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MINUTES FROM 17 MAY 2000 RESTORATION ADVISORY BOARD MEETING NTC
ORLANDO FL
5/17/2000
NAVFAC SOUTHERN

**Meeting Summary
Restoration Advisory Board
Naval Training Center (NTC), Orlando
May 17, 2000**

13.05.00.0031

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A meeting of the NTC, Orlando Restoration Advisory Board (RAB) was held on May 17, 2000, in the City Commission Chambers, Winter Park City Hall. Attached to this meeting summary are:

Attachment A: Meeting Agenda
Attachment B: RAB Member Sign-in Sheet
Attachment C: 2000 RAB Attendance Record
Attachment D: IRP Program Investigation Summary
Attachment E: Community Mailing List Notice
Attachment F: Community Sign-in Sheet

RAB members present at the meeting were:

Penelope Felger	Bob Mackey
David Grabka	Nancy Maloney
Wayne Hansel	Nancy Rodriguez
Bruce Hossfield	Ann Williams

Other support personnel present at the meeting included:

Barbara Nwokike, Southern Division Naval Facilities Engineering Command
Vickie Stitt, Tetra Tech NUS, Inc.

Welcome

Wayne Hansel, Co-Chairman of NTC RAB, opened the meeting at 7:06. He reminded members of the community present that this was a working meeting and questions would be held until after the meeting was adjourned. Mr. Hansel asked if the minutes to the March meeting were approved by all members. A motion for approval was made and seconded.

The members excused from this meeting were:

Hank Beers	Donald Fuller
Phillip Jaffe	Tom Nelson
Blanche Olson	

Geraldine Wojak has resigned from the board.

Mr. Hansel said that Kay Yeuell called him and said that if the meetings were to continue to be held on Wednesdays, he would have to resign because of other commitments. A short discussion followed about moving the meetings but no agreement was made. The meetings will continue to be held on Wednesdays.

Four members of the public were present:

Parnie Peters, NAUS
Nancy Mellon, CTCF
Steve Murphy
Merrill Ladika, City of Winter Park

Wayne Hansel stated that a quorum had not been met at this meeting.

Wayne Hansel reviewed and summarized the BRAC update titled *UST UPDATE AND STATUS, May 2000*, and *IRP UPDATE AND STATUS, May 2000*. A copy of the document is attached.

The first order of business was a discussion of the addendum to the Charter. The addendum was explained and Mr. Hansel suggested that the members needed to review it. At a future meeting when a quorum was met, it would be voted on.

Suggestions were made that the addendum be revised, before a vote was taken, to read "A quorum shall consist of 50% of active community members with a Co-Chairperson." instead of "A quorum shall consist of 50% of active members and a Co-Chairperson." All members present agreed.

No further business was presented for discussion. Wayne Hansel moved on to the Special Topic.

The Special Topic for this meeting was *Study Area 17 and Study Area 39 Remediation and Operating Unit 4 Treatability Study Update*. Copies of the overheads used to summarize the Special Topic are attached to these minutes.

A motion to adjourn the meeting was made and seconded. The meeting was adjourned and Wayne Hansel asked the community members if there were any questions.

Mr. Steve Murphy said that he lives on Lake Druid and asked what kind of contaminants were in the lake. Wayne Hansel answered that the contaminant was a dry-cleaning solvent from a former dry-cleaning business at the base. The solvent was found at the edge of the lake and was running into the lake, so an interim barrier was constructed consisting of two wells to capture and treat the contaminant. The barrier appears to be working very well and in the next month will be upgraded to a more permanent status. All the information will be compiled in an upcoming Remedial Investigation/Feasibility Study.

Mr. Murphy asked if there was any connection between the clean-up process and the lake not being sprayed in the last two years. Mr. Hansel stated that there was absolutely no connection. The city had received no instructions to do anything other than carry on their business as usual.

Ms. Parnie Peters spoke next and asked why public notices had been discontinued advising community members about upcoming meetings? Wayne Hansel asked Vickie Stitt to respond to this question. Ms. Stitt stated that in the year since she had taken over the publicity of the RAB meetings, she sends announcements to approximately 30 locations such as television stations, publications and businesses, including the Orange County Public Library. She had received no instructions to send an announcement to individuals. However, this would be looked into and remedied if it was an oversight.

Ms. Merrill Ladika, a representative of the City of Winter Park, also expressed concerned that she no longer received an announcement and information about the RAB meetings and requested that she be included on any future mail list.

Ms. Nancy Mellon then spoke and raised several questions about past activity at the Naval Training Center. Mr. Hansel responded that all information was documented and open to the public at the Orange County Public Library and that Ms. Mellon could get all of her questions answered by a study of that material.

There were no further questions and the meeting ended at 8:30.

UST UPDATE AND STATUS
May 2000

Bldg 128: AST 128B was removed by the DET the week of 2/14/99. UST 128 was removed by the DET the week of 2/21/99. A temporary monitoring well was installed and sampled on 4/14/99. A TCAR was prepared and submitted to the FDEP on 6/15/99. The FDEP issued a response on 7/7/99 indicating that additional assessment was required. A draft-final Site Assessment Plan (SAP) was prepared and submitted to the Navy on 10/25/99. The Navy issued approval of the draft-final SAP on 11/19/99. Final SAP was submitted to the Navy on 12/19/99. Site Assessment field activities began on 1/5/00. DPT investigation performed 1/12/00 through 1/13/00. Preliminary data currently being tabulated and plotted for submittal to the Navy and FDEP for review. Soil removal performed by EEG (formerly the Detachment) during the week of 2/28/00. *Source Removal Reports in preparation. Anticipate submittal in late May.*

Bldg 200: The MOP Approval Order was issued by FDEP on 7/6/99. TtNUS will perform future monitoring at this site (the SOW for the monitoring to be issued). *TtNUS submitted POA to add MOP sampling to CTO-50. Currently awaiting notice to proceed.*

Bldg 369: FDEP issued a letter on 10/20/98, requesting additional soil sampling. Soil samples were collected on 12/10/98. Laboratory analytical results for soil sample SS-1, collected at 4 to 6 feet below land surface reported Total Petroleum Recoverable Hydrocarbons (TRPH) of 660 mg/kg. This concentration is above the residential SCTL of 350 mg/kg, but is below the industrial. On 2/17/99, HLA submitted a SAR addendum to FDEP requesting NFA for the site. FDEP responded that site would need either (1) soil removal and backfill; (2) deed restrictions to prevent exposure of residents to subsurface soil; (3) change property use to nonresidential; or (4) quantify TRPH as to equivalent carbon number in accordance with "Technical Basis for the TRPH SCTLs" (4/21/99 handout to OPT by David G.). Per discussions at the May OPT meeting, Southern Division has decided to remove the contaminated soil. Contaminated soil volume estimates were sent to the Navy on 7/20/99. An estimated 130 yd³ (180 tons) of soil will need to be removed. Monitoring well MW-1 was abandoned on 2/21/00 in preparation of site for soil removal, which was completed the week of 2/21/00. *Source Removal Reports in preparation. Anticipate submittal in late May.*

Bldg 2036: First quarter MOP report was submitted to FDEP on 10/2/98. Sampling for the 2nd quarter MOP was conducted on 11/25/98. The second quarter MOP report was submitted to FDEP on 1/8/99 and has been approved. Sampling for the 3rd quarter was conducted on 2/19/99. During the sampling event, free-floating product was discovered in monitoring well MW-1. 3rd quarter MOP report was submitted to FDEP on March 31, 1999. HLA requested that the MOP be discontinued and that another remedial strategy be implemented (HLA recommends dig and haul as over development has been conducted over last 2-3 yrs). Per discussions at the May OPT meeting, Southern Division decided to remove the contaminated soil. Contaminated soil volume estimates were sent to the Navy on 7/20/99. An estimated 210 yd³ (300 tons) of soil will need to be removed. Monitoring well MW-1 was abandoned on 2/21/00 in preparation of site for soil removal, which was performed the week of 2/28/00. *Source Removal Reports in preparation. Anticipate submittal in late May.*

