA	NA	10 U
Dibenzofuran	132-64-9	28		NA	NA	NA	NA	NA	10 U
Diethyl Phthalate	84-66-2	5600		NA	NA	NA	NA	NA	10 U
Dimethyl Phthalate	131-11-3	70000		NA	NA	NA	NA	NA	10 U
Hexachlorobenzene	118-74-1	1		NA	NA	NA	NA	NA	10 U
Hexachlorobutadiene	87-68-3	0.5		NA	NA	NA	NA	NA	10 U
Hexachlorocyclopentadiene	77-47-4	50		NA	NA	NA	NA	NA	10 U
Hexachloroethane	67-72-1	2.5		NA	NA	NA	NA	NA	10 U
Isophorone	78-59-1	37		NA	NA	NA	NA	NA	10 U
N-Nitroso-Di-N-Propylamine	621-64-7	4		NA	NA	NA	NA	NA	10 U
N-Nitrosodiphenylamine	86-30-6	7.1		NA	NA	NA	NA	NA	10 U
Nitrobenzene	98-95-3	4		NA	NA	NA	NA	NA	10 U
Pentachlorophenol	87-86-5	1		NA	NA	NA	NA	NA	25 U
Phenol	108-95-2	10		NA	NA	NA	NA	NA	10 U
PAHs (µg/L)									
1-Methylnaphthalene	90-12-0	20		NA	NA	NA	NA	NA	0.46 J
2-Methylnaphthalene	91-57-6	20		NA	NA	NA	NA	NA	0.75 J
Acenaphthene	83-32-9	20		NA	NA	NA	NA	NA	1 U
Acenaphthylene	208-96-8	210		NA	NA	NA	NA	NA	1 U
Anthracene	120-12-7	2100		NA	NA	NA	NA	NA	1 U
Benzo(a)anthracene	56-55-3	0.2		NA	NA	NA	NA	NA	0.1 U
Benzo(a)pyrene	50-32-8	0.2		NA	NA	NA	NA	NA	0.1 U
Benzo(b)fluoranthene	205-99-2	0.2		NA	NA	NA	NA	NA	0.1 U
Benzo(g,h,i)perylene	191-24-2	210		NA	NA	NA	NA	NA	0.1 U
Benzo(k)fluoranthene	207-08-9	0.5		NA	NA	NA	NA	NA	0.3 U
ysene	218-01-9	4.8		NA	NA	NA	NA	NA	0.1 U
Dibenzo(a,h)anthracene	53-70-3	0.2		NA	NA	NA	NA	NA	0.1 U
Fluoranthene	206-44-0	280		NA	NA	NA	NA	NA	0.2 U

TABLE 7

VALIDATED GROUNDWATER ANALYTICAL RESULTS - APRIL 2000
OPERABLE UNIT 3 - STUDY AREA 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS Number	Screening Criteria[a]		OLD-09-05	OLD-09-06	OLD-09-07	OLD-09-10	OLD-09-11	OLD-09-12
SAMPLE ID				NTC09G00514	NTC09G00614	NTC09G00714	NTC09G01014	NTC09G01114	NTC09G01214
LAB ID		Florida GCTL[b]	NTC BGSV[c]	A0D150148009	A0D150148010	A0D150148011	A0D150148012	A0D150148013	A0D150148014
SAMPLE DATE				4/14/00	4/13/00	4/13/00	4/13/00	4/13/00	4/13/00
PAHs (µg/L) (Continued)									
Fluorene	86-73-7	280		NA	NA	NA	NA	NA	2 U
Indeno(1,2,3-cd)pyrene	193-39-5	0.2		NA	NA	NA	NA	NA	0.1 U
Naphthalene	91-20-3	20		NA	NA	NA	NA	NA	2.3
Phenanthrene	85-01-8	210		NA	NA	NA	NA	NA	1 U
Pyrene	129-00-0	210		NA	NA	NA	NA	NA	0.1 U
Pesticides (µg/L)									
4,4'-DDD	72-54-8	0.1		0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.1 U	0.5 U
4,4'-DDE	72-55-9	0.1		0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.063 J	0.47 R
4,4'-DDT	50-29-3	0.1		0.05 U	0.053 J	0.05 UJ	0.05 UJ	0.1 UJ	0.5 UJ
Aldrin	309-00-2	0.005		0.05 U	0.028 R	0.05 UJ	0.05 UJ	0.1 U	0.5 U
alpha-BHC	319-84-6	0.2		0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.092 J	0.5 U
alpha-Chlordane[d]	5103-71-9	2		0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.098 J	0.5 U
beta-BHC	319-85-7	0.02		0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.1 U	0.5 U
delta-BHC	319-86-8	2.1		0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.1 U	0.5 U
Dieldrin	60-57-1	0.005		0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.1 U	0.5 U
Endosulfan I	959-98-8	42		0.05 U	0.14 R	0.05 UJ	0.05 UJ	0.14 R	1.2 J
Endosulfan II[d]	33213-65-9	42		0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.1 U	0.5 U
Endosulfan Sulfate	1031-07-8	*		0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.1 U	0.5 U
Endrin	72-20-8	2		0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.1 U	0.5 U
Endrin Aldehyde	7421-93-4	*		0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.1 U	0.5 U
Endrin Ketone	53494-70-5	*		0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.1 UJ	0.5 UJ
gamma-BHC (Lindane)	58-89-9	0.2		0.05 U	0.05 U	0.05 UJ	0.05 UJ	1.3	5.2
gamma-Chlordane[d]	5103-74-2	2		0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.065 J	0.5 U
Heptachlor	76-44-8	0.4		0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.1 UJ	0.5 UJ
Heptachlor Epoxide	1024-57-3	0.2		0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.1 U	0.5 U
Methoxychlor	72-43-5	40		0.1 U	0.1 U	0.1 UJ	0.1 UJ	0.2 UJ	1 UJ
Toxaphene	8001-35-2	3		2 U	2 U	2 UJ	2 UJ	4 U	20 U
Herbicides (µg/L)									
2,4,5-T	93-76-5	70		2 U	2 U	2 U	2 U	2 U	2 U
2,4,5-TP (Silvex)	93-72-1	50		2 U	0.52 J	2 U	2 U	2 U	0.69 J
2,4-D	94-75-7	70		8 U	8 U	8 U	8 U	0.19 J	6.2 J
2,4-DB	94-82-6	56		8 U	8 U	8 U	8 U	8 U	0.79 R
4-Nitrophenol	100-02-7	56		4 U	4 U	4 U	4 U	4 U	4 U
Dalapon	75-99-0	200		4 UR	4 UR	4 UR	4 UR	4 UR	4 UR
Dicamba	1918-00-9	210		4 U	8.7 J	4 U	4 U	4 U	4 U
Dichlorprop	120-36-5	35		8 U	8 U	8 U	8 U	8 U	0.48 R
Dinoseb	88-85-7	7		1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	0.15 R
MCPA	94-74-6	3.5		80 U	80 U	80 U	80 U	80 U	80 U
MCPP	7085-19-0	7		80 U	80 U	80 U	80 U	80 U	80 U
Pentachlorophenol	87-86-5	1		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Inorganics (µg/L)									
Aluminum	7429-90-5	200	4067	74.9 U	1400	945	643 U	1440	1020
Antimony	7440-36-0	6	4.1	6.3 U	1.6 U	5.9 U	5.5 U	6.6 U	5.2 U
Arsenic	7440-38-2	50	5	104	50.5	2.5 U	2.5 U	34.1	90
Barium	7440-39-3	2000	31.4	4.2 U	12.7 U	5.6 U	6.3 U	15.5	4.8 U
Beryllium	7440-41-7	4	*	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Cadmium	7440-43-9	5	5.6	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
Calcium	7440-70-2	*	36830	49000	12000	5890	26600	27700	5950
Chromium	7440-47-3	100	7.8	2.6 U	2.6 U	3.2	2.6 U	2.9	2.6 U
Cobalt	7440-48-4	420	*	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
Copper	7440-50-8	1000	5.4	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U
Iron	7439-89-6	300	1227	301	749	366	723	1600	396
Lead	7439-92-1	15	4	1.5 U	1.4 U	1.8 U	1.4 U	11.2	2.3 U
Magnesium	7439-95-4	*	4560	4420	2240	811	2420	1510	970
Manganese	7439-96-5	50	17	9.1 U	15.9	3.9 U	17.2	28.8	6.2 U
Mercury	7439-97-6	2	0.12	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Nickel	7440-02-0	100	*	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Potassium	7440-09-7	*	5400	8170	2660	720	2980	6960	7260
Selenium	7782-49-2	50	9.7	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U
Silver	7440-22-4	100	*	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
Sodium	7440-23-5	160000	18222	1370	4190	1510	1650	1520	686 U
Thallium	7440-28-0	2	3.8	0.9 U	0.8 U	0.9 U	1.2 U	0.37 UJ	0.37 UJ
Vanadium	7440-62-2	49	20.6	2.1 U	2.8	2.1	2.1 U	2.1 U	2.1 U
Zinc	7440-66-6	5000	4	14.3 U	1.4 U	59.5 U	20.8 U	17.7 U	30.3 U

