N61165.AR.003813
CNC CHARLESTON
5090.3a

PROGRESS REPORTS FOR 1996 CNC CHARLESTON SC
1/1/1996
CNC CHARLESTON

**PROGRESS REPORTS**
**1996**

Scan
RFI Progress Reports
1995-1999
(Administrative Record)

# PROGRESS REPORTS
# 1996

**NAVBASE CHARLESTON**
**RFI STATUS REPORT**
**PERIOD: SUMMARY OF**
**01 January 1996 To 31 January 1996**

## I. INTRODUCTION

The following status report has been prepared to satisfy condition II.E.3.a of the Part B Permit Renewal dated 5 December 1994 for Naval Base Charleston (NAVBASE). The requirements of this condition are in effect since the total elapsed time to complete the RCRA Facility Investigation (RFI) is projected to be greater than 180 calendar days from the approval date of the *Final Comprehensive RFI Work Plan* as indicated in the Corrective Action Management Plan (CAMP).

In lieu of submitting quarterly reports, NAVBASE is voluntarily submitting monthly reports to provide an update on the progress of the RFI to members of the NAVBASE BRAC Cleanup Team (BCT) in a more timely manner. The content of the monthly reports includes information intended to satisfy condition II.E.3.a of the Part B Permit. Consequently, this report only addresses activities which occurred during the month of January 1996.

## II. PORTION OF THE RFI COMPLETED

- The *Final Focused Field Investigation Report* was submitted to SCDHEC and EPA for approval on 8 January 1996.
- The NAVBASE Charleston Project Team met on 9 January 1996. A final list of documents to be included in the Information Repository was agreed upon. Additional guidelines for revising the Corrective Action Management Plan were also discussed.
- Preparation of the *Draft Zone B RFI Report* was initiated.
- The *Draft Zone C RFI Report* was submitted to SCDHEC and EPA on 26 January 1996 for review and comment.
- The second quarter of groundwater sampling in Zones C and I was completed during the month of January.
- A revision to the RFI work plans for Zones C and I was submitted on 24 January 1996. The revision was necessary to add several sites that were omitted during the preparation of the original work plans.
- Field work continued in Zone E at a number of sites. Attachment A contains a summary of the work completed to date.

- The *Draft Zone I RFI Report* was submitted to SCDHEC and EPA on 26 January 1996 for review and comment.

- Preparation of the *Draft Zone K RFI Work Plan* was initiated on 8 January 1996.

## III. SUMMARIES OF FINDINGS

Attachment B contains a summary of the analytical results from Zones A and B. The results are still preliminary and unvalidated.

## IV. DEVIATIONS FROM APPROVED WORK PLANS THIS REPORTING PERIOD

There were no deviations from the approved RFI Work Plans for this reporting period.

## V. SUMMARY OF CONTACTS WITH LOCAL COMMUNITY PUBLIC INTEREST GROUPS OR STATE GOVERNMENT

As indicated in the January 1995 Quarterly Status Report, the Navy has established a Restoration Advisory Board (RAB) to involve the public in the decisions regarding the investigation and remediation of contaminated sites at Naval Base Charleston. The meetings are held monthly and are open to the public. The minutes of the December 1995 meeting are provided as Attachment C. The minutes of the January 1995 meeting were not available for submittal with this report.

## VI. SUMMARY OF PROBLEMS OR POTENTIAL PROBLEMS AND ACTION TAKEN TO RECTIFY PROBLEMS

There were no problems identified during the current reporting period.

## VII. KEY PROJECT PERSONNEL

The January 1995 status report identified key Navy and EnSafe/Allen & Hoshall project personnel for the NAVBASE Charleston RFI. The list will be updated with each status report to reflect any changes which may have occurred during the previous reporting period. The list has not been resubmitted with this report since no changes occurred during this report period.

## VIII. PROJECTED WORK FOR THE NEXT REPORTING PERIOD

**Document Preparation and Data Evaluation:**

- Preparation of the *Draft Zone B RFI Report* will continue.
- Data evaluation for Zones A and E will continue.
- The scoping meeting for the Zone K RFI Work Plan is scheduled to be held 7 February 1996.
- The Corrective Action Management Plan will be revised and submitted to the regulatory agencies for review and comment.

**Field Activities:**

- The fourth quarter of groundwater sampling in Zone H is scheduled to begin.
- The initial phase of soil sampling in Zone E will be completed. Development of monitoring wells will continue with groundwater sampling also likely to begin.

## IX. COPIES OF DAILY REPORTS, INSPECTION REPORTS, LABORATORY DATA

Daily activities are recorded in accordance with the Data Management Plan included as Section 14 of the Final Comprehensive Sampling and Analysis Plan. Photocopies of these daily records have not been included with this status report; however, this information is available for review upon request.

Per agreement with SCDHEC and EPA, hard copies of the analytical data are not being submitted. A copy of the data is maintained at the EnSafe/Allen & Hoshall office in Charleston and is available for review.

**Status Report — Zone E RFI**
**Summary of Field Activities**
**August 21, 1995 - January 31, 1996**

The following summary details work completed and work remaining during the initial phase of field work at each site. Work remaining does not take into account the additional work which will be required to define the extent of any contamination detected in the initial phase of the project. Drilling activities have been completed, with 116 shallow groundwater monitoring wells and 52 deep monitoring wells having been installed. This includes twenty-five supplemental well pairs (25 shallow, 25 deep), installed throughout the site to contribute to groundwater characterization of individual sites within Zone E. A total of 861 soil, 35 sediment, 82 wipe, 15 air, 40 core, and 23 surface water samples have been collected. The initial round of soil sampling activities are expected to be complete by the second week in February. Groundwater sampling activities are anticipated to begin in mid-February.

**SWMU 5 and 18, AOC 605 — Pad 1278**
Data will be shared between the SWMUs and AOC due to the close proximity of these sites.

**SWMU 5**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from three soil boring locations (6 samples) adjacent to SWMU 5. No further action is scheduled at this time.

**SWMU 18**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from three soil borings (5 samples) and two shallow monitoring well locations (3 samples) adjacent to SWMU 18. A sample could not be collected from the second interval at one soil boring location and one shallow monitoring well location due to an obstruction in the boring. Two shallow monitoring wells have been installed.

**Work Remaining** — Sample the two shallow monitoring wells.

**AOC 605**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from eight soil boring (14 samples) and three shallow monitoring well locations (4 samples) adjacent to Pad 1278. A sample could not be collected from the second interval at two soil borings and two shallow monitoring well locations due to obstructions in the borings. Three shallow monitoring wells have been installed.

**Work Remaining** — Sample the three shallow monitoring wells adjacent to Pad 1278.

**SWMUs 21 and 54 — Building 1275**
Data will be shared between these SWMUs due to the close proximity of these sites.

**SWMU 21**
**Work Completed** — Work completed for this site is to be shared with SWMU 54. All samples were identified with a SWMU 54 identification.

**SWMU 54**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from 37 soil boring (69 samples) and three shallow monitoring well locations (6 samples) in the area adjacent to former Building 1275. A soil sample could not be collected from the second interval at five soil boring locations due to subsurface obstructions in the borings. Four sediment samples have been collected from four locations adjacent to the site in the Cooper River. Eighteen thickness samples were collected across the site to define the volume of waste material present for the purpose of corrective measures. Three shallow monitoring wells have been installed.

**Work Remaining** — Sample the three shallow monitoring wells.

**SWMUs 22 and 25, AOC 554 — Between Buildings 5 and 44**
Data will be shared between this AOC and SWMU due to the close proximity of these sites.

**SWMU 22**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from two soil borings (4 samples) between Buildings 5 and 44. No further action is scheduled at this time.

**AOC 554**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from two soil borings (4 samples) between Buildings 5 and 44. No further action is scheduled at this time.

**SWMU 25**
**Work Completed** — Soil samples have been collected from six soil borings (12 samples) inside of Building 44. One shallow monitoring well has been installed outside the building.

**Work Remaining** — Collect soil samples from three soil borings and one sediment sample from a storm drain between Building 44 and Building 5. Sample the shallow monitoring well outside the building.

**SWMUs 23 and 63, AOCs 540, 541, 542, and 543 — Building 226**
Data will be shared between several AOCs and SWMUs due to the close proximity of these sites.

**SWMU 23**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from two soil borings locations (4 samples) and from one shallow monitoring well location (2 samples) outside of Building 226. One shallow and one deep monitoring well have been installed outside of the building.

**Work Remaining** — Sample one shallow and one deep well outside the building.

**SWMU 63**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from one soil boring and two shallow well locations (6 samples) outside of Building 226. Two shallow monitoring wells have been installed outside of the building.

**Work Remaining** — Sample the two shallow monitoring wells outside the building.

**AOC 540**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from one soil boring (2 samples) inside of Building 226. No further action is scheduled at this time.

**AOC 541**
**Work Completed** — Soil sampling activities have been completed. A soil sample was collected from one soil boring (1 sample) in the area between Buildings 6 and 226. A sample could not be collected from the second interval due to an obstruction in the boring. Data from this boring will be shared with AOC 542 due to the close proximity of these sites. No further action is scheduled at this time.

**AOC 542**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from three soil borings (5 samples) and four shallow monitoring well locations (7 samples) in the area between Buildings 6 and 226. A sample could not be collected from the second interval at one soil boring and one well location due to subsurface obstructions. Four shallow monitoring wells have been installed in the area between Buildings 6 and 226.

**Work Remaining** — Sample the four shallow monitoring wells in the area between Buildings 6 and 226. Data from one soil boring and one monitoring well location will be shared with AOC 538 due to the close proximity of these sites.

**AOC 543**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from one soil boring (2 samples) inside and from two soil borings (4 samples) and one shallow

monitoring well location (2 samples) outside of Building 226. One shallow monitoring well has been installed outside the building.

**Work Remaining** — Sample the shallow monitoring well outside the building.

**SWMU 53, AOC 526 — Building 212**
Data from this AOC and SWMU will be shared due to the close proximity of these sites.

**SWMU 53**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from one soil boring (2 samples) and one shallow monitoring well location (2 samples) adjacent to Building 212. One shallow monitoring well has been installed.

**Work Remaining** — Sample the shallow monitoring well.

**AOC 526**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from seven soil boring (14 samples) and one shallow monitoring well locations (2 samples) adjacent to Building 212. Soil samples could not be collected from one well location due to subsurface obstructions. Two shallow monitoring wells and one deep well have been installed.

**Work Remaining** — Sample the two shallow monitoring wells and one deep monitoring well.

**SWMU 65, AOC 544 and 546 — Building 221**
Data will be shared between these AOCs and SWMU due to the close proximity of these sites.

**SWMU 65**
**Work Completed** — Soil samples have been collected from six shallow monitoring well locations (11 samples) outside of Building 221. A soil sample could not be collected from the second interval of one soil boring due to an obstruction in the boring. Six shallow monitoring wells and one deep well have been installed outside of the building.

**Work Remaining** — Sample one deep monitoring well and six shallow monitoring wells outside the building.

**AOC 544**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil boring locations (8 samples) inside of Building 221. No further action is scheduled at this time.

**AOC 546**

**Work Completed** — An attempt to collect a soil sample from one corner of former Building 1025 was unsuccessful due to subsurface obstructions encountered below the concrete surface. Samples collected from SWMU 65 and AOC 544 will share data with this site due to the proximity of these sites and should be sufficient to determine the presence of any contamination which may have produced by AOC 546. One sediment sample was collected from a drain in the corner of former Building 1025. No further action is scheduled at this time.

**SWMU 67 — Building 3**

**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from five soil borings (10 samples) and one monitoring well location (2 samples) inside Building 3 and one shallow monitoring well location (2 samples) outside the building. Air sampling for mercury was completed using a Jerome Mercury Vapor Analyzer. Wipe samples were collected at 8 locations (4 in the former mercury gauge room, 4 in the most recent gauge room). Two shallow monitoring wells have been installed, one inside the building and one outside the building.

**Work Remaining** — Sample the two shallow monitoring wells.

**SWMU 70, AOCs 548 and 549 — Building 5**

**SWMU 70**

**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from two soil borings and two shallow monitoring well locations (8 samples) between Buildings 3 and 5. Two shallow monitoring wells and one deep well have been installed between Buildings 3 and 5. The deep well was relocated from its original location at AOC 549.

**Work Remaining** — Sample the two shallow monitoring wells and one deep well between Buildings 3 and 5.

**AOC 548**

**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil borings (8 samples) inside of Building 5. No further work is scheduled at this time.

**AOC 549**

**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from three soil borings (6 samples) inside of Building 5 and four soil borings and three shallow monitoring well locations (13 samples) in the alley between Buildings 3 and 5. Three shallow monitoring wells have been installed in the alley between the buildings. One deep well proposed for this site was not accessible; therefore, the location of this well was moved to SWMU 70.

**Work Remaining** — Sample the three shallow monitoring wells in the alley between Buildings 3 and 5.

**SWMU 81 — Former Building 1245**
**Work Completed** — Sampling activities at this site have been completed. Two sediment samples were collected from two locations in the Cooper River, adjacent to the site. Three concrete core samples were collected from the location of the former building. No further action is scheduled at this time.

**SWMUs 83 and 84, AOC 574 — Building 9**
Data will be shared between these SWMUs and AOC due to the close proximity of these sites.

**SWMU 83**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from six soil borings (12 samples) inside of Building 9 and two shallow monitoring well locations (4 samples) outside the building. Wipe sampling activities have been completed with 16 wipe samples collected (8 random floor, 8 biased horizontal surface). Two shallow monitoring wells have been installed.

**Work Remaining** — Sample the two shallow monitoring wells outside of the building.

**SWMU 84**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil borings (8 samples) and two shallow monitoring well locations (4 samples) adjacent to Building 9. Two shallow monitoring wells have been installed.

**Work Remaining** — Sample the two shallow monitoring wells.

**AOC 574**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from two soil borings (4 samples) and three shallow monitoring well locations (6 samples) adjacent to Building 9. Three shallow monitoring wells and one deep well have been installed.

**Work Remaining** — Sample the three shallow monitoring wells and one deep monitoring well.

**SWMUs 87 and 172, AOC 564 — Building 80**
Data will be shared between these SWMUs and AOC due to the close proximity of these sites.

**SWMU 87**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from one soil boring (2 samples) outside of Building 80, at the former location of the <90 day storage area. No further action is scheduled at this time.

**SWMU 172**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil borings and two monitoring well locations (12 samples) outside of Building 80, at the former location of the steam cleaning operations. One sediment sample was collected from the drain outside the building. Two shallow monitoring wells and one deep well have been installed outside of Building 80.

**Work Remaining** — Sample the two shallow monitoring wells and one deep well.

**AOC 564**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from three soil borings (6 samples) outside of Building 80, at the location of the oil/water separator. No further action is scheduled at this time.

**SWMU 97 — Building 236**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from two soil borings (4 samples) and one shallow monitoring well location (2 samples) outside of Building 236. One shallow monitoring well has been installed.

**Work Remaining** — Sample the one shallow monitoring well outside of Building 236.

**SWMU 100 — Building 218**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from two soil borings (4 samples) and one shallow monitoring well location (2 samples) at the location of the former satellite accumulation area. One shallow monitoring well has been installed.

**Work Remaining** — Sample the one shallow monitoring well outside of Building 218.

**SWMU 102 — Building 79**
**Work Completed** — Soil samples have been collected from eight soil borings (16 samples) and one shallow monitoring well location (2 samples) inside Building 79. One shallow monitoring well has been installed inside the building.

**Work Remaining** — Collect soil samples from three more soil boring locations and sample the one shallow monitoring well.

**SWMU 106, AOC 603 — Dry Dock #3**
Data will be shared between this AOC and SWMU due to their close proximity.

**SWMU 106**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from two soil boring locations (4 samples) and one shallow monitoring well location (2 samples) adjacent to Dry Dock #3. One shallow and one deep monitoring well have been installed.

**Work Remaining** — Sample the one shallow and one deep monitoring well adjacent to Dry Dock #3.

**AOC 603**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil borings (8 samples) and one shallow monitoring well location (2 samples) adjacent to Dry Dock #3. One shallow and one deep monitoring well have been installed.

**Work Remaining** — Sample the one shallow and one deep monitoring well adjacent to Dry Dock #3.

**SWMU 145 — Building 13A**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from nine soil borings (18 samples) and three shallow monitoring well locations (6 samples) in and around Building 13A. Three shallow monitoring wells and one deep well have been installed outside the building.

**Work Remaining** - Sample three shallow monitoring wells and one deep well outside the building.

**SWMU 170 and 171 - Dry Docks 1 and 2**
Data will be shared between these SWMUs due to the close proximity of these sites.

**SWMU 170**
**Work Completed** - Soil sampling activites have been completed. Soil samples were collected from fifteen soil boring locations (25 samples) based on a grid system across the site. Soil samples could not be collected from the second interval at five soil borings due to subsurface obstructions. Asphalt samples were also collected from each soil boring location (15 samples) along with four sediment samples from four storm drains within the site. No further action is scheduled at this time.

**SWMU 171**
**Work Completed** - Soil sampling activities have been completed. Soil samples were collected from twenty-one soil boring locations (36 samples) based on a grid system across the SWMU. Soil samples could not be collected from four proposed soil boring locations due to subsurface obstructions. Asphalt samples were collected from seventeen soil boring locations at which an

asphalt surface was present. Sediment samples (2 samples) were collected from two storm drains at the site. No further action is scheduled at this time.

**SWMU 173 — Building 1297**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from two soil borings (4 samples) inside of Building 1297. Three sediment samples were also collected from three drains outside of the building. No further action is scheduled at this time.

**AOC 525 — Building 223**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from three soil boring locations (6 samples) and one shallow monitoring well locations (2 samples) inside the building. One shallow monitoring well has been installed.

**Work Remaining** - Sample one shallow monitoring well inside Building 223.

**AOC 528 — Building 1453**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from three soil borings (6 samples) and one shallow monitoring well location (2 samples) outside of Building 1453. One shallow monitoring well has been installed outside the building.

**Work Remaining** — Sample the one shallow monitoring well outside the building.

**AOC 530 — Building 35**
**Work Completed** — Soil sampling activites have been completed. Soil samples were from three soil borings (6 samples), two shallow monitoring well locations (4 samples) and three surface locations (3 samples) underneath the building. Two shallow and two deep monitoring wells have been installed.

**Work Remaining** — Sample the two shallow and two deep monitoring wells.

**AOC 531 — Building 459**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from three soil borings (6 samples) around Building 459. Wipe sampling activities have been completed with 4 wipe samples collected. One surface soil sample has been collected and will be shared with AOC 530. No further action is scheduled at this time.

**AOCs 538 and 539 — Building 6**
**AOC 538**
**Work Completed** — Soil sampling activities inside Building 6 have been completed. Soil samples were collected from seven soil borings (13 samples) inside the building and one shallow monitoring well location (2 samples) outside the building. A sample could not be collected from the second interval at one soil boring location due to an obstruction in the boring. Wipe

sampling activities have been completed with 16 wipe samples collected (8 random floor, 8 biased horizontal surface). Air sampling activities according to the SAP were completed between September 19 - 25, 1995 with two samples collected each 24 hour time period (10 samples with one blank). One shallow and one deep monitoring well have been installed outside of Building 6.

**Work Remaining** — Sample one shallow and one deep monitoring well outside the building. Data from one soil boring and one monitoring well location will be shared with AOC 542 due to the close proximity of these sites.

**AOC 539**

**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from two soil borings (4 samples) inside and from one shallow monitoring well location (2 samples) outside of Building 6. One sediment sample was also collected from a drain inside the building. Wipe sampling activities have been completed with 6 wipe samples collected (3 random floor, 3 biased horizontal surface). Air sampling activities according to the SAP were completed between September 19 - 25, 1995 with one sample collected each 24 hour time period (5 samples with one blank). Note: 15 samples with two blanks for complete coverage of AOC 538 and 539 (Building 6 inclusive). One shallow monitoring well and one deep well have been installed outside the building.

**Work Remaining** — Sample one shallow monitoring well and one deep monitoring well outside the building.

**AOC 550 — Former Building 1111**

**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil boring locations (8 samples) and one shallow monitoring well location (2 samples). Soil samples could not be collected at three proposed soil boring locations due to subsurface obstructions. One shallow monitoring well has been installed. Because of its close proximity to shallow well location proposed for the northern most section of the site, supplemental shallow monitoring well GDE-022 will be used in place of the proposed shallow well for that location. Soil samples were still collected from both the proposed location and the supplemental location.

**Work Remaining** - Sample the one shallow monitoring well.

**AOC 551 and 552 — Building 1119**

Data will be shared between these AOCs due to the close proximity of these sites.

**AOC 551**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected at four soil borings (8 samples) and two shallow monitoring well locations (4 samples) outside of Building 1119. Two shallow monitoring wells and one deep well have been installed.

**Work Remaining** — Sample the two shallow and one deep monitoring wells outside of Building 1119.

**AOC 552**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from three soil borings (6 samples) at the location of former Building 1030. An attempt to collect soil samples from a fourth soil boring was unsuccessful due to subsurface obstructions in the area of the boring. No further action is scheduled at this time.

**AOC 555 — Former Building 29**
**Work Completed** — Sampling activities have been completed. Two sediment samples were collected from two locations adjacent to the site in the Cooper River. No further action is scheduled at this time.

**AOC 556 — Dry Dock Discharges**
**Work Completed** — Sampling activities have been completed. Nine sediment samples were collected from 9 locations in the Cooper River adjacent to Dry Docks 1, 2, 3, 4 and 5. In addition, 23 surface water samples were collected from the same 9 locations at which the sediment samples were collected. Samples were collected from one to three different intervals at each location, depending on the depth of water. No further action is scheduled at this time.

**AOC 558 — Building 77**
**Work Completed** — Sampling activites have been completed. Four wipe samples have been collected from the substation areas outside of Building 77. Four concrete core samples have been collected from the areas outside the substation. No further action is scheduled at this time.

**AOCs 559, 560 and 561 — Building 32**
Data will be shared between these AOCs due to the close proximity of these sites.

**AOC 559**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from seventeen soil borings (34 samples) and five shallow monitoring well locations (9 samples) in the area surrounding Building 32. Five shallow and three deep monitoring wells have been installed. Wipe sampling activities have been completed with 9 wipe samples collected inside of Building 32.

**Work Remaining** — Sample the five shallow and three deep monitoring wells.

**AOC 560**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from two soil borings (4 samples) adjacent to Building 32. No further action is scheduled at this time.

**AOC 561**
**Work Completed** — Soil sampling activities have been completed. Soil samples have been collected from four soil borings (8 samples) adjacent to Building 451-B (substation). Soil samples could not be collected from the proposed soil boring location in the center of the substation due to both surface and subsurface obstructions. No further action is scheduled at this time.

**AOC 562 — Building 84**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil borings (8 samples) adjacent to Building 84. Four wipe samples were collected from inside the building. No further action is scheduled at this time.

**AOC 563 — Former Building 37**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from six soil borings (12 samples) and three shallow monitoring well locations (6 samples) inside of Building 177. Three shallow monitoring wells and one deep well have been installed inside the building.

**Work Remaining** — Sample the three shallow wells and one deep well.

**AOC 566 — Building 194**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil borings and one shallow monitoring well location (10 samples) outside of Building 194. One shallow and one deep monitoring well have been installed.

**Work Remaining** — Sample the one shallow and one deep monitoring well outside of the building.

**AOC 567 — Building 75**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil boring locations (7 samples) outside of Building 75. A sample could not be collected from the second interval at one soil boring due to an obstruction in the boring.
Four wipe samples have also been collected from inside the building. No further action is scheduled at this time.

**AOCs 569, 570 and 578 — Building 25**
Data will be shared between these AOCs due to the close proximity of these sites.

**AOC 569**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from three soil borings (6 samples) and two shallow monitoring well locations (4 samples) at the location of the former oil storehouse and gas station. Two shallow monitoring wells and one deep well have been installed.

**Work Remaining** — Sample the two shallow monitoring wells and one deep monitoring well.

**AOC 570**
**Work Completed** — Soil samples have been collected from twelve soil borings (24 samples) and two shallow monitoring well locations (4 samples) outside of Building 25. Three shallow and two deep monitoring wells have been installed outside of the building.

**Work Remaining** — Sample the three shallow monitoring wells and two deep monitoring wells.

**AOC 578**
**Work Completed** — No work has been completed at this site.

**Work Remaining** — Collect soil samples from six soil borings inside of Building 25.

**AOC 571 — Building 177**
**Work Completed** — No work has been completed at this site.

**Work Remaining** — Collect three concrete core samples from the paint shop on the third floor of Building 177.

**AOC 572 — Building 177**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from five soil borings (10 samples) and three shallow monitoring well locations (6 samples) outside of Building 177, at the former location of the motor area. Three shallow monitoring wells have been installed in the parking lot outside of Building 177. One sediment sample was also collected from a drain in the parking lot outside the building.

**Work Remaining** — Sample the three shallow monitoring wells outside the building.

**AOC 573 — Building 177**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil borings (8 samples) and one shallow monitoring well location (2 samples) outside Building 177. Two sediment samples were collected from drains adjacent to Building 177. One shallow monitoring well and one deep well have been installed outside the building.

**Work Remaining** — Sample the shallow and deep monitoring wells outside of Building 177.

**AOC 576 — Building 80**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from three soil borings (6 samples) inside of Building 80 and two monitoring well locations (4 samples) outside the building. Two shallow monitoring wells and one deep well have been installed.

**Work Remaining** — Sample the two shallow monitoring wells and one deep monitoring well outside of the building.

**AOC 579 — Building 1035**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil borings (8 samples) outside of Building 1035. No further action is scheduled at this time.

**AOC 580 — Building 10**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil boring (8 samples) and two shallow monitoring well locations (4 samples) outside of Building 10. Two shallow monitoring wells and one deep well have been installed.

**Work Remaining** — Sample the two shallow monitoring wells and one deep monitoring well outside of Building 10.

**AOC 583 — Building 236**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil boring (8 samples) and three shallow monitoring well locations (6 samples) outside of Building 236. Three shallow monitoring well and one deep well have been installed outside of Building 236.

**Work Remaining** — Sample the three shallow monitoring wells and one deep monitoring well outside of Building 236.

**AOC 586 — Former Building 1014**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from three soil borings (6 samples) and one shallow monitoring well location (2 samples). One shallow monitoring well was installed at the location of former Building 1014.