Bldg 2080: USTs 2080-5, 2080-6 and 2080-7 were removed by the DET the week of 2/14/99. A temporary well was installed and sampled on 4/14/99. A TCAR was prepared and submitted to the FDEP on 6/15/99. The FDEP issued a response on 7/7/99 indicating that additional assessment was required. A draft-final Site Assessment Plan (SAP) was prepared and submitted to the Navy on 10/25/99. The Navy issued approval of the draft-final SAP on 11/19/99. The final SAP is in preparation. Site Assessment field

activities are tentatively scheduled to begin on 1/3/00. DPT investigation performed 1/14/00 through 1/15/00. Preliminary data currently being tabulated and plotted for submittal to the Navy and FDEP for review. Soil removal was performed the week of 2/21/00. *Source Removal Reports in preparation. Anticipate submittal in late May.*

Bldg. 2115: UST 2115 was removed by the DET the week of 2/21/99. A temporary monitoring well was installed and sampled on 4/14/99. A TCAR was prepared and submitted to the FDEP on 6/15/99. The FDEP issued a response on 7/7/99 indicating that additional assessment was required. A draft-final Site Assessment Plan (SAP) was prepared and submitted to the Navy on 10/25/99. The Navy issued approval of the draft-final SAP on 11/19/99. The Final SAP was submitted to the Navy on 12/19/99. Site Assessment field activities began on 1/5/00. DPT investigation performed 1/16/00 through 1/17/00. Preliminary data currently being tabulated and plotted for submittal to the Navy and FDEP for review. Soil removal was performed the week of 2/28/00. *Source Removal Reports in preparation. Anticipate submittal in late May.*

Bldg 2273: Analytical results from sampling performed by ABB-ES in 1996-97 detected BTEX exceedances. TtNUS replaced the monitoring wells destroyed by the City of Orlando's contractors and performed a round of sampling in September 1999. *A downgradient deep well was installed by TtNUS in 4/00. The preliminary unvalidated results shows an exceedance of 1.2 ppb benzene.*

Bldg 2426: The SAR was completed on 5/29/98. FDEP approved recommendations for the excavation of petroleum-impacted soil and free-product removal on 7/7/98. The petroleum-impacted soil was removed by the DET during the week of 2/22/99. HLA installed a temporary well and sampled it the week of 4/19/99. A Source Removal Report (SRR) was submitted to FDEP on 6/1/99. FDEP requested additional assessment in a letter dated 7/19/99 although the source had been removed and lab results from the groundwater sample from the former source area were clean. HLA will conduct further soil assessment using HLA's Geoprobe to complete assessment at the edges of the excavated area. If organic vapor readings are within acceptable limits, a letter report will be submitted to FDEP documenting the findings. If organic vapor readings are above 50 parts per million (ppm), samples will be submitted to an approved laboratory for analysis using USEPA Methods for the Kerosene analytical group described in Chapter 62-770 FAC. A source removal report addendum was submitted to FDEP on 12/2/99 with NFA recommendations for the site. The Navy is awaiting a decision from the State on this site.

Bldg 2510: UST 2510 was removed by the DET the week of 2/21/99. A TCAR was prepared and submitted to the FDEP on 6/15/99. The FDEP issued a response on 7/8/99 indicating that additional assessment was required. A draft-final Site Assessment Plan (SAP) was prepared and submitted to the Navy on 10/25/99. The Navy issued approval of the draft-final SAP on 11/19/99. The final SAP was submitted to the Navy on 12/19/99. Site Assessment field activities began on 1/5/00. DPT investigation performed 1/18/00 through 1/19/00. Preliminary data currently being tabulated and plotted for submittal to the Navy and FDEP for review. Soil removal was performed the week of 2/21/00. *Source Removal Reports in preparation. Anticipate submittal in late May.*

Bldg 7107: The DET removed 5 yd³ of petroleum-impacted soil on 2/20/99. A microwell was installed in the excavated area on 4/12/99 and was sampled 4/16/99. The results indicate the site is clean. The SRR was submitted to FDEP on 6/1/99. FDEP requested additional information in a letter dated 10/6/99. A SRR addendum was submitted to FDEP on 12/2/99. FDEP issued a Site Rehabilitation Completion Order on 1/6/00 approving NFA for the site. Monitoring wells MW-1, MW-2, and MW-3 were abandoned on 2/21/00 as requested by the Site Rehabilitation Completion Order.

Bldg 7125: The Navy will excavate petroleum-impacted soils and a Source Removal Report will be required for the site. Contaminated soil volume estimates were sent to the Navy on 7/20/99. An estimated 900 yd³ (1260 tons) of soil will need to be removed. The Navy has scheduled the excavation for 2/00. Monitoring wells MW-1, MW-2, MW-3, and MW-4 were abandoned on 2/21/00 in preparation of site for soil removal. The soil removal *was performed the week of 3/13/00. Source Removal Reports in preparation. Anticipate submittal in late May.*

Bldg 7151: UST 7151 and AST 7151 were removed by the DET the week of 2/14/99. A temporary monitoring well was installed and sampled on 4/13/99. A TCAR was prepared and submitted to the FDEP on 6/15/99. The FDEP issued a response on 7/8/99 indicating that additional assessment was required. A draft-final Site Assessment Plan (SAP) was prepared and submitted to the Navy on 10/25/99. The Navy issued approval of the draft-final SAP on 11/19/99. The final SAP was submitted to the Navy on 12/19/99. Site Assessment field activities began on 1/5/00. DPT investigation performed 1/20/00 through 1/21/00. Preliminary data currently being tabulated and plotted for submittal to the Navy and FDEP for review. The soil removal is scheduled for the week of 3/13/00. *Source Removal Reports in preparation. Anticipate submittal in late May.*

7174: Construction documentation report was submitted in February 2000. Biosparge system has been operating properly, and bi-weekly O&M of the biosparge system on going. First quarterly GW monitoring was completed in February 2000, and quarterly report will be submitted in April 2000. Drums left on site by previous workers will be sampled for TCLP metals and TCLP VOCs 3/00 to obtain data for disposal of drums by TtNUS. *HLA collected samples from 10 unlabeled drums for pre-disposal characterization. TtNUS will coordinate pickup with other IDW at Base.*

Bldg 7175: A soil assessment was conducted at this site and the data presented in a letter dated 4/28/97. HLA recommended the excavation of petroleum-contaminated soil prior to conducting a site assessment. The DET excavated and disposed of petroleum-impacted soil during the week of 2/22/99. Four monitoring wells were installed at the site during the week of 4/5/99. Six monitoring wells were sampled on 4/15/99. Low levels of petroleum constituents were found resulting in the installation and sampling of two microwells 7/99. A SRR was submitted on 6/29/99. A SAR was submitted to FDEP 9/15/99 recommending a Monitoring Only Proposal (MOP) for natural attenuation at the site. FDEP submitted comments to the SAR on 10/27/99, indicating that further plume delineation is required. Five microwells were installed the week of 11/29/99. Groundwater samples will be collected the week of 12/6/99. Groundwater analytical results indicate that three additional microwells will be necessary to complete plume delineation. These wells will be installed during the week of 2/14/00, and the wells were sampled on 3/1/00. Laboratory analytical results indicate that the contaminant plume is migrating towards a drainage ditch along Binnacle Way. HLA will submit a SAR addendum to FDEP in 5/00 incorporating the new analytical data.

Bldg 7241: The Remedial Action Plan (RAP) for Building 7241 was submitted to FDEP on 8/10/98 and was approved by FDEP on 8/22/98. Two monitoring wells and several piezometers were abandoned 2/11/99. The DET excavated petroleum-impacted soil on 2/20/99. A micro-well was installed 4/12/99 and was sampled 4/16/99. The well was clean. A SRR was submitted to FDEP 6/29/99. FDEP requested additional assessment in a letter dated 7/19/99 although the source had been removed and lab results from the groundwater sample from the former source area were clean. HLA conducted soil assessment using HLA's Geoprobe at the edges of the excavated area and found organic vapor concentrations above 50 parts per million (ppm). samples were submitted to an approved laboratory for analysis using USEPA Methods for the Kerosene analytical group described in Chapter 62-770 FAC. Analytical results show petroleum-impacted soil in one of the soil boring locations. HLA recommended excavation of an area 10 feet by 10

feet surrounding the soil boring with petroleum-impacted soil. The soil removal was performed the week of 3/06/00. Source Removal Reports in preparation. Anticipate submittal in late May.