TABLE 7

VALIDATED GROUNDWATER ANALYTICAL RESULTS - APRIL 2000
OPERABLE UNIT 3 - STUDY AREA 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS Number	Screening Criteria[a]		OLD-09-14	OLD-09-15	OLD-09-16	OLD-09-17	OLD-09-19
SAMPLE ID				NTC09G01414	NTC09G01514	NTC09G01614	NTC09G01714	NTC09G01914
LAB ID		Florida GCTL[b]	NTC BGSV[c]	A0D150148018	A0D150148019	A0D150148015	A0D150148016	A0D150148017
SAMPLE DATE				4/14/00	4/14/00	4/13/00	4/14/00	4/13/00
Semivolatiles (µg/L)								
1,2,4-Trichlorobenzene	120-82-1	70		10 U	10 U	NA	NA	NA
1,2-Dichlorobenzene	95-50-1	600		10 U	10 U	NA	NA	NA
1,3-Dichlorobenzene	541-73-1	10		10 U	10 U	NA	NA	NA
1,4-Dichlorobenzene	106-46-7	75		10 U	10 U	NA	NA	NA
2,4,5-Trichlorophenol	95-95-4	4		10 U	10 U	NA	NA	NA
2,4,6-Trichlorophenol	88-06-2	3.2		10 U	10 U	NA	NA	NA
2,4-Dichlorophenol	120-83-2	0.5		10 U	10 U	NA	NA	NA
2,4-Dimethylphenol	105-67-9	140		10 U	10 U	NA	NA	NA
2,4-Dinitrophenol	51-28-5	14		25 U	25 U	NA	NA	NA
2,4-Dinitrotoluene	121-14-2	0.1		10 U	10 U	NA	NA	NA
2,6-Dinitrotoluene	606-20-2	0.1		10 U	10 U	NA	NA	NA
2-Chloronaphthalene	91-58-7	560		10 U	10 U	NA	NA	NA
2-Chlorophenol	95-57-8	35		10 U	10 U	NA	NA	NA
2-Methylphenol	95-48-7	35		10 U	10 U	NA	NA	NA
2-Nitroaniline	88-74-4	50		25 U	25 U	NA	NA	NA
2-Nitrophenol	88-75-5	*		10 U	10 U	NA	NA	NA
3,3'-Dichlorobenzidine	91-94-1	12		10 U	10 U	NA	NA	NA
3-Nitroaniline	99-09-2	50		25 U	25 U	NA	NA	NA
4,6-Dinitro-2-Methylphenol	534-52-1	*		25 U	25 U	NA	NA	NA
4-Bromophenyl Phenyl Ether	101-55-3	406		10 U	10 U	NA	NA	NA
4-Chloro-3-Methylphenol	59-50-7	63		10 U	10 U	NA	NA	NA
4-Chloroaniline	106-47-8	28		10 UR	10 UR	NA	NA	NA
4-Chlorophenyl Phenyl Ether	7005-72-3	*		10 U	10 U	NA	NA	NA
4-Methylphenol	106-44-5	4		10 U	10 U	NA	NA	NA
4-Nitroaniline	100-01-6	21		25 U	25 U	NA	NA	NA
4-Nitrophenol	100-02-7	56		25 U	25 U	NA	NA	NA
Bis(2-Chloroethoxy)Methane	111-91-1	*		10 U	10 U	NA	NA	NA
Bis(2-Chloroethyl)Ether	111-44-4	4		10 U	10 U	NA	NA	NA
Bis(2-Chloroisopropyl)Ether	108-60-1	10		10 U	10 U	NA	NA	NA
Bis(2-Ethylhexyl)Phthalate	117-81-7	6		10 U	10 U	NA	NA	NA
Butylbenzyl Phthalate	85-68-7	140		10 U	10 U	NA	NA	NA
Carbazole	86-74-8	4		10 U	10 U	NA	NA	NA
Di-N-Butyl Phthalate	84-74-2	700		10 U	10 U	NA	NA	NA
Di-N-Octyl Phthalate	117-84-0	140		10 U	10 U	NA	NA	NA
Dibenzofuran	132-64-9	28		10 U	10 U	NA	NA	NA
Diethyl Phthalate	84-66-2	5600		10 U	10 U	NA	NA	NA
Dimethyl Phthalate	131-11-3	70000		10 U	10 U	NA	NA	NA
Hexachlorobenzene	118-74-1	1		10 U	10 U	NA	NA	NA
Hexachlorobutadiene	87-68-3	0.5		10 U	10 U	NA	NA	NA
Hexachlorocyclopentadiene	77-47-4	50		10 U	10 U	NA	NA	NA
Hexachloroethane	67-72-1	2.5		10 U	10 U	NA	NA	NA
Isophorone	78-59-1	37		10 U	10 U	NA	NA	NA
N-Nitroso-Di-N-Propylamine	621-64-7	4		10 U	10 U	NA	NA	NA
N-Nitrosodiphenylamine	86-30-6	7.1		10 U	10 U	NA	NA	NA
Nitrobenzene	98-95-3	4		10 U	10 U	NA	NA	NA
Pentachlorophenol	87-86-5	1		25 U	25 U	NA	NA	NA
Phenol	108-95-2	10		10 U	10 U	NA	NA	NA
PAHs (µg/L)								
1-Methylnaphthalene	90-12-0	20		0.58 J	2 U	NA	NA	NA
2-Methylnaphthalene	91-57-6	20		0.69 J	2 U	NA	NA	NA
Acenaphthene	83-32-9	20		1 U	1 U	NA	NA	NA
Acenaphthylene	208-96-8	210		1 U	1 U	NA	NA	NA
Anthracene	120-12-7	2100		1 U	1 U	NA	NA	NA
Benzo(a)anthracene	56-55-3	0.2		0.1 U	0.1 U	NA	NA	NA
Benzo(a)pyrene	50-32-8	0.2		0.1 U	0.1 U	NA	NA	NA
Benzo(b)fluoranthene	205-99-2	0.2		0.1 U	0.1 U	NA	NA	NA
Benzo(g,h,i)perylene	191-24-2	210		0.1 U	0.1 U	NA	NA	NA
Benzo(k)fluoranthene	207-08-9	0.5		0.3 U	0.3 U	NA	NA	NA
Chrysene	218-01-9	4.8		0.1 U	0.1 U	NA	NA	NA
Dibenzo(a,h)anthracene	53-70-3	0.2		0.1 U	0.1 U	NA	NA	NA
Fluoranthene	206-44-0	280		0.2 U	0.2 U	NA	NA	NA

TABLE 7

VALIDATED GROUNDWATER ANALYTICAL RESULTS - APRIL 2000
OPERABLE UNIT 3 - STUDY AREA 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS Number	Screening Criteria[a]		OLD-09-14	OLD-09-15	OLD-09-16	OLD-09-17	OLD-09-19
SAMPLE ID				NTC09G01414	NTC09G01514	NTC09G01614	NTC09G01714	NTC09G01914
LAB ID		Florida GCTL[b]	NTC BGSV[c]	A0D150148018	A0D150148019	A0D150148015	A0D150148016	A0D150148017
SAMPLE DATE				4/14/00	4/14/00	4/13/00	4/14/00	4/13/00
PAHs (µg/L) (Continued)								
Fluorene	86-73-7	280		2 U	2 U	NA	NA	NA
Indeno(1,2,3-cd)pyrene	193-39-5	0.2		0.1 U	0.1 U	NA	NA	NA
Naphthalene	91-20-3	20		2	6.6	NA	NA	NA
Phenanthrene	85-01-8	210		1 U	1 U	NA	NA	NA
Pyrene	129-00-0	210		0.1 U	0.1 U	NA	NA	NA
Pesticides (µg/L)								
4,4'-DDD	72-54-8	0.1		0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 U
4,4'-DDE	72-55-9	0.1		0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 U
4,4'-DDT	50-29-3	0.1		0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 U
Aldrin	309-00-2	0.005		0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 U
alpha-BHC	319-84-6	0.2		0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 U
alpha-Chlordane[d]	5103-71-9	2		0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 U
beta-BHC	319-85-7	0.02		0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 U
delta-BHC	319-86-8	2.1		0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 U
Dieldrin	60-57-1	0.005		0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 U
Endosulfan I	959-98-8	42		0.05 U	0.02 J	0.05 UJ	0.05 U	0.05 U
Endosulfan II[d]	33213-65-9	42		0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 U
Endosulfan Sulfate	1031-07-8	*		0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 U
Endrin	72-20-8	2		0.05 UJ	0.12 R	0.05 UJ	0.05 U	0.05 UJ
Endrin Aldehyde	7421-93-4	*		0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 U
Endrin Ketone	53494-70-5	*		0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 U
gamma-BHC (Lindane)	58-89-9	0.2		0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 U
gamma-Chlordane[d]	5103-74-2	2		0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 U
Heptachlor	76-44-8	0.4		0.05 UJ	0.05 U	0.05 UJ	0.05 U	0.05 UJ
Heptachlor Epoxide	1024-57-3	0.2		0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 U
Methoxychlor	72-43-5	40		0.1 U	0.19 R	0.1 UJ	0.1 U	0.1 U
Toxaphene	8001-35-2	3		2 U	2 U	2 UJ	2 U	2 U
Herbicides (µg/L)								
2,4,5-T	93-76-5	70		2 U	2 U	2 U	2 U	2 U
2,4,5-TP (Silvex)	93-72-1	50		2 U	2 U	2 U	2 U	2 U
2,4-D	94-75-7	70		8 U	8 U	8 U	8 U	8 U
2,4-DB	94-82-6	56		8 U	8 U	8 U	8 U	8 U
4-Nitrophenol	100-02-7	56		4 U	4 U	4 U	4 U	4 U
Dalapon	75-99-0	200		4 UR	4 UR	4 UR	4 UR	4 UR
Dicamba	1918-00-9	210		4 U	4 U	4 U	4 U	4 U
Dichlorprop	120-36-5	35		8 U	8 U	8 U	8 U	8 U
Dinoseb	88-85-7	7		1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
MCPA	94-74-6	3.5		80 U	80 U	80 U	80 U	80 U
MCPP	7085-19-0	7		80 U	80 U	80 U	80 U	80 U
Pentachlorophenol	87-86-5	1		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Inorganics (µg/L)								
Aluminum	7429-90-5	200	4067	612 U	404 U	381 U	299 U	382 U
Antimony	7440-36-0	6	4.1	4.1 U	4.5 U	4.8 U	5.7 U	5.6 U
Arsenic	7440-38-2	50	5	2.5 U	2.5 U	2.5 U	16.9	2.5 U
Barium	7440-39-3	2000	31.4	12.7 U	6.1 U	13.2	5.9 U	9.2 U
Beryllium	7440-41-7	4	*	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Cadmium	7440-43-9	5	5.6	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
Calcium	7440-70-2	*	36830	15900	268 U	3220 U	39800	4100 U
Chromium	7440-47-3	100	7.8	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U
Cobalt	7440-48-4	420	*	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
Copper	7440-50-8	1000	5.4	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U
Iron	7439-89-6	300	1227	392	515	580	114	689
Lead	7439-92-1	15	4	1.4 U	1.4 U	1.4 U	1.4 U	1.8 U
Magnesium	7439-95-4	*	4560	1530	501	830	770	1070
Manganese	7439-96-5	50	17	36.5	7.8 U	17	5.9 U	6.7 U
Mercury	7439-97-6	2	0.12	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Nickel	7440-02-0	100	*	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Potassium	7440-09-7	*	5400	366	103 U	461	1020	642
Selenium	7782-49-2	50	9.7	4.1 U	3.1 U	3.5 U	3.1 U	3.1 U
Silver	7440-22-4	100	*	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
Sodium	7440-23-5	160000	18222	4420	4380	7780	691	6660
Thallium	7440-28-0	2	3.8	1 U	0.37 UJ	0.37 UJ	0.37 UJ	0.37 UJ
Vanadium	7440-62-2	49	20.6	2.7	2.1 U	2.5	2.1 U	5.1
Zinc	7440-66-6	5000	4	7 U	9.5 U	4.5 U	8.8 U	15.6 U

ATTACHMENT A

GROUNDWATER SAMPLE LOG SHEETS

SA 8

Tetra Tech NUS, Inc.

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: NTC Orlando
Project No.: 7457
Location: SA8
Personnel: CM, BL, BB, RF
Weather Conditions: Sunny
Measuring Device: WLI
Tidally Influenced: Yes ___ No X
Remarks:

Well or Piezometer Number	Date	Time	Elevation of Reference Point (feet)*	Total Well Depth (feet)*	Water Level Indicator Reading (feet)*	Thickness of Free Product (feet)*	Groundwater Elevation (feet)*	Comments
OLD-08-01	4/10/00	0855		13.5	3.41'			
OLD-08-02				13.5	3.40'			
OLD-08-03				13.5	2.92'			
OLD-08-04				13.5	3.13'			
OLD-08-05				10.0	3.21'			
OLD-08-06				10.0	3.50'			
OLD-08-08				10.0	3.45'			
OLD-08-10				10.0	2.28'			
OLD-08-11				10.0	2.30'			
OLD-08-13				7.1	5.32'			
OLD-08-14				7.1	6.71'			
OLD-08-15				7.2	6.0'			
OLD-08-17				9.9	3.24'			
OLD-08-18				11.0	4.74'			
OLD-08-19				9.0	1.5'			
OLD-08-20				7.75	1.52'			
OLD-08-21	↓	0920		7.8	2.17'			
OLD-08-12	4/10/00	0923			4.00'			

* All measurements to the nearest 0.01 foot

Groundwater Purging and Sampling Log

Date 4/15/09 — Tetra Tech NUS — Page 1 of 1

Project Site Name: NTC Orlando
Project No.: 7457/

Sample Location: QLD-08-01

[ ] Domestic Well Data

Flow-Thru Cell
Make\Model: HORIBA U-22
Serial Nos.: 92472036

Sample ID No.: NETC08G00114

[X] Monitoring Well Data

Sampled By: R. Franklin

[ ] Other Well Type:

C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	0810	6.40	0.195	22.6	7.92	1.88	99	3.42	125
1	0.041 / 0.155	0815	6.43	0.193	22.6	7.37	1.72	95	3.43	100
2	0.163 / 0.617	0820	6.44	0.193	22.6	7.33	1.64	94	3.43	100
4	0.653 / 2.47	0825	6.45	0.190	22.6	7.31	1.58	95	3.43	100
6	1.469 / 5.56	0830	6.45	0.184	22.6	7.04	1.50	93	3.43	100
8	2.611 / 9.88	0835	6.46	0.186	22.8	6.6	1.44	91	3.43	100
10	4.08 / 15.44	0840	6.46	0.185	23.0	6.6	1.39	88	3.43	100
	[1 gal. = 3.785 L]									

Started to 100

PID Reading (ppm): 0

Well Casing Diameter: 2"
Total Well Depth: 13.5'
Static Water Level: 3.41'
Tube Intake Depth: 8'