**Work Remaining** — Sample the one shallow monitoring well.

**AOC 590 — Building 79**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil borings (8 samples) and one shallow monitoring well location (2 samples). One

sediment sample was also collected from a storm drain adjacent to the site. One shallow and one deep monitoring well have been installed.

**Work Remaining** — Sample the one shallow and one deep monitoring well.

**AOC 592 — Former Building 1225**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil borings (8 samples). No further action is scheduled at this time.

**AOC 596 — Building 101**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from six soil borings (12 samples) outside the building, and one soil boring (2 samples) and four shallow monitoring well locations (8 samples) inside the building. Soil samples could not be collected from a second soil boring location inside the building due to subsurface obstructions. Four shallow and two deep monitoring wells have been installed outside the building.

**Work Remaining** — Sample the four shallow and two deep monitoring wells outside of the building.

**AOC 597 — Building 91**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil borings (8 samples) outside of Building 91. Three wipe samples were collected from inside the building. One concrete core sample was collected outside the building. No further action is scheduled at this time.

**AOC 598 and 599 — Building 39, Pier J**
**AOC 598**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from three soil borings (6 samples) and one shallow monitoring well location (2 samples) at Pier J. One sediment sample was collected from a drain at the pier. One shallow monitoring well has been installed.

**Work Remaining** — Sample the one shallow monitoring well at Pier J.

**AOC 599**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil borings (6 samples) and one shallow monitoring well location (2 samples) adjacent to Building 39. A soil sample could not be collected from the second interval at two soil boring locations due to obstructions in the borings. One sediment sample was collected from a drain outside of Building 39. One shallow monitoring well has been installed.

**Work Remaining** — Sample the one shallow monitoring well outside of Building 39.

**AOC 602 — Building 95**

**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil boring locations (8 samples). Wipe sampling activities have been completed. Wipe samples were collected from four locations inside the building. No further action is scheduled at this time.

**AOC 604 — Building 96**

**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil boring locations (8 samples). Wipe sampling activities have been completed. Wipe samples were collected from four locations inside the building. No further action is scheduled at this time.

**Zone E — Site Specific Completion List**

| Site Name | Samples Collected | | | | | | |
|---|---|---|---|---|---|---|---|
| | Soil | Sediment | Wipe | Air | Concrete/Asphalt Core | Surface Water | Groundwater |
| AOC 525 - Bldg 223 | 8 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 526 - Bldg 212 | 16 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 528 - Bldg 1453 | 8 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 530 - Bldg 35 | 13 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 531 - Bldg 459 | 6 | N/A | 4 | N/A | N/A | N/A | N/A |
| AOC 538 - Bldg 6 | 15 | N/A | 16 | 10 | N/A | N/A | 0 |
| AOC 539 - Bldg 6 | 6 | 1 | 6 | 5 | N/A | N/A | 0 |
| AOC 540 - Bldg 226 | 2 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 541 - Bldg 226 | 1 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 542 - Bldg 226 | 12 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 543 - Bldg 226 | 8 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 544 - Bldg 221 | 8 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 546 - Bldg 221 | N/A | 1 | N/A | N/A | N/A | N/A | N/A |
| AOC 548 - Bldg 5 | 8 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 549 - Bldg 5 | 19 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 550 - Bldg 1111 | 10 | N/A | N/A | N/A | N/A | N/A | 0 |

| Zone E — Site Specific Completion List | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Samples Collected | | | | | | |
| Site Name | Soil | Sediment | Wipe | Air | Concrete/Asphalt Core | Surface Water | Groundwater |
| AOC 551 - Bldg 1119 | 12 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 552 - Bldg 1119 | 6 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 554 - Bldg 5 | 4 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 555 - Bldg 29 | N/A | 2 | N/A | N/A | N/A | N/A | N/A |
| AOC 556 - Dry Docks | N/A | 9 | N/A | N/A | N/A | 23 | N/A |
| AOC 558 - Bldg 77 | N/A | N/A | 4 | N/A | 4 | N/A | N/A |
| AOC 559 - Bldg 32 | 43 | N/A | 9 | N/A | N/A | N/A | 0 |
| AOC 560 - Bldg 32 | 4 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 561 - Bldg 32 | 8 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 562 - Bldg 84 | 8 | N/A | 4 | N/A | N/A | N/A | N/A |
| AOC 563 - Bldg 37 | 18 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 564 - Bldg 80 | 6 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 566 - Bldg 194 | 10 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 567 - Bldg 75 | 7 | N/A | 4 | N/A | N/A | N/A | N/A |
| AOC 569 - Bldg 25 | 10 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 570 - Bldg 25 | 28 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 572 - Bldg 177 | 16 | 1 | N/A | N/A | N/A | N/A | 0 |
| AOC 573 - Bldg 177 | 10 | 2 | N/A | N/A | N/A | N/A | 0 |
| AOC 574 - Bldg 9 | 10 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 576 - Bldg 80 | 10 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 579 - Bldg 1035 | 8 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 580 - Bldg 10 | 12 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 583 - Bldg 236 | 14 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 586 - Bldg 1014 | 8 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 590 - Bldg 79 | 8 | 1 | N/A | N/A | N/A | N/A | 0 |
| AOC 592 - Bldg 1225 | 8 | N/A | N/A | N/A | N/A | N/A | N/A |

| Zone E — Site Specific Completion List | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Samples Collected | | | | | | |
| Site Name | Soil | Sediment | Wipe | Air | Concrete/Asphalt Core | Surface Water | Groundwater |
| AOC 596 - Bldg 101 | 22 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 597 - Bldg 91 | 8 | N/A | 3 | N/A | 1 | N/A | N/A |
| AOC 598 - Pier J | 8 | 1 | N/A | N/A | N/A | N/A | 0 |
| AOC 599 - Bldg 39 | 8 | 1 | N/A | N/A | N/A | N/A | 0 |
| AOC 602 - Bldg 95 | 8 | N/A | 4 | N/A | N/A | N/A | N/A |
| AOC 603 - DD3 | 10 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 604 - Bldg 96 | 8 | N/A | 4 | N/A | N/A | N/A | N/A |
| AOC 605 - 1278 | 18 | N/A | N/A | N/A | N/A | N/A | 0 |
| SWMU 5 - Pad 1278 | 6 | N/A | N/A | N/A | N/A | N/A | N/A |
| SWMU 18 - 1278 | 8 | N/A | N/A | N/A | N/A | N/A | 0 |
| SWMU 21 - Bldg 1275 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| SWMU 22 - Bldg 5 | 4 | N/A | N/A | N/A | N/A | N/A | N/A |
| SWMU 23 - Bldg 226 | 6 | N/A | N/A | N/A | N/A | N/A | 0 |
| SWMU 25 - Bldg 44 | 12 | 0 | N/A | N/A | N/A | N/A | 0 |
| SWMU 53 - Bldg 212 | 4 | N/A | N/A | N/A | N/A | N/A | 0 |
| SWMU 54 - Bldg 1275 | 75 | 4 | N/A | N/A | N/A | N/A | N/A |
| SWMU 63 - Bldg 226 | 6 | N/A | N/A | N/A | N/A | N/A | 0 |
| SWMU 65 - Bldg 221 | 11 | N/A | N/A | N/A | N/A | N/A | 0 |
| SWMU 67 - Bldg 3 | 14 | N/A | 8 | Random | N/A | N/A | 0 |
| SWMU 70 - Bldg 5 | 8 | N/A | N/A | N/A | N/A | N/A | 0 |
| SWMU 81 - Bldg 1245 | N/A | 2 | N/A | N/A | 3 | N/A | N/A |
| SWMU 83 - Bldg 9 | 16 | N/A | 16 | 0 | N/A | N/A | 0 |
| SWMU 84 - Bldg 9 | 12 | N/A | N/A | N/A | N/A | N/A | 0 |
| SWMU 87 - Bldg 80 | 2 | N/A | N/A | N/A | N/A | N/A | N/A |
| SWMU 97 - Bldg 236 | 6 | N/A | N/A | N/A | N/A | N/A | 0 |
| SWMU 100 - Bldg 218 | 6 | N/A | N/A | N/A | N/A | N/A | 0 |

| Zone E — Site Specific Completion List | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Samples Collected | | | | | | |
| Site Name | Soil | Sediment | Wipe | Air | Concrete/Asphalt Core | Surface Water | Groundwater |
| SWMU 102 - Bldg 79 | 18 | N/A | N/A | N/A | N/A | N/A | 0 |
| SWMU 106 - DD3 | 6 | N/A | N/A | N/A | N/A | N/A | 0 |
| SWMU 145 - Bldg 13A | 24 | N/A | N/A | N/A | N/A | N/A | 0 |
| SWMU 170 - DD1 | 25 | 4 | N/A | N/A | 15 | N/A | N/A |
| SWMU 171 - DD2 | 36 | 2 | N/A | N/A | 17 | N/A | N/A |
| SWMU 172 - Bldg 80 | 12 | 1 | N/A | N/A | N/A | N/A | 0 |
| SWMU 173 - Bldg 1297 | 4 | 3 | N/A | N/A | N/A | N/A | N/A |
| Supplemental Samples | 42 | N/A | N/A | N/A | N/A | N/A | 0 |
| TOTAL | 861 | 35 | 82 | 15 | 40 | 23 | 0 |

**Note:**
N/A indicates no samples were proposed for that particular matrix.

**SWMU 2**
**Sediment, Sampling Interval 1**

| Parameter | Units | Freq. of Det. | Range of Nondetected Upper Bounds | Avg. Det. Conc. | Range of Detected Concentrations | Screening Conc. | No. Over Screen |
|---|---|---|---|---|---|---|---|
| Inorganics | | | | | | | |
| Aluminum (Al) | MG/KG | 2 / 2 | | 14050.00 | 13400.000 - 14700.000 | 7800.00 | 2 |
| Arsenic (As) | MG/KG | 2 / 2 | | 6.10 | 4.400 - 7.800 | 0.37 | 2 |
| Barium (Ba) | MG/KG | 2 / 2 | | 23.70 | 19.600 - 27.800 | 550.00 | |
| Calcium (Ca) | MG/KG | 2 / 2 | | 71000.00 | 38000.000 - 104000.000 | | |
| Chromium (Cr) | MG/KG | 2 / 2 | | 28.10 | 22.700 - 33.500 | 39.00 | |
| Copper (Cu) | MG/KG | 2 / 2 | | 25.95 | 7.400 - 44.500 | 290.00 | |
| Lead (Pb) | MG/KG | 2 / 2 | | 20.80 | 15.200 - 26.400 | 400.00 | |
| Magnesium (Mg) | MG/KG | 2 / 2 | | 3355.00 | 2260.000 - 4450.000 | | |
| Manganese (Mn) | MG/KG | 2 / 2 | | 100.40 | 35.800 - 165.000 | 39.00 | 1 |
| Nickel (Ni) | MG/KG | 2 / 2 | | 10.95 | 8.300 - 13.600 | 160.00 | |
| Potassium (K) | MG/KG | 2 / 2 | | 1049.00 | 768.000 - 1330.000 | | |
| Sodium (Na) | MG/KG | 2 / 2 | | 2750.00 | 2040.000 - 3460.000 | | |
| Vanadium (V) | MG/KG | 2 / 2 | | 26.75 | 23.800 - 29.700 | 55.00 | |
| Zinc (Zn) | MG/KG | 2 / 2 | | 45.70 | 34.300 - 57.100 | 2300.00 | |

*Naval Base Charleston*
*Data as of 2/5/96*
*RI*

**SWMU 2**
**Surface Water**

| Parameter | Units | Freq. of Det. | Range of Nondetected Upper Bounds | Avg. Det. Conc. | Range of Detected Concentrations | Screening Conc. | No. Over Screen |
|---|---|---|---|---|---|---|---|
| **Inorganics** | | | | | | | |
| Aluminum (Al) | UG/L | 1 / 6 | 200.00 | *****.** | | 3700.00 | 1 |
| Arsenic (As) | UG/L | 1 / 6 | 10.00 | 89.00 | | 0.03 | 1 |
| Barium (Ba) | UG/L | 5 / 6 | 10.00 | 310.08 | 41.000 - 1300.000 | 260.00 | 1 |
| Beryllium (Be) | UG/L | 1 / 6 | 5.00 | 9.40 | | 0.01 | 1 |
| Calcium (Ca) | UG/L | 5 / 6 | *****.** | 63000.00 | 10000.000 - 130000.000 | | |
| Chromium (Cr) | UG/L | 1 / 6 | 10.00 | 630.00 | | 18.00 | 1 |
| Cobalt (Co) | UG/L | 1 / 6 | 10.00 | 40.00 | | 220.00 | |
| Copper (Cu) | UG/L | 1 / 6 | 25.00 | 160.00 | | 140.00 | 1 |
| Iron (Fe) | UG/L | 5 / 6 | 2950.00 | 38424.00 | 720.000 - 180000.000 | | |
| Magnesium (Mg) | UG/L | 6 / 6 | | 42083.33 | 2500.000 - 110000.000 | | |
| Manganese (Mn) | UG/L | 5 / 6 | 3370.00 | 238.20 | 51.000 - 510.000 | 18.00 | 5 |
| Nickel (Ni) | UG/L | 1 / 6 | 40.00 | 110.00 | | 73.00 | 1 |
| Potassium (K) | UG/L | 6 / 6 | | 26950.00 | 1200.000 - 87000.000 | | |
| Sodium (Na) | UG/L | 6 / 6 | | *****.** | 6900.000 - 970000.000 | | |
| Vanadium (V) | UG/L | 1 / 6 | 10.00 | 640.00 | | 26.00 | 1 |
| Zinc (Zn) | UG/L | 3 / 6 | 20.00 | 238.66 | 21.000 - 520.000 | 1100.00 | |

*Naval Base Charleston*
*Data as of 2/5/96*
*RFI*

**SWMU 2**
**Surface Water**

| Parameter | Units | Freq. of Det. | Range of Nondetected Upper Bounds | Avg. Det. Conc. | Range of Detected Concentrations | Screening Conc. | No. Over Screen |
|---|---|---|---|---|---|---|---|
| **Inorganics** | | | | | | | |
| Aluminum (Al) | UG/L | 1 / 2 | 200.00 | *****.** | | 3700.00 | 1 |
| Arsenic (As) | UG/L | 1 / 2 | 10.00 | 29.50 | | 0.03 | 1 |
| Barium (Ba) | UG/L | 2 / 2 | | 364.90 | 55.800 - 674.000 | 260.00 | 1 |
| Chromium (Cr) | UG/L | 1 / 2 | 10.00 | 343.00 | | 18.00 | 1 |
| Cobalt (Co) | UG/L | 1 / 2 | 10.00 | 20.20 | | 220.00 | |
| Copper (Cu) | UG/L | 1 / 2 | 25.00 | 66.80 | | 140.00 | |
| Lead (Pb) | UG/L | 1 / 2 | 5.00 | 368.00 | | 15.00 | 1 |
| Magnesium (Mg) | UG/L | 2 / 2 | | 93900.00 | 85800.000 - 102000.000 | | |
| Nickel (Ni) | UG/L | 1 / 2 | 40.00 | 46.00 | | 73.00 | |
| Potassium (K) | UG/L | 2 / 2 | | 56400.00 | 32800.000 - 80000.000 | | |
| Sodium (Na) | UG/L | 2 / 2 | | *****.** | *****.*** - ******.*** | | |
| Vanadium (V) | UG/L | 1 / 2 | 10.00 | 318.00 | | 26.00 | 1 |
| Zinc (Zn) | UG/L | 2 / 2 | | 200.00 | 166.000 - 234.000 | 1100.00 | |

**SWMU 38**
**Deep Groundwater, Sampling Round 1**

| Parameter | Units | Freq. of Det. | Range of Nondetected Upper Bounds | Avg. Det. Conc. | Range of Detected Concentrations | Screening Conc. | No. Over Screen |
|---|---|---|---|---|---|---|---|
| **Inorganics** | | | | | | | |
| Aluminum (Al) | UG/L | 1 / 1 | | 57.00 | | 3700.00 | |
| Barium (Ba) | UG/L | 1 / 1 | | 22.30 | | 260.00 | |
| Calcium (Ca) | UG/L | 1 / 1 | | ******.** | | | |
| Magnesium (Mg) | UG/L | 1 / 1 | | 11700.00 | | | |
| Manganese (Mn) | UG/L | 1 / 1 | | 666.00 | | 18.00 | 1 |
| Potassium (K) | UG/L | 1 / 1 | | 3560.00 | | | |
| Zinc (Zn) | UG/L | 1 / 1 | | 3.80 | | 1100.00 | |
| **VOAs** | | | | | | | |
| Acetone | UG/L | 1 / 1 | | 5.40 | | 370.00 | |
| Chloroform | UG/L | 1 / 1 | | 7.90 | | 0.15 | 1 |
| **Wet Chemistry Parameters** | | | | | | | |
| Chloride | MG/L | 1 / 1 | | 150.00 | | | |
| Total Dissolved Solids | MG/L | 1 / 1 | | 640.00 | | | |
| Sulfate | MG/L | 1 / 1 | | 15.00 | | | |

**SWMU 39**
**Deep Groundwater, Sampling Round 1**

| Parameter | Units | Freq. of Det. | Range of Nondetected Upper Bounds | Avg. Det. Conc. | Range of Detected Concentrations | Screening Conc. | No. Over Screen |
|---|---|---|---|---|---|---|---|
| **Inorganics** | | | | | | | |
| Aluminum (Al) | UG/L | 1 / 1 | | 67.40 | | 3700.00 | |
| Calcium (Ca) | UG/L | 1 / 1 | | 53500.00 | | | |
| Magnesium (Mg) | UG/L | 1 / 1 | | 3540.00 | | | |
| Manganese (Mn) | UG/L | 1 / 1 | | 91.50 | | 18.00 | 1 |
| Potassium (K) | UG/L | 1 / 1 | | 649.00 | | | |
| Zinc (Zn) | UG/L | 1 / 1 | | 11.70 | | 1100.00 | |
| **VOAs** | | | | | | | |
| Acetone | UG/L | 1 / 1 | | 5.50 | | 370.00 | |
| Chloroform | UG/L | 1 / 1 | | 5.10 | | 0.15 | 1 |
| **Wet Chemistry Parameters** | | | | | | | |
| Chloride | MG/L | 1 / 1 | | 16.00 | | | |
| Total Dissolved Solids | MG/L | 1 / 1 | | 200.00 | | | |
| Sulfate | MG/L | 1 / 1 | | 11.00 | | | |

*Naval Base Charleston*
*Data as of 2/5/96*
*RFI*

Zone A
**Grid Based Samples**
**Deep Groundwater, Sampling Round 1**

| Parameter | Units | Freq. of Det. | Range of Nondetected Upper Bounds | Avg. Det. Conc. | Range of Detected Concentrations | Screening Conc. | No. Over Screen |
|---|---|---|---|---|---|---|---|
| **Inorganics** | | | | | | | |
| Aluminum (Al) | UG/L | 2 / 3 | 21.00 | 178.30 | 40.600 - 316.000 | 3700.00 | |
| Arsenic (As) | UG/L | 1 / 3 | 4.00 - 20.00 | 4.00 | | 0.03 | 1 |
| Barium (Ba) | UG/L | 3 / 3 | | 93.83 | 59.900 - 156.000 | 260.00 | |
| Calcium (Ca) | UG/L | 1 / 3 | *****.** - *****.** | 78300.00 | | | |
| Chromium (Cr) | UG/L | 1 / 3 | 4.00 | 7.30 | | 18.00 | |
| Cobalt (Co) | UG/L | 1 / 3 | 6.00 | 12.10 | | 220.00 | |
| Copper (Cu) | UG/L | 1 / 3 | 3.00 | 5.70 | | 140.00 | |
| Cyanide (Cn) | MG/L | 1 / 3 | 0.01 | 0.06 | | 73.00 | |
| Magnesium (Mg) | UG/L | 2 / 3 | *****.** | *****.** | *****.*** - 426000.000 | | |
| Manganese (Mn) | UG/L | 1 / 3 | 1470.00 - 2340.00 | 344.00 | | 18.00 | 1 |
| Nickel (Ni) | UG/L | 1 / 3 | 14.00 | 17.65 | | 73.00 | |
| Potassium (K) | UG/L | 3 / 3 | | *****.** | 26400.000 - 370000.000 | | |
| Thallium (Tl) | UG/L | 1 / 3 | 4.00 | 163.00 | | 0.29 | 1 |
| Vanadium (V) | UG/L | 2 / 3 | 4.00 | 7.15 | 4.400 - 9.900 | 26.00 | |
| Zinc (Zn) | UG/L | 3 / 3 | | 33.08 | 5.550 - 86.800 | 1100.00 | |
| **VOAs** | | | | | | | |
| Acetone | UG/L | 3 / 3 | | 10.66 | 10.000 - 11.000 | 370.00 | |
| Bromodichloromethane | UG/L | 1 / 3 | 5.00 | 3.40 | | 0.17 | 1 |
| Carbon disulfide | UG/L | 2 / 3 | 5.00 | 3.25 | 2.200 - 4.300 | 100.00 | |
| Chloroform | UG/L | 2 / 3 | 5.00 | 10.47 | 8.200 - 12.750 | 0.15 | 2 |
| **Wet Chemistry Parameters** | | | | | | | |
| Chloride | MG/L | 3 / 3 | | 9266.66 | 1300.000 - 20000.000 | | |
| Total Dissolved Solids | MG/L | 3 / 3 | | 17933.33 | 2800.000 - 39000.000 | | |
| Sulfate | MG/L | 3 / 3 | | 301.66 | 270.000 - 355.000 | | |

*Naval Base Charleston*
*Data as of 2/5/96*
*RFI*

Zone B
**Grid Based Samples**
**Deep Groundwater, Sampling Round 1**

| Parameter | Units | Freq. of Det. | Range of Nondetected Upper Bounds | Avg. Det. Conc. | Range of Detected Concentrations | Screening Conc. | No. Over Screen |
|---|---|---|---|---|---|---|---|
| **Inorganics** | | | | | | | |
| Aluminum (Al) | UG/L | 1 / 2 | 21.00 | 56.70 | | 3700.00 | |
| Barium (Ba) | UG/L | 1 / 2 | 14.00 | 106.00 | | 260.00 | |
| Iron (Fe) | UG/L | 2 / 2 | | 112.10 | 40.200 - 184.000 | | |
| Lead (Pb) | UG/L | 1 / 2 | 15.00 | 3.40 | | 15.00 | |
| Manganese (Mn) | UG/L | 2 / 2 | | 281.40 | 58.800 - 504.000 | 18.00 | 2 |
| Nickel (Ni) | UG/L | 1 / 2 | 14.00 | 14.40 | | 73.00 | |
| Potassium (K) | UG/L | 2 / 2 | | 63820.00 | 3640.000 - 124000.000 | | |
| Zinc (Zn) | UG/L | 2 / 2 | | 7.35 | 5.600 - 9.100 | 1100.00 | |
| **SVOAs** | | | | | | | |
| bis(2-Ethylhexyl)phthalate | UG/L | 1 / 2 | 10.00 | 4.50 | | 4.80 | |
| **VOAs** | | | | | | | |
| Acetone | UG/L | 2 / 2 | | 11.20 | 9.400 - 13.000 | 370.00 | |
| **Wet Chemistry Parameters** | | | | | | | |
| Chloride | MG/L | 1 / 2 | 6400.00 | 92.00 | | | |
| Total Dissolved Solids | MG/L | 2 / 2 | | 5715.00 | 430.000 - 11000.000 | | |
| Sulfate | MG/L | 1 / 2 | 360.00 | 24.00 | | | |

*Naval Base Charleston*
*Data as of 2/5/96*
*RFI*

**SWMU 38**
**Shallow Groundwater, Sampling Round 1**

| Parameter | Units | Freq. of Det. | Range of Nondetected Upper Bounds | Avg. Det. Conc. | Range of Detected Concentrations | Screening Conc. | No. Over Screen |
|---|---|---|---|---|---|---|---|
| **Inorganics** | | | | | | | |
| Aluminum (Al) | UG/L | 2 / 2 | | 1183.50 | 557.000 - 1810.000 | 3700.00 | |
| Arsenic (As) | UG/L | 1 / 2 | 4.00 | 6.00 | | 0.03 | 1 |
| Barium (Ba) | UG/L | 2 / 2 | | 30.95 | 21.000 - 40.900 | 260.00 | |
| Calcium (Ca) | UG/L | 2 / 2 | | 86750.00 | 61500.000 - 112000.000 | | |
| Chromium (Cr) | UG/L | 2 / 2 | | 4.90 | 4.200 - 5.600 | 18.00 | |
| Copper (Cu) | UG/L | 2 / 2 | | 8.65 | 8.500 - 8.800 | 140.00 | |
| Magnesium (Mg) | UG/L | 2 / 2 | | 6590.00 | 5130.000 - 8050.000 | | |
| Manganese (Mn) | UG/L | 2 / 2 | | 170.00 | 168.000 - 172.000 | 18.00 | 2 |
| Potassium (K) | UG/L | 2 / 2 | | 1415.00 | 1340.000 - 1490.000 | | |
| Zinc (Zn) | UG/L | 2 / 2 | | 65.85 | 64.300 - 67.400 | 1100.00 | |
| **Pesticides** | | | | | | | |
| 4,4'-DDE | UG/L | 1 / 2 | 0.10 | 0.04 | | 0.20 | |
| 4,4'-DDT | UG/L | 1 / 2 | 0.10 | 1.50 | | 0.20 | 1 |
| **SVOAs** | | | | | | | |
| bis(2-Ethylhexyl)phthalate | UG/L | 1 / 2 | 10.00 | 3.50 | | 4.80 | |