IR UPDATE AND STATUS May 2000

OPERABLE UNITS

OU 1: Semi-annual sampling and visual landfill inspection as per ROD was completed by CH2M Hill on 12/30/99. Validated data was received in 3/00. Semi-annual monitoring and landfill inspection report was issued in 3/00. The next sampling event is scheduled for 6/00; the annual report will be issued in 8/00.

OU 2: Draft report issued 1/99. Comments from FDEP (4/99) and EPA (5/99) have been received and responses regarding the human health risk assessment and geological/hydrogeological portions of the report have been issued to the OPT. Responses to the eco risk comments will be issued by TtNUS in 8/99. Resampling of selected MWs and surface water/sediment locations began 6/99 and was completed 9/99. With the exception of five rad speciation samples, analysis and data validation were completed 11/99. The draft final RI report, incorporating comments and the resampling data, was issued 3/10/00.

OU 3: The Proposed Plan for OU3 was issued 7/1/99. The public comment period on the Proposed Plan was from 7/1/99 to 8/1/99. TtNUS performed groundwater sampling in 3/99, 8/99, and 10/99. The OU 3 ROD was submitted to the OPT as a working draft on 8/19/99 and, with the receipt of the DET's Completion Report on 8/19/99, was issued in final draft on 10/18/99. TtNUS issued the Quarterly Groundwater Sampling Report for October on 2/1/00. Comments have been issued by FDEP (1/4/00) and EPA (12/15/99) and a response to comments is in preparation. *HLA issued the Interim ROD on 4/25/00 and has incorporated the 1/00 data into the text and figures. TtNUS will issue the results of the quarterly groundwater sampling (1/00) the week of 5/8/00.*

OU 4: Quarterly vapor emission monitoring, groundwater sampling, and system influent/effluent sampling as per workplan completed on 1/7/00. Validated data was received in late 2/00. Quarterly report was issued in 4/00. An additional round of quarterly sampling was completed on 4/21/00. The next quarterly report will be issued in 6/00. CH2M HILL completed comprehensive operation and maintenance activities on the UVB system during the week of 5/1/00. The redline/strikeout version of the Final OU4 RI was issued to the OPT members on April 4. HLA will finalize when the changes are approved by FDEP/USEPA. Additional phyto samples were obtained for the U. of Georgia in 2/00.

The KMnO4 pilot study continues. *In the April update it was noted that some injection well clogging had occurred, but initially acid treatment had helped somewhat. It was later discovered that the filters removing the MnO2 produced during the reaction in the tanks had failed, and MnO2 had been pumped into the wells. As MnO2 does not dissolve in acid, the wells were surged and the solids pumped out. Well performance returned close to what it had been at startup. Currently the system is not running while preparing to pump all remaining solids out of Tank 2. This is scheduled to occur on May 17 or 18. It is expected that the removal of these solids (produced at an estimated rate of 6 lb/day) should allow the pilot study to continue to completion. Occasional acidification of the injection wells may still be required.*

A concern with the KMnO4 technology is the possible clogging of the formation by MnO2, which is also produced in the aquifer after injection. However, the rapid advancement of the KMnO4 across

the treatment cell, and the major improvement in injection well performance after the solids were removed, suggest that aquifer clogging is not occurring at OU 4.

VOC reduction in shallow wells has progressed faster than predicted. Total VOCs in one monitoring point have been reduced from over 24,000 ppb to ND, and at another location from 18,000 ppb to 270. The KMnO₄ has been traveling faster than expected across the shallow portion of the treatment cell, and good lateral distribution of the KMnO₄ also appears to be occurring. KMnO₄ has slowly begun to appear in the deeper zone. Total VOC concentrations are slowly falling, and evidence of the presence of KMnO₄ (color, conductivity, potassium) has been observed. Overall, KMnO₄ treatment in the deeper zone has been slower than expected.

The main panel was replaced on 4/4/00. Injection well clogging was determined to be MNO₂-related, and is being handled with filters to remove particulates prior to reinjection.

GROUPS IV AND V:

SA 35: Soil removal by Environmental Detachment Charleston (DET) was completed 5/29/99. At the former excavation at Bldg 2079, TtNUS to sample surface soil at four sidewall locations to confirm lead concentrations at the edge of excavation, and resample the south wall for arsenic. HLA final draft site screening report was issued 11/4/99 recommending no further action. TtNus mobilized on 4/10/00 to complete the additional sampling.

SA36: The site screening report summarizing investigation activities was issued 4/9/99, and was signed by the BCT on 7/21/99 at the OPT meeting in Orlando. TtNUS reviewed the existing data and recommended additional investigations to assess soil (scheduled for 2/00). CH2M Hill is currently evaluating existing data and conducting preliminary design activities (contacting vendors for bench scale testing requirements). Waiting on completion of nature and extent characterization and receipt of results prior to proceeding with final design and subcontractor procurement. *TtNUS mobilized on 4/10/00 to perform the first phase of the site investigation.*

SA 37: The final site screening report was signed off at the January OPT meeting.

SA 42: The report recommended NFA and was signed off by the BCT on 11/18/99. HLA shipped the final report on 11/24/99.

OTHER STUDY AREAS:

SA 2: The final site screening report was signed by the BCT 6/24/99. The site status has been changed to 4/Dark Green. Recommendations include a focused risk assessment, a groundwater use advisory, sampling of any yard wells in the Azalea Park Neighborhood, and quarterly monitoring of volatiles and natural attenuation parameters. The first two rounds of quarterly sampling were completed by TtNUS 7/99 and 10/99. TtNUS revised the final Work Plan for Groundwater Sampling (which includes SA 2) on 11/12/99. The HLA draft FFS was issued 7/27/99 and the Draft Natural Attenuation Monitoring Workplan was issued 9/10/99. HLA received USEPA comments on the FFS on 9/16/99, and on the NA Monitoring Workplan on 10/14/99. The FFS and NA Monitoring Workplan were finalized and distributed 11/99 at the OPT meeting in Orlando. *TtNUS will issue the 1/00 Quarterly Groundwater Sampling results the week of 5/8/00. The final Decision Document was issued 4/00.*

SA 3: Sampling of well OLD-03-04 was discontinued 12/98 as PCE had fallen below the FL MCL for 2 consecutive months. Sampling on 2/23/99 showed that PCE in well OLD-03-01 had decreased to 2.9 µg/l. One more round below the MCL will remove the groundwater restriction from SA 3. Sampling of the well was attempted in 5/99 and again in 7/99 but the well was dry both times. A deeper well was installed in 9/99 to allow sampling. TtNUS issued the final Work Plan for Groundwater Sampling (including SA 3) in 9/99. The last two sampling rounds (2/99 and 10/99) showed that PCE had decreased to <3.0 ug/l in the other wells. The 10/99 samples had 2.2 ug/l in OLD-03-01 and 1.6 ug/l in new well OLD-03-05. OPT approved site for NFA 12/99. *and the final Closure Report was issued 4/00.*

SA 16: HLA collected 13 surface soil and 5 sediment samples from the ditches surrounding SA 16 on 8/17/99. These results were summarized in a letter distributed at the November OPT meeting. HLA issued a letter on 1/26/00 recommending excavation of 4 surface soil samples and one sediment sample. The Navy will remediate soil at SA 16 in 3/00.

SA17: The final site screening report was issued 3/4/99, and was signed off by the BCT on 4/22/99. The DET completed soil removal activities 5/29/99. Additional site investigation activities will be conducted to further delineate the chlorinated solvent plume (primarily TCE, VC and cis-DCE) and evaluate remedial options.

Confirmatory site characterization activities were completed in 4/00. Activities *included* 1) sampling of existing site monitoring wells for VOCs, select metals exceeding screening criteria, and natural attenuation parameters; 2) direct push sampling and monitoring well installation to further define the extent of dissolved VOCs; and 3) media sampling for use in bench scale testing by in-situ oxidation vendors. Preparing a data report memorandum describing the results of the confirmatory sampling activities; report will be issued in 5/00.

SA 18: The DET completed soil removal activities 5/29/99. TtNUS measured water elevations and resampled monitoring wells 5/99. Chlorinated solvent concentrations in groundwater are all below GCTLs. HLA finalized the site screening report and submitted the report to the OPT in redline/strikeout on 8/26/99. Recommendations include no further action, including a restriction to nonresidential use and a groundwater use advisory due to exceedances of secondary standards for aluminum and iron. The report will be issued following resolution of secondary standards issues, which are being evaluated by FDEP and Tier II.