Start Purge (hr): 0755
End Purge (hr): 0840
Total Purge Time (min): 45
Total Vol. Purged:

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 041509									
Time: 0845	clear	6.46	0.85	23.0	6.6	1.39	88	3.43	100

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	
X-tra Organic	8XXX	None	1 or 2	1-liter	amber glass	
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	X
Antimony	6010B	HNO_3	1	0.5-liter	HDPE	

ADDITIONAL INFORMATION

Comments:

Method:
- [X] Peristaltic Pump
- [ ] Centrifugal Pump
- [ ] Bladder Pump
- [ ] Tube Evacuation
- [X] Vacuum Jug Assembly
- [ ] Bailer

Tubing Type:
- [ ] Polyethylene
- [ ] Teflon
- [X] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD:

Duplicate ID No.:

Signature(s):

R. Franklin

Groundwater Purging and Sampling Log

Date 4/15/00 — Tetra Tech NUS — Page 1 of 1

Project Site Name: NTC Orlando
Project No.: 7457/
Sample Location: OLD-08-02

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Flow-Thru Cell
Make\Model: HORIBA U-22
Serial Nos.: 9742036

Sample ID No.: NTC08G00214
Sampled By: P. Franklin
C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	1440	6.68	0.423	26.5	13	4.29	83	3.42	low
1	0.041 / 0.155	1445	6.67	0.419	26.8	14	2.75	82	3.42	100
2	0.163 / 0.617	1450	6.70	0.416	26.9	13	2.59	81	3.42	100
4	0.653 / 2.47	1455	6.72	0.410	26.6	14	2.35	72	3.42	100
6	1.469 / 5.56	1500	6.69	0.40	26.5	12	2.01	62	3.42	100
8	2.611 / 9.88	1505	6.63	0.395	26.3	12	1.87	57	3.42	100
10	4.08 / 15.44	1510	6.63	0.379	26.2	11	1.63	40	3.42	100
	[1 gal. = 3.785 L]	1515	6.58	0.372	26.1	11	1.49	29	3.42	100
		1520	6.58	0.370	26.1	11	1.42	25	3.42	100

PID Reading (ppm):

Well Casing Diameter: 2"
Total Well Depth: 13.5'
Static Water Level: 3.40'
Tube Intake Depth: 4'

Start Purge (hr): 1430
End Purge (hr): 1520
Total Purge Time (min): 50
Total Vol. Purged:

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 4/15/00									
Time: 1530	Clear	6.58	0.370	26.1	11	1.42	25	3.42	100

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	
X-tra Organic	8XXX	None	1 or 2	1-liter	amber glass	
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	X
Antimony	6010B	HNO_3	1	0.5-liter	HDPE	

ADDITIONAL INFORMATION

Comments:

Method:
- [X] Peristaltic Pump
- [ ] Centrifugal Pump
- [ ] Bladder Pump
- [ ] Tube Evacuation
- [ ] Vacuum Jug Assembly
- [ ] Bailer

Tubing Type:
- [ ] Polyethylene
- [ ] Teflon
- [X] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD:

Duplicate ID No.:

Signature(s):

Date 4/15/00

Groundwater Purging and Sampling Log
Tetra Tech NUS

Page 1 of 1

Project Site Name: NTC Orlando
Project No.: 7457/

Sample Location: OLD-08-03

[ ] Domestic Well Data

Flow-Thru Cell
Make\Model: HORIBA U-22
Serial Nos.: 9797036

Sample ID No.: NTC08G00514

[X] Monitoring Well Data

Sampled By: A. Franklin

[ ] Other Well Type:

C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	1005	6.14	0.229	24.0	8.4	1.67	26	2.47	100
1	0.041 / 0.155	1010	6.12	0.230	24.2	8.6	1.45	25	2.47	100
2	0.163 / 0.617	1015	6.11	0.229	24.3	8.6	1.36	25	2.47	100
4	0.653 / 2.47	1020	6.10	0.228	24.6	8.9	1.23	28	2.47	100
6	1.469 / 5.56	1025	6.09	0.227	24.9	9.2	1.14	33	2.47	100
8	2.611 / 9.88	1030	6.08	0.226	25.1	7.9	1.07	36	2.47	100
10	4.08 / 15.44	1035	6.04	0.222	25.1	8.1	1.05	36	2.47	100
	[1 gal. = 3.785 L]									

PID Reading (ppm):

Well Casing Diameter: 2"
Total Well Depth: 13.5'
Static Water Level: 2.47
Tube Intake Depth: 8'

Start Purge (hr): 0955
End Purge (hr): 1035
Total Purge Time (min): 40
Total Vol. Purged:

WATER QUALITY SAMPLE PARAMETERS

	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	DTW	Flow Rate
Date: 4/15/00	Description	pH units	mS/cm	°C	NTU	mg/L	mV	ft BTOC	ml/min
Time: 1040	Clear	6.08	0.222	25.1	8.1	1.05	36	2.47	100

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	
X-tra Organic	8XXX	None	1 or 2	1-liter	amber glass	
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	X
Antimony	6010B	HNO_3	1	0.5-liter	HDPE	

ADDITIONAL INFORMATION

Comments:

Method:
- [X] Peristaltic Pump
- [ ] Centrifugal Pump
- [ ] Bladder Pump
- [ ] Tube Evacuation
- [ ] Vacuum Jug Assembly
- [ ] Bailer

Tubing Type:
- [ ] Polyethylene
- [ ] Teflon
- [ ] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD:

Duplicate ID No.:

Signature(s):

Groundwater Purging and Sampling Log

Date 4/15/00 — Tetra Tech NUS — Page 1 of 1

Project Site Name: NTC Orlando
Project No.: 7457/

Sample Location: OLD-08-04

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Flow-Thru Cell
Make\Model: HORIBA U-22
Serial Nos.: 429 2036

Sample ID No.: NTC08G00414
Sampled By: R. Franklin
C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	0910	6.21	0.152	23.5	7.2	4.26	139	3.18	low
1	0.041 / 0.155	0915	6.13	0.153	23.5	7.2	1.95	136	3.18	100
2	0.163 / 0.617	0920	6.11	0.153	23.4	7.0	1.79	137	3.18	low
4	0.653 / 2.47	0925	6.10	0.156	23.3	7.0	1.66	138	3.18	low
6	1.469 / 5.56	0930	6.08	0.158	23.3	7.0	1.58	138	3.18	100
8	2.611 / 9.88	0935	6.07	0.162	23.4	7.3	1.47	137	3.18	low
10	4.08 / 15.44	0940	6.06	0.162	23.4	7.3	1.42	135	3.18	low
	[1 gal. = 3.785 L]									

PID Reading (ppm):

Well Casing Diameter: 2"
Total Well Depth: 13.5
Static Water Level: 3.13'
Tube Intake Depth: 8'

Start Purge (hr): 0900
End Purge (hr): 0940
Total Purge Time (min): 40
Total Vol. Purged:

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 4/15/00									
Time: 0945	Clear	6.06	0.162	23.4	7.3	1.42	135	3.18	low

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	
X-tra Organic	8XXX	None	1 or 2	1-liter	amber glass	
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	X
Antimony	6010B	HNO_3	1	0.5-liter	HDPE	

ADDITIONAL INFORMATION

Comments:

Method:
[X] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[ ] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[ ] Teflon
[X] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD:

Duplicate ID No.:

Signature(s):

Groundwater Purging and Sampling Log

Date 4/15/00 — Tetra Tech NUS — Page 1 of 1

Project Site Name: NTC Orlando
Project No.: 7457/

Sample Location: OLD-08-05

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Flow-Thru Cell
Make\Model: HORIBA U-22
Serial Nos.: 929 2036

Sample ID No.: NTC 08 G 00514
Sampled By: A. Franklin
C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	1200	5.95	0.123	26.3	14	4.23	-34	-	low
1	0.041 / 0.155	1205	5.94	0.122	26.5	11	1.56	-41	-	low
2	0.163 / 0.617	1210	5.94	0.122	26.8	9.3	1.42	-44	-	low
4	0.653 / 2.47	1215	5.94	0.121	27.0	10.0	1.42	-46	-	low
6	1.469 / 5.56	1220	5.92	0.121	27.1	8.5	1.26	-48	-	low
8	2.611 / 9.88	1225	5.91	0.121	26.9	7.7	1.15	-50	-	low
10	4.08 / 15.44	1230	5.92	0.120	26.7	7.3	1.09	-52	-	low
	[1 gal. = 3.785 L]									

PID Reading (ppm):

Well Casing Diameter: 0.5"
Total Well Depth: 10'
Static Water Level: 3.21
Tube Intake Depth: 7.5'

Start Purge (hr): 1145
End Purge (hr): 1230
Total Purge Time (min): 45
Total Vol. Purged:

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 4/15/00									
Time: 1235	Clear	5.92	0.120	26.7	7.3	1.09	-52	-	low

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	
X-tra Organic	8XXX	None	1 or 2	1-liter	amber glass	
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	X
Antimony	6010B	HNO_3	1	0.5-liter	HDPE	

ADDITIONAL INFORMATION

Comments:
DTW measurements not taken during purging due to diameter of well - 0.5"

Method:
[X] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[ ] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[ ] Teflon
[X] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD:
Duplicate ID No.:

Signature(s):

Groundwater Purging and Sampling Log

Date 4/15/00 — Tetra Tech NUS — Page 1 of 1

Project Site Name: NTC Orlando
Project No.: 7457/

Sample Location: OLD-08-06

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Flow-Thru Cell
Make\Model: HORIBA U-22
Serial Nos.: 4292036

Sample ID No.: NTC08G0614
Sampled By: L. Franklin
C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	1105	6.28	0.164	24.6	7.5	1.89	-3	—	100
1	0.041 / 0.155	1110	6.26	0.163	24.8	7.1	1.54	-8	—	100
2	0.163 / 0.617	1115	6.25	0.164	25.0	6.3	1.41	-12	—	100
4	0.653 / 2.47	1120	6.23	0.164	25.3	6.1	1.36	-15	—	100
6	1.469 / 5.56	1125	6.23	0.164	25.9	6.1	1.24	-20	—	100
8	2.611 / 9.88	1130	6.23	0.163	25.9	6.1	1.23	-21	—	100
10	4.08 / 15.44									
	[1 gal. = 3.785 L]									

PID Reading (ppm):

Well Casing Diameter: 0.5"
Total Well Depth: 10'
Static Water Level: 3.60
Tube Intake Depth: 7.5'

Start Purge (hr): 1055
End Purge (hr): 1130
Total Purge Time (min): 35
Total Vol. Purged: 4000 mL

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 4/15/00									
Time: 1135	Clear	6.23	0.163	25.9	6.1	1.23	-21	—	100

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	
X-tra Organic	8XXX	None	1 or 2	1-liter	amber glass	
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	✓
Antimony	6010B	HNO_3	1	0.5-liter	HDPE	

ADDITIONAL INFORMATION

Comments:
DTW measurements not taken during purging due to diameter of well - 0.5"

Method:
[X] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[ ] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[ ] Teflon
[X] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD:
Duplicate ID No.:

Signature(s):

Date 4/15/00

Groundwater Purging and Sampling Log

Tetra Tech NUS

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Project Site Name: NTC Orlando
Project No.: 7457/

SAB Sample Location: OLD-08-08

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Flow-Thru Cell
Make\Model: HORIBA U-22
Serial Nos.: 9272023 / 927052

Sample ID No.: NTC08G0008-14
Sampled By: C.M
C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. per ft. of Water	Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01	0.038	0840	6.53	41.2	19.2	4.73	4.17	111	N/A	100
1	0.041	0.155	0850	6.62	41.3	19.1	4.26	2.17	93		100
2	0.163	0.617	0859	6.67	41.2	19.4	3.96	1.83	84		100
4	0.653	2.47	0909	6.67	40.9	19.6	3.49	1.67	79		100
6	1.469	5.56	0915	6.67	41.0	19.5	3.54	1.22	70		100
8	2.611	9.88	0920	6.67	41.0	19.4	3.47	0.61	66		100
10	4.08	15.44	0925	6.68	41.0	19.4	4.02	0.72	69	↓	100
	[1 gal. = 3.785 L]										

PID Reading (ppm): 0

Well Casing Diameter: 0.5"
Total Well Depth: 10.0'
Static Water Level: 3.45'
Tube Intake Depth: 7.00'

Start Purge (hr): 0834
End Purge (hr): 0925
Total Purge Time (min): 51
Total Vol. Purged: 5.1L

WATER QUALITY SAMPLE PARAMETERS

	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	DTW	Flow Rate
Date: 4/15/00	Description	pH units	mS/cm	°C	NTU	mg/L	mV	ft BTOC	ml/min
Time: 0930	yellow	6.68	41.0	19.4	4.02	0.72	69	N/A	100

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	✓
X-tra Organic	8XXX	None	1 or 2	1-liter	amber glass	✓
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	✓
Antimony	6010B	HNO_3	1	0.5-liter	HDPE	

ADDITIONAL INFORMATION

Comments:
Micro-well NOT ABLE TO measure DTW

Method:
[ ] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[X] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[ ] Teflon
[X] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD: N/A
Duplicate ID No.: N/A

Signature(s): C.M.