*Naval Base Charleston*
*Data as of 2/5/96*
*RFI*

**SWMU 39**
**Shallow Groundwater, Sampling Round 1**

| Parameter | Units | Freq. of Det. | Range of Nondetected Upper Bounds | Avg. Det. Conc. | Range of Detected Concentrations | Screening Conc. | No. Over Screen |
|---|---|---|---|---|---|---|---|
| **Miscelaneous** | | | | | | | |
| Chromium (Hexavalent) | MG/L | 1 / 1 | | 0.03 | | | |
| o-Xylene | UG/L | 1 / 5 | 5.00 | 1.30 | | | |
| **Inorganics** | | | | | | | |
| Aluminum (Al) | UG/L | 5 / 5 | | 983.60 | 144.000 - 2490.000 | 3700.00 | |
| Arsenic (As) | UG/L | 4 / 5 | 4.00 | 45.20 | 33.100 - 61.300 | 0.03 | 4 |
| Barium (Ba) | UG/L | 5 / 5 | | 42.85 | 26.650 - 56.100 | 260.00 | |
| Calcium (Ca) | UG/L | 5 / 5 | | 65740.00 | 57000.000 - 76000.000 | | |
| Chromium (Cr) | UG/L | 2 / 5 | 4.00 | 7.05 | 5.800 - 8.300 | 18.00 | |
| Cobalt (Co) | UG/L | 1 / 5 | 6.00 | 8.70 | | 220.00 | |
| Copper (Cu) | UG/L | 2 / 5 | 3.00 | 10.30 | 9.800 - 10.800 | 140.00 | |
| Lead (Pb) | UG/L | 1 / 5 | 3.00 | 3.60 | | 15.00 | |
| Magnesium (Mg) | UG/L | 5 / 5 | | 4763.00 | 3340.000 - 7560.000 | | |
| Manganese (Mn) | UG/L | 5 / 5 | | 1253.33 | 52.650 - 2050.000 | 18.00 | 5 |
| Potassium (K) | UG/L | 5 / 5 | | 1869.00 | 1315.000 - 3260.000 | | |
| Vanadium (V) | UG/L | 2 / 5 | 4.00 | 4.85 | 4.100 - 5.600 | 26.00 | |
| Zinc (Zn) | UG/L | 5 / 5 | | 29.92 | 4.100 - 66.100 | 1100.00 | |
| **SVOAs** | | | | | | | |
| Dibenzofuran | UG/L | 1 / 5 | 10.00 - 12.00 | 4.60 | | 15.00 | |
| bis(2-Ethylhexyl)phthalate | UG/L | 1 / 5 | 10.00 - 12.00 | 2.60 | | 4.80 | |
| Fluorene | UG/L | 1 / 5 | 10.00 - 12.00 | 4.00 | | 150.00 | |
| 2-Methylnaphthalene | UG/L | 1 / 5 | 10.00 - 12.00 | 13.00 | | 150.00 | |
| Naphthalene | UG/L | 1 / 5 | 10.00 - 12.00 | 9.10 | | 150.00 | |
| Phenanthrene | UG/L | 1 / 5 | 10.00 - 12.00 | 3.00 | | 150.00 | |
| **VOAs** | | | | | | | |
| Acetone | UG/L | 4 / 5 | 10.00 | 8.02 | 5.800 - 9.300 | 370.00 | |
| Benzene | UG/L | 2 / 5 | 5.00 | 57.50 | 25.000 - 90.000 | 0.34 | 2 |
| 2-Butanone (MEK) | UG/L | 2 / 5 | 10.00 | 3.25 | 3.200 - 3.300 | 2200.00 | |
| 1,1-Dichloroethane | UG/L | 1 / 5 | 5.00 | 1.10 | | 81.00 | |
| cis-1,2-Dichloroethene | UG/L | 1 / 5 | 5.00 | 4.80 | | 6.10 | |
| Ethylbenzene | UG/L | 2 / 5 | 5.00 | 5.70 | 1.400 - 10.000 | 130.00 | |
| 2-Hexanone | UG/L | 1 / 5 | 10.00 | 2.00 | | | |
| 4-Methyl-2-Pentanone (MIBK) | UG/L | 1 / 5 | 10.00 | 1.40 | | 180.00 | |
| Tetrachloroethene | UG/L | 1 / 5 | 5.00 | 15.50 | | 1.10 | 1 |
| Toluene | UG/L | 1 / 5 | 5.00 | 1.60 | | 75.00 | |
| Trichloroethene | UG/L | 2 / 5 | 5.00 | 21.20 | 1.400 - 41.000 | 1.60 | 1 |
| Vinyl chloride | UG/L | 1 / 5 | 5.00 | 1.90 | | 0.01 | 1 |
| Xylene (Total) | UG/L | 1 / 5 | 5.00 | 91.00 | | 1200.00 | |
| **Wet Chemistry Parameters** | | | | | | | |
| Chloride | MG/L | 1 / 1 | | 13.00 | | | |
| Total Dissolved Solids | MG/L | 1 / 1 | | 240.00 | | | |
| Sulfate | MG/L | 1 / 1 | | 18.00 | | | |

*Naval Base Charleston*
*Data as of 2/5/96*
*RFI*

**SWMU 42 and AOC 505**
**Shallow Groundwater, Sampling Round 1**

| Parameter | Units | Freq. of Det. | Range of Nondetected Upper Bounds | Avg. Det. Conc. | Range of Detected Concentrations | Screening Conc. | No. Over Screen |
|---|---|---|---|---|---|---|---|
| **Miscelaneous** | | | | | | | |
| o-Xylene | UG/L | 1 / 3 | 5.00 | 1.40 | | | |
| **Considered Both SVOAs and VOAs** | | | | | | | |
| 1,4-Dichlorobenzene | UG/L | 1 / 3 | 5.00 | 2.00 | | 0.44 | 1 |
| 1,3-Dichlorobenzene | UG/L | 1 / 3 | 5.00 | 1.80 | | 54.00 | |
| 1,2-Dichlorobenzene | UG/L | 1 / 3 | 5.00 | 1.80 | | 37.00 | |
| **Inorganics** | | | | | | | |
| Aluminum (Al) | UG/L | 4 / 4 | | 893.25 | 229.000 - 2020.000 | 3700.00 | |
| Barium (Ba) | UG/L | 3 / 4 | 14.00 | 34.70 | 14.900 - 53.600 | 260.00 | |
| Calcium (Ca) | UG/L | 4 / 4 | | 52325.00 | 15700.000 - 78800.000 | | |
| Chromium (Cr) | UG/L | 1 / 4 | 4.00 | 4.90 | | 18.00 | |
| Cobalt (Co) | UG/L | 1 / 4 | 6.00 | 25.00 | | 220.00 | |
| Copper (Cu) | UG/L | 2 / 4 | 3.00 | 8.70 | 7.500 - 9.900 | 140.00 | |
| Magnesium (Mg) | UG/L | 4 / 4 | | 11095.00 | 4900.000 - 23400.000 | | |
| Manganese (Mn) | UG/L | 4 / 4 | | 444.25 | 232.000 - 827.000 | 18.00 | 4 |
| Potassium (K) | UG/L | 4 / 4 | | 6747.50 | 2250.000 - 9300.000 | | |
| Zinc (Zn) | UG/L | 3 / 4 | 3.00 | 58.93 | 10.700 - 99.600 | 1100.00 | |
| **SVOAs** | | | | | | | |
| bis(2-Ethylhexyl)phthalate | UG/L | 1 / 3 | 9.90 - 11.00 | 5.70 | | 4.80 | 1 |
| **VOAs** | | | | | | | |
| Acetone | UG/L | 3 / 3 | | 9.23 | 6.300 - 14.000 | 370.00 | |
| Chlorobenzene | UG/L | 1 / 3 | 5.00 | 1.30 | | 3.90 | |
| Chloromethane | UG/L | 1 / 3 | 5.00 | 7.80 | | 1.40 | 1 |
| 1,1-Dichloroethylene | UG/L | 1 / 3 | 5.00 | 1.00 | | 0.04 | 1 |
| Ethylbenzene | UG/L | 1 / 3 | 5.00 | 1.20 | | 130.00 | |
| 4-Methyl-2-Pentanone (MIBK) | UG/L | 1 / 3 | 10.00 | 1.10 | | 180.00 | |
| 1,1,2,2-Tetrachloroethane | UG/L | 1 / 3 | 5.00 | 1.50 | | 0.05 | 1 |
| Tetrachloroethene | UG/L | 1 / 3 | 5.00 | 5.90 | | 1.10 | 1 |
| Toluene | UG/L | 1 / 3 | 5.00 | 1.30 | | 75.00 | |
| Trichloroethene | UG/L | 3 / 3 | | 3.13 | 1.500 - 5.900 | 1.60 | 2 |
| Xylene (Total) | UG/L | 1 / 3 | 5.00 | 3.50 | | 1200.00 | |

**AOC 506**
**Shallow Groundwater, Sampling Round 1**

| Parameter | Units | Freq. of Det. | Range of Nondetected Upper Bounds | Avg. Det. Conc. | Range of Detected Concentrations | Screening Conc. | No. Over Screen |
|---|---|---|---|---|---|---|---|
| **Inorganics** | | | | | | | |
| Aluminum (Al) | UG/L | 1 / 1 | | 3020.00 | | 3700.00 | |
| Barium (Ba) | UG/L | 1 / 1 | | 35.40 | | 260.00 | |
| Calcium (Ca) | UG/L | 1 / 1 | | 38900.00 | | | |
| Chromium (Cr) | UG/L | 1 / 1 | | 9.70 | | 18.00 | |
| Copper (Cu) | UG/L | 1 / 1 | | 14.40 | | 140.00 | |
| Magnesium (Mg) | UG/L | 1 / 1 | | 23900.00 | | | |
| Manganese (Mn) | UG/L | 1 / 1 | | 85.70 | | 18.00 | 1 |
| Nickel (Ni) | UG/L | 1 / 1 | | 16.70 | | 73.00 | |
| Potassium (K) | UG/L | 1 / 1 | | 6870.00 | | | |
| Selenium (Se) | UG/L | 1 / 1 | | 3.00 | | 18.00 | |
| Vanadium (V) | UG/L | 1 / 1 | | 6.20 | | 26.00 | |
| Zinc (Zn) | UG/L | 1 / 1 | | 137.00 | | 1100.00 | |
| **VOAs** | | | | | | | |
| Acetone | UG/L | 1 / 1 | | 4.40 | | 370.00 | |
| 1,1-Dichloroethane | UG/L | 1 / 1 | | 3.50 | | 81.00 | |
| Trichlorofluoromethane | UG/L | 1 / 1 | | 21.00 | | 130.00 | |

*Naval Base Charleston*
*Data as of 2/5/96*
*RFI*

**Grid Based Samples**
**Shallow Groundwater, Sampling Round 1**

| Parameter | Units | Freq. of Det. | Range of Nondetected Upper Bounds | Avg. Det. Conc. | Range of Detected Concentrations | Screening Conc. | No. Over Screen |
|---|---|---|---|---|---|---|---|
| **Inorganics** | | | | | | | |
| Aluminum (Al) | UG/L | 3 / 3 | | 1605.00 | 955.000 - 2840.000 | 3700.00 | |
| Arsenic (As) | UG/L | 1 / 3 | 4.00 - 20.00 | 68.30 | | 0.03 | 1 |
| Barium (Ba) | UG/L | 3 / 3 | | 52.20 | 21.300 - 102.000 | 260.00 | |
| Calcium (Ca) | UG/L | 1 / 3 | 43100.00 - *****.** | 77400.00 | | | |
| Chromium (Cr) | UG/L | 2 / 3 | 4.00 | 5.55 | 5.000 - 6.100 | 18.00 | |
| Copper (Cu) | UG/L | 3 / 3 | | 7.86 | 3.400 - 10.100 | 140.00 | |
| Magnesium (Mg) | UG/L | 3 / 3 | | 27066.66 | 17600.000 - 38300.000 | | |
| Manganese (Mn) | UG/L | 1 / 3 | 79.80 - 152.00 | 336.00 | | 18.00 | 1 |
| Potassium (K) | UG/L | 3 / 3 | | 12343.33 | 4130.000 - 18400.000 | | |
| Vanadium (V) | UG/L | 1 / 3 | 4.00 | 4.10 | | 26.00 | |
| Zinc (Zn) | UG/L | 3 / 3 | | 41.60 | 7.500 - 89.000 | 1100.00 | |
| **SVOAs** | | | | | | | |
| bis(2-Ethylhexyl)phthalate | UG/L | 1 / 3 | 10.00 | 4.10 | | 4.80 | |
| **VOAs** | | | | | | | |
| Acetone | UG/L | 3 / 3 | | 11.66 | 5.200 - 22.000 | 370.00 | |

*Naval Base Charleston*
*Data as of 2/5/96*
*RFI*

Zone B
**Grid Based Samples**
**Shallow Groundwater, Sampling Round 1**

| Parameter | Units | Freq. of Det. | Range of Nondetected Upper Bounds | Avg. Det. Conc. | Range of Detected Concentrations | Screening Conc. | No. Over Screen |
|---|---|---|---|---|---|---|---|
| **Inorganics** | | | | | | | |
| Aluminum (Al) | UG/L | 4 / 4 | | 118.50 | 87.400 - 185.000 | 3700.00 | |
| Arsenic (As) | UG/L | 2 / 4 | 4.00 - 15.50 | 7.85 | 7.600 - 8.100 | 0.03 | 2 |
| Barium (Ba) | UG/L | 4 / 4 | | 42.97 | 21.100 - 89.700 | 260.00 | |
| Chromium (Cr) | UG/L | 1 / 4 | 4.00 | 11.00 | | 18.00 | |
| Iron (Fe) | UG/L | 4 / 4 | | 2297.00 | 231.000 - 8070.000 | | |
| Manganese (Mn) | UG/L | 4 / 4 | | 919.30 | 60.200 - 2060.000 | 18.00 | 4 |
| Potassium (K) | UG/L | 4 / 4 | | 90037.50 | 1450.000 - 214000.000 | | |
| Vanadium (V) | UG/L | 1 / 4 | 4.00 | 12.90 | | 26.00 | |
| Zinc (Zn) | UG/L | 3 / 4 | 3.00 | 10.30 | 5.900 - 16.900 | 1100.00 | |
| **VOAs** | | | | | | | |
| Acetone | UG/L | 2 / 4 | 10.00 | 7.05 | 4.200 - 9.900 | 370.00 | |
| Carbon disulfide | UG/L | 1 / 4 | 5.00 | 5.60 | | 100.00 | |

*Naval Base Charleston*
*Data as of 2/5/96*
*RF*

Zone 8
**Grid Based Samples**
**Surface Soil**

| Parameter | Units | Freq. of Det. | Range of Nondetected Upper Bounds | Avg. Det. Conc. | Range of Detected Concentrations | Screening Conc. | No. Over Screen |
|---|---|---|---|---|---|---|---|
| **Carcinogenic PAHs** | | | | | | | |
| PAH (Benzo(a)pyrene Equiv.) | UG/KG | 2 / 15 | 897.69 - 1274.98 | 225.72 | 179.160 - 272.280 | 88.00 | 2 |
| Benzo(a)anthracene | UG/KG | 2 / 15 | 690.00 - 980.00 | 210.00 | 160.000 - 260.000 | | |
| Benzo(b)fluoranthene | UG/KG | 1 / 15 | 690.00 - 980.00 | 220.00 | | | |
| Chrysene | UG/KG | 2 / 15 | 690.00 - 980.00 | 220.00 | 160.000 - 280.000 | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 2 / 15 | 690.00 - 980.00 | 135.00 | 130.000 - 140.000 | | |
| Benzo(a)pyrene | UG/KG | 2 / 15 | 690.00 - 980.00 | 180.00 | 150.000 - 210.000 | | |
| **Pesticides** | | | | | | | |
| alpha-Chlordane | UG/KG | 1 / 15 | 1.70 - 2.60 | 12.00 | | 490.00 | |
| gamma-Chlordane | UG/KG | 4 / 15 | 1.70 - 2.60 | 11.57 | 1.100 - 42.000 | 490.00 | |
| 4,4'-DDD | UG/KG | 5 / 15 | 3.30 - 5.00 | 10.20 | 2.300 - 24.000 | 2700.00 | |
| 4,4'-DDE | UG/KG | 9 / 15 | 3.60 - 470.00 | 44.64 | 3.600 - 94.000 | 1900.00 | |
| 4,4'-DDT | UG/KG | 8 / 15 | 4.30 - 200.00 | 50.00 | 15.000 - 91.000 | 1900.00 | |
| Dieldrin | UG/KG | 1 / 15 | 3.30 - 5.00 | 1.30 | | 40.00 | |
| Heptachlor | UG/KG | 1 / 15 | 1.70 - 2.60 | 6.60 | | 140.00 | |
| Heptachlor epoxide | UG/KG | 4 / 15 | 1.70 - 2.60 | 10.08 | 0.770 - 31.000 | 70.00 | |
| **SVOAs** | | | | | | | |
| Benzo(g,h,i)perylene | UG/KG | 1 / 15 | 690.00 - 980.00 | 170.00 | | 310000.00 | |
| Fluoranthene | UG/KG | 1 / 15 | 690.00 - 980.00 | 430.00 | | 310000.00 | |
| Phenanthrene | UG/KG | 1 / 15 | 690.00 - 980.00 | 180.00 | | 310000.00 | |
| Pyrene | UG/KG | 1 / 15 | 690.00 - 980.00 | 390.00 | | 230000.00 | |
| **VOAs** | | | | | | | |
| Acetone | UG/KG | 6 / 15 | 9.20 - 12.00 | 14.50 | 10.000 - 19.000 | 780000.00 | |
| 2-Butanone (MEK) | UG/KG | 1 / 15 | 10.00 - 15.00 | 3.30 | | 4700000.00 | |
| Toluene | UG/KG | 1 / 15 | 1.40 - 7.40 | 1.40 | | 1600000.00 | |
| Trichloroethene | UG/KG | 10 / 15 | 5.40 - 7.40 | 2.24 | 1.200 - 5.100 | 47000.00 | |

**SWMU 1**
**Surface Soil**

| Parameter | Units | Freq. of Det. | Range of Nondetected Upper Bounds | Avg. Det. Conc. | Range of Detected Concentrations | Screening Conc. | No. Over Screen |
|---|---|---|---|---|---|---|---|
| **Inorganics** | | | | | | | |
| Aluminum (Al) | MG/KG | 5 / 5 | | 2900.00 | 1500.000 - 5100.000 | 7800.00 | |
| Arsenic (As) | MG/KG | 3 / 5 | 1.60 - 3.20 | 5.53 | 3.300 - 8.200 | 0.37 | 3 |
| Barium (Ba) | MG/KG | 5 / 5 | | 87.00 | 33.000 - 210.000 | 550.00 | |
| Beryllium (Be) | MG/KG | 3 / 5 | 0.56 - 1.20 | 1.72 | 0.760 - 2.800 | 0.15 | 3 |
| Cadmium (Cd) | MG/KG | 4 / 5 | 0.56 | 4.55 | 1.400 - 13.000 | 3.90 | 1 |
| Calcium (Ca) | MG/KG | 5 / 5 | | 25840.00 | 6400.000 - 58000.000 | | |
| Chromium (Cr) | MG/KG | 5 / 5 | | 119.60 | 30.000 - 380.000 | 39.00 | 4 |
| Cobalt (Co) | MG/KG | 5 / 5 | | 13.90 | 5.500 - 19.000 | 470.00 | |
| Copper (Cu) | MG/KG | 3 / 5 | 120.00 - 800.00 | 563.33 | 270.000 - 910.000 | 290.00 | 2 |
| Iron (Fe) | MG/KG | 5 / 5 | | 28720.00 | 3700.000 - 79000.000 | | |
| Magnesium (Mg) | MG/KG | 5 / 5 | | 9700.00 | 1200.000 - 23000.000 | | |
| Manganese (Mn) | MG/KG | 2 / 5 | 290.00 - 780.00 | 151.00 | 62.000 - 240.000 | 39.00 | 2 |
| Mercury (Mg) | MG/KG | 3 / 5 | 0.18 - 0.35 | 0.05 | 0.050 - 0.060 | 2.30 | |
| Nickel (Ni) | MG/KG | 5 / 5 | | 151.20 | 81.000 - 230.000 | 160.00 | 3 |
| Potassium (K) | MG/KG | 5 / 5 | | 412.00 | 220.000 - 620.000 | | |
| Silver (Ag) | MG/KG | 1 / 5 | 1.10 - 2.50 | 2.40 | | 39.00 | |
| Sodium (Na) | MG/KG | 5 / 5 | | 801.80 | 99.000 - 2100.000 | | |
| Vanadium (V) | MG/KG | 5 / 5 | | 10.10 | 5.100 - 14.000 | 55.00 | |
| Zinc (Zn) | MG/KG | 3 / 5 | 590.00 - 2100.00 | 1503.33 | 710.000 - 2100.000 | 2300.00 | |

*Naval Base Charleston*
*Data as of 2/5/96*
*RFI*

**SWMU 2**
**Surface Soil**

| Parameter | Units | Freq. of Det. | Range of Nondetected Upper Bounds | Avg. Det. Conc. | Range of Detected Concentrations | Screening Conc. | No. Over Screen |
|---|---|---|---|---|---|---|---|
| **Miscelaneous** | | | | | | | |
| Chromium (Hexavalent) | MG/KG | 4 / 4 | | 0.05 | 0.026 - 0.100 | | |
| **Inorganics** | | | | | | | |
| Aluminum (Al) | MG/KG | 23 / 23 | | 10563.47 | 1280.000 - 40100.000 | 7800.00 | 16 |
| Antimony (Sb) | MG/KG | 2 / 23 | 10.30 - 56.40 | 15.65 | 13.300 - 18.000 | 3.10 | 2 |
| Arsenic (As) | MG/KG | 23 / 23 | | 9.09 | 2.500 - 29.400 | 0.37 | 23 |
| Barium (Ba) | MG/KG | 23 / 23 | | 38.42 | 6.100 - 164.000 | 550.00 | |
| Beryllium (Be) | MG/KG | 5 / 23 | 0.20 - 2.40 | 0.41 | 0.300 - 0.620 | 0.15 | 5 |
| Cadmium (Cd) | MG/KG | 4 / 23 | 1.00 - 1.30 | 3.91 | 2.050 - 6.600 | 3.90 | 2 |
| Calcium (Ca) | MG/KG | 23 / 23 | | 46088.26 | 2760.000 - 356000.000 | | |
| Chromium (Cr) | MG/KG | 23 / 23 | | 23.24 | 6.500 - 112.000 | 39.00 | 2 |
| Cobalt (Co) | MG/KG | 13 / 23 | 1.30 - 1.40 | 5.74 | 1.900 - 16.600 | 470.00 | |
| Copper (Cu) | MG/KG | 23 / 23 | | 42.78 | 4.100 - 174.000 | 290.00 | |
| Iron (Fe) | MG/KG | 23 / 23 | | 12255.21 | 4690.000 - 34200.000 | | |
| Lead (Pb) | MG/KG | 23 / 23 | | 243.27 | 3.700 - 1500.000 | 400.00 | 5 |
| Magnesium (Mg) | MG/KG | 23 / 23 | | 1357.78 | 335.500 - 4320.000 | | |
| Manganese (Mn) | MG/KG | 23 / 23 | | 66.59 | 10.450 - 354.000 | 39.00 | 12 |
| Mercury (Mg) | MG/KG | 5 / 23 | 0.09 - 0.55 | 0.39 | 0.230 - 0.600 | 2.30 | |
| Nickel (Ni) | MG/KG | 22 / 23 | 3.10 | 16.92 | 4.100 - 61.700 | 160.00 | |
| Potassium (K) | MG/KG | 23 / 23 | | 454.45 | 149.000 - 1820.000 | | |
| Selenium (Se) | MG/KG | 12 / 23 | 0.61 - 3.30 | 1.27 | 0.850 - 1.700 | 39.00 | |
| Silver (Ag) | MG/KG | 1 / 23 | 0.61 - 3.30 | 1.30 | | 39.00 | |
| Sodium (Na) | MG/KG | 23 / 23 | | 388.19 | 200.000 - 1110.000 | | |
| Tin (Sn) | MG/KG | 6 / 23 | 7.50 - 9.60 | 18.55 | 8.600 - 45.500 | 4700.00 | |
| Vanadium (V) | MG/KG | 23 / 23 | | 27.10 | 6.100 - 114.000 | 55.00 | 1 |
| Zinc (Zn) | MG/KG | 23 / 23 | | 136.16 | 9.300 - 982.000 | 2300.00 | |