SA 21: *The final Decision Document was issued 4/00.*

SA 25: *The final Decision Document was issued 4/00.*

SA 39: Recommendations in HLA's final site screening report include restriction to non-residential use, continuing groundwater evaluation. TtNUS completed a work plan to evaluate chlorinated solvents in groundwater. Fieldwork (DPT, MW replacement, a MW installed in the Hawthorne, and possibly other MWs) began 7/99 and was completed 10/99 with sampling for NA parameters. A project update report was issued 2/00 and a downgradient well cluster was installed the week of 3/6/00. *A draft Site Investigation Report was issued 5/5/00.*

CH2M Hill evaluating existing data and conducting preliminary design activities for the IRA.

SA 40: Soil removal by DET was completed 5/29/99. The HLA final draft site screening report was issued 11/4/99 recommending no further action. A site-specific, multi-family RBC for arsenic in soil was determined and issued to the OPT for comment 1/25/00. The FDEP position on the site-specific RBC is

that renters will not be permitted to occupy premises for a period exceeding 8 years, a restriction that will likely not be acceptable to the Navy, the Developer, or potential renters. *TtNUS mobilized on 4/10/00 to complete additional delineation of arsenic in soil above the SCTL.*

SA 52: The first two rounds of quarterly monitoring were completed 7/99 and 10/99 (report issued 1/10/00). The quarterly monitoring report for the 7/99 sampling event was issued 11/99. *The 7/99 and 10/99 sampling data indicate dieldrin exceedances of 0.027 to 0.081 ug/l vs. the Florida GCTL of 0.005 ug/l. TtNUS will issue the 1/00 sample results the week of 5/8/00. The final Decision Document was issued 4/00.*

SA 54: Draft site screening report on the two background surface soil sample locations (ORS00901 and ORS01601) was submitted to the OPT for review on 12/2/98. TtNUS completed additional sampling in 9/99 to determine if conditions have changed following construction activities. The OPT determined during the 11/99 meeting that no further delineation would be required at sample ORS009, but that additional sampling would be required at ORS016. *TtNUS mobilized on 4/10/00 to perform the additional sampling.*

STUDY AREA STATUS:

55 study areas have been screened

- ⇒ 41½ SAs have been submitted as final and approved for NFA: 1, 3, 4, 5, 6, 7, 8[WWTP], 10, 11, 15, 16, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 37, 38, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 53, 55
- ⇒ 4½ SAs became OUs (8 [greenskeeper storage] & 9 [OU3]; and 12, 13, and 14 [OU 4])
- ⇒ 6 SA reports have been approved by the BCT as final, but will require additional investigations (SAs 2, 17, 36, 39, and 54) or continued groundwater monitoring (SA 52)
- ⇒ 3 SA reports are in various stages of being finalized (18, 35, and 40)

SA 39 Site History and N/E of Contamination

- Formerly used as coal storage yard, alleged landfill operations, and solid/hazardous materials storage and handling area
- VOCs (primarily PCE) were detected in groundwater above screening criteria (current maximum concentration less than 100 ug/L)
- Elliptical plume approx.. 300 ft long by 100 wide; long axis oriented in the direction of groundwater flow
- Most of the PCE plume is present above a thin clay layer at the site at 30 feet bgs
- Aquifer conditions not highly favorable for natural attenuation of PCE without enhancement

Addressing the Groundwater Contamination - Enhanced Bioremediation

- Inject a carbon source into the contaminated area to stimulate the naturally occurring biological activity (feed the bugs)
- Bugs will break down the contamination
- Possible carbon sources -
 - Vegetable oil
 - Molasses

Upcoming Site Activities and Schedule

- Pilot study to test the effectiveness of vegetable oil and molasses
- Pilot study to begin in July 00; if effective, full scale activities to begin in January 01

SA 17 Site History

- Buildings at the site were used for storage of various materials
- Also used for a motor pool area
- Potential releases from USTs, ASTs, or drum storage areas associated with site operations

Recent Site Activities

- Completed investigation to further define extent of VOC groundwater contamination at the site (mainly TCE)
- Investigation identified two suspected source areas; extent of plume has been defined

Addressing the Groundwater Contamination - In-Situ Oxidation

- Inject a reagent (Fenton's reagent) that will destroy the VOC contamination
- Residuals of destruction - oxygen and water

Upcoming Site Activities and Schedule

- Pilot study to test the effectiveness of the Fenton's reagent
- Pilot study to begin in August 00; if effective, full scale activities to begin in January 01

NTC ORLANDO OU4

KMnO₄ Pilot Study Update

KMnO₄ Pilot Study

- System Installed Week of February 7
- MCLs Achieved in Injection Water in 2 Hours (Have about 6 Hours Residence Time)



KMnO₄ Pilot Study

- System Modifications Since Startup
 - Replaced Leaking KMnO₄ Recirc Pump
 - Installed Battery-Operated KMnO₄ Valve (for power outages)
 - Replaced Extraction Pump Impeller
 - Installed Larger Diameter Extraction Piping

KMnO4 Pilot Study

- System Availability:
 - 94 Days Since Startup
 - 48 Days Running
 - Ran 32 out of 33 days from mid-March to mid-April
 - Most Downtime During First 3 Weeks and during the past 30 days.

KMnO₄ Pilot Study

- Downtime Due To:
 - Leaking KMnO₄ Pump (Weeks 2 and 3)
 - Power Outages (5 Days in March)
 - Injection Well Clogging (Approx. 2 wks)
 - Excess Solids in Tanks (Approx. 2 wks waiting for analytical and waste hauler)

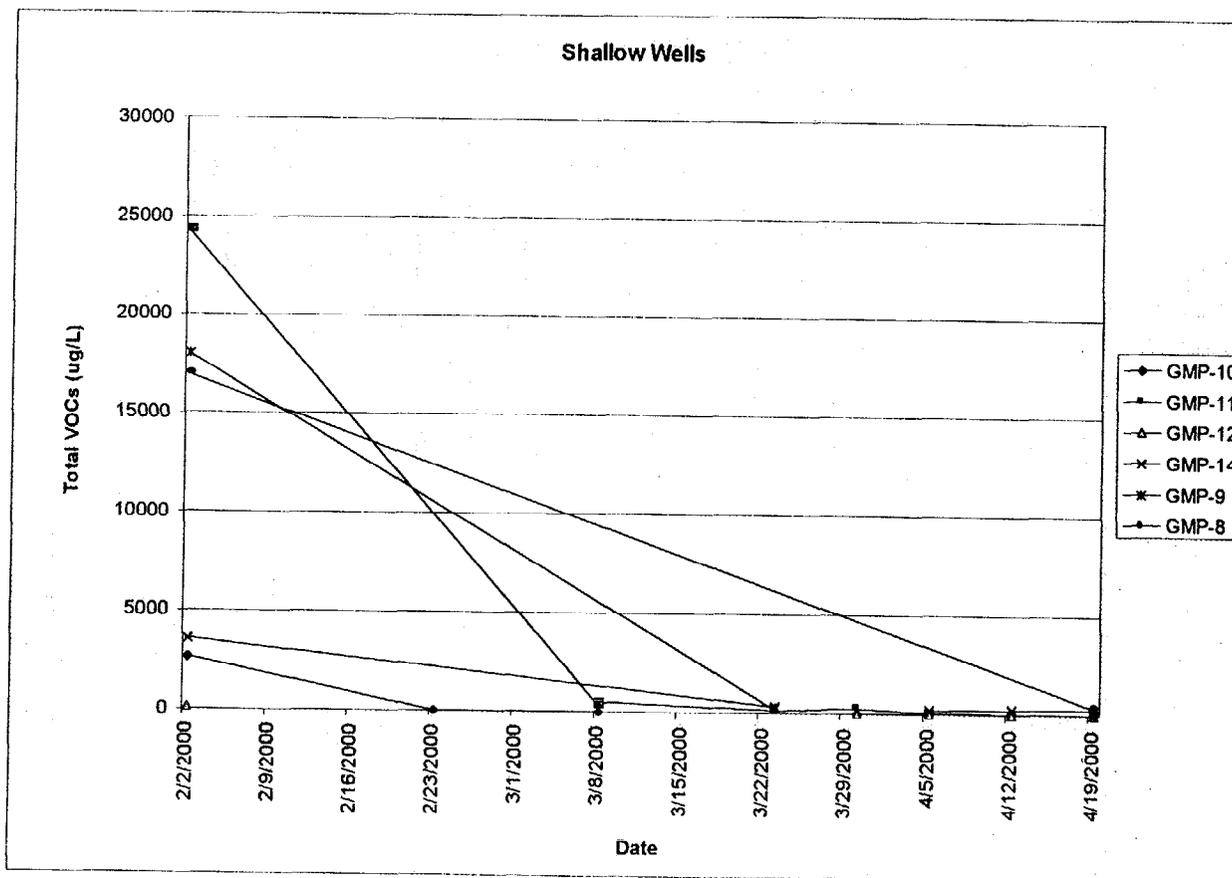
KMnO₄ Pilot Study

- Well Clogging
 - Related to failure of system filters
 - Wells cleaned and filters replaced
- Excess Solids
 - Potential anticipated
 - Inexpensive disposal of non-haz liquids (to occur this week)