Date 4/15/00

Groundwater Purging and Sampling Log

Tetra Tech NUS

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Project Site Name: NTC Orlando
Project No.: 7457/

Sample Location: SA9 OLD-08-16

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type: _____

Flow-Thru Cell
Make\Model: HORIBA U-22
Serial Nos.: 927023/ 927052

Sample ID No.: NTC08G01614
Sampled By: CM
C-O-C No.: _____

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
(0.5)	0.01 / 0.038	1014	5.96	15.7	18.5	9.42	1.26	-76	N/A	100
1	0.041 / 0.155	1024	5.92	15.8	19.1	8.82	1.38	-74		100
2	0.163 / 0.617	1034	5.92	16.0	19.1	7.41	1.41	-76		100
4	0.653 / 2.47	1042	5.93	16.1	18.9	6.48	1.13	-78		100
6	1.469 / 5.56	1047	5.90	16.2	18.9	6.00	0.91	-77		100
8	2.611 / 9.88	1052	5.91	16.4	18.9	6.01	0.90	-78		100
10	4.08 / 15.44	1058	5.91	16.5	18.8	5.35	0.90	-79	↓	100
	[1 gal. = 3.785 L]									

PID Reading (ppm): 0

Well Casing Diameter: 0.5"
Total Well Depth: 10.0'
Static Water Level: 2.26'
Tube Intake Depth: 7.0'

Start Purge (hr): 1010
End Purge (hr): 1058
Total Purge Time (min): 48
Total Vol. Purged: 4.8L

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 4/15/00									
Time: 1103	yellowish	5.91	16.5	18.8	5.35	0.90	-79	N/A	100

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	✓
X-tra Organic	8XXX	None	1 or 2	1-liter	amber glass	✓
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	✓
Antimony	6010B	HNO_3	1	0.5-liter	HDPE	

ADDITIONAL INFORMATION

Comments: Micro-well NOT able to measure DTW

Method:
- [ ] Peristaltic Pump
- [ ] Centrifugal Pump
- [ ] Bladder Pump
- [ ] Tube Evacuation
- [X] Vacuum Jug Assembly
- [ ] Bailer

Tubing Type:
- [ ] Polyethylene
- [ ] Teflon
- [X] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD: N/A
Duplicate ID No.: N/A

Signature(s): Chris Manning

Groundwater Purging and Sampling Log

Date 04/6 00 — Tetra Tech NUS — Page 1 of 1

Project Site Name: NTC Orlando
Project No.: 7457/

Sample Location: 08-11

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Flow-Thru Cell
Make\Model: HORIBA U-22
Serial Nos.: 9272043

Sample ID No.: NTC 08601114
Sampled By: BRB
C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	0935	6.10	28	22.7	56.0	0.15	-42	N/A	100
1	0.041 / 0.155	0940	6.10	28	22.7	39.0	0.00	-56		100
2	0.163 / 0.617	0945	6.10	27	22.7	33.9	0.00	-63		100
4	0.653 / 2.47	0950	6.10	27	22.7	29.3	0.00	-65		100
6	1.469 / 5.56	0955	6.09	27	22.8	25.1	0.00	-72		100
8	2.611 / 9.88	1000	6.09	27	22.8	24.1	0.00	-75		100
10	4.08 / 15.44	1005	6.10	27	22.9	23.1	0.00	-78		100
	[1 gal. = 3.785 L]	1010	6.09	27	22.9	21.0	0.00	-80		100
		1015	6.09	27	23.0	19.0	0.00	-84		100
		1020	6.09	27	23.0	16.9	0.00	-85		100
		1025	6.08	27	23.1	16.2	0.00	-86		100
		1030	6.09	27	23.0	14.7	0.00	-88		100
		1035	6.09	27	23.0	14.6	0.00	-89		100
		1040	6.10	27	22.9	13.3	0.00	-90		100
		1045	6.09	27	22.8	12.1	0.00	-91		100
		1050	6.09	27	22.7	10.82	0.00	-92		100
		1055	6.09	27	22.7	10.44	0.00	-92		100
		1100	6.09	27	22.7	11.0	0.00	-92		100
		1105	6.09	27	22.7	9.73	0.00	-92		100
		1110	6.09	27	22.7	9.56	0.00	-92		100

PID Reading (ppm): 0
Well Casing Diameter: .5
Total Well Depth: 10
Static Water Level: 2.30
Tube Intake Depth: 6.5
Start Purge (hr): 0920
End Purge (hr): 1110
Total Purge Time (min): 110
Total Vol. Purged: ~2.5 gal

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 04/6 00									
Time: 1115	clear	6.09	27	22.7	9.54	0.00	-92	✓	N/M

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	X
X-tra Organic	8XXX	None	(1) or 2	1-liter	amber glass	X
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	X
Antimony	6010B	HNO_3	1	0.5-liter	HDPE	

ADDITIONAL INFORMATION

Comments: Micro-well

Method:
- [X] Peristaltic Pump
- [ ] Centrifugal Pump
- [ ] Bladder Pump
- [ ] Tube Evacuation
- [X] Vacuum Jug Assembly
- [ ] Bailer

Tubing Type:
- [ ] Polyethylene
- [ ] Teflon
- [X] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD: N/A
Duplicate ID No.: NTC 08D 1403

Signature(s):

Date 4/15/00

Groundwater Purging and Sampling Log

Tetra Tech NUS

Project Site Name: NTC Orlando
Project No.: 7457/

SA8
Sample Location: OLD-08-13

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Flow-Thru Cell
Make\Model: HORIBA U-22
Serial Nos.: 7272097

Sample ID No.: NTC08G01314
Sampled By: BK
C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
(0.5)	0.01 / 0.038	1044	5.52	12	24.2	~~518~~ 54.8	5.51	-38	Micro well	~130
1	0.041 / 0.155									
2	0.163 / 0.617								Not	
4	0.653 / 2.47								taken	
6	1.469 / 5.56									
8	2.611 / 9.88									
10	4.08 / 15.44									
	[1 gal. = 3.785 L]									

(WELL PURGED DRY)

PID Reading (ppm): 0

Well Casing Diameter: 0.5"
Total Well Depth: ~11'
Static Water Level: 5.32
Tube Intake Depth: ~10'

Start Purge (hr): 1005
End Purge (hr): 1025
Total Purge Time (min): 20
Total Vol. Purged: ~1.5L

(Started & stopped pump several times due to low flow - same effort required to collect sample.)

WATER QUALITY SAMPLE PARAMETERS

	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	DTW	Flow Rate
Date: 041500	Description	pH units	mS/cm	°C	NTU	mg/L	mV	ft BTOC	ml/min
Time: 1106	16	5.47	12	24.9	50.3	5.29	-34	NT	~130

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	
X-tra Organic	8XXX	None	1 or 2	1-liter	amber glass	
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	✓
Antimony	6010B	HNO_3	1	0.5-liter	HDPE	

ADDITIONAL INFORMATION

Comments: Micro well - TAL metals collected - well purged dry after filling flow-through cell

Method:
[X] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[ ] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[ ] Teflon
[X] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD: N/A
Duplicate ID No.: N/A

Signature(s): Robert L. Knight

Groundwater Purging and Sampling Log
Tetra Tech NUS

Date 4/15/00

Project Site Name: NTC Orlando
Project No.: 7457/

SA9
Sample Location: OLD-08-14
Sample ID No.: NTC080014I4
Sampled By: CM
C-O-C No.: ______

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type: ______

Flow-Thru Cell
Make\Model: HORIBA U-22
Serial Nos.: 927023/ 927052

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038									
1	0.041 / 0.155									
2	0.163 / 0.617									
4	0.653 / 2.47									
6	1.469 / 5.56									
8	2.611 / 9.88									
10	4.08 / 15.44									
	[1 gal. = 3.785 L]									

DRY WELL

PID Reading (ppm): 0

Well Casing Diameter: 0.5"
Total Well Depth: 9.00
Static Water Level: 6.71
Tube Intake Depth: ~~9.00~~ 8.5' cm 4/15/00
Start Purge (hr): 1308
End Purge (hr): 1341
Total Purge Time (min): 33
Total Vol. Purged:

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date:									
Time:									

ANALYSES INFORMATION

Analysis	Method	Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	~~✓~~ cm
X-tra Organic	8XXX	None	1 or 2	1-liter	amber glass	~~✓~~ cm
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	~~✓~~ cm
Antimony	6010B	HNO_3	1	0.5-liter	HDPE	

ADDITIONAL INFORMATION

Comments: 1310 stop pumping cm
1310 stop purging well goes DRY
DRY WELL

Method:
[ ] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[X] Vacuum Jug Assembly
[X] Bailer

Tubing Type:
[ ] Polyethylene
[ ] Teflon
[X] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD: N/A
Duplicate ID No.: N/A

Signature(s): Chris Moore

1308 begin purging / 1341 stop purging well ... not enough
calculated one well volume = 87mL / pumped 400mL
to sample or take parameters.

Date 4/15/00

Groundwater Purging and Sampling Log

Tetra Tech NUS

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Project Site Name: NTC Orlando

Project No.: 7457/

Sample Location: OLD-08-15

[ ] Domestic Well Data

[X] Monitoring Well Data

[ ] Other Well Type:

Flow-Thru Cell

Make\Model: HORIBA U-22

Serial Nos.: 927202231 927652

Sample ID No.: ~~NTC08600~~ NTC08C01514

Sampled By: CM

C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. per ft. of Water / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	1502	4.96	20.2	19.3	32.2	3.10	8.0	N/A	100
1	0.041 / 0.155	1512	4.75	20.1	19.8	12.60	1.60	11.0		100
2	0.163 / 0.617	1522	4.74	20.0	18.9	10.3	1.3	12.0		100
4	0.653 / 2.47	1527	4.74	20.0	18.9	8.60	1.18	11.0		100
6	1.469 / 5.56	1532	4.74	20.0	18.9	7.8	1.15	11.0		100
8	2.611 / 9.88	1537	4.75	19.9	18.9	6.6	1.14	11.0	↓	100
10	4.08 / 15.44									
	[1 gal. = 3.785 L]									

PID Reading (ppm): 0

Well Casing Diameter: 0.5"

Total Well Depth: 11.0'

Static Water Level: 6.0'

Tube Intake Depth: 10.4'

Start Purge (hr): 1439

End Purge (hr): 1539

Total Purge Time (min): 60

Total Vol. Purged: 6.0 L

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 4/15/00									
Time: 1542	yellowish	4.75	19.9	18.9	6.6	1.14	11.0	N/A	100

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	✓
X-tra Organic	8XXX	None	1 or 2	1-liter	amber glass	✓
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	✓
Antimony	6010B	HNO_3	1	0.5-liter	HDPE	

ADDITIONAL INFORMATION

Comments:

Micro-Well NOT able to measure DTW

Method:

- [ ] Peristaltic Pump
- [ ] Centrifugal Pump
- [ ] Bladder Pump
- [ ] Tube Evacuation
- [X] Vacuum Jug Assembly
- [ ] Bailer

Tubing Type:

- [ ] Polyethylene
- [ ] Teflon
- [X] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD: N/A

Duplicate ID No.: N/A

Signature(s): C Mc Morris

Date 4/15/00

Groundwater Purging and Sampling Log

Tetra Tech NUS

Page 1 of 1

Project Site Name: NTC Orlando
Project No.: 7457/

Sample Location: SA8 OLD-08-17

[ ] Domestic Well Data

[X] Monitoring Well Data

[ ] Other Well Type:

Flow-Thru Cell
Make\Model: HORIBA U-22
Serial Nos.: 9272097

Sample ID No.: NTC08C61714

Sampled By: BK

C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. per ft. of Water	Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01	0.038	0830	6.13	37	22.8	6.17	1.45	126		~150
1	0.041	0.155	0845	5.97	36	22.8	6.04	0.47	113		~150
2	0.163	0.617	0850	6.15	36	22.9	5.85	0.41	107		
4	0.653	2.47	0855	6.15	35	23.1	5.73	0.33	102		
6	1.469	5.56	0900	6.16	35	23.2	5.72	0.74	102		
8	2.611	9.88	0905	6.16	35	23.3	5.68	0.76	99		
10	4.08	15.44	0910	6.16	35	23.2	5.70	0.72	98		
	[1 gal. = 3.785 L]										

NT (Not Taken)

PID Reading (ppm): 0

Well Casing Diameter: 0.5"
Total Well Depth: 9.91'
Static Water Level: 3.24'
Tube Intake Depth: 7.5'

Start Purge (hr): 0825
End Purge (hr): 0910
Total Purge Time (min): 45
Total Vol. Purged:

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 04/15/00									
Time: 0910	YELLOW	6.16	35	23.2	5.70	0.72	98	NT	~130

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	
X-tra Organic	8XXX	None	1 or 2	1-liter	amber glass	
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	✓
Antimony	6010B	HNO_3	1	0.5-liter	HDPE	

ADDITIONAL INFORMATION

Comments: Micro well - TAL metals collected.

Method:
[X] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[ ] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[ ] Teflon
[X] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD: N/A

Duplicate ID No.: N/A

Signature(s): Robert L. Knight

Groundwater Purging and Sampling Log

Tetra Tech NUS

Date 4/16/00 Page 1 of 1

Project Site Name: NTC Orlando
Project No.: 7457/
Sample Location: OLD-05-18

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Flow-Thru Cell
Make\Model: HORIBA U-22
Serial Nos.: 9292036

Sample ID No.: NTC05G01814
Sampled By: M. Frankl
C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	0920	5.43	0.096	23.0	99.6	2.12	-2	–	100
1	0.041 / 0.155	0930	5.41	0.0947	23.2	49.9	1.53	-9	–	100
2	0.163 / 0.617	0940	5.40	0.098	23.4	77.8	1.21	-13	–	100
4	0.653 / 2.47	0950	5.40	0.098	23.5	104.0	1.06	-17	–	100
6	1.469 / 5.56	1000	5.41	0.098	23.6	91.00	0.99	-20	–	100
8	2.611 / 9.88	1010	5.38	0.098	23.7	64.8	0.94	-22	–	100
10	4.08 / 15.44	1020	5.46	0.098	23.8	59.9	0.94	-21	–	100
	[1 gal. = 3.785 L]	1030	5.37	0.098	24.1	56.7	0.92	-20	–	100
		1040	5.45	0.098	24.4	46.2	0.91	-20	–	100
PID Reading (ppm):		1050	5.36	0.098	24.6	41.1	0.88	-20	–	100
		1100	5.42	0.097	24.8	34.6	0.88	-18	–	100
		1110	5.36	0.097	24.9	28.3	0.85	-19	–	100
Well Casing Diameter: 0.5"		1120	5.34	0.097	25.0	21.2	0.82	-19	–	100
Total Well Depth: 11'		1130	5.33	0.097	25.1	17.6	0.82	-19	–	100
Static Water Level: 4.74'		1140	5.32	0.097	25.2	15.1	0.82	-19	–	100
Tube Intake Depth: 8.5'		1150	5.31	0.096	25.1	12.5	0.82	-18	–	100
Start Purge (hr): 0905										
End Purge (hr): 1150										
Total Purge Time (min): 165										
Total Vol. Purged:										

WATER QUALITY SAMPLE PARAMETERS

	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	DTW	Flow Rate
Date: 4/16/00	Description	pH units	mS/cm	°C	NTU	mg/L	mV	ft BTOC	ml/min
Time: 1200	Clear	5.31	0.096	25.1	12.5	0.82	-18	–	100

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	X
X-tra Organic	8XXX	None	1 or 2	1-liter	amber glass	X
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	X
Antimony	6010B	HNO_3	1	0.5-liter	HDPE	

ADDITIONAL INFORMATION

Comments:
DTW measurements not taken during purging due to well diameter. 0.5"

Method:
[X] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[X] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[ ] Teflon
[X] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD:
Duplicate ID No.:

Signature(s): M. Frankl

:02

Date 4/15/00

Groundwater Purging and Sampling Log

Tetra Tech NUS

Page 1 of 1

Project Site Name: NTC Orlando
Project No.: 7457/

SAO
Sample Location: OLD-SB-19

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Flow-Thru Cell
Make\Model: HORIBA U-22
Serial Nos.: 9272097

Sample ID No.: NTC086001914
Sampled By: BK
C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	1507	6.06	12	26.2	>999	0.87	-88		~130
(1)	0.041 / 0.155	1515	5.98	12	26.2		0.61	-94	unknown	↓
(2)	0.163 / 0.617	1525	5.95	12	25.9	414	0.00	-95		
4	0.653 / 2.47	1535	5.92	12	25.7	232	0.00	-95		
6	1.469 / 5.56	1545	5.89	12	25.7	137	0.00	-95		
8	2.611 / 9.88	1555	5.86	12	25.6	88.2	0.00	-96		
10	4.08 / 15.44	1605	5.87	12	25.2	58.3	0.00	-96		
	[1 gal. = 3.785 L]	1610	5.86	12	25.2	56.0	0.00	-96		
		1613	5.87	12	25.2	55.4	0.00	-97		
PID Reading (ppm): 0		1616	5.88	12	25.3	51.4	0.00	-98		

0.163
0.041
.122
.462

Well Casing Diameter: 2" 1.5"
Total Well Depth: ~8.0'
Static Water Level: ~1.5
Tube Intake Depth: ~7.0'

Start Purge (hr): 1500
End Purge (hr): 1620
Total Purge Time (min): 80
Total Vol. Purged:

Lake surface water turbity = 22.5 NTU

LAKE PARAMETERS ON ICE →

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 4/15/00									
Time: 1625	brownish	5.88	12	25.3	51.4	0.00	-98	unknown	130

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	✓
X-tra Organic	8XXX	None	1 or 2	1-liter	amber glass	✓
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	✓
Antimony	6010B	HNO_3	1	0.5-liter	HDPE	

ADDITIONAL INFORMATION

Comments: Purged ~6 L prior to taking readings to "develop" drivepoint
One casing volume = 3 L

Method:
[ ] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[X] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[ ] Teflon
[X] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD: N/A
Duplicate ID No.: N/A

Signature(s): Robert L. Knight

Date 4/16/00

Groundwater Purging and Sampling Log

Tetra Tech NUS

Page 1 of 1

Project Site Name: NTC Orlando
Project No.: 7457/

SAE
Sample Location: OD-08-20

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Flow-Thru Cell
Make\Model: HORIBA U-22
Serial Nos.: 9272023

Sample ID No.: NTC08G02014
Sampled By: BK
C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. per ft. of Water	Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01	0.038	1017	6.39	24.8	19.59	235	1.78	-94	NT	~150
1	0.041	0.155	1025	6.45	23.3	19.73	135	1.73	-101	1.04'	~130
2	0.163	0.617	1035	6.49	22.1	19.89	37.4	1.92	-109	1.09'	~130
4	0.653	2.47	1045	6.52	22.0	20.02	24.1	1.86	-112	NT	~130
6	1.469	5.56	1055	6.53	21.6	20.11	18.6	1.78	-114	NT	~130
8	2.611	9.88	1105	6.51	21.4	20.3	14.4	1.74	-115	NT	~130
10	4.08	15.44	1115	6.50	21.3	20.5	13.9	1.69	-117	NT	~130
	[1 gal. = 3.785 L]		1120	6.48	21.3	20.7	13.5	1.70	-115	NT	~130
			1125	6.48	21.2	20.8	13.5	1.56	-114	NT	~130
PID Reading (ppm): 0			1135	6.48	21.2	21.0	13.6	1.48	-116	NT	~130

.5" = ~1 gal/ft or ~4 L/ft

Slow as pump will allow

WC = 6.22

Well Casing Diameter:	1.5"
Total Well Depth:	7.75'
Static Water Level:	1.52'
Tube Intake Depth:	6.75'
Start Purge (hr):	0950
End Purge (hr):	1145
Total Purge Time (min):	115
Total Vol. Purged:	

WATER QUALITY SAMPLE PARAMETERS

	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	DTW	Flow Rate
Date: 4/16/00	Description	pH units	mS/cm	°C	NTU	mg/L	mV	ft BTOC	ml/min
Time: 1145	clear	6.50	21.1	21.1	13.5	1.42	-119		~130

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	✓
X-tra Organic	8XXX	None	1 or 2	1-liter	amber glass	✓
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	✓
Antimony	6010B	HNO_3	1	0.5-liter	HDPE	

ADDITIONAL INFORMATION

Comments:
Lake Water
~~H_2O Level about casing~~ BTOC 0.9"
Purged ~3 gallons prior to starting flow through cell @ 1015
LAKE Parameters on back of sheet

Method:
[ ] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[X] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[ ] Teflon
[X] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD: N/A
Duplicate ID No.: N/A

Signature(s): Robert L. Knight

over →

Date 4/10/00

Groundwater Purging and Sampling Log

Tetra Tech NUS

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Project Site Name: NTC Orlando
Project No.: 7457/

SAB
Sample Location: OLD-08-21

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type: _____

Flow-Thru Cell
Make\Model: HORIBA U-22
Serial Nos.: _____

Sample ID No.: NTC08G0214
Sampled By: CM
C-O-C No.: _____

PURGING DATA

Casing Size (in.)	Gals. per ft. of Water	Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. ~~mS/cm~~ mS/m	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01	0.038	1007	5.10	12.0	22.7	592.0	0.54	3.0	2.21	100
1	0.041	0.155	1017	5.06	11.0	22.8	445.0	6.62	1.0	2.21	100
2	0.163	0.617	1027	5.04	10.0	22.8	341.0	0.35	-1.0	2.21	100
4	0.653	2.47	1037	5.03	10.0	22.9	251.0	0.41	-1.0	2.21	100
6	1.469	5.56	1047	5.01	10.0	23.1	163.0	0.43	-2.0	2.21	100
8	2.611	9.88	1057	5.02	10.0	23.2	132.0	0.24	-4.0		
10	4.08	15.44	1107	5.02	10.0	23.4	95.8	0.31	-5.0		
	[1 gal. = 3.785 L]		1117	5.02	10.0	23.7	67.0	0.70	-4.0		
			1122	5.02	10.0	23.9	66.3	0.54	-6.0		
PID Reading (ppm): 0			1127	5.01	10.0	24.0	59.0	0.51	-4.0		
			1135	5.01	10.0	24.0	52.0	0.57	-6.0		
			1140	5.01	10.0	23.9	44.3	0.54	-7.0		
Well Casing Diameter: 1.5"			1145	5.00	10.0	23.9	40.7	0.47	-7.0		
Total Well Depth: 17.8'			1150	5.01	10.0	24.0	38.0	0.44	-9.0		
Static Water Level: 2.17'			1155	5.01	10.0	24.0	33.9	0.31	-9.0		
Tube Intake Depth:			1200	5.01	10.0	24.0	30.5	0.20	-10.0		
			1205	5.01	10.0	24.0	26.2	0.21	-10.0		
Start Purge (hr): 0900			1210	5.01	9.0	24.0	16.4	0.05	-14.0		
End Purge (hr): 1220			1215	5.01	9.0	24.0	11.6	0.05	-9.0		
Total Purge Time (min): 182			1220	5.01	9.0	24.0	11.7	0.15	-9.0	↓	↓
Total Vol. Purged:											

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 4/10/00									
Time: 1225	Clear	5.01	9.0	24.0	11.7	0.15	-9.0	2.18'	100

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	✓
X-tra Organic	8XXX	None	1 or 2	1-liter	amber glass	✓
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	✓
Antimony	6010B	HNO_3	1	0.5-liter	HDPE	

ADDITIONAL INFORMATION

Comments: Well casing is 8.0'
0900 water very sludge like
0935 stop purging after 3 gallons
the water has clear up to a clear
finish color

Method:
[X] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[X] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[ ] Teflon
[X] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD: N/A

Duplicate ID No.: N/A

Signature(s): Chris Marin

NOTE: Additional comments on back

SA 9

Tetra Tech NUS, Inc.