**SWMU 38**
**Surface Soil**

| Parameter | Units | Freq. of Det. | Range of Nondetected Upper Bounds | Avg. Det. Conc. | Range of Detected Concentrations | Screening Conc. | No. Over Screen |
|---|---|---|---|---|---|---|---|
| **Miscelaneous** | | | | | | | |
| Chromium (Hexavalent) | MG/KG | 1 / 2 | 0.02 | 0.07 | | | |
| **Carcinogenic PAHs** | | | | | | | |
| PAH (Benzo(a)pyrene Equiv.) | UG/KG | 1 / 6 | 0.72 - 1.00 | 0.15 | | 88.00 | |
| Chrysene | UG/KG | 1 / 6 | 720.00 - 1000.00 | 150.00 | | | |
| **Petroleum Hydrocarbons** | | | | | | | |
| TPH - Diesel Range Organics | MG/KG | 1 / 6 | 33.00 - 39.00 | 2400.00 | | 100.00 | 1 |
| **Inorganics** | | | | | | | |
| Aluminum (Al) | MG/KG | 7 / 7 | | 10616.42 | 5880.000 - 16600.000 | 7800.00 | 6 |
| Arsenic (As) | MG/KG | 7 / 7 | | 12.14 | 2.100 - 19.800 | 0.37 | 7 |
| Barium (Ba) | MG/KG | 7 / 7 | | 30.23 | 20.200 - 45.500 | 550.00 | |
| Beryllium (Be) | MG/KG | 1 / 7 | 0.21 - 0.31 | 0.50 | | 0.15 | 1 |
| Cadmium (Cd) | MG/KG | 1 / 7 | 1.10 - 1.60 | 1.50 | | 3.90 | |
| Calcium (Ca) | MG/KG | 7 / 7 | | 64985.00 | 4410.000 - 137000.000 | | |
| Chromium (Cr) | MG/KG | 7 / 7 | | 23.50 | 11.200 - 37.700 | 39.00 | |
| Cobalt (Co) | MG/KG | 4 / 7 | 1.30 - 1.90 | 2.46 | 1.500 - 3.300 | 470.00 | |
| Copper (Cu) | MG/KG | 7 / 7 | | 24.78 | 1.800 - 87.250 | 290.00 | |
| Iron (Fe) | MG/KG | 7 / 7 | | 9393.57 | 6360.000 - 12350.000 | | |
| Lead (Pb) | MG/KG | 7 / 7 | | 75.92 | 5.300 - 218.300 | 400.00 | |
| Magnesium (Mg) | MG/KG | 7 / 7 | | 1863.50 | 346.500 - 3260.000 | | |
| Manganese (Mn) | MG/KG | 7 / 7 | | 64.87 | 14.800 - 140.050 | 39.00 | 3 |
| Mercury (Mg) | MG/KG | 3 / 7 | 0.11 - 0.16 | 0.24 | 0.150 - 0.310 | 2.30 | |
| Nickel (Ni) | MG/KG | 7 / 7 | | 12.70 | 4.500 - 21.600 | 160.00 | |
| Potassium (K) | MG/KG | 4 / 7 | 403.00 - 842.00 | 281.00 | 203.000 - 441.000 | | |
| Selenium (Se) | MG/KG | 6 / 7 | 0.68 | 1.28 | 0.750 - 2.200 | 39.00 | |
| Sodium (Na) | MG/KG | 7 / 7 | | 430.07 | 170.000 - 815.000 | | |
| Vanadium (V) | MG/KG | 7 / 7 | | 21.90 | 8.500 - 35.200 | 55.00 | |
| Zinc (Zn) | MG/KG | 7 / 7 | | 73.32 | 11.300 - 220.500 | 2300.00 | |
| **Pesticides** | | | | | | | |
| Aldrin | UG/KG | 1 / 6 | 1.90 - 2.70 | 0.73 | | 38.00 | |
| Aroclor-1260 | UG/KG | 1 / 6 | 14.00 - 21.00 | 500.00 | | 83.00 | 1 |
| gamma-BHC (Lindane) | UG/KG | 1 / 6 | 1.90 - 2.70 | 0.51 | | 490.00 | |
| alpha-Chlordane | UG/KG | 1 / 6 | 1.90 - 2.70 | 8.40 | | 490.00 | |
| gamma-Chlordane | UG/KG | 2 / 6 | 1.90 - 2.00 | 7.65 | 5.300 - 10.000 | 490.00 | |
| 4,4'-DDD | UG/KG | 2 / 6 | 4.00 - *****.** | 20.05 | 1.600 - 38.500 | 2700.00 | |
| 4,4'-DDE | UG/KG | 2 / 6 | 4.00 - 37000.00 | 4.65 | 1.100 - 8.200 | 1900.00 | |
| 4,4'-DDT | UG/KG | 2 / 6 | 4.00 - *****.** | 28.60 | 9.200 - 48.000 | 1900.00 | |
| **SVOAs** | | | | | | | |
| Butylbenzylphthalate | UG/KG | 1 / 6 | 720.00 - 1000.00 | 2300.00 | | 1600000.00 | |
| Di-n-octyl phthalate | UG/KG | 1 / 6 | 720.00 - 1000.00 | 410.00 | | 160000.00 | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 1 / 6 | 720.00 - 1000.00 | 210.00 | | 46000.00 | |
| **VOAs** | | | | | | | |
| Acetone | UG/KG | 3 / 6 | 11.00 - 16.00 | 44.66 | 32.000 - 61.000 | 780000.00 | |
| 2-Butanone (MEK) | UG/KG | 1 / 6 | 11.00 - 16.00 | 9.60 | | 4700000.00 | |
| Toluene | UG/KG | 2 / 6 | 5.40 - 7.90 | 3.05 | 1.900 - 4.200 | 1600000.00 | |

*Naval Base Charleston*
*Data as of 2/5/96*
*RFI*

**SWMU 39**
**Surface Soil**

| Parameter | Units | Freq. of Det. | Range of Nondetected Upper Bounds | Avg. Det. Conc. | Range of Detected Concentrations | Screening Conc. | No. Over Screen |
|---|---|---|---|---|---|---|---|
| **Miscelaneous** | | | | | | | |
| Carbazole | UG/KG | 1 / 15 | 710.00 - 810.00 | 960.00 | | | |
| **Carcinogenic PAHs** | | | | | | | |
| PAH (Benzo(a)pyrene Equiv.) | UG/KG | 2 / 15 | 1640.81 - 1871.91 | 2900.03 | 15.170 - 5784.900 | 88.00 | 1 |
| Benzo(a)anthracene | UG/KG | 2 / 15 | 710.00 - 810.00 | 2075.00 | 150.000 - 4000.000 | | |
| Benzo(b)fluoranthene | UG/KG | 1 / 15 | 710.00 - 810.00 | 6200.00 | | | |
| Chrysene | UG/KG | 2 / 15 | 710.00 - 810.00 | 3535.00 | 170.000 - 6900.000 | | |
| Dibenz(a,h)anthracene | UG/KG | 1 / 15 | 710.00 - 810.00 | 950.00 | | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 1 / 15 | 710.00 - 810.00 | 2700.00 | | | |
| Benzo(k)fluoranthene | UG/KG | 1 / 15 | 710.00 - 810.00 | 3800.00 | | | |
| Benzo(a)pyrene | UG/KG | 1 / 15 | 710.00 - 810.00 | 3500.00 | | | |
| **Considered Both SVOAs and VOAs** | | | | | | | |
| 1,2-Dichlorobenzene | UG/KG | 1 / 15 | 5.40 - 6.10 | 1.20 | | 700000.00 | |
| **Petroleum Hydrocarbons** | | | | | | | |
| TPH - Diesel Range Organics | MG/KG | 3 / 15 | 30.00 - 36.00 | 499.33 | 48.000 - 1300.000 | 100.00 | 2 |
| TPH - Gasoline Range | MG/KG | 2 / 15 | 30.00 - 36.00 | 229.50 | 79.000 - 380.000 | 100.00 | 1 |
| **Inorganics** | | | | | | | |
| Aluminum (Al) | MG/KG | 15 / 15 | | 8293.33 | 4750.000 - 16000.000 | 7800.00 | 6 |
| Arsenic (As) | MG/KG | 15 / 15 | | 4.90 | 1.400 - 17.900 | 0.37 | 15 |
| Barium (Ba) | MG/KG | 15 / 15 | | 23.56 | 10.700 - 41.700 | 550.00 | |
| Beryllium (Be) | MG/KG | 2 / 15 | 0.21 - 0.24 | 0.34 | 0.240 - 0.450 | 0.15 | 2 |
| Calcium (Ca) | MG/KG | 15 / 15 | | 28023.33 | 1870.000 - 136000.000 | | |
| Chromium (Cr) | MG/KG | 15 / 15 | | 13.81 | 7.300 - 24.100 | 39.00 | |
| Cobalt (Co) | MG/KG | 13 / 15 | 1.40 | 2.57 | 1.400 - 4.100 | 470.00 | |
| Copper (Cu) | MG/KG | 15 / 15 | | 9.61 | 1.500 - 32.200 | 290.00 | |
| Iron (Fe) | MG/KG | 15 / 15 | | 8392.66 | 4250.000 - 16300.000 | | |
| Lead (Pb) | MG/KG | 15 / 15 | | 24.36 | 4.000 - 108.000 | 400.00 | |
| Magnesium (Mg) | MG/KG | 15 / 15 | | 893.93 | 286.000 - 1800.000 | | |
| Manganese (Mn) | MG/KG | 15 / 15 | | 55.64 | 11.200 - 191.000 | 39.00 | 6 |
| Mercury (Mg) | MG/KG | 7 / 15 | 0.11 - 0.12 | 1.29 | 0.150 - 2.800 | 2.30 | 1 |
| Nickel (Ni) | MG/KG | 12 / 15 | 3.20 - 4.00 | 6.10 | 3.300 - 9.800 | 160.00 | |
| Potassium (K) | MG/KG | 10 / 15 | 256.00 - 625.00 | 413.10 | 198.000 - 813.000 | | |
| Selenium (Se) | MG/KG | 3 / 15 | 0.63 - 0.74 | 0.83 | 0.680 - 1.100 | 39.00 | |
| Sodium (Na) | MG/KG | 15 / 15 | | 232.66 | 184.000 - 349.000 | | |
| Vanadium (V) | MG/KG | 15 / 15 | | 14.71 | 7.500 - 31.400 | 55.00 | |
| Zinc (Zn) | MG/KG | 15 / 15 | | 43.10 | 4.900 - 268.000 | 2300.00 | |
| **Pesticides** | | | | | | | |
| Aroclor-1260 | UG/KG | 3 / 15 | 14.00 - 16.00 | 408.00 | 26.000 - 1100.000 | 83.00 | 2 |
| alpha-Chlordane | UG/KG | 1 / 15 | 1.90 - 9.40 | 10.00 | | 490.00 | |
| gamma-Chlordane | UG/KG | 1 / 15 | 1.90 - 9.40 | 24.00 | | 490.00 | |
| 4,4'-DDD | UG/KG | 5 / 15 | 3.60 - 18.00 | 11.61 | 3.550 - 22.000 | 2700.00 | |
| 4,4'-DDE | UG/KG | 6 / 15 | 3.60 - 18.00 | 16.95 | 1.100 - 53.000 | 1900.00 | |
| 4,4'-DDT | UG/KG | 5 / 15 | 3.60 - 18.00 | 11.40 | 4.600 - 18.000 | 1900.00 | |
| Endrin aldehyde | UG/KG | 1 / 15 | 3.60 - 18.00 | 6.70 | | 2300.00 | |
| **SVOAs** | | | | | | | |
| Acenaphthene | UG/KG | 1 / 15 | 710.00 - 810.00 | 300.00 | | 470000.00 | |
| Acenaphthylene | UG/KG | 1 / 15 | 710.00 - 810.00 | 730.00 | | 470000.00 | |
| Anthracene | UG/KG | 1 / 15 | 710.00 - 810.00 | 1100.00 | | 2300000.00 | |
| Benzo(g,h,i)perylene | UG/KG | 1 / 15 | 710.00 - 810.00 | 2900.00 | | 310000.00 | |

*Naval Base Charleston*
*Data as of 2/5/96*
*RFI*

**SWMU 42 and AOC 505**
**Surface Soil**

| Parameter | Units | Freq. of Det. | Range of Nondetected Upper Bounds | Avg. Det. Conc. | Range of Detected Concentrations | Screening Conc. | No. Over Screen |
|---|---|---|---|---|---|---|---|
| **Miscelaneous** | | | | | | | |
| Carbazole | UG/KG | 2/21 | 710.00 - 980.00 | 360.00 | 290.000 - 430.000 | | |
| **Carcinogenic PAHs** | | | | | | | |
| PAH (Benzo(a)pyrene Equiv.) | UG/KG | 10/21 | 1640.81 - 2126.12 | 938.13 | 0.150 - 2348.800 | 88.00 | 9 |
| Benzo(a)anthracene | UG/KG | 9/21 | 710.00 - 920.00 | 626.66 | 350.000 - 1100.000 | | |
| Benzo(b)fluoranthene | UG/KG | 9/21 | 710.00 - 920.00 | 1217.77 | 440.000 - 3400.000 | | |
| Chrysene | UG/KG | 10/21 | 710.00 - 920.00 | 1012.00 | 150.000 - 2400.000 | | |
| Dibenz(a,h)anthracene | UG/KG | 5/21 | 710.00 - 950.00 | 286.00 | 160.000 - 500.000 | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 9/21 | 710.00 - 920.00 | 494.44 | 210.000 - 1100.000 | | |
| Benzo(k)fluoranthene | UG/KG | 8/21 | 710.00 - 1000.00 | 827.50 | 380.000 - 1700.000 | | |
| Benzo(a)pyrene | UG/KG | 9/21 | 710.00 - 920.00 | 641.11 | 290.000 - 1400.000 | | |
| **Inorganics** | | | | | | | |
| Aluminum (Al) | MG/KG | 21/21 | | 6215.71 | 2550.000 - 9700.000 | 7800.00 | 5 |
| Arsenic (As) | MG/KG | 20/21 | 0.93 | 10.17 | 1.100 - 62.000 | 0.37 | 20 |
| Barium (Ba) | MG/KG | 21/21 | | 29.77 | 6.700 - 160.000 | 550.00 | |
| Beryllium (Be) | MG/KG | 3/21 | 0.21 - 0.29 | 0.34 | 0.270 - 0.380 | 0.15 | 3 |
| Calcium (Ca) | MG/KG | 15/21 | 1180.00 - 54500.00 | 6934.93 | 543.000 - 38800.000 | | |
| Chromium (Cr) | MG/KG | 15/21 | 7.20 - 29.20 | 9.68 | 3.500 - 20.100 | 39.00 | |
| Cobalt (Co) | MG/KG | 7/21 | 1.30 - 1.80 | 4.30 | 1.400 - 16.600 | 470.00 | |
| Copper (Cu) | MG/KG | 21/21 | | 29.37 | 2.200 - 192.000 | 290.00 | |
| on (Fe) | MG/KG | 15/21 | 3450.00 - 12200.00 | 8287.33 | 2020.000 - 47500.000 | | |
| Lead (Pb) | MG/KG | 15/21 | 6.10 - 339.00 | 154.45 | 4.200 - 1180.000 | 400.00 | 2 |
| Magnesium (Mg) | MG/KG | 21/21 | | 421.26 | 185.000 - 894.000 | | |
| Manganese (Mn) | MG/KG | 15/21 | 13.00 - 73.70 | 62.22 | 13.900 - 311.000 | 39.00 | 8 |
| Mercury (Mg) | MG/KG | 2/21 | 0.11 - 0.30 | 0.24 | 0.160 - 0.320 | 2.30 | |
| Nickel (Ni) | MG/KG | 8/21 | 3.00 - 20.00 | 8.10 | 3.200 - 13.600 | 160.00 | |
| Potassium (K) | MG/KG | 18/21 | 119.00 - 142.00 | 220.05 | 128.000 - 444.000 | | |
| Selenium (Se) | MG/KG | 5/21 | 0.65 - 0.85 | 0.94 | 0.680 - 1.200 | 39.00 | |
| Sodium (Na) | MG/KG | 21/21 | | 232.92 | 172.000 - 433.000 | | |
| Tin (Sn) | MG/KG | 5/21 | 7.80 - 10.30 | 15.18 | 10.500 - 28.500 | 4700.00 | |
| Vanadium (V) | MG/KG | 21/21 | | 12.96 | 4.350 - 39.900 | 55.00 | |
| Zinc (Zn) | MG/KG | 21/21 | | 69.62 | 8.300 - 303.000 | 2300.00 | |
| **Pesticides** | | | | | | | |
| Aroclor-1260 | UG/KG | 5/21 | 14.00 - 21.00 | 628.60 | 83.000 - 1800.000 | 83.00 | 5 |
| alpha-Chlordane | UG/KG | 2/21 | 1.90 - 2.70 | 9.50 | 2.000 - 17.000 | 490.00 | |
| gamma-Chlordane | UG/KG | 2/21 | 1.90 - 2.70 | 10.85 | 4.700 - 17.000 | 490.00 | |
| 4,4'-DDE | UG/KG | 9/21 | 3.60 - 460.00 | 46.77 | 12.000 - 76.000 | 1900.00 | |
| 4,4'-DDT | UG/KG | 9/21 | 3.60 - 280.00 | 32.80 | 6.900 - 65.000 | 1900.00 | |
| **SVOAs** | | | | | | | |
| Anthracene | UG/KG | 3/21 | 710.00 - 950.00 | 353.33 | 230.000 - 490.000 | 2300000.00 | |
| Benzo(g,h,i)perylene | UG/KG | 9/21 | 710.00 - 920.00 | 514.44 | 230.000 - 1100.000 | 310000.00 | |
| Butylbenzylphthalate | UG/KG | 1/21 | 710.00 - 1000.00 | 390.00 | | 1600000.00 | |
| Fluoranthene | UG/KG | 9/21 | 710.00 - 920.00 | 1600.00 | 680.000 - 4000.000 | 310000.00 | |
| Phenanthrene | UG/KG | 6/21 | 710.00 - 920.00 | 573.33 | 200.000 - 2100.000 | 310000.00 | |
| Pyrene | UG/KG | 9/21 | 710.00 - 920.00 | 1546.66 | 670.000 - 2900.000 | 230000.00 | |
| **VOAs** | | | | | | | |
| Acetone | UG/KG | 1/21 | 11.00 - 16.00 | 10.00 | | 780000.00 | |
| rbon disulfide | UG/KG | 1/21 | 5.30 - 7.90 | 88.00 | | 780000.00 | |
| methylene chloride | UG/KG | 4/21 | 5.30 - 7.10 | 3.17 | 1.600 - 7.500 | 85000.00 | |

*Naval Base Charleston*
*Data as of 2/5/96*
*RF*

**SWMU 42**
**Surface Soil**

| Parameter | Units | Freq. of Det. | Range of Nondetected Upper Bounds | Avg. Det. Conc. | Range of Detected Concentrations | Screening Conc. | No. Over Screen |
|---|---|---|---|---|---|---|---|
| Tetrachloroethene | UG/KG | 1/21 | 5.30 - 7.90 | 1.30 | | 12000.00 | |
| Toluene | UG/KG | 4/21 | 5.30 - 7.90 | 1.62 | 1.300 - 2.000 | 1600000.00 | |
| Trichloroethene | UG/KG | 4/21 | 5.30 - 7.90 | 3.00 | 1.700 - 5.400 | 47000.00 | |

*Naval Base Charleston*
*Data as of 2/5/96*
*RFI*

**SWMU 43**
**Surface Soil**

| Parameter | Units | Freq. of Det. | Range of Nondetected Upper Bounds | Avg. Det. Conc. | Range of Detected Concentrations | Screening Conc. | No. Over Screen |
|---|---|---|---|---|---|---|---|
| **Inorganics** | | | | | | | |
| Aluminum (Al) | MG/KG | 6 / 6 | | 5568.33 | 3700.000 - 7890.000 | 7800.00 | 1 |
| Arsenic (As) | MG/KG | 6 / 6 | | 2.81 | 1.700 - 3.700 | 0.37 | 6 |
| Barium (Ba) | MG/KG | 6 / 6 | | 11.65 | 4.300 - 17.300 | 550.00 | |
| Calcium (Ca) | MG/KG | 2 / 6 | 3370.00 - 36300.00 | 11765.00 | 9830.000 - 13700.000 | | |
| Chromium (Cr) | MG/KG | 2 / 6 | 9.00 - 13.00 | 7.30 | 7.000 - 7.600 | 39.00 | |
| Cobalt (Co) | MG/KG | 2 / 6 | 1.40 | 2.35 | 1.800 - 2.900 | 470.00 | |
| Copper (Cu) | MG/KG | 6 / 6 | | 5.98 | 1.600 - 10.800 | 290.00 | |
| Iron (Fe) | MG/KG | 2 / 6 | 5580.00 - 8900.00 | 3555.00 | 3540.000 - 3570.000 | | |
| Lead (Pb) | MG/KG | 2 / 6 | 14.00 - 55.40 | 1.95 | 1.800 - 2.100 | 400.00 | |
| Magnesium (Mg) | MG/KG | 6 / 6 | | 495.00 | 354.000 - 894.000 | | |
| Manganese (Mn) | MG/KG | 2 / 6 | 15.60 - 63.80 | 14.40 | 13.000 - 15.800 | 39.00 | |
| Nickel (Ni) | MG/KG | 5 / 6 | 3.40 | 5.22 | 3.600 - 8.300 | 160.00 | |
| Potassium (K) | MG/KG | 4 / 6 | 124.00 - 133.00 | 208.00 | 189.000 - 243.000 | | |
| Selenium (Se) | MG/KG | 1 / 6 | 0.71 - 0.75 | 0.76 | | 39.00 | |
| Sodium (Na) | MG/KG | 6 / 6 | | 253.33 | 210.000 - 284.000 | | |
| Tin (Sn) | MG/KG | 5 / 6 | 8.70 | 10.88 | 9.400 - 15.000 | 4700.00 | |
| Vanadium (V) | MG/KG | 6 / 6 | | 11.58 | 7.200 - 15.500 | 55.00 | |
| Zinc (Zn) | MG/KG | 6 / 6 | | 23.75 | 7.400 - 47.300 | 2300.00 | |
| **VOAs** | | | | | | | |
| Acetone | UG/KG | 4 / 6 | 12.00 | 28.50 | 9.000 - 63.000 | 780000.00 | |
| Methylene chloride | UG/KG | 4 / 6 | 6.00 - 6.30 | 6.62 | 1.800 - 15.000 | 85000.00 | |
| Tetrachloroethene | UG/KG | 1 / 6 | 5.90 - 6.30 | 1.70 | | 12000.00 | |
| **Wet Chemistry Parameters** | | | | | | | |
| pH | PH | 6 / 6 | | 8.05 | 7.800 - 8.205 | | |

*Naval Base Charleston*
*Data as of 2/5/96*
*RFI*

**AOC 506**
**Surface Soil**

| Parameter | Units | Freq. of Det. | Range of Nondetected Upper Bounds | Avg. Det. Conc. | Range of Detected Concentrations | Screening Conc. | No. Over Screen |
|---|---|---|---|---|---|---|---|
| **Inorganics** | | | | | | | |
| Aluminum (Al) | MG/KG | 6 / 6 | | 8050.00 | 5010.000 - 11000.000 | 7800.00 | 3 |
| Arsenic (As) | MG/KG | 5 / 6 | 7.50 | 4.10 | 2.100 - 8.900 | 0.37 | 5 |
| Barium (Ba) | MG/KG | 6 / 6 | | 131.38 | 16.900 - 665.000 | 550.00 | 1 |
| Cadmium (Cd) | MG/KG | 1 / 6 | 1.10 - 1.20 | 1.20 | | 3.90 | |
| Calcium (Ca) | MG/KG | 6 / 6 | | 5120.00 | 1110.000 - 12000.000 | | |
| Chromium (Cr) | MG/KG | 6 / 6 | | 14.63 | 8.900 - 30.100 | 39.00 | |
| Cobalt (Co) | MG/KG | 4 / 6 | 1.30 - 1.40 | 6.17 | 1.500 - 17.700 | 470.00 | |
| Copper (Cu) | MG/KG | 6 / 6 | | 15.66 | 1.900 - 48.900 | 290.00 | |
| Lead (Pb) | MG/KG | 6 / 6 | | 28.88 | 5.400 - 66.000 | 400.00 | |
| Magnesium (Mg) | MG/KG | 6 / 6 | | 531.33 | 325.000 - 1110.000 | | |
| Manganese (Mn) | MG/KG | 6 / 6 | | 32.43 | 11.800 - 63.700 | 39.00 | 2 |
| Mercury (Mg) | MG/KG | 2 / 6 | 0.10 - 0.12 | 1.14 | 0.980 - 1.300 | 2.30 | |
| Nickel (Ni) | MG/KG | 5 / 6 | 3.10 | 7.46 | 3.900 - 9.900 | 160.00 | |
| Potassium (K) | MG/KG | 6 / 6 | | 286.50 | 172.000 - 376.000 | | |
| Sodium (Na) | MG/KG | 6 / 6 | | 228.00 | 208.000 - 244.000 | | |
| Vanadium (V) | MG/KG | 6 / 6 | | 14.40 | 12.200 - 17.000 | 55.00 | |
| Zinc (Zn) | MG/KG | 6 / 6 | | 73.00 | 6.800 - 281.000 | 2300.00 | |
| **VOAs** | | | | | | | |
| Acetone | UG/KG | 3 / 6 | 11.00 - 12.00 | 36.33 | 15.000 - 60.000 | 780000.00 | |
| oluene | UG/KG | 2 / 6 | 5.40 - 6.00 | 1.50 | 1.300 - 1.700 | 1600000.00 | |

*Naval Base Charleston*
*Data as of 2/5/96*
*RFI*

**AOC 507**
**Surface Soil**

| Parameter | Units | Freq. of Det. | Range of Nondetected Upper Bounds | Avg. Det. Conc. | Range of Detected Concentrations | Screening Conc. | No. Over Screen |
|---|---|---|---|---|---|---|---|
| **Miscelaneous** | | | | | | | |
| Chromium (Hexavalent) | MG/KG | 1 / 1 | | 0.30 | | | |
| **Inorganics** | | | | | | | |
| Aluminum | MG/KG | 5 / 5 | | 7254.00 | 5890.000 - 8100.000 | 7800.00 | 1 |
| Arsenic | MG/KG | 5 / 5 | | 3.73 | 1.700 - 5.400 | 0.37 | 5 |
| Barium | MG/KG | 5 / 5 | | 41.16 | 21.600 - 52.800 | 550.00 | |
| Beryllium | MG/KG | 5 / 5 | | 0.35 | 0.245 - 0.440 | 0.15 | 5 |
| Calcium | MG/KG | 5 / 5 | | 2398.40 | 448.000 - 4390.000 | | |
| Chromium | MG/KG | 5 / 5 | | 9.72 | 6.000 - 18.100 | 39.00 | |
| Hexavalent Chromium | MG/KG | 1 / 1 | | 0.30 | | 39.00 | |
| Cobalt | MG/KG | 2 / 5 | 1.40 - 1.50 | 2.40 | 1.500 - 3.300 | 470.00 | |
| Copper | MG/KG | 5 / 5 | | 10.11 | 3.000 - 20.300 | 290.00 | |
| Iron | MG/KG | 5 / 5 | | 4657.00 | 2925.000 - 8020.000 | | |
| Lead | MG/KG | 5 / 5 | | 82.40 | 9.200 - 194.000 | 400.00 | |
| Magnesium | MG/KG | 5 / 5 | | 424.70 | 275.500 - 543.000 | | |
| Manganese | MG/KG | 5 / 5 | | 180.10 | 50.500 - 280.000 | 39.00 | 5 |
| Mercury | MG/KG | 2 / 5 | 0.11 - 0.12 | 0.16 | | 2.30 | |
| Nickel | MG/KG | 5 / 5 | | 6.22 | 4.300 - 8.500 | 160.00 | |
| Potassium | MG/KG | 4 / 5 | 128.00 | 162.00 | 138.000 - 203.000 | | |
| Selenium | MG/KG | 1 / 5 | 0.68 - 0.73 | 0.77 | | 39.00 | |
| Silver | MG/KG | 3 / 5 | 0.68 - 0.69 | 1.20 | 0.810 - 1.600 | 39.00 | |
| Sodium | MG/KG | 5 / 5 | | 211.40 | 187.000 - 233.000 | | |
| Vanadium | MG/KG | 5 / 5 | | 7.82 | 5.400 - 10.500 | 55.00 | |
| Zinc | MG/KG | 5 / 5 | | 77.56 | 12.500 - 182.000 | 2300.00 | |