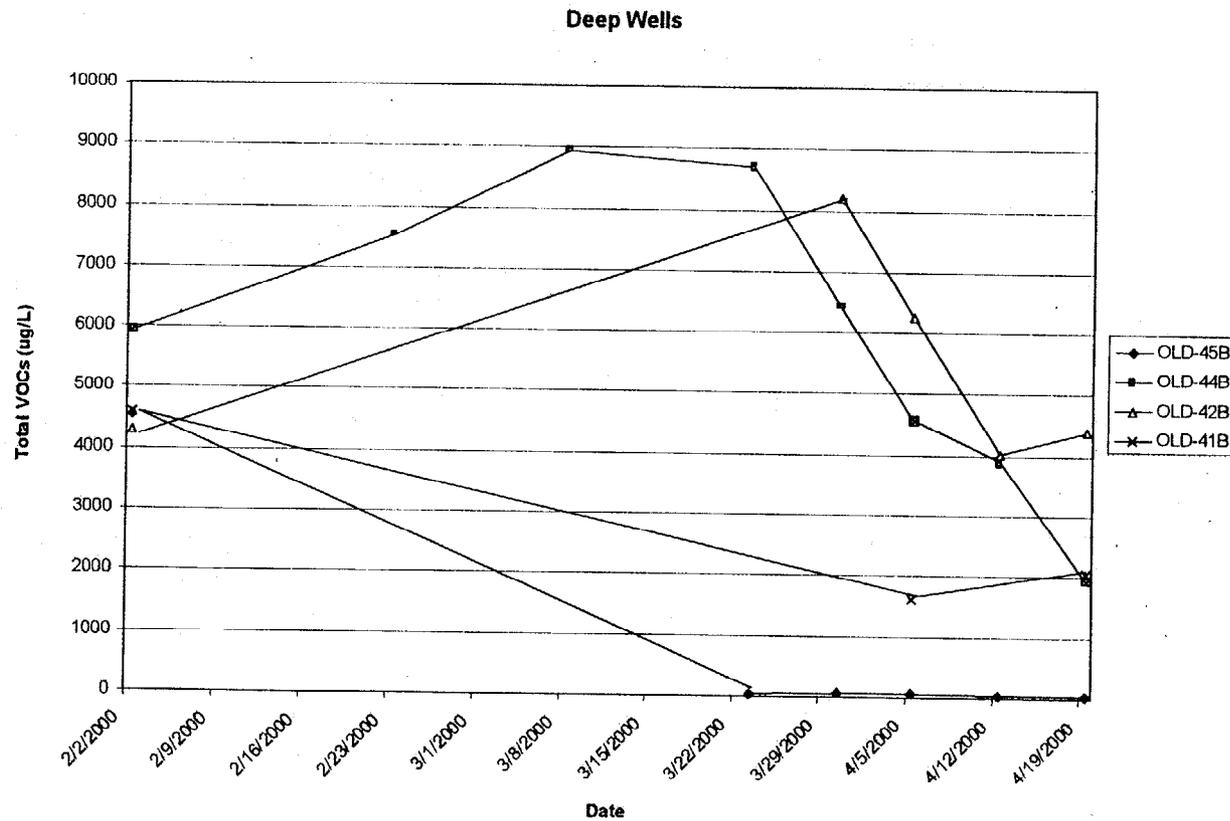
KMnO₄ Pilot Study

- Learning System Requirements that Could be Applied to Full-Scale
 - Solids and well clogging issues can now be predicted and addressed before system shutdown
- KMnO₄ Is Destroying VOCs

KMnO4 Pilot Study (Shallow Wells)



KMnO4 Pilot Study (Deep Wells)



KMnO₄ Pilot Study

- Shallow Travel Times Faster Than Expected (Ex. GMP-9 Predicted 80 Days; Actual about 35 Days)
- Good KMnO₄ Distribution Across Cell (Based on color, conductivity, potassium)
- Excellent VOC Destruction

KMnO₄ Pilot Study

- Deep Travel Times Slower Than Expected
- KMnO₄ Distribution Less Uniform
- Beginning to See KMnO₄ Deep
- VOCs Slowly Decreasing

KMnO₄ Pilot Study

- KMnO₄ Dosage
 - Running at 4 g/L (2.5 times less than Feasibility Study assumption and about 50% below permit limit of 7.6 g/L)
 - Appears adequate to destroy VOCs

KMnO₄ Pilot Study

- Interim Tech Memo Report in Progress
- Expect to Operate Through June 2000

ATTACHMENT A

AGENDA

NTC, Orlando Restoration Advisory Board Meeting May 17, 2000, 7:00 p.m.

Welcome/Opening Comments Navy Co-Chair Mr. Wayne Hansel

RAB Administration RAB Co-Chairs
And New Business

BRAC Update Wayne Hansel,
BRAC Environmental Coordinator

***Special Topic: Study Area 17 and Study Area 39 Remediation and Operating
Unit 4 Treatability Study Update***

Feedback on March meeting: RAB Members

- Main Base Redevelopment

Close RAB Business

Community Comments and Questions

ATTACHMENT B

NTC, ORLANDO RAB MEMBER SIGN-IN SHEET

May 17, 2000

PRINT name clearly	
Bob Mackey	
Ann Williams	
Penelope Felger	
Nancy Maloney	Community
DAVID GRABKA	FDEP
BRUCE HOSSFELD	City of Orlando
Nancy Rodriguez	U.S. EPA

ATTACHMENT C

Attachment C - 2000 RAB Attendance

RAB Member Name	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Hank Beers - Community			X		Exc.							
Penelope Felger - Community	X		X		X							
Donald Fuller - Community					Exc.							
Edwin Granberry - Community												
W. Hansel - U.S. Navy, Southern Division	X		X		X							
Bruce Hossfield - City of Orlando	X		X		X							
Phillip Jaffe - Community	Exc.		X		Exc.							
Robert Mackey - Community	X		X		X							
Nancy Maloney - Community	X		X		X							
D. Grabka - FL Dept. of Env. Protection	X		X		X							
Thomas Nelson - Community	Exc.		X		Exc.							
Blanche Olson - Community	X		X		Exc.							
N. Rodriguez - U.S. Env. Protection Agency	X		X		X							
Ann Williams - Community	X				X							
G. Wojeck - Community					O							
Kay Yeuell - Community	Exc.		Exc.									
X = attended meeting exc. = excused absence O = resigned												

ATTACHMENT D

Installation Restoration Program Non-UST/AST Investigation Summary

Base Realignment and Closure, Naval Training Center, Orlando

Site Screening SAs/Operable Units for Main Base (MB), McCoy Annex (MA), Area "C" (AC), and Herndon Annex (HA)