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: NTC Orlando
Location: SA9
Weather Conditions: Sunny
Tidally Influenced: Yes ___ No X

Project No.: 7454-
Personnel: CM, BK, BB, RF
Measuring Device: WLI
Remarks:

Well or Piezometer Number	Date	Time	Elevation of Reference Point (feet)*	Total Well Depth (feet)*	Water Level Indicator Reading (feet)*	Thickness of Free Product (feet)*	Groundwater Elevation (feet)*	Comments
OLD-09-01	4/13/00	0841		13.5	3.72			
OLD-09-02		0810		12.0	6.34			
OLD-09-03		0814		12.0	6.97			
OLD-09-04		0846		12.0	6.23			
OLD-09-05		0834		10.0	3.43			
OLD-09-06		0823		10.0	3.18			
OLD-09-07		0847		12.0	5.25			
OLD-09-10		0849		10.0	3.73			
OLD-09-11		0820		10.0	4.04			
OLD-09-12		0851		10.0	4.10			
OLD-09-14		0844		7.4	6.47			
OLD-09-15		0831		7.2	6.03			
OLD-09-16		0828		7.1	6.02			
OLD-09-17		0875		10.1	4.59			
OLD-09-19	↓	0836		30.5	4.02			
~~OLD-09-09~~	~~4/13/00~~				~~3.64~~			CM 4/13
OLD-09-09	4/13/00	0816			3.96			Top of 4"
OLD-09-13		0823			4.40			
OLD-09-18		0829			4.20			
OLD-09-08		0842			4.25			

* All measurements to the nearest 0.01 foot

Date 4/13/00

Groundwater Purging and Sampling Log

Tetra Tech NUS

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Project Site Name: NTC Orlando
Project No.: 7457/

SA9
Sample Location: OLD-09-01

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Flow-Thru Cell
Make\Model: HORIBA U-22
Serial Nos.: 9272023 / 9270-52

Sample ID No.: NTC09G0001 14
Sampled By: CM
C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	1611	6.58	70.1	19.82	5.99	1.84	-95	3.90	100
1	0.041 / 0.155	1611	6.62	70.1	20.30	5.56	1.75	-93	3.80	100
2	0.163 / 0.617	1626	6.60	69.8	20.45	5.54	4.54	-88	3.80	100
4	0.653 / 2.47	1630	6.61	69.3	20.45	5.51	2.12	-88	3.80	100
6	1.469 / 5.56	1646	6.59	69.2	20.69	5.56	1.98	-85	3.83	100
8	2.611 / 9.88	1650	6.65	68.2	20.48	5.59	1.91	-84	3.85	100
10	4.08 / 15.44									
	[1 gal. = 3.785 L]									

PID Reading (ppm): 0

Well Casing Diameter: 2"
Total Well Depth: 13.5
Static Water Level: 3.75
Tube Intake Depth: ~10.0

Start Purge (hr): 1601
End Purge (hr): 1700
Total Purge Time (min): 59
Total Vol. Purged: ~5.9L

WATER QUALITY SAMPLE PARAMETERS

	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	DTW	Flow Rate
Date: 4/13/00	Description	pH units	mS/cm	°C	NTU	mg/L	mV	ft BTOC	ml/min
Time: 1700 1650	yellow	6.65	68.2	20.49	5.59	1.91	-84	3.85	100

1702

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	✓
Herbicides	8151	None	1	1-liter	amber glass	✓
X-tra Organic	8XXX	None	1 or 2	1-liter	amber glass	✓
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	✓
Antimony	6010B	HNO_3	1	0.5-liter	HDPE	

ADDITIONAL INFORMATION

Comments:

Method:
[ ] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[X] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[ ] Teflon
[X] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD: N/A
Duplicate ID No.: NTC091404

Signature(s): Chris Marin

Groundwater Purging and Sampling Log

Date 4/1/00 — Tetra Tech NUS — Page 1 of ___

Project Site Name: NTC Orlando
Project No.: 7457/
Sample Location: OLD-09-02
[ ] Domestic Well Data
Flow-Thru Cell
Make\Model: HORIBA U-22
Sample ID No.: NTC09G00214
[X] Monitoring Well Data
Serial Nos.: 9292036
Sampled By: R Franklin
[ ] Other Well Type: _____
C-O-C No.: _____

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	0900	4.96	0.070	23.3	27.1	3.59	37	6.74	100
1	0.041 / 0.155	0910	4.67	0.064	~~23.5~~ 23.6	24.0	1.92	32	6.74	100
2	0.163 / 0.617	0920	4.60	0.066	23.9	24.9	1.83	30	6.74	100
4	0.653 / 2.47	0930	4.44	0.066	24.1	25.3	1.13	25	6.74	low
6	1.469 / 5.56	0940	4.94	0.065	24.2	25.5	1.03	22	6.74	100
8	2.611 / 9.88	0950	5.05	0.065	24.4	~~24.4~~	0.97	21	6.74	100
10	4.08 / 15.44	1000	4.87	0.065	24.7	24.9 / 25.2	0.94	19	6.74	100
	[1 gal. = 3.785 L]									

PID Reading (ppm):

Well Casing Diameter: 2"
Total Well Depth: 12'
Static Water Level: 6.34'
Tube Intake Depth: 9'

Start Purge (hr): 0840
End Purge (hr): 1000
Total Purge Time (min): 120
Total Vol. Purged:

WATER QUALITY SAMPLE PARAMETERS

	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	DTW	Flow Rate
Date: 4/13/00	Description	pH units	mS/cm	°C	NTU	mg/L	mV	ft BTOC	ml/min
Time: 1010	Yellow	4.87	0.065	24.7	25.2	0.94	19	6.74	low

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	X
Herbicides	8151	None	1	1-liter	amber glass	X
X-tra Organic	8XXX	None	1 or 2	1-liter	amber glass	X
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	X
Antimony	6010B	HNO_3	1	0.5-liter	HDPE	

ADDITIONAL INFORMATION

Comments:

Method:
- [X] Peristaltic Pump
- [ ] Centrifugal Pump
- [ ] Bladder Pump
- [ ] Tube Evacuation
- [X] Vacuum Jug Assembly
- [ ] Bailer

Tubing Type:
- [ ] Polyethylene
- [ ] Teflon
- [X] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD: N/A
Duplicate ID No.: N/A

Signature(s):

Groundwater Purging and Sampling Log

Date 041300

Tetra Tech NUS

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Project Site Name: NTC Orlando
Project No.: 7457/

Sample Location: 0903

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Flow-Thru Cell
Make\Model: HORIBA U-22
Serial Nos.: 927 2043

Sample ID No.: NTC096 00314
Sampled By: BKB
C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	0900	5.40	10	22.1	5.7	1.21	-41	8.76	125
1	0.041 / 0.155	0910	5.41	10	22.2	5.8	0.92	-47	8.43	60
2	0.163 / 0.617	0920	5.42	9	22.6	6.2	0.99	-53	8.33	60
4	0.653 / 2.47	0930	5.42	9	23.0	6.6	0.84	-59	8.41	50
6	1.469 / 5.56	0940	5.42	9	23.5	7.0	0.85	-60	8.23	50
8	2.611 / 9.88	0950	5.43	9	23.7	7.3	0.78	-61	8.05	50
10	4.08 / 15.44	1000	5.43	9	24.0	7.3	0.80	-63	7.99	50
	[1 gal. = 3.785 L]									

Slave Pump?

PID Reading (ppm): 0

Well Casing Diameter: 2"
Total Well Depth: 12
Static Water Level: 6.99
Tube Intake Depth: 10

Start Purge (hr): 0845
End Purge (hr): 1000
Total Purge Time (min): 75
Total Vol. Purged: ~2 gal

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 041300									
Time: 1005	clear	5.43	9	24.0	7.3	0.79	-62	7.98	N/A

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	X
Pesticides	8081A	None	1	1-liter	amber glass	X
Herbicides	8151	None	1	1-liter	amber glass	X
X-tra Organic	8XXX	None	1 or 2	1-liter	amber glass	X
TAL Metals	6000/7000	Field HNO_3	1	1-liter	HDPE	X
Antimony	6010B	HNO_3	1	0.5-liter	HDPE	

ADDITIONAL INFORMATION

Comments:
DUPLICATE TAKEN

Method:
- [X] Peristaltic Pump
- [ ] Centrifugal Pump
- [ ] Bladder Pump
- [ ] Tube Evacuation
- [X] Vacuum Jug Assembly
- [ ] Bailer

Tubing Type:
- [ ] Polyethylene
- [ ] Teflon
- [X] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD: N/A

Duplicate ID No.: NTC 09D 1405

Signature(s):

Date 4/13/00

Groundwater Purging and Sampling Log

Tetra Tech NUS

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Project Site Name: NTC Orlando
Project No.: 7457/

SA9
Sample Location: OLD09-04

Sample ID No.: NTC09G0014

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Flow-Thru Cell
Make\Model: HORIBA U-22
Serial Nos.: 9272097/9271121

Sampled By: BK

C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	1020	5.75	25	24.8	25.6	0.20	-105	7.07	~100
1	0.041 / 0.155	1025	5.75	25	24.7	22.7	0.05	-106	7.74	~100
2	0.163 / 0.617	1030	5.75	25	24.7	20.9	0.00	-108	7.84	~75
4	0.653 / 2.47	1035	5.75	25	24.8	20.7	0.00	-109	7.91	~75
6	1.469 / 5.56	1040	5.75	25	24.8	21.8	0.00	-110	7.92	~50
8	2.611 / 9.88	1045	5.75	25	24.8	21.3	0.00	-110	7.95	~80
10	4.08 / 15.44	1050	5.77	25	24.8	19.9	0.00	-112	7.98	~75
	[1 gal. = 3.785 L]	1055	5.76	25	24.8	19.6	0.00	-112	8.00	~80

PID Reading (ppm): 0

Well Casing Diameter: 2"
Total Well Depth: 17.0
Static Water Level: 6.23
Tube Intake Depth: ~10.0

Start Purge (hr): 1015
End Purge (hr): 1100
Total Purge Time (min): ~75
Total Vol. Purged: ~5.625 L

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 4/13/00									
Time: 1100	yellow	5.81	25	25.0	21.7	0.16	-107	8.00	~80

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	✓
Pesticides	8081A	None	1	1-liter	amber glass	✓
Herbicides	8151	None	1	1-liter	amber glass	✓
X-tra Organic	8XXX	None	1 or 2	1-liter	amber glass	✓
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	✓
Antimony	6010B	HNO_3	1	0.5-liter	HDPE	

ADDITIONAL INFORMATION

Comments: Turbidity would not drop below 10. Started originally @ 0927 - WL indicator screwed up - stopped pumping @ ~1000 - thought well went dry

Method:
[ ] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[✓] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[ ] Teflon
[✓] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD: N/A