*Naval Base Charleston*
*Data as of 2/5/96*
*RF*

**AOC 507**
**Surface Soil**

| Parameter | Units | Freq. of Det. | Range of Nondetected Upper Bounds | Avg. Det. Conc. | Range of Detected Concentrations | Screening Conc. | No. Over Screen |
|---|---|---|---|---|---|---|---|
| **Carcinogenic PAHs** | | | | | | | |
| PAH (Benzo(a)pyrene Equiv.) | UG/KG | 2 / 5 | 957.03 - 1075.02 | 908.11 | 272.320 - 1543.900 | 88.00 | 2 |
| Benzo(a)anthracene | UG/KG | 2 / 5 | 730.00 - 820.00 | 885.00 | 270.000 - 1500.000 | | |
| Benzo(b)fluoranthene | UG/KG | 1 / 5 | 730.00 - 820.00 | 1200.00 | | | |
| Chrysene | UG/KG | 2 / 5 | 730.00 - 820.00 | 860.00 | 320.000 - 1400.000 | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 2 / 5 | 730.00 - 820.00 | 390.00 | 150.000 - 630.000 | | |
| Benzo(k)fluoranthene | UG/KG | 1 / 5 | 730.00 - 820.00 | 950.00 | | | |
| Benzo(a)pyrene | UG/KG | 2 / 5 | 730.00 - 820.00 | 715.00 | 230.000 - 1200.000 | | |
| **Pesticides** | | | | | | | |
| 4,4'-DDD | UG/KG | 1 / 1 | | 1.70 | | 2700.00 | |
| 4,4'-DDE | UG/KG | 1 / 1 | | 21.00 | | 1900.00 | |
| 4,4'-DDT | UG/KG | 1 / 1 | | 13.00 | | 1900.00 | |
| **SVOAs** | | | | | | | |
| Benzo(g,h,i)perylene | UG/KG | 1 / 5 | 730.00 - 820.00 | 580.00 | | 310000.00 | |
| Fluoranthene | UG/KG | 2 / 5 | 730.00 - 820.00 | 1390.00 | 480.000 - 2300.000 | 310000.00 | |
| Phenanthrene | UG/KG | 2 / 5 | 730.00 - 820.00 | 325.00 | 240.000 - 410.000 | 310000.00 | |
| Pyrene | UG/KG | 2 / 5 | 730.00 - 820.00 | 1490.00 | 480.000 - 2500.000 | 230000.00 | |
| **VOAs** | | | | | | | |
| Acetone | UG/KG | 2 / 5 | 11.00 - 12.00 | 10.75 | 9.500 - 12.000 | 780000.00 | |
| 2-Butanone (MEK) | UG/KG | 1 / 5 | 11.00 - 12.00 | 4.90 | | 4700000.00 | |
| Carbon disulfide | UG/KG | 1 / 5 | 5.60 - 6.20 | 1.20 | | 780000.00 | |
| Toluene | UG/KG | 2 / 5 | 5.60 - 5.90 | 2.15 | 1.900 - 2.400 | 1600000.00 | |
| Trichloroethene | UG/KG | 2 / 5 | 5.60 - 5.80 | 2.35 | 1.800 - 2.900 | 47000.00 | |

*Naval Base Charleston*
*Data as of 2/5/96*
*RFI*

Zone A
**Grid Based Samples**
**Surface Soil**

| Parameter | Units | Freq. of Det. | Range of Nondetected Upper Bounds | Avg. Det. Conc. | Range of Detected Concentrations | Screening Conc. | No. Over Screen |
|---|---|---|---|---|---|---|---|
| **Carcinogenic PAHs** | | | | | | | |
| PAH (Benzo(a)pyrene Equiv.) | UG/KG | 5 / 13 | 1663.92 - 1987.46 | 563.07 | 0.190 - 1384.980 | 88.00 | 4 |
| Benzo(a)anthracene | UG/KG | 4 / 13 | 720.00 - 860.00 | 422.50 | 250.000 - 660.000 | | |
| Benzo(b)fluoranthene | UG/KG | 4 / 13 | 720.00 - 860.00 | 770.00 | 390.000 - 1800.000 | | |
| Chrysene | UG/KG | 5 / 13 | 720.00 - 860.00 | 466.00 | 190.000 - 980.000 | | |
| Dibenz(a,h)anthracene | UG/KG | 1 / 13 | 720.00 - 860.00 | 230.00 | | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 4 / 13 | 720.00 - 860.00 | 343.75 | 210.000 - 670.000 | | |
| Benzo(k)fluoranthene | UG/KG | 4 / 13 | 720.00 - 860.00 | 588.75 | 390.000 - 1100.000 | | |
| Benzo(a)pyrene | UG/KG | 4 / 13 | 720.00 - 860.00 | 486.25 | 325.000 - 830.000 | | |
| **Inorganics** | | | | | | | |
| Aluminum (Al) | MG/KG | 13 / 13 | | 7365.76 | 3640.000 - 11200.000 | 7800.00 | 4 |
| Arsenic (As) | MG/KG | 13 / 13 | | 6.35 | 1.700 - 30.100 | 0.37 | 13 |
| Barium (Ba) | MG/KG | 13 / 13 | | 22.68 | 6.500 - 46.500 | 550.00 | |
| Beryllium (Be) | MG/KG | 1 / 13 | 0.22 - 0.26 | 0.32 | | 0.15 | 1 |
| Cadmium (Cd) | MG/KG | 1 / 13 | 1.10 - 1.30 | 2.80 | | 3.90 | |
| Calcium (Ca) | MG/KG | 13 / 13 | | 17164.69 | 797.000 - 65250.000 | | |
| Chromium (Cr) | MG/KG | 13 / 13 | | 15.73 | 5.700 - 32.850 | 39.00 | |
| Cobalt (Co) | MG/KG | 5 / 13 | 1.30 - 1.50 | 2.56 | 1.550 - 4.400 | 470.00 | |
| Copper (Cu) | MG/KG | 13 / 13 | | 18.28 | 2.200 - 70.900 | 290.00 | |
| Iron (Fe) | MG/KG | 12 / 13 | 6650.00 | 7275.41 | 1530.000 - 13700.000 | | |
| Lead (Pb) | MG/KG | 13 / 13 | | 36.25 | 4.100 - 93.100 | 400.00 | |
| Magnesium (Mg) | MG/KG | 13 / 13 | | 785.80 | 231.000 - 2625.000 | | |
| Manganese (Mn) | MG/KG | 13 / 13 | | 35.58 | 8.700 - 66.100 | 39.00 | 5 |
| Mercury (Mg) | MG/KG | 4 / 13 | 0.11 - 0.13 | 0.21 | 0.120 - 0.300 | 2.30 | |
| Nickel (Ni) | MG/KG | 11 / 13 | 3.20 - 3.60 | 8.27 | 3.200 - 15.400 | 160.00 | |
| Potassium (K) | MG/KG | 12 / 13 | 133.00 | 291.83 | 128.000 - 605.000 | | |
| Selenium (Se) | MG/KG | 3 / 13 | 0.67 - 0.79 | 0.85 | 0.700 - 0.970 | 39.00 | |
| Sodium (Na) | MG/KG | 13 / 13 | | 288.07 | 195.000 - 613.500 | | |
| Vanadium (V) | MG/KG | 13 / 13 | | 15.86 | 4.900 - 24.250 | 55.00 | |
| Zinc (Zn) | MG/KG | 13 / 13 | | 76.23 | 4.500 - 168.000 | 2300.00 | |
| **Pesticides** | | | | | | | |
| Aroclor-1260 | UG/KG | 2 / 13 | 14.00 - 18.00 | 70.00 | 54.000 - 86.000 | 83.00 | 1 |
| beta-BHC | UG/KG | 2 / 13 | 1.90 - 2.40 | 17.05 | 3.100 - 31.000 | 350.00 | |
| alpha-BHC | UG/KG | 1 / 13 | 1.90 - 2.40 | 8.70 | | 100.00 | |
| delta-BHC | UG/KG | 1 / 13 | 1.90 - 2.40 | 4.70 | | 490.00 | |
| alpha-Chlordane | UG/KG | 5 / 13 | 1.90 - 2.40 | 17.02 | 1.100 - 71.000 | 490.00 | |
| gamma-Chlordane | UG/KG | 5 / 13 | 1.90 - 2.40 | 15.58 | 2.100 - 53.000 | 490.00 | |
| 4,4'-DDD | UG/KG | 7 / 13 | 3.60 - 4.30 | 27.95 | 5.800 - 62.000 | 2700.00 | |
| 4,4'-DDE | UG/KG | 7 / 13 | 3.60 - 150.00 | 39.74 | 2.400 - 70.000 | 1900.00 | |
| 4,4'-DDT | UG/KG | 6 / 13 | 3.60 - 14.00 | 31.78 | 5.700 - 70.000 | 1900.00 | |
| Heptachlor epoxide | UG/KG | 4 / 13 | 1.90 - 2.40 | 9.22 | 1.900 - 27.000 | 70.00 | |
| **SVOAs** | | | | | | | |
| Benzo(g,h,i)perylene | UG/KG | 4 / 13 | 720.00 - 860.00 | 362.50 | 230.000 - 650.000 | 310000.00 | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 1 / 13 | 720.00 - 900.00 | 290.00 | | 46000.00 | |
| Fluoranthene | UG/KG | 4 / 13 | 720.00 - 860.00 | 583.75 | 250.000 - 870.000 | 310000.00 | |
| Phenanthrene | UG/KG | 3 / 13 | 720.00 - 860.00 | 256.66 | 180.000 - 400.000 | 310000.00 | |
| Pyrene | UG/KG | 4 / 13 | 720.00 - 860.00 | 763.75 | 360.000 - 1300.000 | 230000.00 | |

Zone A
**Grid Based Samples**
**Surface Soil**

| Parameter | Units | Freq. of Det. | Range of Nondetected Upper Bounds | Avg. Det. Conc. | Range of Detected Concentrations | Screening Conc. | No. Over Screen |
|---|---|---|---|---|---|---|---|
| **VOAs** | | | | | | | |
| Acetone | UG/KG | 3 / 13 | 11.00 - 13.00 | 51.50 | 10.000 - 127.500 | 780000.00 | |
| 2-Butanone (MEK) | UG/KG | 2 / 13 | 11.00 - 13.00 | 4.60 | 1.400 - 7.800 | 4700000.00 | |
| Carbon disulfide | UG/KG | 1 / 13 | 5.40 - 6.60 | 1.80 | | 780000.00 | |
| Toluene | UG/KG | 1 / 13 | 5.40 - 6.60 | 1.70 | | 1600000.00 | |
| Trichloroethene | UG/KG | 8 / 13 | 5.40 - 6.30 | 1.88 | 1.200 - 2.650 | 47000.00 | |

COMMANDER, NAVAL BASE, CHARLESTON
RESTORATION ADVISORY BOARD (RAB)
Minutes of 12 December 1995

1. Call to Order. The meeting was called to order by Mr. Daryle Fontenot, Co-Chairman of the RAB. He welcomed everyone and thanked the community representatives and Mr. Lee Cooper of the GAO for attending.

2. RAB Members Attending.

| | |
|---|---|
| Mr. Daryle Fontenot | Mr. Don Harbert |
| Mr. Van Robinson | CAPT Jim Augustin |
| Mr. Virgil Johnston | Mr. Doyle Brittain |
| Mr. Bobby Dearhart | Ms. Wannetta Mallette-Pratt |
| Mr. Steve Best | Mr. Lou Mintz |
| Mr. Joe Bowers* | Mr. Ralph Laney |
| LCDR Nick Cimorrelli | |

*Joe Bowers was sitting in for Ms. Ann Ragan

3 Guests Attending.

| | |
|---|---|
| Mr. Tony Hunt | SOUTHNAVFAC |
| Mr. Brian Stockmaster | SOUTHNAVFAC |
| Mrs. Pat Franklin | SOUTHNAVFAC |
| Mr. Jim Beltz | SOUTHNAVFAC |
| LCDR Jim Berotti | SOUTHNAVFAC |
| Mrs. Kim Reavis | SOUTHNAVFAC |
| Mr. Joe McCauley | SOUTHNAVFAC |
| Mr. Jim Moore | DOD Base Transition Coordinator |
| CAPT W. F. Nold | CHASNAVSHIPYD |
| Mr. Tom Gerken | CHASNAVSHIPYD |
| Ms. Sally Kuhl | COMNAVBASE |
| CDR P. H. Dalby | CSO |
| Ms. Jeri Johnson | RDA |
| Mr. Lee Cooper | GAO |
| Dr. Jim Speakman | EnSafe/Allen & Hoshall |
| Mr. Todd Haverkost | EnSafe/Allen & Hoshall |
| Mr. Peter McPheters | EnSafe/Allen & Hoshall |
| Mr. Robert Maddox | EnSafe/Allen & Hoshall |
| Mrs. June Brittain | Citizen |
| Ms. Mary Anderson | CAC |
| Mr. I. Bennett | GCSC |
| Ms. Susan Dunn | GCSC |
| Mr. Ron Ruys | MilVets |
| Ms. Gussie Greene | City Council |
| Mr. Thomas Long | Grass Roots Coalition |

4. Comments on Minutes.

The minutes were approved as written and will be placed in the Repository.

5. Sub-Committee Reports.

Mr. Daryle Fontenot reported that the Community Relations Sub-Committee was working on a Finding of Suitability to Lease (FOSL) Fact Sheet. He said that they were also working on finding a suitable meeting location and a suitable location for the Information Repository. Mr. Bobby Dearhart commented that perhaps the community representatives present might have suggestions for a new meeting location. Mr. Fontenot asked that anyone with suggestions call him. A report on these last two items will be made during the January meeting.

There were no other Sub-Committee reports.

6. Update on Environmental Cleanup.

Daryle Fontenot, the BRAC Environmental Coordinator for NAVBASE Charleston, said that an overview of all of the environmental programs would be covered in the future and not just the RCRA Facility Investigation Progress. These programs will include underground storage tanks, asbestos, water/wastewater, PCBs, etc. to give everyone a better understanding of all of the environmental issues.

He first reported that the Navy will be awarding a contract to the Shipyard Detachment in January 1996 for conducting an Asbestos Survey. This will be an update to a 1985 Asbestos Survey and will indicate where asbestos abatement will be required.

Mr. Lon Mintz questioned why another Asbestos Survey was being performed when he thought all asbestos information had already been accumulated. Captain Augustin told him that as far as the Navy knows, there is no asbestos in the buildings that are going into layup where there is any violation in compliance with asbestos laws and regulations. Mr. Fontenot tried to explain to Mr. Mintz that there is a requirement to update Asbestos Surveys to see if there are any changes and to identify each surface where there is asbestos.

Captain Augustin explained that the present Asbestos Survey was performed in 1985 and the Navy knows where the asbestos was then. From year to year the Navy is responsible for compliance. When asbestos becomes friable, it is taken care of. If anything, this new Asbestos Survey will confirm that the Navy has done a good job in managing the asbestos over the past 10 years. Mr. Fontenot said that when property is leased or transferred asbestos has to be identified. It does not necessarily require any action, but it must be identified to the new tenant.

Mr. Fontenot offered to meet with Mr. Mintz on a one-to-one basis to explain asbestos regulations.

Mr. Virgil Johnston of the RDA asked if there were any buildings on Base where asbestos would prevent leasing. Mr. Fontenot said that Building 32, the Powerhouse, could not be leased at the present time due to asbestos.

The next environmental program discussed was underground storage tanks. He said that a Petroleum Tank Management Plan was being prepared which will identify all tanks and recommend what action needs to be taken for each tank. The Shipyard Detachment is also working on a Petroleum Remediation Plan which will formulate the plan to accomplish remediation on the tanks. These Plans will outline pipelines, USTs and ASTs and what the final disposition should be; that is, remove or abandon in place. They will also address how to deal with all contamination.

Mr. Virgil Johnston asked if property would be unavailable for lease if a tank was abandoned in place. Mr. Fontenot explained that if, for instance, a tank is located beneath a building, it probably would not be cost effective to demolish the building to remove or remediate the tank. Abandoning a tank would not necessarily prohibit leasing/transferring a property.

Both of these Plans will be complete by 1 March 1996. Mr. Fontenot offered handouts explaining the UST process.

Mr. Tony Hunt, SOUTHNAVFAC Remedial Project Manager, then took the floor to explain the RCRA Facility Investigation (RFI). RCRA is the Resource Conservation and Recovery Act (RCRA) and was passed by Congress in 1976. The Hazardous and Solid Waste Management Act (HSWA) was passed in 1984 and requires that releases from past Solid Waste Management Units (SWMUs)be cleaned up. SWMUs are areas where any hazardous material which becomes a hazardous waste is stored.

He explained for the benefit of newcomers to the RAB meeting the RFI process. He said that the investigation involved going out and looking at places such as soil, groundwater or surface water where releases have occurred and determine the impact to human health and the environment. This is done through a series of steps. The first step is to determine which sites need to be investigated. The second step is where samples are taken and then analyzed to determine what the impact is. Then a Corrective Measures Study determines what the best method is for cleaning up the sites which pose a risk. At that point, there is a public comment period where the public will have an opportunity to comment on remedial actions and what the Navy intends to do. What has been done so far in the RFI process is to divide the Base up into Zones for sampling purposes.

Mr. Hunt offered handouts of the RCRA process and handouts showing the Zones.

Mr. Hunt said that the only change in the past month is that the total requirement left for funding the RFI has decreased from $4.5 million to $3.1 million. This is just a result of re-looking at estimates. Also, Zone K has been funded for the RFI Work Plan.

Mr. Todd Havercost of EnSafe/Allen and Hoshall, gave progress for the month of November. Last month, several issues were brought up that needed to be resolved to finish up the Zone H report and complete the Zones C and I reports. These were taken up as action items at the Project Team meeting following the RAB meeting and agreement has been reached. Now the Zone H report will be submitted on 22 December and the Zones C and I reports will be submitted 30 days afterwards. No more slippages are anticipated.

The issues were:

Ambient Water Quality

The State has provided guidance on establishing groundwater mixing zones. That is, if a site meets certain conditions,they will allow us to possibly establish alternate cleanup levels where there is no suspicion that contaminants will impact any type of receptors.

Action Levels

The Navy was looking for a threshold that would allow a determination of whether a site would be carried into the Corrective Measures Study. The action levels are not cleanup levels - they are simply a threshold to allow the site to be evaluated further to determine the feasibility of the cleanup. For the most part, those levels are essentially 1 in a million excess cancer risk under a residential scenario or in the case of something like metals that present a hazard, anything that exceeds a hazard index of 1 or total petroleum hydrocarbons of over 100 parts per million. These would be the general baselines. There may be some sites where some alternative levels would be provided if there is sufficient justification for them. That will have to be handled on a case by case basis.

Future Land Use - Residential versus Industrial

It was agreed that at the very minimum, the RFI will provide a baseline risk assessment which will evaluate a future residential scenario. That is the most conservative approach. An industrial scenario will also be provided that will allow the people who make the risk management decisions to see if there is a level somewhere in between the residential and industrial scenarios that will be a viable option.

Land Surface Improvements

This directly affects the industrial scenario under the risk assessment. That means that pavement, structures or anything that may provide a barrior where workers will not get exposed to soil that underlies those physical barriors can be taken into consideration. This allows a risk assessment to be prepared which reflects actual conditions rather than hypothetical future scenarios.

Another item that was not discussed last month was the RFI for Zones A and B. As of today, groundwater is being sampled. All soil sampling has been completed except for 7 locations. Essentially, all the work that was proposed in the Work Plan is about 90% complete. There was a map made available to attendees to show what has been done. He also made available a map which showed the Industrial Area.

Mr. Mintz asked if a "commercial" cleanup level might possibly be allowed by the State which would be somewhere between residential and industrial. Mr. Joe Bowers from DHEC said that the State wanted to reach the most conservative and reasonable cleanup level but said that the decision would have to be made at a high level in DHEC and he did not know if this was going to happen.

Mr. Johnston mentioned that Cochrane Hall has always been a school for adults. He asked whether it would have to be cleaned up to a higher level if it were to become a school for children. Mr. Havercost said that he didn't think it would change, because it was going to be cleaned up to the residential level which is the most conservative level.

Mr. Johnston asked if the residential level would be applied to the entire Base. Mr. Havercost said that that would be a risk management decision as part of the Corrective Measures Study.

Captain Augustin said that the Cleanup Team had met earlier in the day and discussed the topic of cleanup levels. Ms. Ann Ragan of SC DHEC participated by telephone and she said that the State's goal is to clean up to residential level as the most conservative level. She said that if at some point it was not feasible to get to residential, there would be a consideration of the cost benefits of establishing some middle ground. As of today, the State standard for cleanup is residential and there is no other stated goal.

Continuing the Environmental Update, Mr. Brian Stockmaster, a SOUTHNAVFAC Environmental Engineer, explained Interim Measures which were brought up at last month's meeting. He said that Interim Measures are an opportunity for the contractor to get into the field and take action a little sooner in the process but that the process still has to be followed and not circumvented. Currently, steps are being taken to allow the Shipyard Detachment of about 150 people to stay on after 1 April 1996 to help get the base cleaned up. Steps are also being taken to allow the Shipyard Detachment to conduct some of these Interim Measures at approximately 23 sites on the Base. All of this is still in the planning stage but at a future meeting recommendations on what should be done at these sites will be presented and input will be requested.

Mr. Tony Hunt concluded the Environmental Update by saying that the only projected activity for December is to submit the Zone H report on the 22nd.
Mr. Mintz wanted clarification on the $2,768,213 spent on an Environmental Baseline Survey (EBS) in 1992. Mr. Hunt tried to explain that it was a

comprehensive "Fence-to-Fence" Survey. It was a very comprehensive document search which went into environmental records and was designed to give the Navy an indication of where potential sites of concern were and what the concerns might be. It also addressed asbestos. Even though there was an Asbestos Survey done by Westinghouse in 1985, there is likely to be deterioration over the years. The walk-throughs done during research for the EBS were nothing close to a comprehensive Asbestos Survey done by qualified asbestos inspectors.

Mr. Ralph Laney explained that as part of the Shipyard closing, each building is being walked through as part of the closure process. If there is any torn, lagging, or spilled asbestos, it is being corrected. This way, the buildings can be leased. However, this new Asbestos Survey is needed before property can be transferred because the new owner must be told of asbestos on a surface-to-surface basis. Also, if in the future any buildings are demolished by any party, this same information must be available before demolition can take place.

Mr. Mintz asked how much the Asbestos Survey would cost and he was told that it was about $218,000.

This Survey is to protect the Navy from future liability.

Again, Mr. Mintz was offered a one-to-one meeting to help him understand asbestos regulations.

7. <u>Risk Assessment.</u>

Mr. Doyle Brittain of the EPA said that one of the things that the RAB is supposed to do is to represent various groups in the community and help each other make decisions and set priorities as the process is worked through. The RAB is painfully working through the process. At the end of December the Zone H report for the Southern end of the Base will be received; hopefully in an approvable manner. Assuming that it's received in an approvable manner, the EPA and the State will be approving it about the end of January or the first of February. The report is not light reading - it is about 2-1/2 feet thick. There is a lot of data there so it's going to be a slow and tedious process to work through. What this means is that it should be available in February to the general public in the information repositories. Then the next stage, the Corrective Measures Study, will begin. This will determine what the best cleanup methods are, how well they work at each of the hazardous waste sites and what it would cost to use each of those cleanup methods. Once the Corrective Measures Study is complete, there will be public meetings where the public will have the opportunity to comment as far as to which cleanup method they recommend be used. There is one important factor in this and it's call Risk Assessment. As the current investigation continues a Risk Assessment is being done. That is, all the hazardous waste that is there is being determined and what risk it poses to human health and the environment. When we talk about the environment it means the fish, the birds, the other wildlife, the plants and whatever else is in the area that may be affected by this contamination.

This information on the risk assessment will be in the RFI Report which will be received at the end of December. If approved, it will be available to the general public at the end of January. There is going to be a lot of information in it and is going to contain a lot of strange words and funny numbers; like a risk assessment of 10 to the minus 6 . The average person doesn't know what that means and yet it will be made available to the average person.

Mr. Brittain offered to have the EPA doctor/toxicologist who specializes in this type of work attend the RAB meeting in January and walk everybody through it in plain English so that you can understand what 10 to the minus 6, 10 to the minus 5, or 10 to the minus 4 means. Those are various cleanup levels. A lot of times you hear about cleaning up to residential standards. This is talking about cleaning up to 10 to the minus 6. There is a cleanup standard of 10 to the minus 5 and a cleanup standard of 10 to minus 4. Somewhere in that range is where the EPA does cleanup. This is the standard Federal way of doing it - somewhere between 10 to the minus 4 to 10 to the minus 6. There is a little leeway as to the level that is chosen and the trade-off on that is that when the RFI Report is received in January, it is going to say that a certain hazardous waste site as it currently is poses a certain risk.

The question that the RAB and the public are going to have to answer is whether that is an acceptable risk or do you want it cleaned up more than that. As we go through the Corrective Measures Study, various cleanup methods will be tested at each of these hazardous waste sites. Some will work and some won't. Some will cost a whole lot of money, some will cost a little money and some will cost something in between. At the end of the Corrective Measures Study, there will be public hearings and at that point in time the community will be asked "how clean is clean?" "Are you going to be satisfied with cleanup at 10 to the minus 6, 10 to the minus 5, 10 to the minus 4 or what?" If there is a cleanup of 10 to the minus 4, it may cost "X" million of dollars, if you clean up to 10 to the minus 5, it's going to cost this extra number of millions of dollars, but if you clean up to residential standards its going to cost this "whopping" number of millions of dollars.

At the public hearings, the general public is going to be asked "how clean is clean in your mind?" "How clean do you want it cleaned up?" "How much money do you want to spend on it?" "What cleanup alternative do you want?" Everybody will have 45 days to provide input and state their opinion. You can say you don't want the hazardous waste left there at that certain level - it's too big of a risk - you want it at a further cleanup level and you want a certain cleanup technique to be used and you want to spend a certain amount of money. You, as the general public, have the opportunity to provide input into that process. It will go back to the State. The State and EPA are not going to make these decisions in a vacumn. Ultimately, it will be a State call. The EPA will have input into it just like the general public has input into it. It's important that everyone understands what the numbers mean when you read the RFI Report when it comes out in January or early February. Everyone needs to understand what this thing called "risk" means.