SA	Location	BRAC Color Code	Building Number	Name	Reason for Investigation	Current Status
3	MB	4/Dk Grn	73/2816 2817	RTC 1st Lt. Storage/ Office/Shops	Hazardous materials are stored on the property and are regularly transferred to and from Building 2817 Former USAF Tactical Air Command operations involving Matador missile testing and personnel training	PCE (tetrachloroethene) detections of 9 µg/l and 12 µg/l (versus FL MCL of 3 µg/l) were detected in groundwater samples. OPT approved a groundwater use restriction near wells OLD-03-01 and -04 and groundwater monitoring for one year or until MCLs were achieved. Site was approved for monitoring only 8/97. Sampling of well OLD-03-04 was discontinued 12/98 as PCE had fallen below the FL MCL for 2 consecutive months. The last two sampling rounds (2/99 and 10/99) showed that PCE had decreased to <3.0 µg/l in the other wells. The 10/99 samples had 2.2 µg/l in OLD-03-01 and 1.6 µg/l in new well OLD-03-05. OPT approved site for NFA 12/99 and a draft closure report was issued 2/00.
8	MB	5/Yellow	2134	Greenskeeper Storage	Likelihood of petroleum and pesticide spills	Arsenic in surface soil and groundwater at Greenskeeper Storage caused SA to be designated OU 3 (See listing for OU 3 (page 5). IRA (soil removal) completed 9/97 with 50 tons of soil excavated and backfilled with clean soil. See OU 3 for additional information.
9	MB	5/Yellow	UNF-14	Former Pesticide/ Herbicide Storage	Pesticide and herbicide releases may have occurred during operation of facility	Chlordane and arsenic in surface soil and pesticides in groundwater will require further study; with SA 8 (Greenskeeper Storage Area) has been designated OU 3. See OU 3 for additional information.
35	MB	7/Gray 7/Gray	2078 2079	Auto Maintenance Facility Auto Maintenance Facility Storage	Soil staining associated with drum storage area Unlabelled drum and unknown storage practices concerning the hazardous materials at the facility	Field work began 6/97 and included a soil gas survey. Groundwater sampled 10/97. Further delineation and groundwater screening required due to high TRPH (up to 84,000 mg/kg) in several surface soil samples including 35S01401. Arsenic in surface soil samples at 9 of 16 locations at concentrations ranging from 1.1 to 6 mg/kg vs. background screening concentration of 1.0 mg/kg. 4 microwells were installed wk of 3/2/98. No exceedances detected in groundwater. Navy conducted soil removal to address TRPH exceedances in soil samples 5/99. A fact sheet has been prepared for the public. The soil removal completion report was received 8/19/99, and the site screening report was issued 11/4/99. Additional sampling will be conducted to determine whether or not more soil cleanup is required to meet FL screening criteria.
36	MB	7/Gray 7/Gray	2121 2122	PW Lumber Storage PW Shops	Soil staining from an oil spill, drum storage area Suspect past and present storage and disposal of paints and solvents, solvents, and questionable oil collection practices	Field work began 6/97 and included a soil gas survey. Groundwater sampled 10/97, resulting in TCE detection of 19 µg/l in well OLD-36-06. 5 additional wells installed and sampled 6/98 to characterize TCE plume. TCE detected at 250 µg/l in well OLD-36-09 (screened 35 ft bls). 3 more monitoring wells were installed, including 2 deep wells to top of Hawthorn. No chlorinated solvents were detected in samples from the deep wells. A (draft) site screening report summarizing investigation activities was issued 4/99 recommending soil removals and additional groundwater evaluation. TINUS made recommendations in 12/99 for additional soil and groundwater sampling. The fieldwork is scheduled for late 3/00.
39 ^s	MB	6/Red	4060 4067 15109	Loading Platform (Bldg. 137) Loading Platform (Bldg. 137) Irrigation Well	Potential landfilling in this area Potential landfilling in this area In close proximity to the old coal storage area, out-of-service well onsite	Initial site screening studies completed 4/96, followed by supplemental soil and groundwater studies. Lab results indicate exceedances in surface soil for benzo(a)pyrene and arsenic. Groundwater had exceedances for PCE. Groundwater recommendations include a groundwater use restriction for surficial aquifer, completion of a risk assessment, and continued monitoring of selected wells. Probabilistic risk assessment results were presented to OPT 1/98 and indicated less than 10 ⁻⁶ risk. The future reuse of property has recently changed to nonresidential, so soil now meets State criteria. Final

*Changes for this revision are bolded and italicized
See notes, glossary, and BRAC color codes at end of table
ntcsurm.doc

Installation Restoration Program Non-UST/AST Investigation Summary						
Base Realignment and Closure, Naval Training Center, Orlando						
Site Screening SAs/Operable Units for Main Base (MB), McCoy Annex (MA), Area "C" (AC), and Herndon Annex (HA)						
SA	Location	BRAC Color Code	Building Number	Name	Reason for Investigation	Current Status
			UNF-10	Open Area (west of Nuclear Power School)	Unknown nature of coal staging area, west side of property allegedly used as a landfill	site screening report was approved 4/99. Fieldwork to further evaluate PCE groundwater plume began 7/99 and was completed 10/99. Of 28 samples collected, 13 contained PCE concentrations above the GCTL of 3 µg/l with a maximum of 94 µg/l. An additional well cluster will be installed 3/00.
40 ^s	MB	7/Gray	21022	Softball Field	In close proximity to the bottle landfill (UNF-6) to the south, may be additional landfilling activities here.	Site screening studies were completed 4/96. Lab results indicate minor exceedances in surface soil from benzo(a)pyrene (200J mg/kg) and arsenic (1.1 mg/kg); groundwater had minor exceedances for gross beta (31.8 pCi/l). Additional field studies to characterize PAHs/arsenic in surface soils took place between 12/96 and 9/97. A fact sheet was prepared for the public. IRA soil removal activities were completed 5/99. The soil removal completion report was received 8/19/99. The site screening report was issued 11/4/99 and is being reviewed.
		7/Gray	21023	Softball Field	In close proximity to the bottle landfill (UNF-6) to the southwest, may be additional landfilling activities here.	
		7/Gray	UNF-6	Bottle Landfill	Landfill with unknown contents.	
OU 3	MB	5/Yellow	2134	Greenskeeper Storage	Confirmed arsenic in surface soils. An interim remedial action (IRA) took place in 9/97, resulting in 50 tons of soil being excavated and backfilled with clean soil.	Soil samples had elevated levels of arsenic (up to 577 mg/kg) vs. a background screening level of 1 mg/kg. Groundwater had elevated levels of arsenic (up to 425 µg/l vs. 50 µg/l MCL). A PRE was conducted indicating no ecological risk, but human health risk was higher than 1x10 ⁻⁶ . The Greenskeeper Storage Area, along with SA 9, has been designated OU 3. RI Fieldwork began 10/97 and was completed 3/98. The RI report was completed 7/98 and the FS report was completed 12/98. FDEP and EPA RI and FS comments have been received, HLA responses have been submitted, approved and incorporated. The Final RI/FS report was submitted June 1999. Groundwater samples were collected 3/99 and 8/99 and additional soil removal actions were completed 4/99. The removal actions will reduce the risk posed by soil contamination, as well as reduce the source of groundwater contamination. Groundwater results suggest that contamination has been significantly reduced since 1997. No Further Action is anticipated for soils, and long-term monitoring of groundwater is recommended. The Proposed Plan for OU3 was issued 7/1/99. The public comment period on the Proposed Plan was from 7/1/99 to 8/1/99. The draft ROD was issued 10/18/99. Comments have been issued by FDEP and EPA and the ROD is being revised.
OU 3	MB	5/Yellow	UNF-14	Former Pesticide and herbicide Storage	Pesticide and herbicide releases may have occurred during operation of facility. An interim remedial action (IRA) took place in 9/97, resulting in 3,000 tons of soil being excavated and backfilled with clean soil.	Chlordane up to 2900 mg/kg vs. screening value of 490 mg/kg. A PRE was conducted indicating no ecological risk, but human health risk was higher than 1x10 ⁻⁶ . The site, along with the Greenskeeper Storage Area (SA 8), has been designated OU 3. See preceding summary (Greenskeeper Storage).
16	MA	1/White	7168	Maintenance Yard	Potential release from an oil-water separator	Field work for Group III Sites took place from 3/13/95 to 6/5/95. The (draft) Group III report was submitted to the Navy 12/15/95. There were significant detections of PAHs in four surface soil samples which slightly exceeded SCGs for some PAH compounds. Mineral spirits were present as free product in a well adjacent to an oil-water separator in the northern corner of the site. Oil-water separator transferred to NTC TMP 10/96. Surface and subsurface soil samples were collected from 13 locations, and sediment samples from 5 locations in accordance with PAH workplan. Surface soil and sediment samples were collected from the ditches on the north and west perimeters of the site 8/99. Analytical results indicate minor exceedances of screening criteria in several samples, with one sample also exceeding nonresidential criteria. These results were summarized in a letter
		2/Blue	7171	Army Motor Transportation	Potential releases of petroleum releases from motor pool operations	
		1/White	7172	Army Battery Shop	Stained soil associated with used battery storage, possible release of sulfuric acid from inside	