Duplicate ID No.: N/A

Signature(s): Robert L. Knight

Date 4/14/00

Groundwater Purging and Sampling Log

Tetra Tech NUS

Project Site Name: NTC Orlando
Project No.: 7457/

SA9
Sample Location: QD-09-05

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Flow-Thru Cell
Make\Model: HORIBA U-22
Serial Nos.: 9272097 / 9211 2

Sample ID No.: NTC09605
Sampled By: BK
C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. per ft. of Water	Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
(0.5)	0.01	0.038	1134	5.92	24.0	21.4	27.40	0.83	-29	NT	100
1	0.041	0.155	1144	5.97	23.0	21.4	12.50	1.31	-23	19 (est)	
2	0.163	0.617	1154	5.94	23.0	21.3	9.90	1.32	-54		
4	0.653	2.47	1204	5.94	23.0	21.3	8.53	1.10	-54		
6	1.469	5.56	1214	5.95	23.0	21.3	5.91	1.04	-63		
8	2.611	9.88	1224	5.96	23.0	21.3	4.78	1.00	-66		
10	4.08	15.44	1234	5.95	23.0	21.3	4.55	1.01	-63	↓	↓
	[1 gal. = 3.785 L]										

PID Reading (ppm): 0

Well Casing Diameter: 0.5"
Total Well Depth: 18.0
Static Water Level: 3.24
Tube Intake Depth: 14.0

Start Purge (hr): 1120
End Purge (hr): 1236
Total Purge Time (min): 110
Total Vol. Purged: ~7.16L

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 4/14/00									
Time: 1234	~~Clear~~ yellow tint	5.95	23.0	21.3	4.55	1.01	-103	NT	100

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	✓
Herbicides	8151	None	1	1-liter	amber glass	✓
X-tra Organic	8XXX	None	(1) or 2	1-liter	amber glass	✓
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	✓
Antimony	6010B	HNO_3	1	0.5-liter	HDPE	

ADDITIONAL INFORMATION

Comments: Micro-Well DTW NOT TAKEN

Method:
[ ] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[X] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[ ] Teflon
[X] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD: N/A
Duplicate ID No.: N/A

Signature(s):

Date 4/13/00

Groundwater Purging and Sampling Log

Tetra Tech NUS

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Project Site Name: NTC Orlando
Project No.: 7457/

SA9
Sample Location: OLD-09-06

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Flow-Thru Cell
Make\Model: HORIBA U-22
Serial Nos.: 9272097/ 927121

Sample ID No.: NTC09600014
Sampled By: BK
C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. per ft. of Water	Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01	0.038	1625	4.76	12	23.5	140	0.22	22	NT	~130
1	0.041	0.155	1635	4.72	12	23.6	78.6	0.23	23		~140
2	0.163	0.617	1645	4.70	12	23.3	48.3	0.00	21		~130
4	0.653	2.47	1655	4.74	12	23.1	27.4	0.01	13		~130
6	1.469	5.56	1705	4.84	12	23.5	14.7	0.00	0		~130
8	2.611	9.88	1715	4.83	12	23.4	14.9	0.00	1		~130
10	4.08	15.44	1725	4.86	12	23.1	13.7	0.00	-6		~130
	[1 gal. = 3.785 L]		1735	4.91	13	23.2	9.7	0.00	-13		~130

MICRO WELL

PID Reading (ppm):

Well Casing Diameter: 0.5"
Total Well Depth: 10.0'
Static Water Level: 3.18'
Tube Intake Depth: 8.0'

Start Purge (hr): 1615
End Purge (hr): 1735
Total Purge Time (min): 80
Total Vol. Purged: ~~9.2 gal~~ 4/13/00

1.0 L →

WATER QUALITY SAMPLE PARAMETERS

	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	DTW	Flow Rate
Date: 041300	Description	pH units	mS/cm	°C	NTU	mg/L	mV	ft BTOC	ml/min
Time: 1740	clear	4.91	13	23.2	9.7	0.00	-13	NT	~130

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	✓
Herbicides	8151	None	1	1-liter	amber glass	✓
X-tra Organic	8XXX	None	1 or 2	1-liter	amber glass	✓
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	✓
Antimony	6010B	HNO_3	1	0.5-liter	HDPE	

ADDITIONAL INFORMATION

Comments:
MS/MSD collected
Single-speed pump - lowest setting possible

Method:
[ ] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[X] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[ ] Teflon
[X] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD: ✓
Duplicate ID No.: N/A

Signature(s): Robert L. Knight

NTC09600014 MS/MSD

Groundwater Purging and Sampling Log

Tetra Tech NUS

Date 4/13/00 Page 1 of 1

Project Site Name: NTC Orlando
Project No.: 7457/
Sample Location: OLD-09-07

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Flow-Thru Cell
Make\Model: HORIBA U-22
Serial Nos.: 9Z92036

Sample ID No.: NTC09G0714
Sampled By: R. Franklin
C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. per ft. of Water / Liters	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	1310	4.59	0.074	27.9	393	2.35	159	—	100
1	0.041 / 0.155	1320	4.49	0.072	27.6	161	1.37	179	-	100
2	0.163 / 0.617	1330	4.44	0.071	27.7	89.3	1.21	192	-	100
4	0.653 / 2.47	1340	4.39	0.070	27.6	64.1	1.04	203	-	100
6	1.469 / 5.56	1350	4.37	0.069	26.9	43.7	0.97	207	—	100
8	2.611 / 9.88	1400	4.36	0.069	26.8	31.8	0.89	208	-	100
10	4.08 / 15.44	1410	4.34	0.069	26.9	27.9	0.83	213	-	100
	[1 gal. = 3.785 L]	1420	4.34	0.068	27.1	25.7	0.82	214	-	100
		1430	4.36	0.068	27.9	24.7	0.80	214	-	100
PID Reading (ppm):		1440	4.37	0.068	27.6	24.5	0.78	214	-	100
		1450	4.38	0.067	27.3	23.9	0.77	211	-	100

Well Casing Diameter: 0.5"
Total Well Depth: 12'
Static Water Level: 5.31'
Tube Intake Depth: 9'

Start Purge (hr): 1250
End Purge (hr): 1450
Total Purge Time (min): 120
Total Vol. Purged:

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 4/13/00									
Time: 1510	Orange	4.34	0.067	27.3	23.9	0.77	211	—	100

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	X
Herbicides	8151	None	1	1-liter	amber glass	X
X-tra Organic	8XXX	None	1 or 2	1-liter	amber glass	X
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	X
Antimony	6010B	HNO_3	1	0.5-liter	HDPE	

ADDITIONAL INFORMATION

Comments:
No DTW measurements taken during purging due to diameter (0.5") of well.

Method:
[X] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[X] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[ ] Teflon
[X] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD: N/A
Duplicate ID No.: N/A

Signature(s):

Groundwater Purging and Sampling Log

Date 4/13/00 — Tetra Tech NUS — Page 1 of 1

Project Site Name: NTC Orlando
Project No.: 7457/

Sample Location: OLD-09-10

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Flow-Thru Cell
Make\Model: HORIBA U-22
Serial Nos.: 4292036

Sample ID No.: NTC09G01014
Sampled By: R. Franklin
C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. per ft. of Water / Liters	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	1620	5.78	0.131	24.0	45.8	1.55	31	-	100
1	0.041 / 0.155	1630	5.74	0.130	24.0	34.3	1.19	27	-	100
2	0.163 / 0.617	1640	5.73	0.129	23.9	9.56	0.96	22	-	100
4	0.653 / 2.47	1650	5.73	0.236	23.7	7.86	0.86	18	-	100
6	1.469 / 5.56	1700	5.75	0.131	23.6	6.98	0.82	16	-	100
8	2.611 / 9.88	1710	5.75	0.134	23.5	7.32	0.86	15	-	100
10	4.08 / 15.44									
	[1 gal. = 3.785 L]									

PID Reading (ppm):

Well Casing Diameter: 0.5"
Total Well Depth: 10'
Static Water Level: 3.50'
Tube Intake Depth: 7'

Start Purge (hr): 1605
End Purge (hr): 1710
Total Purge Time (min): 65
Total Vol. Purged:

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 4/13/00									
Time: 1720	Clear	5.75	0.134	23.5	7.32	0.86	15	-	100

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	X
Herbicides	8151	None	1	1-liter	amber glass	X
X-tra Organic	8XXX	None	1 or 2	1-liter	amber glass	X
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	X
Antimony	6010B	HNO_3	1	0.5-liter	HDPE	

ADDITIONAL INFORMATION

Comments:

Method:
[X] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[X] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[ ] Teflon
[X] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD: N/A
Duplicate ID No.: N/A

Signature(s):

Date 4/13/00

Groundwater Purging and Sampling Log
Tetra Tech NUS

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Project Site Name: NTC Orlando
Project No.: 7457/

SA9
Sample Location: OLD-09-11

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Flow-Thru Cell
Make\Model: HORIBA U-22
Serial Nos.: 927Ø23 / 927052

Sample ID No.: NTCØ9GØ1114
Sampled By: BK
C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. per ft. of Water / Liters	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	Ø958	5.49	17.9	21.19	7.72	5.09	-38	N/A	130
1	0.041 / 0.155	1004	5.49	17.5	21.05	7.17	3.27	-42	N/A	130
2	0.163 / 0.617	1009	5.52	17.4	21.05	6.71	1.61	-45	N/A	130
4	0.653 / 2.47	1014	5.53	17.5	21.07	6.43	2.23	-49	N/A	130
6	1.469 / 5.56	1020	5.54	17.4	21.11	6.28	1.74	-53	N/A	130
8	2.611 / 9.88	1025	5.55	17.5	21.15	5.96	1.16	-55	N/A	130
10	4.08 / 15.44	1030	5.57	17.4	21.15	5.97	1.12	-57	N/A	130
	[1 gal. = 3.785 L]	1035	5.65	17.6	21.22	5.99	1.10	-59	N/A	130

PID Reading (ppm): Ø

Well Casing Diameter: 0.5
Total Well Depth: 10.0
Static Water Level: 4.04
Tube Intake Depth: 5.0

Start Purge (hr): ~~0945~~ 0958
End Purge (hr): 1035
Total Purge Time (min): 57
Total Vol. Purged: 7.4 L

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 4/13/00									
Time: 1040	yellow	5.65	17.6	21.22	5.99	1.10	-59	N/A	130

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	✓
Herbicides	8151	None	1	1-liter	amber glass	✓
X-tra Organic	8XXX	None	~~1~~ or 2	1-liter	amber glass	✓
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	✓
Antimony	6010B	HNO_3	1	0.5-liter	HDPE	

ADDITIONAL INFORMATION

Comments: Flow Rate will not go under 130ml/min because peristaltic pump will turn off. / DTW can NOT be measured (micro well)

Method:
- ~~[X] Peristaltic Pump~~
- [ ] Centrifugal Pump
- [ ] Bladder Pump
- [ ] Tube Evacuation
- [X] Vacuum Jug Assembly
- [ ] Bailer

cm 4/13/00

Tubing Type:
- [ ] Polyethylene
- [ ] Teflon
- [X] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD: N/A
Duplicate ID No.: N/A

Signature(s): Chris Mann

1405 Begin sampling / 1447 WELL DRY-WAITING for recharge
1515 Begin sampling / 1545 Finish sampling

Groundwater Purging and Sampling Log

Date 041300 — Tetra Tech NUS — Page 1 of 1

Project Site Name: NTC Orlando
Project No.: 7457/
Sample Location: 09-12

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Flow-Thru Cell
Make\Model: HORIBA U-22
Serial Nos.: 927 2043

Sample ID No.: NTC 09601214
Sampled By: BRB
C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. per ft. of Water	Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01	0.038	1410	4.11	12	25.7	129	1.25	31	N/A	75
1	0.041	0.155	1420	4.02	12	25.9	88	0.97	31		70
2	0.163	0.617	1430	3.96	12	26.5	37	0.84	34		70
4	0.653	2.47	1440	3.95	12	26.2	33	0.83	32		70
6	1.469	5.56	1450	3.95	13	25.9	24	0.71	31		70
8	2.611	9.88	1500	3.94	13	25.2	17	0.66	28		70
10	4.08	15.44	1510	3.93	13	24.9	12	0.61	26		70
	[1 gal. = 3.785 L]		1520	3.93	13	25.2	10	0.60	26		70

PID Reading (ppm): 0

Well Casing Diameter: ~~2~~ 0.5
Total Well Depth: 10.00
Static Water Level: 3.85
Tube Intake Depth: ~~8~~

Start Purge (hr): 1353
End Purge (hr): 1525
Total Purge Time (min): 92
Total Vol. Purged: ~2gal

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 041300									
Time: 1530	clear	3.93	13	25.3	9	0.60	26	N/A	N/A

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	X
Pesticides	8081A	None	1	1-liter	amber glass	X
Herbicides	8151	None	1	1-liter	amber glass	X
X-tra Organic	8XXX	None	1 or (2)	1-liter	amber glass	X
TAL Metals	6000/7000	Field HNO_3	1	1-liter	HDPE	X
Antimony	6010B	HNO_3	1	0.5-liter	HDPE	

ADDITIONAL INFORMATION

Comments:
DTW N/A Because WL indicator probe and tubing will not fit in well together.