Mr. Brittain said that, if everyone wanted, the EPA doctor who specializes in toxicology and who specializes in this kind of risk, would attend the January RAB meeting and give an hour or so talk to explain it in plain English. That way, everyone has an opportunity to understand the RFI. Mr. Brittain then suggested that at the February meeting, the contractor who has done all of the work and collected all of the information to come up with the Risk Assessment give a presentation. He could explain what the data shows - here is what was found at the hazardous waste sites - here is what risk it poses. The contractor would be presenting the hard data and after hearing the EPA doctor in January you will be able to understand what the contractor is talking about in February. You'll know what the numbers mean. An educated community can make good, solid decisions as far as the cleanup levels that are out there. The only constraint for the EPA toxicologist is that he can only come to an afternoon meeting. He is willing to fly down in the morning, put on the presentations, answer questions and fly back that night. He is willing to come back in February and sit as a member of the audience, let the contractor make the presentation and, if necessary, answer any questions that come up.

There are going to be a lot of reports coming out over the next few months. They are going to contain a lot of this data and a lot of decisions are going to have to be made by the public. The government has been slow getting to this point of making hard decisions and getting recommendations and has taken a lot of criticism because of it. Everybody is learning. This is a new process. Nobody has been through shutting down a big Base like Charleston. Mistakes have been made along the way and the mistakes aren't cheap but that's okay because progress is being made.

There was some disagreement among the RAB as to whether the toxicologist should talk to the group after they read the RFI Report rather than before, but a vote was taken and the majority felt that it would be more beneficial if the toxicologist came in January before the RFI Report is received. He will be put on the January RAB Agenda for Risk Assessment Training.

Mr. Van Robinson asked if the RFI Report was going to provide information so that decisions can made regarding cleanup level versus time versus money. Mr. Brittain said that that kind of information would not be available until the Correction Measures Study is complete in June or July.

Mr. Johnson asked if there could be more than risk assessment in a Zone. Mr. Brittain said that there would be one risk assessment., but all of the risks will be looked at. Mr. Bobby Dearhart clarified this by saying that there was only one Risk Assessment document, but that there are multiple risk assessments within a Zone because each site is looked at and addressed. The Risk Assessment will be on a site by site basis.

Ms. Susan Dunn said that she had a problem with afternoon meetings and so did a large portion of the general public. She said she understood having to adhere to a professional's (the EPA toxicologist) timetable to educate the RAB, but that the

RAB needed to find a way to communicate the education to the general public at other than afternoon meetings. She said that the public was not going to get involved unless the RAB really worked hard to see that it happened.

Mr. Fontenot and Ms. Mallette-Pratt both said that the RAB was continually trying to work out a timetable and a meeting location suitable for all and the Community Relations Sub-Committee would continue to do so.

8. RAB Organizational Changes.

Mr. Joe Bowers of SC DHEC, standing in for Ms. Ann Ragan, said that Ms. Ragan would be attending the January meeting and asked that he pass on some information to the RAB. Ms. Ragan, as the Federal Facilities Liaison, deals with various community groups such as the RAB. She asked Mr. Bowers to request time on the January agenda to discuss some organizational changes. Ms. Ragan would like to form some additional sub-committees to work on issues in between RAB meetings and report to the RAB prior to meetings.

9. Other Business.

Mr. Johnston of the RDA announced that the lease with Babcock & Wilcox has been signed. There are now three partners in the Controlled Industrial Area - CMMC, CSI and B&W practically take over the entire CIA. He also said that he thought the Border Patrol might be reversing their position and coming to Charleston after all. He said that the Immigration Service might also come in.

Mr. Van Robinson said he had heard that a filming production company might be coming on Base. Mr. Johnston said they might want to take over the three warehouses and part of the parking lot near the old Credit Union. He said that there shouldn't be any environmental issues involved with this lease.

Mr. Fontenot announced that the agenda for the January meeting would include the Risk Assessment Briefing, RAB Organizational Issues, Sub-Committee Reports, and an Environmental Progress Report.

11. Adjournment.

It was announced that the next meeting is scheduled for 9 January 1996 at 2:00 p.m. The location will be announced at a later time. The meeting was adjourned.

**Summary of RAB Recommendations and Suggestions**

- **Find suitable meeting location**
- **Find suitable location for Information Repository**
- **Put Ann Ragan on Agenda to suggest reorganizing RAB**
- **Arrange for doctor/toxicologist to attend January and February RAB meeting**
- **Arrange for contractor to give presentation on RFI at February RAB meeting**

**Attachments to Minutes:**
**(1) December RAB Meeting Agenda**
**(2) RFI Progress Report for November**

**Minutes recorded by:**
**Barbara Eller, SOUTHNAVFAC**

**Minutes Approved by:**

| | |
|---|---|
| **Daryle Fontenot** | **Don Harbert** |
| **Co-Chairman** | **Co-Chairman** |

Tuesday, Dec. 12 1995

Charleston Naval Base

# RESTORATION ADVISORY BOARD MEETING AGENDA

**2:00 PM** Location: **Naval Hospital** Charleston @ corner of Rivers and McMillan Avenue. in North Charleston. Meeting will be in the **Cafeteria** located in the basement of the multistory building on the side toward Rivers Avenue.

## 2:00 PM RAB MEETING

A. Introduction of the RAB Members and Guests

B. Administrative Remarks, Comments on the minutes of last meeting

C. Subcommittee Reports

D. Environmental Cleanup Progress Report — Cleanup Team

E. Future RAB Discussion Topics — Mr. Doyle Brittain
   Risk Assessment — Mr. Joe Bower for
   RAB Organizational Changes — Ms. Ann Ragan

G. Remaining Questions and Comments from Visitors

H. Other Business

I. Agenda for Next Meeting

**Please mark your calendar: Our next meeting is Tuesday, January 9, 1996. Time to be determined.**

**Naval Base Charleston**
**RCRA Facility Investigation (RFI)**
**PROGRESS REPORT FOR NOVEMBER 1995**

INVESTIGATIVE ZONES

A. Warehousing and scrap metal yard
B. Golf course and residential
C. Office space and warehouse (NH-45, Navbase HQ)
D. Parking lot, warehouses
E. Shipyard
F. Recreational areas and public works shops
G. Fuel farm and transfer facility
H. Southern end of the base excluding waterfront
I. Southern end of the base including waterfront and dredge material area
J. Ecological study area (waterbodies and certain areas on land)
K. Non-contiguous areas
L. Sewer systems and railroad system

FUNDING

- Funding status (Based on funds expected to receive in FY 96, available funds as a result of cost savings and alternative sampling methods)
  Fully funded: Zones A, B, C, E, H, I
  Funds available, not yet negotiated and awarded: J, L
  Funded for RFI Work Plans only: Zones D, F, G, K

- Remaining to fund for investigation (total requirement of $3.1 Million)
  Zones D, F, G, K implementation

PROGRESS FOR NOVEMBER

- Resolution of Technical Issues - Progress report by Todd Haverkost, Zone Task Order Manager for Zone H and Project Task Order Manager, E/A&H.

- Progress in Zones A and B- Todd Haverkost.

- Interim Measures utilizing Shipyard Detachment as a resource - Brian Stockmaster.

- Zones J and L work plan comments resolved and final document submitted.

PROJECTED ACTIVITY FOR DECEMBER

- Prepare and submit Zone H Final RFI report.
- Continue groundwater monitoring well installation and begin quarterly sampling in Zone E.
- Continue groundwater monitoring well installation and begin quarterly sampling in Zones A & B.

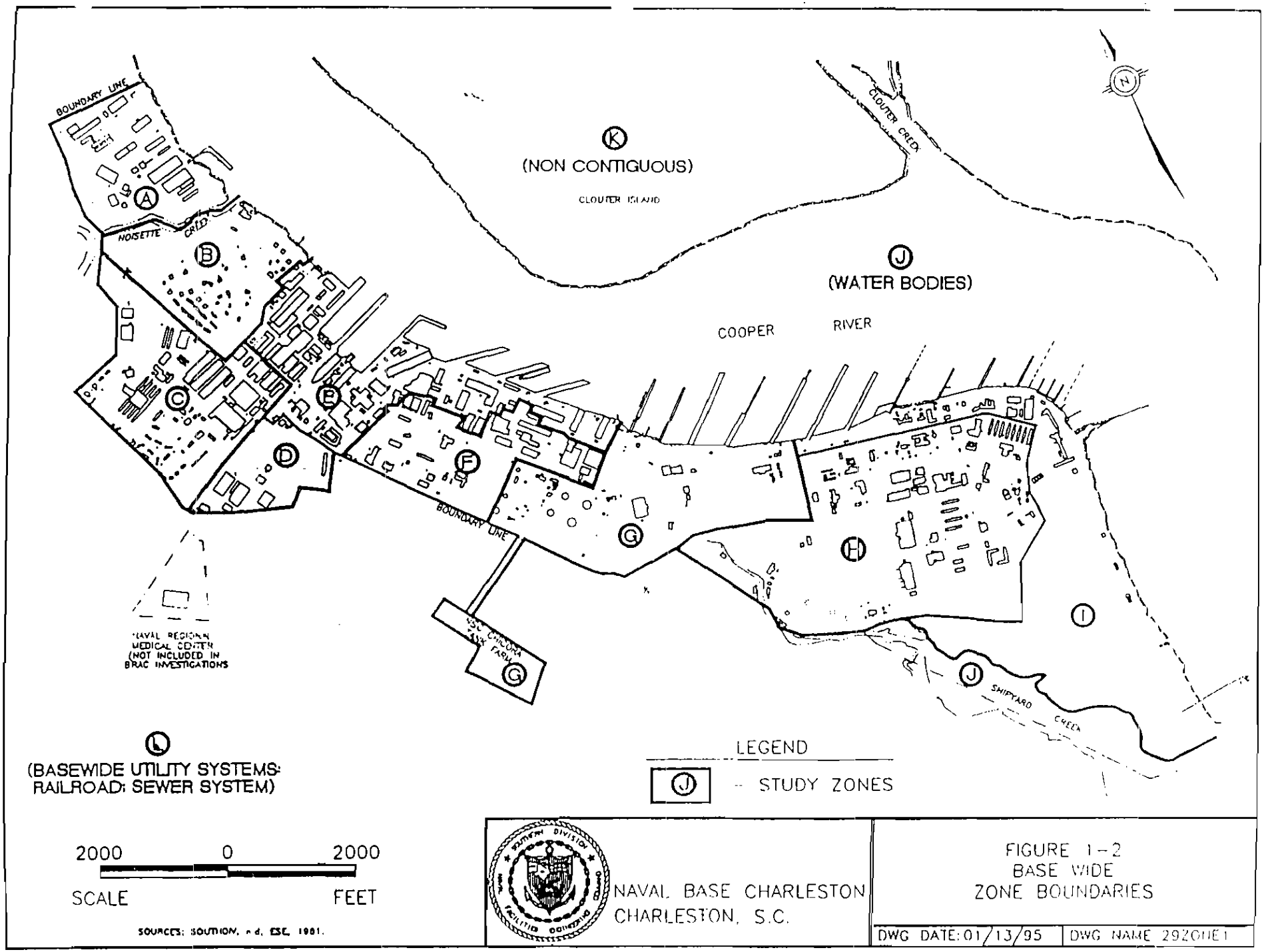



FIGURE 1-2
BASE WIDE
ZONE BOUNDARIES

# NAVAL BASE, CHARLESTON
# Environmental Cleanup Program

*This fact sheet is one of a series to inform interested citizens about the environmental investigations and cleanup actions at Naval Base, Charleston. Other fact sheets will be written at appropriate points in the program and in response to public interest. Distribution is coordinated through the Public Affairs Office at the Naval Base (803) 743-3940.*

## TYPICAL SITE CLEANUP

Naval Base, Charleston is conducting environmental cleanup activities with the Environmental Protection Agency and the South Carolina Department of Health and Environmental Control. Because the base is closing, environmental cleanup must occur before property can be transferred to the community. In special cases, however, the Navy and the new tenant may reach an agreement to accommodate an earlier transfer of property. These early transfers have certain restrictions and will not be granted if a health risk is present.

Under the Resource Conservation and Recovery Act (RCRA), a facility must receive a permit and demonstrate that it can operate in an environmentally sound manner as well as show corrective action measures on sites that were not handled this way in the past. Naval Base, Charleston holds such a permit and is following the corrective action measures determined by that permit.

**CORRECTIVE ACTION CLEANUP STEPS**

1. Preliminary Assessment of Site [RCRA Facility Assessment - RFA]
2. Detailed Investigation of Site [RCRA Facility Investigation - RFI]
3. Evaluation of Best Cleanup Options [Corrective Measures Study - CMS]
4. Site Cleanup, or "Remediation" [Corrective Measures Implementation - CMI]

This fact sheet was developed to describe the major steps that are taken to clean up a typical site. A "site" can be defined as an area (which can vary in size from a few square feet to many acres) where hazardous material is stored, used, or disposed of. At Naval Base, Charleston, approximately four hundred (400) sites have been initially identified. Of these, 165 require no further action, however, the remaining sites must undergo at least part of the process described on the following pages.

We hope this information helps you understand the level of detail required for environmental cleanup. While there are many reports and reviews involved, they are all necessary to ensure that the final cleanup solution is the best one for each site. Our goal is to protect human health and the environment, and the Navy is committed to meeting that goal.

☎ If you have any questions about the environmental cleanup activities at Naval Base, Charleston, please call Lt. Donna Murphy at the Public Affairs Office at (803) 743-3940.

## Site Discovery

- A site is identified through a preliminary study as potentially hazardous to human health or the environment. "Hazardous materials" may include chemicals, petroleum products or pesticides.
- The preliminary study consists of a complete visual and historical review of the base.
- Sites may be identified for many reasons including past use, storage, or disposal of hazardous materials.

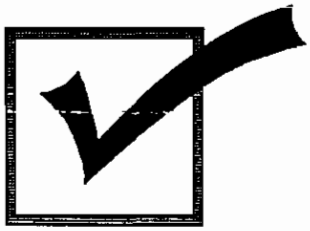
[❶ PRELIMINARY ASSESSMENT (RFA)]

## Report

- Once a site is identified, a report describing the site's status must be written.
- The report includes background information on the site and any preliminary analysis of contamination that might be documented.
- The Navy must send the report to environmental agencies for review and comment.

[❶ PRELIMINARY ASSESSMENT (RFA)]

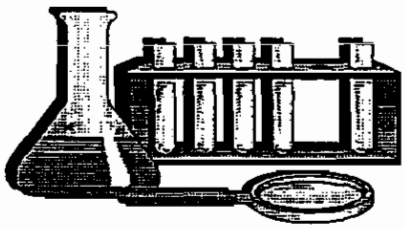
## Workplan & Approval



- A workplan on how to technically evaluate the site must be written.
- The Navy must send the workplan to the U.S. Environmental Protection Agency and the South Carolina Department of Health and Environmental Control for approval. These agencies maintain oversight of the cleanup.
- Workplans are written at several stages in any environmental cleanup, and all must be approved by the environmental agencies.

[❷ DETAILED INVESTIGATION (RFI)]

## Sampling



- Sampling can begin which may include water, air, soil, and sediment.
- The appropriate tests will be done to determine type of contamination.
- As a safety precaution, workers are required to wear protective clothing.

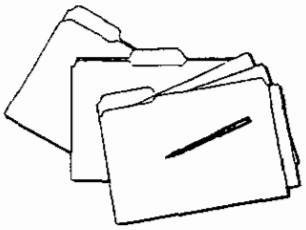
[❷ DETAILED INVESTIGATION (RFI)]

## Analysis/Data Evaluation

- Water, air, soil, and sediment samples from the site will be sent to a laboratory for analysis. The lab will analyze the samples to see what contaminants are at the site, and at what levels.
- This information will be used to determine if the materials found were at safe levels, or if cleanup action is required.
- Other scientists review associated human and ecological risk factors.
- The Navy will prepare a report to summarize these findings.

[❷ DETAILED INVESTIGATION (RFI)]

## Cleanup Choice Development



- Results from the analysis/data evaluation step provides the information needed to evaluate the options for cleaning up the site.
- Based on this information, the Navy will write a report recommending the best options for cleanup. This report is called the corrective measures study and is a general outline of the remedies that can be used effectively at the site.
- This report is sent to the environmental agencies for their approval.

[❽ EVALUATION OF CLEANUP OPTIONS (CMS)]

## Remedy Selection

- Both environmental agencies review the corrective measures plan independently. Together, the Navy and the environmental agencies decide on the best option for cleaning up the site.
- Selection of the remedy is based on many criteria, including overall effectiveness, feasibility, public input, and cost.
- After public comment, the final decision will be made by the environmental agencies.

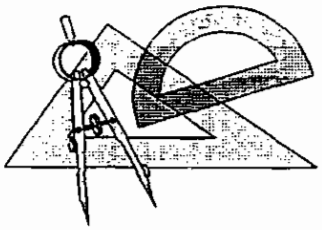
[❽ EVALUATION OF CLEANUP OPTIONS (CMS)]

## Public Comment

- **Wide public participation at this stage is strongly encouraged.**
- The cleanup options and the preferred option are announced to the public as well as the Restoration Advisory Board.
- A public meeting will be held to discuss the alternatives.
- Changes may be made to the proposed plan after the public's written and oral comments have been carefully considered. (*See the next page for more information on public involvement/participation.)

[❽ EVALUATION OF CLEANUP OPTIONS (CMS)]

## Design of Remedy



- Once the cleanup option is approved, the Navy will design the cleanup.
- The design stage requires writing a workplan. The workplan will include how the chosen remedy will work at the site, how to construct and operate the remedy, and a health and safety plan for site workers.

[❾ SITE CLEANUP OR "REMEDIATION" (CMI)]

## Cleanup

- Once the workplan is approved, the selected remedy will begin.
- This is called "remediation," and may involve removal, treatment, or containment.
- The remedy will be monitored until cleanup is complete.

[❾ SITE CLEANUP OR "REMEDIATION" (CMI)]

**Public Involvement:** Keeping the public informed of the environmental progress at the Base is an important aspect of the cleanup process, and the Navy encourages public participation throughout the decision making process. One way this is being done is through the Restoration Advisory Board, or RAB. The RAB is a group of citizens, Navy, city, state, and Environmental Protection Agency personnel that meet monthly to discuss progress on the environmental cleanup of the Base. These meetings are open to the public and attendance is strongly encouraged.

Another way to keep the public informed is by providing access to pertinent information regarding cleanup decisions. This has been done at Charleston through the establishment of *information repositories*, which are collections of documents that include work plans, reports, and the Community Relations Plan for Naval Base, Charleston. Repositories can be found at two locations in the North Charleston area; Dorchester Regional Library at 6325 Dorchester Rd., and at the Industrial Relations Office in building 76 at the Naval Base. These documents have been made public as part of the Navy's program to involve and inform the Trident community.

**Lt. Donna Murphy**
**Public Affairs Office**
**Naval Base, Charleston**
**1690 Turnbull Avenue, Code N4**
**Charleston, SC 29408-1955**

Naval Base, Charleston also maintains a mailing list of individuals and organizations that receive updates on the cleanup. If you would like to be on the mailing list, would like more information about the Restoration Advisory Board, or if you have any questions about the cleanup, please contact the Naval Base, Charleston Public Affairs Office.

**Public Affairs Office**
**Naval Base, Charleston**
**1690 Turnbull Ave. Code N4**
**Charleston, SC 29408-1955**

**Official Business**

Place Label Here

Tuesday, January 9, 1996

Charleston Naval Base

**RESTORATION ADVISORY BOARD MEETING AGENDA**

**2:00 PM** Location North Charleston City Hall located @ 4900 LaCross Road, in North Charleston. Meeting will be in the City Council Chambers.

**2:00 RAB MEETING**

A: Introduction of the RAB Members and Guests

B. Administrative Remarks, Comments on the minutes of last meeting

C. Subcommittee Reports

D. RDA update

E. Environmental Cleanup Progress Report — Cleanup Team

F. RAB Organizational Changes — Ms. Ann Ragan

G. Risk Assessment Presentation — Mr. Doyle Brittain

H. Remaining Questions and Comments from Visitors

I. Agenda for Next Meeting

Please mark your calendar: Our next meeting is Tuesday, February 13, 1996. Time and location to be determined.

**DEPARTMENT OF THE NAVY**
CHARLESTON NAVAL SHIPYARD
1351 FIRST STREET
CHARLESTON, S.C. 29408-2020

5090
Ser 106.2/0138
11 MAR 1996

Mr. G. Randall Thompson
Director, Division of Hazardous and
Infectious Waste Management
Bureau of Solid and Hazardous Waste Management
South Carolina Department of Health and
Environmental Control
2600 Bull Street
Columbia, SC 29201

RE: FORWARDING OF MONTHLY RCRA FACILITY INVESTIGATION PROGRESS REPORT

Dear Mr. Thompson:

The purpose of this letter is to forward a copy of the Monthly RFI Progress Report for the Naval Base Charleston Complex as required by our Hazardous and Solid Waste Ammendments Part B Permit (EPA SCO 170 022 560).

Enclosure (1) is the Monthly RFI Progress Report for activity up through February 29, 1996. If you have any questions, please contact Amos Webb at (803) 743-5519.

Sincerely,

R L Laney

R. L. LANEY
Director, Occupational Safety,
Health and Environmental Office
By direction of the Commander

Encl:
(1) Monthly RCRA Facility Investigation Report - Summary through 29 February, 1996

Copy to:
SCDHEC (Bowers, Olano, Tapia)
COMANVBASE (N4BEC, Dearhart, Fontenot, Brittain)
SOUTHNAVFACENGCOM (Hunt, Stockmaster)
USEPA (Brittain)
E/A&H

**NAVBASE CHARLESTON**
**RFI STATUS REPORT**
**PERIOD: SUMMARY OF**
**01 February 1996 To 28 February 1996**

## I. INTRODUCTION

The following status report has been prepared to satisfy condition II.E.3.a of the Part B Permit Renewal dated 5 December 1994 for Naval Base Charleston (NAVBASE). The requirements of this condition are in effect since the total elapsed time to complete the RCRA Facility Investigation (RFI) is projected to be greater than 180 calendar days from the approval date of the *Final Comprehensive RFI Work Plan* as indicated in the Corrective Action Management Plan (CAMP).

In lieu of submitting quarterly reports, NAVBASE is voluntarily submitting monthly reports to provide an update on the progress of the RFI to members of the NAVBASE BRAC Cleanup Team (BCT) in a more timely manner. The content of the monthly reports includes information intended to satisfy condition II.E.3.a of the Part B Permit. Consequently, this report only addresses activities which occurred during the month of February 1996.

## II. PORTION OF THE RFI COMPLETED

- Revision 2 of the *Final Comprehensive RFI Work Plan* was submitted to SCDHEC and EPA 16 February 1996 for review and comment. The purpose of the revision was to provide clarity to the process of reducing analytical requirements based on previous phases of sampling.

- A draft version of the revised *Corrective Action Management Plan* was submitted to members of the project team for review and comment.

- The "90% completion" meeting for Zone A was included as an agenda item NAVBASE Charleston Project Team meeting held on 28 February 1996. A summary of the findings to date were presented along with recommendations for additional sampling.

- The *Draft Zone B RFI Report* was submitted to the Navy for review and comment on 22 February 1996. The report was also discussed in limited detail at the Project Team meeting in an effort to give the team members a preview of the report content prior to actual submittal.

- Electronic deliverables for the Zone C, H, and I RFI reports were submitted to EPA in GIS format to facilitate the review process.

- Field work continued in Zone E at a number of sites. Attachment A contains a summary of the work completed to date.

- A scoping meeting for the *Draft Zone K RFI Work Plan* was held on 7 February 1996.

## III. SUMMARIES OF FINDINGS

Attachment B contains figures summarizing the significant findings at sites located within Zone A.

Free product (LNAPL) was found in monitoring well NBCI-675-002 during the second quarter groundwater sampling event. Approximately 7 inches of product was measured floating on the groundwater surface. No product was observed in this well during the initial round of sampling.

## IV. DEVIATIONS FROM APPROVED WORK PLANS THIS REPORTING PERIOD

There were no deviations from the approved RFI Work Plans for this reporting period.

## V. SUMMARY OF CONTACTS WITH LOCAL COMMUNITY PUBLIC INTEREST GROUPS OR STATE GOVERNMENT

As indicated in the January 1995 Quarterly Status Report, the Navy has established a Restoration Advisory Board (RAB) to involve the public in the decisions regarding the investigation and remediation of contaminated sites at Naval Base Charleston. The meetings are held monthly and are open to the public. The minutes of the January 1995 meeting are provided as Attachment C. The minutes of the February 1995 meeting were not available for submittal with this report.

## VI. SUMMARY OF PROBLEMS OR POTENTIAL PROBLEMS AND ACTION TAKEN TO RECTIFY PROBLEMS

There were no problems identified during the current reporting period.

## VII. KEY PROJECT PERSONNEL

The January 1995 status report identified key Navy and EnSafe/Allen & Hoshall project personnel for the NAVBASE Charleston RFI. Below is an update to the list which reflects personnel changes for both the Navy and their contractor which occurred during the current reporting period.

**Navy Personnel**

The following list of personnel includes the Charleston Naval Shipyard Commander, the Commander's designated representative (Code 106), the Navy Remedial Project Managers (RPMs) and the BRAC Environmental Coordinators (BEC).