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 ntcsumm.doc

Installation Restoration Program Non-UST/AST Investigation Summary						
Base Realignment and Closure, Naval Training Center, Orlando						
Site Screening SAs/Operable Units for Main Base (MB), McCoy Annex (MA), Area "C" (AC), and Herndon Annex (HA)						
SA	Location	BRAC Color Code	Building Number	Name	Reason for Investigation	Current Status
						dated 11/16/99, recommending surface soil remediation. <i>HLA sent volume estimates to the Navy on 1/26/00, which included 5 surface soil locations. The Navy is planning to implement a soil removal in 3/00.</i>
17	MA	7/Gray 7/Gray 7/Gray 6/Red	7178 7191 7193 7190	Training Material Storage DPDO Warehouse Army Maintenance Office Army Motor pool and drum storage area adjacent to 7190	Evidence of paint dumped down the drains of adjacent wash rack. Ground staining and paint dumping evident Hazardous waste drum storage and alleged burial Site used as a motor pool and vehicle storage compound.	Screening studies for SA 17 indicate: Surface soils had exceedances of several PAHs in several samples. Chlorinated solvents in groundwater exceeding MCLs. Groundwater studies indicate at least two source areas for chlorinated solvents and a plume measuring 200 feet wide by 400 feet long extending to the Hawthorn Group at 60 feet bls in the source areas and approximately 30 feet bls throughout the remainder of plume. The final site screening report was approved 4/99. An IRA soil removal was completed 5/99, and studies to further evaluate the chlorinated solvent plume in groundwater are in the planning stages.
18	MA	7/Gray	7182	Housing Office	hazardous materials including paint, solvents, compressed gases and petroleum products stored there	Analytical results for SA 18 indicate surface soil detections of PAHs at one location exceeded Florida SCTLs. In addition, chlorinated solvents were detected in a monitoring well associated with a tank removal. DET completed soil removal activities 5/99. Groundwater was resampled 5/99. Chlorinated solvents were not detected > GCTLs. Iron and aluminum, however, were > GCTLs. The soil removal completion report was received 8/19/99, and the site screening report was submitted in final form to the OPT for their review on 8/26/99. Secondary standards exceedances are holding up regulatory approval for no further action.
52	MA	5/Yellow	Former Building 7261	Former Entomology Lab	Potential pesticide contamination due to past use of building.	Site screening investigations were completed 5/96, confirming soil and groundwater samples with pesticides above screening levels. IRA (soil removal) completed 9/97 with 1,300 tons of soil excavated and backfilled with clean soil. Three monitoring wells were installed after the IRA. The well at the location of the most contaminated soil has dieldrin above the MCL. OPT recommended groundwater restriction and quarterly groundwater monitoring. The recent sampling data (7/99 and 10/99) indicate dieldrin exceedances of 0.027 to 0.081 µg/l vs. the Florida GCTL of 0.005 µg/l. Final report, recommending continued groundwater monitoring and institutional controls, was approved by FDEP 5/99. Draft Decision Document was issued 8/99 with a revised draft <i>Issued 1/00</i> . The Color Code will be changed to 4/Dk Grn upon incorporation of GW monitoring program into a decision document.
54	MA	5/Yellow		Background surface soil sample locations	PAHs in surface soil above the Florida SCGs were detected in surface soil during the background sampling investigation	Additional sampling and analysis with immunoassay (IA) following the background investigation confirmed the widespread presence of PAHs at sample locations ORS009 and ORS016. The final SA 54 report was submitted 8/99 and approved by FDEP. A work plan to identify the extent of PAH contamination has been prepared by Tetra Tech. Field work took place in 9/99, confirming PAH contamination. PAHs along the road near sample ORS009 are attributed to the road and vehicular traffic; PAHs at sample ORS016 are being further delineated.
OU 2	MA	6/Red	7355	McCoy Annex Golf Course	OU 2 is a 99-acre landfill operated by the Air Force from 1960 until 1972 when the Navy took over the property. The Navy closed the landfill in 1978. A 9-hole golf course was	Tetra Tech NUS performed the first phase of RI fieldwork 5/97 to 11/97. This work consisted of geophysical surveys; a soil gas survey; sampling of surface soil, surface water, and sediment; groundwater screening with DPT,

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See notes, glossary, and BRAC color codes at end of table
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Installation Restoration Program Non-UST/AST Investigation Summary

Base Realignment and Closure, Naval Training Center, Orlando

Site Screening SAs/Operable Units for Main Base (MB), McCoy Annex (MA), Area "C" (AC), and Herndon Annex (HA)

SA	Location	BRAC Color Code	Building Number	Name	Reason for Investigation	Current Status
		6/Red	7354	Greenskeepers Storage	constructed over the site, which is drained by a series of canals and retention ponds that discharge to Boggy Creek and Boggy Creek Swamp to the south. It is estimated that over 1,000,000 cubic yards of waste were disposed in the landfill, and that the waste included paints and other solvents, asbestos, transformers, hospital wastes, low-level radiological waste, scrap metal, demolition debris, and yard waste.	and cone penetrometer testing to evaluate aquifer stratigraphy. Additional fieldwork began 2/98 with additional geophysics to define the western landfill boundary. Piezometers and stream gauges were installed 3/98 to 4/98 to determine flow directions of groundwater and the connection with ponds, canals, and ditches. A DPT program was performed to delineate groundwater contamination, and subsequently monitoring wells were installed and groundwater sampled and analyzed. Groundwater was found at four locations around the landfill boundary to be contaminated with chlorinated solvents and fuel components. Soil over the landfill had exceedances of benzo(a)pyrene and arsenic. All of the media (surface soil, sediments, surface water, and groundwater) had radiological exceedances (gross alpha/gross beta) but the rad sources may be naturally-occurring. The Draft RI report was issued for review 1/99 and comments from FDEP (4/99) and EPA (5/99) have been received and responses submitted. Resampling of selected MWs and surface water/sediment locations began 6/99 and was completed 9/99. The draft final RI report, incorporating comments and the resampling data, will be issued 3/00.
		6/Red	7353	Golf Course Club House		
		6/Red	7356	Lawn Equipment Storage		

2	HA	1/White	6001	Septic Tank/Leachfield.	Exact contents of septic tank and drain field unknown (see "Other Areas" notes below for Herndon Annex Landfill). Potential contamination from unknown landfilled materials.	Field screening of the deep wells installed east of Building 606 and south of Building 610 indicate benzene concentrations of 21 and 32 µg/l, possibly related to former landfills at Herndon Annex. Additional field investigations indicate a probable off site benzene source. This land parcel was leased to the City of Orlando 12/96. Sampling of surface water in Lake Barton indicate PCE at concentrations below surface water standards. Offsite screening east of the parcel to determine the extent of benzene plume was completed 12/97. Two confirmation monitoring well clusters were installed 12/97. One deep well at intersection of Nancy Lee Ave. and Bobby St. detected benzene at 53 µg/l. Other confirmation wells in the two clusters did not have contaminants at concentrations of concern. HLA installed two additional wells to further evaluate the benzene plume. HLA final report (5/99) recommends groundwater use advisory to residents in affected area, an evaluation of remedial options, quarterly monitoring of selected wells, and transfer of parcel to Tank Management Program. Report was approved by FDEP and USEPA 6/99. Quarterly sampling began 7/99 and results showed a 15-50% decrease in benzene. The Focused Feasibility Report and Natural Attenuation Monitoring Workplan were issued as final documents on 11/17/99. A revised draft Decision Document was issued 1/00.
		4/Dk Grn		Herndon landfill(s)		

12	AC	5/Yellow	1061, 1063	DRMO warehouses and salvage yard.		Transferred to OU 4, below.
13	AC	5/Yellow	1100, 1101	NTC laundry and old heating plant		Transferred to OU 4, below.
14	AC	5/Yellow	1102	Disposal, salvage and scrap building		Transferred to OU 4, below.
OU 4	AC	5/Yellow	1063 and	DRMO Warehouses and salvage yard,	Former hazardous waste handling and storage area, spills are suspected and a former production well is on-site.	SAs 12, 13 and 14 have been grouped together and designated as OU 4. Soil and groundwater have elevated levels of PCE, TCE, and cis-DCE.