Method:
[X] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[X] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[ ] Teflon
[X] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD: N/A
Duplicate ID No.: N/A

Signature(s):

Groundwater Purging and Sampling Log

Date 4/14/00 — Tetra Tech NUS — Page 1 of 1

Project Site Name: NTC Orlando
Project No.: 7457/

Sample Location: OLD-09-14

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Flow-Thru Cell
Make\Model: HORIBA U-22
Serial Nos.: 9292036

Sample ID No.: NTC09G0414
Sampled By: R. Franklin
C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	1500	6.01	0.123	20.8	19.9	2.09	-84	—	100
1	0.041 / 0.155	1510	6.03	0.122	20.4	16.8	1.33	-95	—	100
2	0.163 / 0.617	1520	6.03	0.199	20.8	14.0	1.14	-101	—	100
4	0.653 / 2.47	1530	6.03	0.117	20.7	12.4	1.07	-105	—	100
6	1.469 / 5.56	1540	6.03	0.116	20.7	11.1	0.99	-110	—	100
8	2.611 / 9.88	1550	6.03	0.116	20.7	9.2	1.03	-110	—	100
10	4.08 / 15.44									
	[1 gal. = 3.785 L]									

PID Reading (ppm):

Well Casing Diameter: 0.5"
Total Well Depth: 7.4
Static Water Level: 6.32
Tube Intake Depth: 7'

Start Purge (hr): 1450
End Purge (hr): 1550
Total Purge Time (min): 60
Total Vol. Purged:

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 4/14/00									
Time: 1600	Clear	6.03	0.116	20.7	9.2	1.03	-110	—	100

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	Y
Pesticides	8081A	None	1	1-liter	amber glass	Y
Herbicides	8151	None	1	1-liter	amber glass	Y
X-tra Organic	8XXX	None	1 or 2	1-liter	amber glass	Y
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	Y
Antimony	6010B	HNO_3	1	0.5-liter	HDPE	

ADDITIONAL INFORMATION

Comments:
DTW measurements not taken during purging due to diameter of wand - 0.5"

Method:
[X] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[X] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[ ] Teflon
[X] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD:
Duplicate ID No.:

Signature(s):
R. Franklin

Date 4-14

Groundwater Purging and Sampling Log

Tetra Tech NUS

Project Site Name: NTC Orlando
Project No.: 7457/

Sample Location: CLD - 09-15

[ ] Domestic Well Data

Flow-Thru Cell
Make\Model: HORIBA U-22

Sample ID No.: NTC09G01514

[X] Monitoring Well Data

Serial Nos.: 9292036

Sampled By: R. Flowell

[ ] Other Well Type:

C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	1150	4.76	0.053	20.6	29.7	2.34	54	—	100
1	0.041 / 0.155	1200	4.71	0.048	20.6	16.7	1.59	47	—	100
2	0.163 / 0.617	1210	4.71	0.043	20.6	10.52	1.44	40	—	100
4	0.653 / 2.47	1220	4.70	0.044	20.6	7.34	1.41	31	—	100
6	1.469 / 5.56	1230	4.70	0.044	20.6	6.40	1.22	25		
8	2.611 / 9.88									
10	4.08 / 15.44									
	[1 gal. = 3.785 L]									

PID Reading (ppm):

Well Casing Diameter: 0.5"
Total Well Depth: 7.2'
Static Water Level: 5.91
Tube Intake Depth: 6.5'

Start Purge (hr): 1138
End Purge (hr): 1230
Total Purge Time (min): 52
Total Vol. Purged:

WATER QUALITY SAMPLE PARAMETERS

	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	DTW	Flow Rate
Date: 4/14/00	Description	pH units	mS/cm	°C	NTU	mg/L	mV	ft BTOC	ml/min
Time: 1240	Clear	4.70	0.044	20.6	6.40	1.22	25	-	100

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	X
Pesticides	8081A	None	1	1-liter	amber glass	X
Herbicides	8151	None	1	1-liter	amber glass	X
X-tra Organic	8XXX	None	1 or 2	1-liter	amber glass	X
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	X
Antimony	6010B	HNO_3	1	0.5-liter	HDPE	

ADDITIONAL INFORMATION

Comments:
No DTW measurements taken during purging due to diameter of well - 0.5"

Method:
[X] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[X] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[ ] Teflon
[ ] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD:

Duplicate ID No.:

Signature(s):

Groundwater Purging and Sampling Log

Date 041300 — Tetra Tech NUS — Page 1 of 1

Project Site Name: NTC Orlando
Project No.: 7457/
Sample Location: OLD 09-16

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Flow-Thru Cell
Make\Model: HORIBA U-22
Serial Nos.: 927 2043

Sample ID No.: NTC09G01614
Sampled By: BB
C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	1635	4.68	9	22.5	35	1.20	-39	N/A	100
1	0.041 / 0.155	1645	4.67	8	22.5	8	0.67	-59		100
2	0.163 / 0.617	1655	4.67	8	22.5	7	0.67	-61		100
4	0.653 / 2.47	1705	4.68	8	22.3	6	0.61	-68		100
6	1.469 / 5.56	1715	4.68	8	22.4	5	0.57	-69		100
8	2.611 / 9.88	1725	4.68	8	22.4	5	0.59	-70		100
10	4.08 / 15.44	1735	4.68	8	22.4	5	0.60	-71		100
	[1 gal. = 3.785 L]									

PID Reading (ppm): 0

Well Casing Diameter: 0.5
Total Well Depth: 7.1
Static Water Level: 6.05
Tube Intake Depth: 7

Start Purge (hr): 1621
End Purge (hr): 1735
Total Purge Time (min): 73
Total Vol. Purged: ~2gal

WATER QUALITY SAMPLE PARAMETERS

	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	DTW	Flow Rate
Date: 041300	Description	pH units	mS/cm	°C	NTU	mg/L	mV	ft BTOC	ml/min
Time: 1740	Clear	4.68	8	22.4	5	0.60	-70	▼	N/A

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	X
Herbicides	8151	None	1	1-liter	amber glass	X
X-tra Organic	8XXX	None	(1) or 2	1-liter	amber glass	X
TAL Metals	6000/7000	Field HNO_3	1	1-liter	HDPE	X
Antimony	6010B	HNO_3	1	0.5-liter	HDPE	

ADDITIONAL INFORMATION

Comments: micro well

Method:
[X] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[X] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[ ] Teflon
[X] Teflon-lined Polyethylene

QA/QC SAMPLES

MS/MSD: N/A
Duplicate ID No.: N/A

Signature(s):

Date 4/14/00

Groundwater Purging and Sampling Log

Tetra Tech NUS

Page 1 of 1

Project Site Name: NTC Orlando
Project No.: 7457/

SA9
Sample Location: OLD-09-17

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Flow-Thru Cell
Make\Model: HORIBA U-22
Serial Nos.: 927023/927052

Sample ID No.: NTC09601714
Sampled By: CM
C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. per ft. of Water / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
(0.5)	0.01 / 0.038	1125	6.12	20.8	17.69	8.57	1.56	40		~150
1	0.041 / 0.155	1135	6.14	20.5	17.68	7.90	0.82	25		
2	0.163 / 0.617	1145	6.12	20.4	17.63	7.10	0.73	21		
4	0.653 / 2.47	1155	6.20	20.3	17.59	6.92	0.92	23		
6	1.469 / 5.56	1205	6.22	20.4	17.61	6.91	0.62	19		
8	2.611 / 9.88	1215	6.22	20.4	17.66	6.74	0.54	13		
10	4.08 / 15.44	1225	6.20							
	[1 gal. = 3.785 L]	1225	6.22	20.4	17.67	6.63	0.45	13		V

CM 4/14/00

PID Reading (ppm): 0

Well Casing Diameter: 0.5"
Total Well Depth: 10.1'
Static Water Level: 4.36
Tube Intake Depth: 7.0

Start Purge (hr): ~~1004~~ CM 4/14/00
End Purge (hr): 1227
Total Purge Time (min): 81
Total Vol. Purged:

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 4/14/00									
Time: 1225	yellow	6.22	20.4	17.67	6.63	0.45	13	N/A	150

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	✓
Herbicides	8151	None	1	1-liter	amber glass	✓
X-tra Organic	8XXX	None	1 or 2	1-liter	amber glass	✓
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	✓
Antimony	6010B	HNO_3	1	0.5-liter	HDPE	

ADDITIONAL INFORMATION

Comments: Micro-Well
DTW NOT TAKEN

Method:
[ ] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[X] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[ ] Teflon
[X] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD: N/A
Duplicate ID No.: N/A

Signature(s): Chr Morin

Date 4/13/00

Groundwater Purging and Sampling Log

Tetra Tech NUS

Page 1 of 1

Project Site Name: NTC Orlando
Project No.: 7457/

SA9
Sample Location: OLD-09-19

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Flow-Thru Cell
Make\Model: HORIBA U-22
Serial Nos.: 927023 / 927052

Sample ID No.: NTC09G0914
Sampled By: BK
C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. per ft. of Water	Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01	0.038	1415	4.94	8.1	20.67	5.65	2.10	11	4.11	~130
1	0.041	0.155	1425	4.93	8.3	20.99	5.54	1.30	9	4.11	~130
2	0.163	0.617	1435	4.97	8.1	20.90	5.55	1.73	4	4.13	~130
4	0.653	2.47	1445	4.96	8.2	20.51	5.58	0.71	4	4.13	~130
6	1.469	5.56	1455	5.00	8.2	20.34	5.55	0.55	1	4.14	~130
8	2.611	9.88									
10	4.08	15.44									
	[1 gal. = 3.785 L]										

PID Reading (ppm): 0

Well Casing Diameter: 2"
Total Well Depth: 30.5
Static Water Level: 4.11
Tube Intake Depth: 27.5

Start Purge (hr): 1409
End Purge (hr): 1455
Total Purge Time (min): 46
Total Vol. Purged: 2.83 L

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 4/13/00									
Time: 1455	Clear	5.00	8.2	20.34	5.55	0.55	1	4.14	~130

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	~~✓~~ RLC
Pesticides	8081A	None	1	1-liter	amber glass	✓
Herbicides	8151	None	1	1-liter	amber glass	✓
X-tra Organic	8XXX	None	1 or 2	1-liter	amber glass	✓
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	✓
Antimony	6010B	HNO_3	1	0.5-liter	HDPE	✓ CM

ADDITIONAL INFORMATION

Comments:

Method: CM 4/13/00
- ~~[X] Peristaltic Pump~~
- [ ] Centrifugal Pump
- [ ] Bladder Pump
- [ ] Tube Evacuation
- [X] Vacuum Jug Assembly
- [ ] Bailer

Tubing Type:
- [ ] Polyethylene
- [ ] Teflon
- ~~[X]~~ Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD: N/A
Duplicate ID No.: N/A

Signature(s):