**Permittee**
Charleston Naval Shipyard

**Commander, (Code 100)**
Captain William F. Nold

**Permittee Designated Representative**
Occupational Safety, Health and Environmental Office (Code 106)

**Department Head, (Code 106)**
Ralph L. Laney

**Environmental Division (Code 106.2)**
Amos T. Webb
Alan Bates, Shipyard RFI Coordinator

**RCRA Programs (Code 106.21)**
Kevin Loug

**Remedial Project Managers**
Southern Division, Naval Facilities Engineering Command

**Installation Restoration Branch III (Code 187)**
Matthew A. Hunt and Brian K. Stockmaster

**BRAC Environmental Coordinator**
Naval Base Charleston, Base Closure Office

**BRAC Environmental Coordinators (N4BEC)**
Daryle Fontenot and Earle H. Dearhart

**EnSafe/Allen & Hoshall**

Dr. Jim Speakman - CLEAN Program Manager
Todd Haverkost - Task Order Manager
Lawson Anderson - Zones A & B Site Manager
Ginny Gray - Zones C & I Site Manager
Craig Smith - Zones D, F, & G Site Manager
Dave Backus - Zone E Site Manager
Britton Dotson - Zones H & K Site Manager
Mark Bowers- Risk Assessment
Robert Moser - Senior Engineer
David Trimm - Eco. Assessment
David Isenberg - Health & Safety Officer
Peter McPheters - Sr. Project Assistant

## VIII. PROJECTED WORK FOR THE NEXT REPORTING PERIOD

**Document Preparation and Data Evaluation:**

- The *Draft Zone B RFI Report* is scheduled to be submitted to SCDHEC and EPA on 4 March 1996.
- Data evaluation for Zones A and E will continue. A memo outlining the second phase of sampling for Zone A (as discussed at the Project Team meeting) will be submitted to members of the Project Team.
- The *Draft Zone K RFI Work Plan* will be submitted to the Navy for review and comment.
- A revised *Corrective Action Management Plan* is anticipated to be submitted to SCDHEC and EPA for approval.

**Field Activities:**

- The second phase of sampling in Zone A is anticipated to begin.
- The fourth quarter of groundwater sampling in Zone H is scheduled to begin.
- Development of the monitoring wells will be completed and the first quarter groundwater sampling event will begin.

## IX. COPIES OF DAILY REPORTS, INSPECTION REPORTS, LABORATORY DATA

Daily activities are recorded in accordance with the Data Management Plan included as Section 14 of the Final Comprehensive Sampling and Analysis Plan. Photocopies of these daily records have not been included with this status report; however, this information is available for review upon request.

Per agreement with SCDHEC and EPA, hard copies of the analytical data are not being submitted. A copy of the data is maintained at the EnSafe/Allen & Hoshall office in Charleston and is available for review.

**Status Report — Zone E RFI**
**Summary of Field Activities**
**August 21, 1995 - February 29, 1996**

The following summary details work completed and work remaining during the initial phase of field work at each site. Work remaining does not take into account the additional work which will be required to define the extent of any contamination detected in the initial phase of the project. Analytical data is being evaluated to determine the need for any additional work at each site. Drilling activities have been completed, with 116 shallow groundwater monitoring wells and 52 deep monitoring wells having been installed. This includes twenty-five supplemental well pairs (25 shallow, 25 deep), installed throughout the site to contribute to groundwater characterization of individual sites within Zone E. A total of 908 soil, 36 sediment, 82 wipe, 15 air, 40 core, and 23 surface water samples have been collected. The initial round of soil sampling activities has been completed with the exception of AOC 578, which will be completed after April 1, 1996. Groundwater sampling activities are anticipated to begin in by the second week of March.

**SWMU 5 and 18, AOC 605 — Pad 1278**
Data will be shared between the SWMUs and AOC due to the close proximity of these sites.

**SWMU 5**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from three soil boring locations (6 samples) adjacent to SWMU 5. No further action is scheduled at this time.

**SWMU 18**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from three soil borings (5 samples) and two shallow monitoring well locations (3 samples) adjacent to SWMU 18. A sample could not be collected from the second interval at one soil boring location and one shallow monitoring well location due to an obstruction in the boring. Two shallow monitoring wells have been installed.

**Work Remaining** — Sample the two shallow monitoring wells.

**AOC 605**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from eight soil boring (14 samples) and three shallow monitoring well locations (4 samples) adjacent to Pad 1278. A sample could not be collected from the second interval at two soil borings and two shallow monitoring well locations due to obstructions in the borings. Three shallow monitoring wells have been installed.

**Work Remaining** — Sample the three shallow monitoring wells adjacent to Pad 1278.

**SWMUs 21 and 54 — Building 1275**
Data will be shared between these SWMUs due to the close proximity of these sites.

**SWMU 21**
**Work Completed** — Work completed for this site is to be shared with SWMU 54. All samples were identified with a SWMU 54 identification.

**SWMU 54**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from 37 soil boring (69 samples) and three shallow monitoring well locations (6 samples) in the area adjacent to former Building 1275. A soil sample could not be collected from the second interval at five soil boring locations due to subsurface obstructions in the borings. Four sediment samples have been collected from four locations adjacent to the site in the Cooper River. Eighteen thickness samples were collected across the site to define the volume of waste material present for the purpose of corrective measures. Three shallow monitoring wells have been installed.

**Work Remaining** — Sample the three shallow monitoring wells.

**SWMUs 22 and 25, AOC 554 — Between Buildings 5 and 44**
Data will be shared between this AOC and SWMU due to the close proximity of these sites.

**SWMU 22**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from two soil borings (4 samples) between Buildings 5 and 44. No further action is scheduled at this time.

**AOC 554**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from two soil borings (4 samples) between Buildings 5 and 44. No further action is scheduled at this time.

**SWMU 25**
**Work Completed** — Soil samples have been collected from nine soil borings (18 samples) and one shallow monitoring well location (2 samples) inside of Building 44. One sediment sample was collected from the storm drain between Buildings 5 and 44. One shallow monitoring well has been installed outside the building.

**Work Remaining** — Sample the shallow monitoring well outside the building.

**SWMUs 23 and 63, AOCs 540, 541, 542, and 543 — Building 226**
Data will be shared between several AOCs and SWMUs due to the close proximity of these sites.

**SWMU 23**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from two soil borings locations (4 samples) and from one shallow monitoring well location (2 samples) outside of Building 226. One shallow and one deep monitoring well have been installed outside of the building.

**Work Remaining** — Sample one shallow and one deep well outside the building.

**SWMU 63**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from one soil boring and two shallow well locations (6 samples) outside of Building 226. Two shallow monitoring wells have been installed outside of the building.

**Work Remaining** — Sample the two shallow monitoring wells outside the building.

**AOC 540**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from one soil boring (2 samples) inside of Building 226. No further action is scheduled at this time.

**AOC 541**
**Work Completed** — Soil sampling activities have been completed. A soil sample was collected from one soil boring (1 sample) in the area between Buildings 6 and 226. A sample could not be collected from the second interval due to an obstruction in the boring. Data from this boring will be shared with AOC 542 due to the close proximity of these sites. No further action is scheduled at this time.

**AOC 542**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from three soil borings (5 samples) and four shallow monitoring well locations (7 samples) in the area between Buildings 6 and 226. A sample could not be collected from the second interval at one soil boring and one well location due to subsurface obstructions. Four shallow monitoring wells have been installed in the area between Buildings 6 and 226.

**Work Remaining** — Sample the four shallow monitoring wells in the area between Buildings 6 and 226. Data from one soil boring and one monitoring well location will be shared with AOC 538 due to the close proximity of these sites.

**AOC 543**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from one soil boring (2 samples) inside and from two soil borings (4 samples) and one shallow monitoring well location (2 samples) outside of Building 226. One shallow monitoring well has been installed outside the building.

**Work Remaining** — Sample the shallow monitoring well outside the building.

**SWMU 53, AOC 526 — Building 212**
Data from this AOC and SWMU will be shared due to the close proximity of these sites.

**SWMU 53**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from one soil boring (2 samples) and one shallow monitoring well location (2 samples) adjacent to Building 212. One shallow monitoring well has been installed.

**Work Remaining** — Sample the shallow monitoring well.

**AOC 526**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from seven soil boring (14 samples) and one shallow monitoring well locations (2 samples) adjacent to Building 212. Soil samples could not be collected from one well location due to subsurface obstructions. Two shallow monitoring wells and one deep well have been installed.

**Work Remaining** — Sample the two shallow monitoring wells and one deep monitoring well.

**SWMU 65, AOC 544 and 546 — Building 221**
Data will be shared between these AOCs and SWMU due to the close proximity of these sites.

**SWMU 65**
**Work Completed** — Soil samples have been collected from six shallow monitoring well locations (11 samples) outside of Building 221. A soil sample could not be collected from the second interval of one soil boring due to an obstruction in the boring. Six shallow monitoring wells and one deep well have been installed outside of the building.

**Work Remaining** — Sample one deep monitoring well and six shallow monitoring wells outside the building.

**AOC 544**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil boring locations (8 samples) inside of Building 221. No further action is scheduled at this time.

**AOC 546**

**Work Completed** — An attempt to collect a soil sample from one corner of former Building 1025 was unsuccessful due to subsurface obstructions encountered below the concrete surface. Samples collected from SWMU 65 and AOC 544 will share data with this site due to the proximity of these sites and should be sufficient to determine the presence of any contamination which may have produced by AOC 546. One sediment sample was collected from a drain in the corner of former Building 1025. No further action is scheduled at this time.

**SWMU 67 — Building 3**

**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from five soil borings (10 samples) and one monitoring well location (2 samples) inside Building 3 and one shallow monitoring well location (2 samples) outside the building. Air sampling for mercury was completed using a Jerome Mercury Vapor Analyzer. Wipe samples were collected at 8 locations (4 in the former mercury gauge room, 4 in the most recent gauge room). Two shallow monitoring wells have been installed, one inside the building and one outside the building.

**Work Remaining** — Sample the two shallow monitoring wells.

**SWMU 70, AOCs 548 and 549 — Building 5**

**SWMU 70**

**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from two soil borings and two shallow monitoring well locations (8 samples) between Buildings 3 and 5. Two shallow monitoring wells and one deep well have been installed between Buildings 3 and 5. The deep well was relocated from its original location at AOC 549.

**Work Remaining** — Sample the two shallow monitoring wells and one deep well between Buildings 3 and 5.

**AOC 548**

**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil borings (8 samples) inside of Building 5. No further work is scheduled at this time.

**AOC 549**

**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from three soil borings (6 samples) inside of Building 5 and four soil borings and three shallow monitoring well locations (13 samples) in the alley between Buildings 3 and 5. Three shallow monitoring wells have been installed in the alley between the buildings. One deep well proposed for this site was not accessible; therefore, the location of this well was moved to SWMU 70.

**Work Remaining** — Sample the three shallow monitoring wells in the alley between Buildings 3 and 5.

**SWMU 81 — Former Building 1245**
**Work Completed** — Sampling activities at this site have been completed. Two sediment samples were collected from two locations in the Cooper River, adjacent to the site. Three concrete core samples were collected from the location of the former building. No further action is scheduled at this time.

**SWMUs 83 and 84, AOC 574 — Building 9**
Data will be shared between these SWMUs and AOC due to the close proximity of these sites.

**SWMU 83**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from six soil borings (12 samples) inside of Building 9 and two shallow monitoring well locations (4 samples) outside the building. Wipe sampling activities have been completed with 16 wipe samples collected (8 random floor, 8 biased horizontal surface). Two shallow monitoring wells have been installed.

**Work Remaining** — Sample the two shallow monitoring wells outside of the building.

**SWMU 84**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil borings (8 samples) and two shallow monitoring well locations (4 samples) adjacent to Building 9. Two shallow monitoring wells have been installed.

**Work Remaining** — Sample the two shallow monitoring wells.

**AOC 574**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from two soil borings (4 samples) and three shallow monitoring well locations (6 samples) adjacent to Building 9. Three shallow monitoring wells and one deep well have been installed.

**Work Remaining** — Sample the three shallow monitoring wells and one deep monitoring well.

**SWMUs 87 and 172, AOC 564 — Building 80**
Data will be shared between these SWMUs and AOC due to the close proximity of these sites.

**SWMU 87**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from one soil boring (2 samples) outside of Building 80, at the former location of the <90 day storage area. No further action is scheduled at this time.

**SWMU 172**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil borings and two monitoring well locations (12 samples) outside of Building 80, at the former location of the steam cleaning operations. One sediment sample was collected from the drain outside the building. Two shallow monitoring wells and one deep well have been installed outside of Building 80.

**Work Remaining** — Sample the two shallow monitoring wells and one deep well.

**AOC 564**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from three soil borings (6 samples) outside of Building 80, at the location of the oil/water separator. No further action is scheduled at this time.

**SWMU 97 — Building 236**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from two soil borings (4 samples) and one shallow monitoring well location (2 samples) outside of Building 236. One shallow monitoring well has been installed.

**Work Remaining** — Sample the one shallow monitoring well outside of Building 236.

**SWMU 100 — Building 218**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from two soil borings (4 samples) and one shallow monitoring well location (2 samples) at the location of the former satellite accumulation area. One shallow monitoring well has been installed.

**Work Remaining** — Sample the one shallow monitoring well outside of Building 218.

**SWMU 102 — Building 79**
**Work Completed** — Soil samples have been collected from twenty-nine soil borings (57 samples) and one shallow monitoring well location (2 samples) inside Building 79. One shallow monitoring well has been installed inside the building.

**Work Remaining** — Sample the one shallow monitoring well inside the building.

**SWMU 106, AOC 603 — Dry Dock #3**
Data will be shared between this AOC and SWMU due to their close proximity.

**SWMU 106**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from two soil boring locations (4 samples) and one shallow monitoring well location (2 samples) adjacent to Dry Dock #3. One shallow and one deep monitoring well have been installed.

**Work Remaining** — Sample the one shallow and one deep monitoring well adjacent to Dry Dock #3.

**AOC 603**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil borings (8 samples) and one shallow monitoring well location (2 samples) adjacent to Dry Dock #3. One shallow and one deep monitoring well (supplemental well pair) have been installed.

**Work Remaining** — Sample the one shallow and one deep monitoring well adjacent to Dry Dock #3.

**SWMU 145 — Building 13A**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from nine soil borings (18 samples) and three shallow monitoring well locations (6 samples) in and around Building 13A. Three shallow monitoring wells and one deep well have been installed outside the building.

**Work Remaining** - Sample three shallow monitoring wells and one deep well outside the building.

**SWMU 170 and 171 - Dry Docks 1 and 2**
Data will be shared between these SWMUs due to the close proximity of these sites.

**SWMU 170**
**Work Completed** - Soil sampling activities have been completed. Soil samples were collected from fifteen soil boring locations (25 samples) based on a grid system across the site. Soil samples could not be collected from the second interval at five soil borings due to subsurface obstructions. Asphalt samples were also collected from each soil boring location (15 samples) along with four sediment samples from four storm drains within the site. No further action is scheduled at this time.

**SWMU 171**
**Work Completed** - Soil sampling activities have been completed. Soil samples were collected from twenty-one soil boring locations (36 samples) based on a grid system across the SWMU. Soil samples could not be collected from four proposed soil boring locations due to subsurface obstructions. Asphalt samples were collected from seventeen soil boring locations at which an

asphalt surface was present. Sediment samples (2 samples) were collected from two storm drains at the site. No further action is scheduled at this time.

**SWMU 173 — Building 1297**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from two soil borings (4 samples) inside of Building 1297. Three sediment samples were also collected from three drains outside of the building. No further action is scheduled at this time.

**AOC 525 — Building 223**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from three soil boring locations (6 samples) and one shallow monitoring well locations (2 samples) inside the building. One shallow monitoring well has been installed.

**Work Remaining** - Sample one shallow monitoring well inside Building 223.

**AOC 528 — Building 1453**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from three soil borings (6 samples) and one shallow monitoring well location (2 samples) outside of Building 1453. One shallow monitoring well has been installed outside the building.

**Work Remaining** — Sample the one shallow monitoring well outside the building.

**AOC 530 — Building 35**
**Work Completed** — Soil sampling activities have been completed. Soil samples were from three soil borings (6 samples), two shallow monitoring well locations (4 samples) and three surface locations (3 samples) underneath the building. Two shallow and two deep monitoring wells have been installed.

**Work Remaining** — Sample the two shallow and two deep monitoring wells.

**AOC 531 — Building 459**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from three soil borings (6 samples) around Building 459. Wipe sampling activities have been completed with 4 wipe samples collected. One surface soil sample has been collected and will be shared with AOC 530. No further action is scheduled at this time.

**AOCs 538 and 539 — Building 6**
**AOC 538**
**Work Completed** — Soil sampling activities inside Building 6 have been completed. Soil samples were collected from seven soil borings (13 samples) inside the building and one shallow monitoring well location (2 samples) outside the building. A sample could not be collected from the second interval at one soil boring location due to an obstruction in the boring. Wipe

sampling activities have been completed with 16 wipe samples collected (8 random floor, 8 biased horizontal surface). Air sampling activities according to the SAP were completed between September 19 - 25, 1995 with two samples collected each 24 hour time period (10 samples with one blank). One shallow and one deep monitoring well have been installed outside of Building 6.

**Work Remaining** — Sample one shallow and one deep monitoring well outside the building. Data from one soil boring and one monitoring well location will be shared with AOC 542 due to the close proximity of these sites.

**AOC 539**

**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from two soil borings (4 samples) inside and from one shallow monitoring well location (2 samples) outside of Building 6. One sediment sample was also collected from a drain inside the building. Wipe sampling activities have been completed with 6 wipe samples collected (3 random floor, 3 biased horizontal surface). Air sampling activities according to the SAP were completed between September 19 - 25, 1995 with one sample collected each 24 hour time period (5 samples with one blank). Note: 15 samples with two blanks for complete coverage of AOC 538 and 539 (Building 6 inclusive). One shallow monitoring well and one deep well have been installed outside the building.

**Work Remaining** — Sample one shallow monitoring well and one deep monitoring well outside the building.

**AOC 550 — Former Building 1111**

**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil boring locations (8 samples) and one shallow monitoring well location (2 samples). Soil samples could not be collected at three proposed soil boring locations due to subsurface obstructions. One shallow monitoring well has been installed. Because of its close proximity to shallow well location proposed for the northern most section of the site, supplemental shallow monitoring well GDE-022 will be used in place of the proposed shallow well for that location. Soil samples were still collected from both the proposed location and the supplemental location.

**Work Remaining** - Sample the one shallow monitoring well.

**AOC 551 and 552 — Building 1119**

Data will be shared between these AOCs due to the close proximity of these sites.

**AOC 551**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected at four soil borings (8 samples) and two shallow monitoring well locations (4 samples) outside of Building 1119. Two shallow monitoring wells and one deep well have been installed.

**Work Remaining** — Sample the two shallow and one deep monitoring wells outside of Building 1119.

**AOC 552**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from three soil borings (6 samples) at the location of former Building 1030. An attempt to collect soil samples from a fourth soil boring was unsuccessful due to subsurface obstructions in the area of the boring. No further action is scheduled at this time.

**AOC 555 — Former Building 29**
**Work Completed** — Sampling activities have been completed. Two sediment samples were collected from two locations adjacent to the site in the Cooper River. No further action is scheduled at this time.

**AOC 556 — Dry Dock Discharges**
**Work Completed** — Sampling activities have been completed. Nine sediment samples were collected from 9 locations in the Cooper River adjacent to Dry Docks 1, 2, 3, 4, and 5. In addition, 23 surface water samples were collected from the same 9 locations at which the sediment samples were collected. Samples were collected from one to three different intervals at each location, depending on the depth of water. No further action is scheduled at this time.

**AOC 558 — Building 77**
**Work Completed** — Sampling activities have been completed. Four wipe samples have been collected from the substation areas outside of Building 77. Four concrete core samples have been collected from the areas outside the substation. No further action is scheduled at this time.

**AOCs 559, 560 and 561 — Building 32**
Data will be shared between these AOCs due to the close proximity of these sites.

**AOC 559**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from seventeen soil borings (34 samples) and five shallow monitoring well locations (9 samples) in the area surrounding Building 32. Five shallow and three deep monitoring wells have been installed. Wipe sampling activities have been completed with 9 wipe samples collected inside of Building 32.

**Work Remaining** — Sample the five shallow and three deep monitoring wells.

**AOC 560**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from two soil borings (4 samples) adjacent to Building 32. No further action is scheduled at this time.

**AOC 561**
**Work Completed** — Soil sampling activities have been completed. Soil samples have been collected from four soil borings (8 samples) adjacent to Building 451-B (substation). Soil samples could not be collected from the proposed soil boring location in the center of the substation due to both surface and subsurface obstructions. No further action is scheduled at this time.

**AOC 562 — Building 84**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil borings (8 samples) adjacent to Building 84. Four wipe samples were collected from inside the building. No further action is scheduled at this time.

**AOC 563 — Former Building 37**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from six soil borings (12 samples) and three shallow monitoring well locations (6 samples) inside of Building 177. Three shallow monitoring wells and one deep well have been installed inside the building.

**Work Remaining** — Sample the three shallow wells and one deep well.

**AOC 566 — Building 194**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil borings and one shallow monitoring well location (10 samples) outside of Building 194. One shallow and one deep monitoring well have been installed.

**Work Remaining** — Sample the one shallow and one deep monitoring well outside of the building.

**AOC 567 — Building 75**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil boring locations (7 samples) outside of Building 75. A sample could not be collected from the second interval at one soil boring due to an obstruction in the boring.
Four wipe samples have also been collected from inside the building. No further action is scheduled at this time.

**AOCs 569, 570 and 578 — Building 25**
Data will be shared between these AOCs due to the close proximity of these sites.

**AOC 569**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from three soil borings (6 samples) and two shallow monitoring well locations (4 samples) at the location of the former oil storehouse and gas station. Two shallow monitoring wells and one deep well have been installed.

**Work Remaining** — Sample the two shallow monitoring wells and one deep monitoring well.

**AOC 570**
**Work Completed** — Soil samples have been collected from twelve soil borings (24 samples) and two shallow monitoring well locations (4 samples) outside of Building 25. Three shallow and two deep monitoring wells have been installed outside of the building.

**Work Remaining** — Sample the three shallow monitoring wells and two deep monitoring wells.

**AOC 578**
**Work Completed** — No work has been completed at this site.

**Work Remaining** — Collect soil samples from six soil borings inside of Building 25.

**AOC 571 — Building 177**
**Work Completed** — No work has been completed at this site.

**Work Remaining** — Collect three concrete core samples from the paint shop on the third floor of Building 177.

**AOC 572 — Building 177**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from five soil borings (10 samples) and three shallow monitoring well locations (6 samples) outside of Building 177, at the former location of the motor area. Three shallow monitoring wells have been installed in the parking lot outside of Building 177. One sediment sample was also collected from a drain in the parking lot outside the building.

**Work Remaining** — Sample the three shallow monitoring wells outside the building.

**AOC 573 — Building 177**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil borings (8 samples) and one shallow monitoring well location (2 samples) outside Building 177. Two sediment samples were collected from drains adjacent to Building 177. One shallow monitoring well and one deep well have been installed outside the building.

**Work Remaining** — Sample the shallow and deep monitoring wells outside of Building 177.

**AOC 576 — Building 80**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from three soil borings (6 samples) inside of Building 80 and two monitoring well locations (4 samples) outside the building. Two shallow monitoring wells and one deep well have been installed.

**Work Remaining** — Sample the two shallow monitoring wells and one deep monitoring well outside of the building.

**AOC 579 — Building 1035**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil borings (8 samples) outside of Building 1035. No further action is scheduled at this time.

**AOC 580 — Building 10**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil boring (8 samples) and two shallow monitoring well locations (4 samples) outside of Building 10. Two shallow monitoring wells and one deep well have been installed.

**Work Remaining** — Sample the two shallow monitoring wells and one deep monitoring well outside of Building 10.

**AOC 583 — Building 236**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil boring (8 samples) and three shallow monitoring well locations (6 samples) outside of Building 236. Three shallow monitoring well and one deep well have been installed outside of Building 236.

**Work Remaining** — Sample the three shallow monitoring wells and one deep monitoring well outside of Building 236.

**AOC 586 — Former Building 1014**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from three soil borings (6 samples) and one shallow monitoring well location (2 samples). One shallow monitoring well was installed at the location of former Building 1014.

**Work Remaining** — Sample the one shallow monitoring well.

**AOC 590 — Building 79**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil borings (8 samples) and one shallow monitoring well location (2 samples). One

sediment sample was also collected from a storm drain adjacent to the site. One shallow and one deep monitoring well have been installed.

**Work Remaining** — Sample the one shallow and one deep monitoring well.

**AOC 592 — Former Building 1225**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil borings (8 samples). No further action is scheduled at this time.

**AOC 596 — Building 101**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from six soil borings (12 samples) outside the building, and one soil boring (2 samples) and four shallow monitoring well locations (8 samples) inside the building. Soil samples could not be collected from a second soil boring location inside the building due to subsurface obstructions. Four shallow and two deep monitoring wells have been installed outside the building.

**Work Remaining** — Sample the four shallow and two deep monitoring wells outside of the building.

**AOC 597 — Building 91**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil borings (8 samples) outside of Building 91. Three wipe samples were collected from inside the building. One concrete core sample was collected outside the building. No further action is scheduled at this time.

**AOC 598 and 599 — Building 39, Pier J**
**AOC 598**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from three soil borings (6 samples) and one shallow monitoring well location (2 samples) at Pier J. One sediment sample was collected from a drain at the pier. One shallow monitoring well has been installed.

**Work Remaining** — Sample the one shallow monitoring well at Pier J.

**AOC 599**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil borings (6 samples) and one shallow monitoring well location (2 samples) adjacent to Building 39. A soil sample could not be collected from the second interval at two soil boring locations due to obstructions in the borings. One sediment sample was collected from a drain outside of Building 39. One shallow monitoring well has been installed.

**Work Remaining** — Sample the one shallow monitoring well outside of Building 39.

**AOC 602 — Building 95**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil boring locations (8 samples). Wipe sampling activities have been completed. Wipe samples were collected from four locations inside the building. No further action is scheduled at this time.

**AOC 604 — Building 96**
**Work Completed** — Soil sampling activities have been completed. Soil samples were collected from four soil boring locations (8 samples). Wipe sampling activities have been completed. Wipe samples were collected from four locations inside the building. No further action is scheduled at this time.