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See notes, glossary, and BRAC color codes at end of table
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Installation Restoration Program Non-UST/AST Investigation Summary						
Base Realignment and Closure, Naval Training Center, Orlando						
Site Screening SAs/Operable Units for Main Base (MB), McCoy Annex (MA), Area "C" (AC), and Herndon Annex (HA)						
SA	Location	BRAC Color Code	Building Number	Name	Reason for Investigation	Current Status
			1061	Laundry Drycleaners, Disposal Salvage Scrap Building		<p>Antimony has also been detected in groundwater at elevated concentrations. Most of the highest VOC concentrations were found beneath the laundry building. Antimony was also detected in several wells at concentrations up to 16 µg/l vs. a Florida MCL of 6 µg/l. The extent of groundwater contamination was established during the OU 4 remedial investigation.</p> <p>A focused investigation was conducted along the lakeshore to determine the source of VOC contamination in the lake. Another investigation was conducted beneath the laundry building to identify potential contamination source areas. Construction of two recirculating wells to mitigate the lake contamination began 11/10/97. These wells are part of an interim remedial action (IRA) while the RI and FS <i>were being</i> completed. The IRA is an in-well stripping system that will intercept the contaminated groundwater before it reaches the lake and strip out the VOCs.</p> <p>The draft RI report was issued in September 1998. The response to regulator comments to the draft OU4 RI was issued <i>in May 1999</i>. Additional regulator comments were received in June and September 1999. These issues have finally been resolved, and the RI is expected to be issued Final next month.</p> <p>The draft OU 4 Feasibility Study (FS) was issued in January 1999. This document evaluated various alternatives for remediation of the entire Operable Unit. Regulator comments to the draft FS have been received, and the Navy is in the process of responding to these comments.</p> <p>The Navy <i>has implemented</i> a treatability study to evaluate in situ chemical oxidation using potassium permanganate as a remediation technology for the VOC source area. Baseline sampling for VOCs and natural attenuation parameters occurred in Dec 99. The study started in <i>February '00</i>, and <i>initial results indicate the technology has effectively begun to reduce contaminant levels. System performance will continue to be monitored on a weekly basis</i></p>

Other Areas					
ACM		7/Gray	2713	Administration Building	
ACM		7/Gray	2651	Recycling Center	
ACM		7/Gray	2450	Demolished	
ACM/LBP		1/White		Capehart Housing	Currently designated as 1/White. ACM and LBP surveys completed in 9/95.

NOTES

- ¹ Subject to change based on evolving evidence or knowledge.
- ² This area is in the southern portion of the Main Base golf course, near the small arms ammunition bunkers.
- ³ This area also includes Building 208, the USS Bluejacket. The primary responsibility for this facility, however, lies within the UST program.
- ⁴ Upon installation of additional monitoring wells and analysis of groundwater, a decision will be made regarding additional investigator requirements at this landfill.
- ⁵ Sites discovered and/or reported in "Technical Memorandum, U.S. Air Force Records Search, September 1995" (HLA), and which will be investigated in accordance with work plan entitled "Site Screening Plan, Air Force Sites, Addendum 2," November 1995.
- ⁶ Sites previously considered, but which will be investigated in accordance with work plan entitled "Site Screening Plan, Groups I through V SAs and Miscellaneous Additional Sites," Addendum 1, October 1995.

Regulatory Limits and Guidelines for Analytical Parameters:

Groundwater - Maximum Contamination Limits (MCL), Federal and State promulgated
Surface Water - FDEP Surface Water Quality Criteria (SWQC) Classes I through IV
Soils - Risk Based Concentrations (RBC) from EPA Region III, Target Action Levels from FDEP (Screening guidelines only)
Sediments - FDEP Sediment Quality Guidelines (SQG)
No Observable Effects Level (NOEL)
Probable Effects Level (PEL)
(Screening Guidelines Only)

GLOSSARY

AST = aboveground storage tank	J = estimated	RAD = radiological parameter
BEHP = bis(2-ethylhexyl)phthalate	MCL = maximum contaminant level	RCRA = Resource Conservation and Recovery Act
BTEX = benzene, toluene, ethylbenzene, and xylenes	mg/kg = milligrams per kilogram (parts per million)	RI = remedial investigation
DCE = dichloroethene	Mn = manganese	SCTL = (Florida) soil cleanup target level
DDE = dichlorodiphenyldichloroethene	Na = sodium	TCE = trichloroethene
DPT = direct-push technology	ND = not detected	TCLP = toxicity characteristic leachate procedure
EOD = explosive ordnance disposal	NFA = no further action	TMP = tank management plan
FS = feasibility study	OPT = Orlando Partnering Team	TRPH = total recoverable petroleum hydrocarbons
FSDWS = Florida secondary drinking water standard	OU = operable unit	TSS = total suspended solids
GCTL = (Florida) groundwater cleanup target level	PAH = polynuclear aromatic hydrocarbon	µg/kg = micrograms per kilogram (parts per billion)
GOAA = Greater Orlando Aviation Authority	PCE = perchloroethylene, or tetrachloroethene	µg/l = micrograms per liter (parts per billion)
HLA = Harding Lawson Associates, Inc. (Formerly ABB Environmental Services, Inc.)	pCi/l = picocuries per liter	UST = underground storage tank
IRA = interim remedial action	PEL = probable effects level	UXO = unexploded ordnance
	PRE = preliminary risk evaluation	

BRAC COLOR CODES

- 1/White. Areas where no release or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent areas)
- 2/Blue. Areas where only release or disposal of petroleum products has occurred (but no release, disposal or migration from adjacent areas has occurred)
- 3/Lt Grn. Areas where release and/or migration of hazardous substances has occurred, but at concentrations that do not require a removal or remedial action
- 4/Dk Grn. Areas where release and/or migration of hazardous substances has occurred, and all remedial actions necessary to protect human health and the environment have been taken
- 5/Yellow. Areas where release and/or migration of hazardous substances has occurred, removal and/or remedial actions are under way, but all required response actions have not yet been taken
- 6/Red. Areas where release, disposal and/or migration of hazardous substances has occurred, but required response actions have not yet been implemented
- 7/Gray. Areas that have not been evaluated or require additional evaluation

ATTACHMENT E

Environmental Meeting - Public Invited

Restoration Advisory Board Naval Training Center, Orlando

The Naval Training Center's Restoration Advisory Board (RAB) will hold its regular meeting concerning ongoing environmental studies and cleanup at NTC.

**When: 7:00 - 9:00 P.M.
Wednesday, May 17, 2000**

**Where: Winter Park City Hall
City Commission Chamber - second floor
401 Park Avenue South, Winter Park**

The current status of all NTC environmental program sites will be presented. The special topic will be "Study Area 17 and Study Area 39 Remediation and Operating Unit 4 Treatability Study Update". An open floor period for community comments or questions will follow the RAB business portion of the meeting.

Documents on the environmental program at NTC, Orlando, including summaries of prior RAB meetings, are available for public review at the Orange County Library, 101 East Central Avenue, Orlando. They are located in the Information Repository in the Social Sciences Department (Aisle 27) on the second floor.

Need More Information?

Call Mr. Wayne Hansel at 895-6714

or

Penny Felger at 657-8276

ATTACHMENT F

NAVAL TRAINING CENTER, ORLANDO
 RESTORATION ADVISORY BOARD MEETING
 WINTER PARK CITY HALL COMMISSION CHAMBER MAY 17, 2000

COMMUNITY SIGN-IN SHEET (please PRINT clearly)

NAME	ADDRESS (please include zip code)	TELEPHONE NO. (day/evening)	AFFILIATION (if any)	Would you like to be added to our mailing list?
Fannie Peters	6302 Bear Lake Ter Apopka FL 32703		NAAS	yes
Nancy Mellon	3239 Middlesex Rd Orl, FL 32703		CTCF	yes
STEVE MURPHY	2612 CHELSEA ST. Orl. FL. 32803	407-295-5610		yes yes
MERRILL LADIKAT	401 PARK AVE So. W. P. 32789	407-599-3470	City of Winter Park	yes