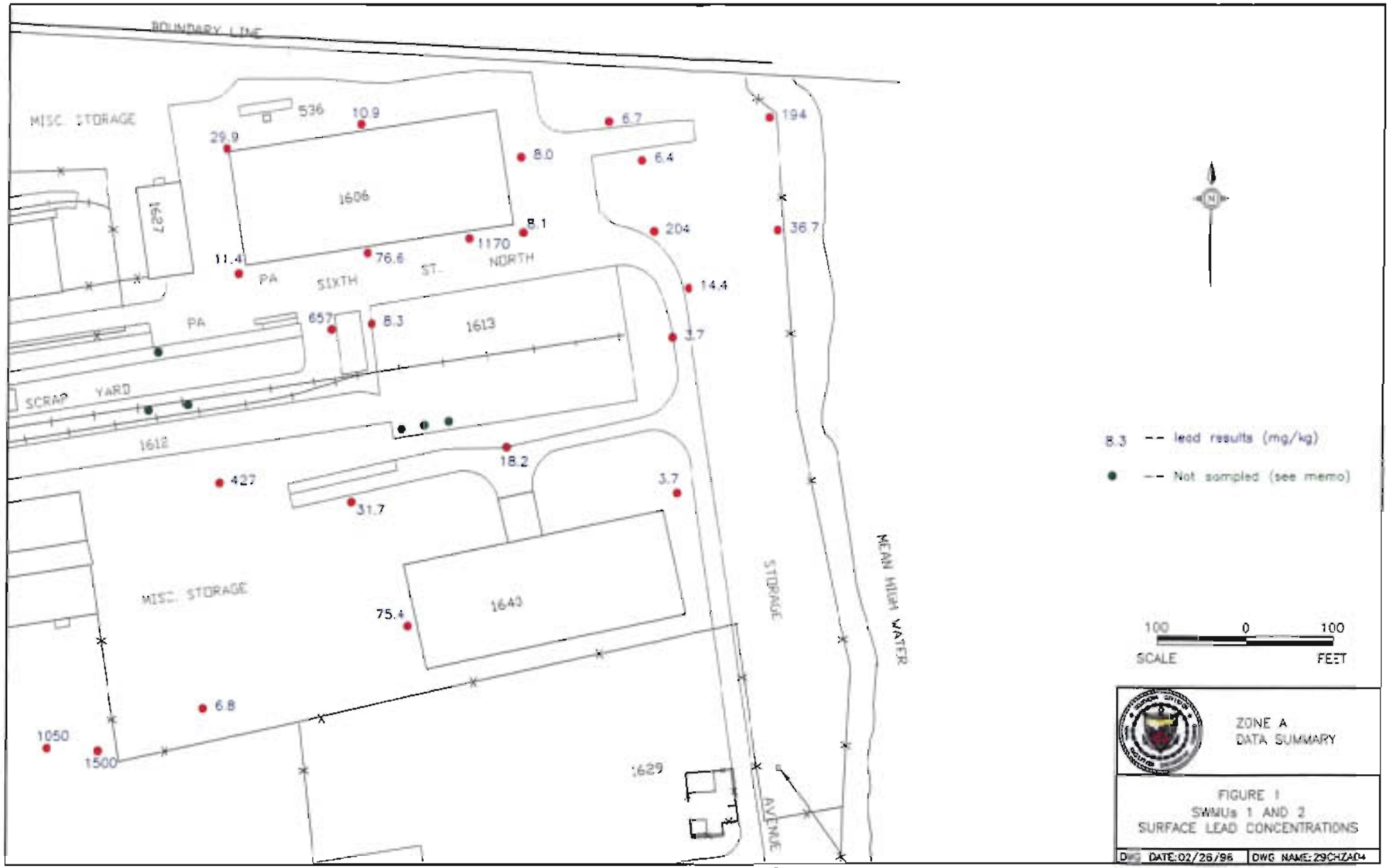
| Zone E — Site Specific Completion List | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Samples Collected | | | | | | |
| Site Name | Soil | Sediment | Wipe | Air | Concrete/ Asphalt Core | Surface Water | Groundwater |
| AOC 525 - Bldg 223 | 8 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 526 - Bldg 212 | 16 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 528 - Bldg 1453 | 8 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 530 - Bldg 35 | 13 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 531 - Bldg 459 | 6 | N/A | 4 | N/A | N/A | N/A | N/A |
| AOC 538 - Bldg 6 | 15 | N/A | 16 | 10 | N/A | N/A | 0 |
| AOC 539 - Bldg 6 | 6 | 1 | 6 | 5 | N/A | N/A | 0 |
| AOC 540 - Bldg 226 | 2 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 541 - Bldg 226 | 1 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 542 - Bldg 226 | 12 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 543 - Bldg 226 | 8 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 544 - Bldg 221 | 8 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 546 - Bldg 221 | N/A | 1 | N/A | N/A | N/A | N/A | N/A |
| AOC 548 - Bldg 5 | 8 | N/A | N/A | N/A | N/A | N/A | N/A |

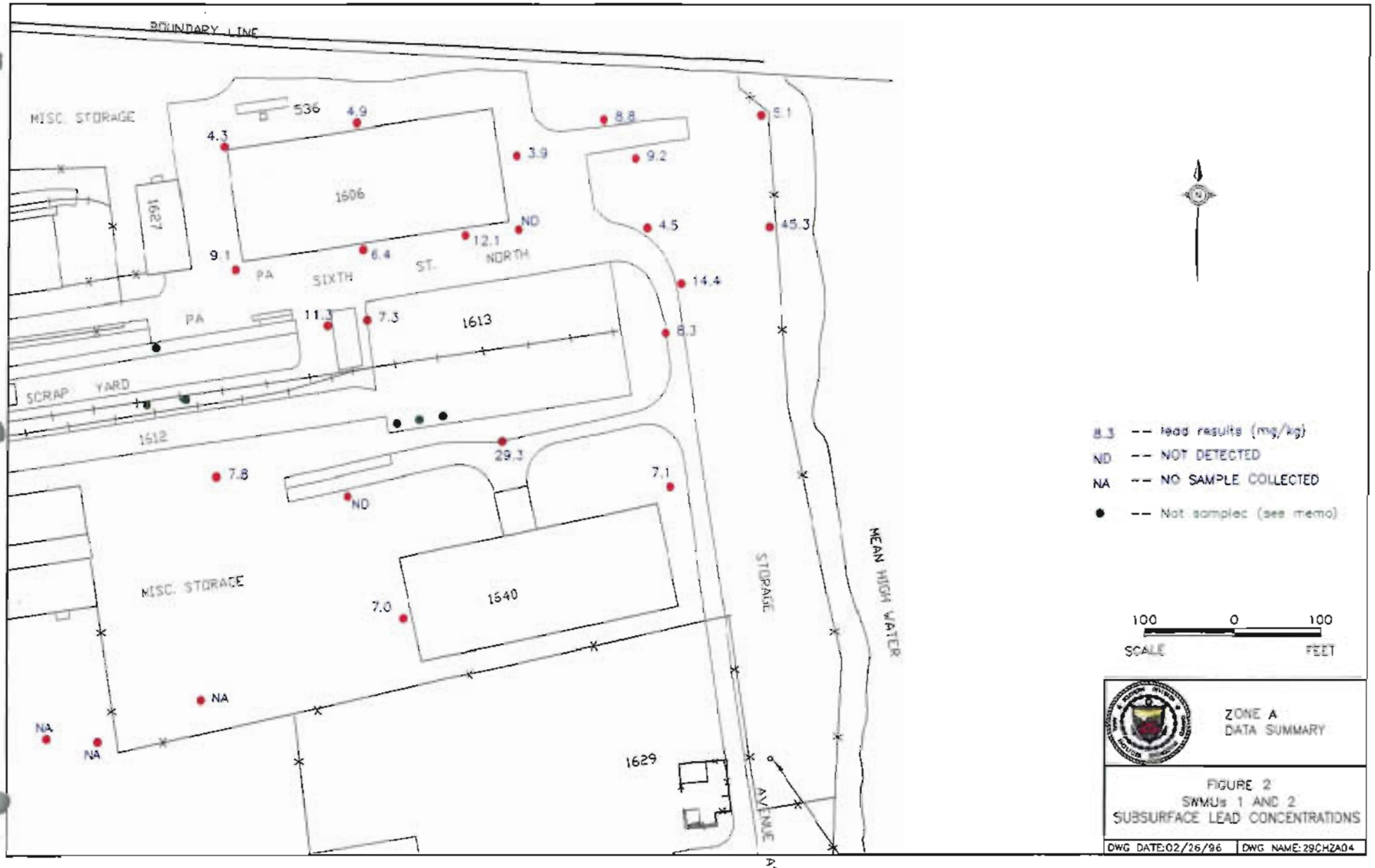
| Zone E — Site Specific Completion List | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Samples Collected | | | | | | |
| Site Name | Soil | Sediment | Wipe | Air | Concrete/ Asphalt Core | Surface Water | Groundwater |
| AOC 549 - Bldg 5 | 19 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 550 - Bldg 1111 | 10 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 551 - Bldg 1119 | 12 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 552 - Bldg 1119 | 6 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 554 - Bldg 5 | 4 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 555 - Bldg 29 | N/A | 2 | N/A | N/A | N/A | N/A | N/A |
| AOC 556 - Dry Docks | N/A | 9 | N/A | N/A | N/A | 23 | N/A |
| AOC 558 - Bldg 77 | N/A | N/A | 4 | N/A | 4 | N/A | N/A |
| AOC 559 - Bldg 32 | 43 | N/A | 9 | N/A | N/A | N/A | 0 |
| AOC 560 - Bldg 32 | 4 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 561 - Bldg 32 | 8 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 562 - Bldg 84 | 8 | N/A | 4 | N/A | N/A | N/A | N/A |
| AOC 563 - Bldg 37 | 18 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 564 - Bldg 80 | 6 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 566 - Bldg 194 | 10 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 567 - Bldg 75 | 7 | N/A | 4 | N/A | N/A | N/A | N/A |
| AOC 569 - Bldg 25 | 10 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 570 - Bldg 25 | 28 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 572 - Bldg 177 | 16 | 1 | N/A | N/A | N/A | N/A | 0 |
| AOC 573 - Bldg 177 | 10 | 2 | N/A | N/A | N/A | N/A | 0 |
| AOC 574 - Bldg 9 | 10 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 576 - Bldg 80 | 10 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 579 - Bldg 1035 | 8 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 580 - Bldg 10 | 12 | N/A | N/A | N/A | N/A | N/A | 0 |

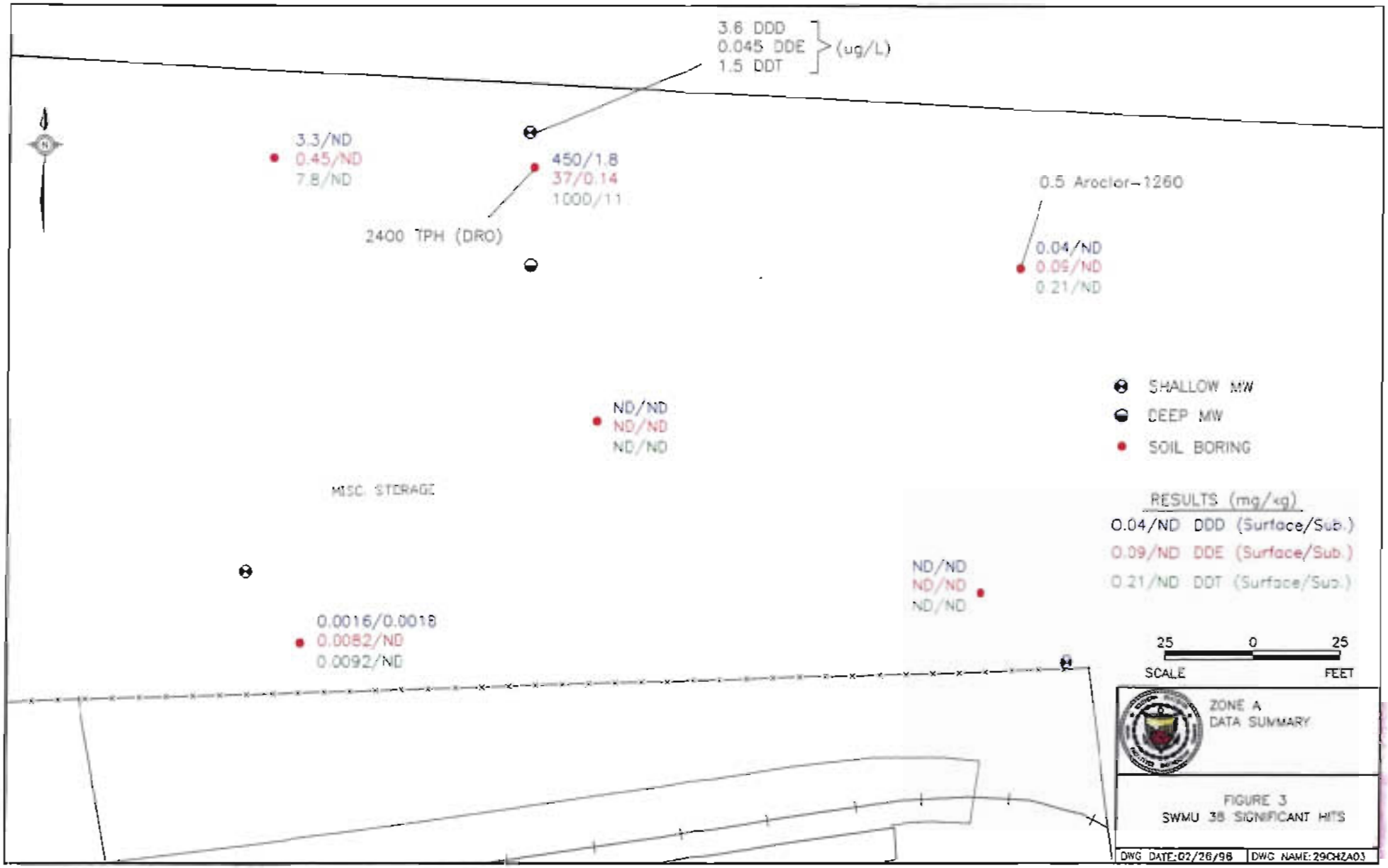
| Zone E — Site Specific Completion List | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Samples Collected | | | | | | |
| Site Name | Soil | Sediment | Wipe | Air | Concrete/ Asphalt Core | Surface Water | Groundwater |
| AOC 583 - Bldg 236 | 14 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 586 - Bldg 1014 | 8 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 590 - Bldg 79 | 8 | 1 | N/A | N/A | N/A | N/A | 0 |
| AOC 592 - Bldg 1225 | 8 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 596 - Bldg 101 | 22 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 597 - Bldg 91 | 8 | N/A | 3 | N/A | 1 | N/A | N/A |
| AOC 598 - Pier J | 8 | 1 | N/A | N/A | N/A | N/A | 0 |
| AOC 599 - Bldg 39 | 8 | 1 | N/A | N/A | N/A | N/A | 0 |
| AOC 602 - Bldg 95 | 8 | N/A | 4 | N/A | N/A | N/A | N/A |
| AOC 603 - DD3 | 10 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 604 - Bldg 96 | 8 | N/A | 4 | N/A | N/A | N/A | N/A |
| AOC 605 - 1278 | 18 | N/A | N/A | N/A | N/A | N/A | 0 |
| SWMU 5 - Pad 1278 | 6 | N/A | N/A | N/A | N/A | N/A | N/A |
| SWMU 18 - 1278 | 8 | N/A | N/A | N/A | N/A | N/A | 0 |
| SWMU 21 - Bldg 1275 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| SWMU 22 - Bldg 5 | 4 | N/A | N/A | N/A | N/A | N/A | N/A |
| SWMU 23 - Bldg 226 | 6 | N/A | N/A | N/A | N/A | N/A | 0 |
| SWMU 25 - Bldg 44 | 20 | 1 | N/A | N/A | N/A | N/A | 0 |
| SWMU 53 - Bldg 212 | 4 | N/A | N/A | N/A | N/A | N/A | 0 |
| SWMU 54 - Bldg 1275 | 75 | 4 | N/A | N/A | N/A | N/A | N/A |
| SWMU 63 - Bldg 226 | 6 | N/A | N/A | N/A | N/A | N/A | 0 |
| SWMU 65 - Bldg 221 | 11 | N/A | N/A | N/A | N/A | N/A | 0 |
| SWMU 67 - Bldg 3 | 14 | N/A | 8 | Random | N/A | N/A | 0 |
| SWMU 70 - Bldg 5 | 8 | N/A | N/A | N/A | N/A | N/A | 0 |

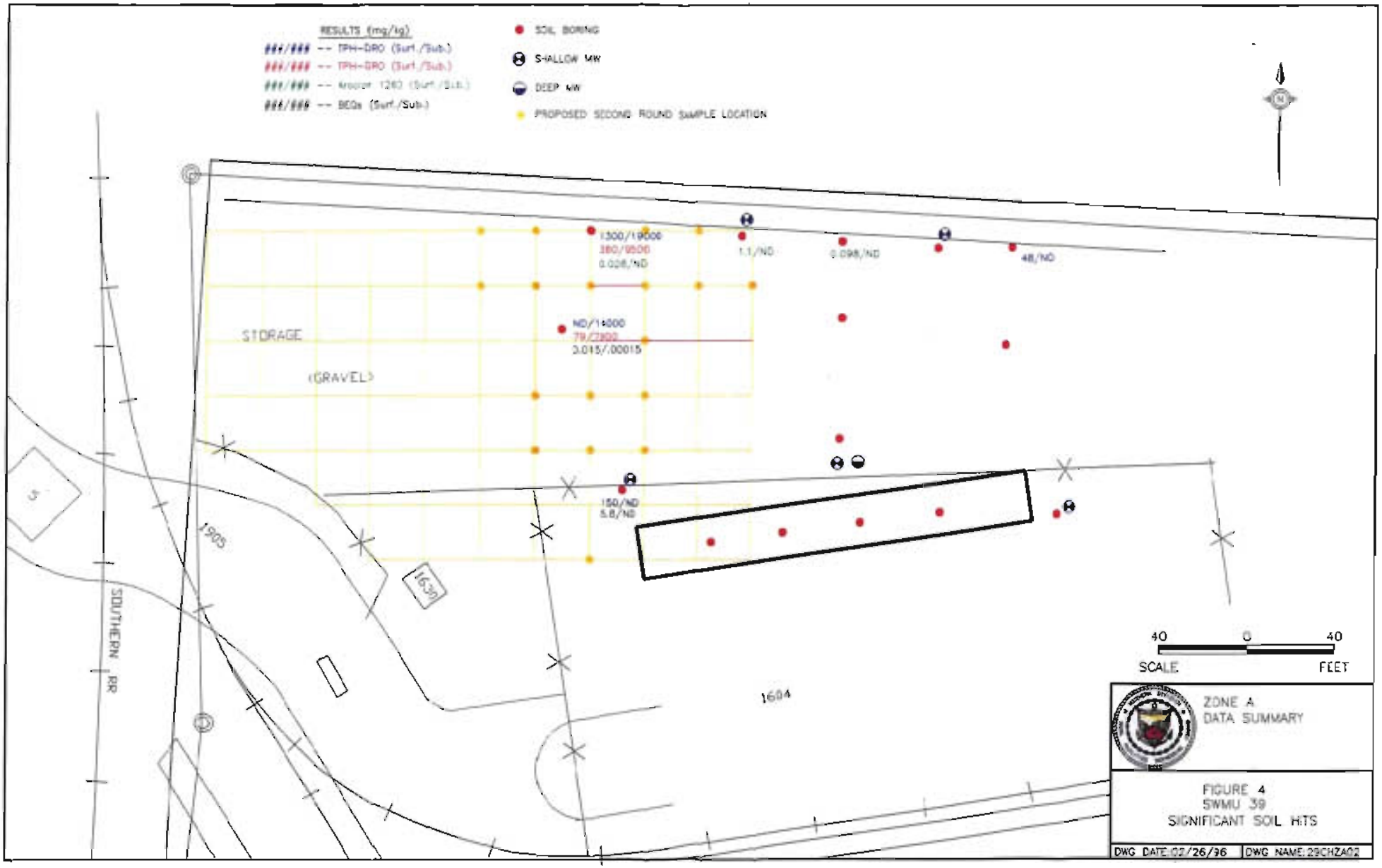
| Zone E — Site Specific Completion List | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Samples Collected | | | | | | |
| Site Name | Soil | Sediment | Wipe | Air | Concrete/ Asphalt Core | Surface Water | Groundwater |
| SWMU 81 - Bldg 1245 | N/A | 2 | N/A | N/A | 3 | N/A | N/A |
| SWMU 83 - Bldg 9 | 16 | N/A | 16 | 0 | N/A | N/A | 0 |
| SWMU 84 - Bldg 9 | 12 | N/A | N/A | N/A | N/A | N/A | 0 |
| SWMU 87 - Bldg 80 | 2 | N/A | N/A | N/A | N/A | N/A | N/A |
| SWMU 97 - Bldg 236 | 6 | N/A | N/A | N/A | N/A | N/A | 0 |
| SWMU 100 - Bldg 218 | 6 | N/A | N/A | N/A | N/A | N/A | 0 |
| SWMU 102 - Bldg 79 | 57 | N/A | N/A | N/A | N/A | N/A | 0 |
| SWMU 106 - DD3 | 6 | N/A | N/A | N/A | N/A | N/A | 0 |
| SWMU 145 - Bldg 13A | 24 | N/A | N/A | N/A | N/A | N/A | 0 |
| SWMU 170 - DD1 | 25 | 4 | N/A | N/A | 15 | N/A | N/A |
| SWMU 171 - DD2 | 36 | 2 | N/A | N/A | 17 | N/A | N/A |
| SWMU 172 - Bldg 80 | 12 | 1 | N/A | N/A | N/A | N/A | 0 |
| SWMU 173 - Bldg 1297 | 4 | 3 | N/A | N/A | N/A | N/A | N/A |
| Supplemental Samples | 42 | N/A | N/A | N/A | N/A | N/A | 0 |
| TOTAL | 908 | 36 | 82 | 15 | 40 | 23 | 0 |

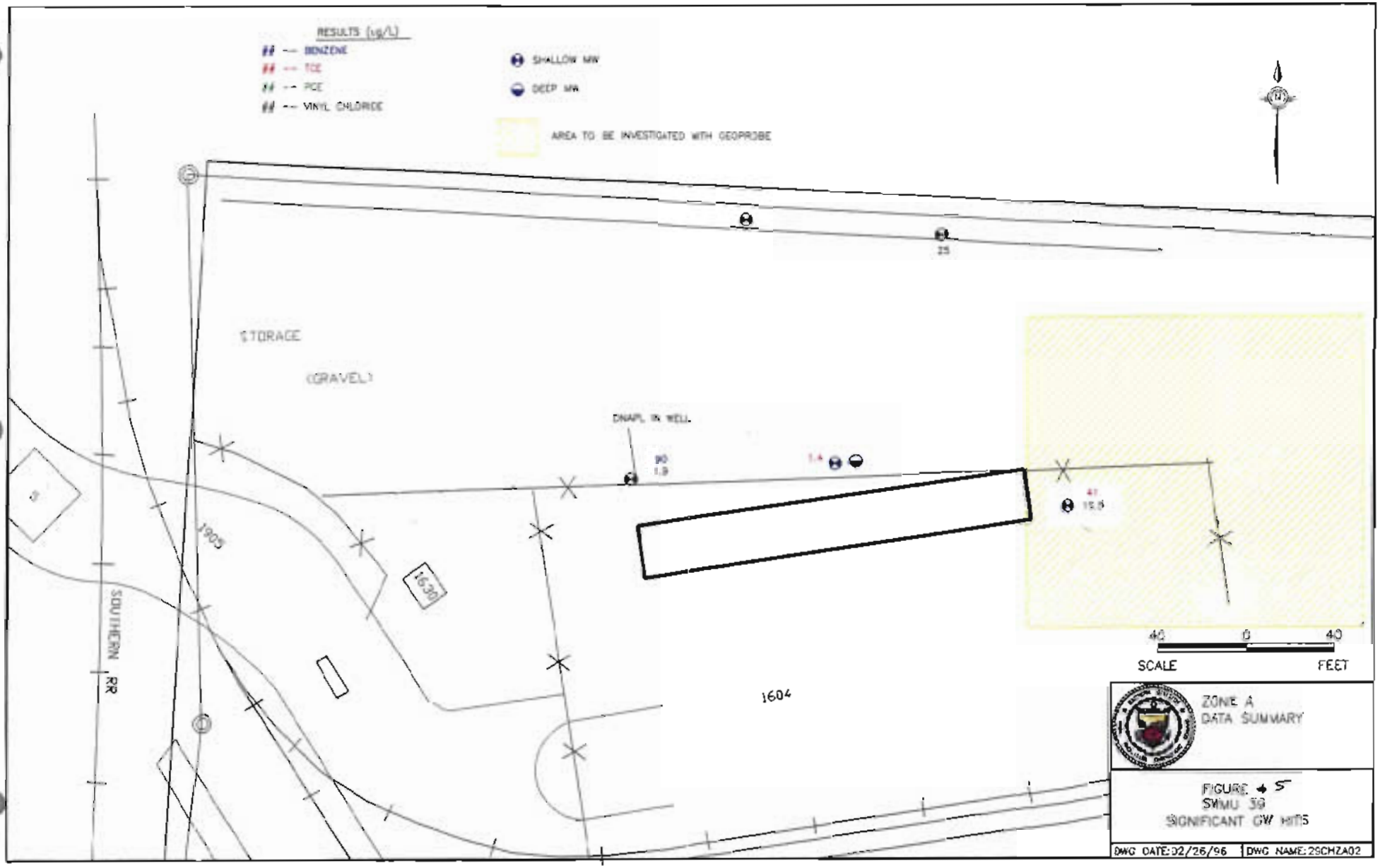
**Note:**
N/A indicates no samples were proposed for that particular matrix.


BOUNDARY LINE
MISC. STORAGE
536
10.9
29.9
6.7
194
8.0
6.4
1606
1627
8.1
204
36.7
1170
11.4
76.6
NORTH
PA
SIXTH
ST.
14.4
PA
657
8.3
1613
3.7
SCRAP YARD
1612
18.2
427
3.7
31.7
MISC. STORAGE
1640
75.4
STORAGE
MEAN HIGH WATER
6.8
1050
1500
1629
AVENUE
8.3 -- lead results (mg/kg)
-- Not sampled (see memo)
100 0 100
SCALE FEET
ZONE A
DATA SUMMARY
FIGURE 1
SWMUs 1 AND 2
SURFACE LEAD CONCENTRATIONS
DATE: 02/26/96
DWG NAME: 29CHZA04


BOUNDARY LINE
MISC. STORAGE
536
4.9
4.3
3.9
8.8
9.2
5.1
1606
1627
ND
4.5
45.3
12.1
9.1
6.4
NORTH
PA
SIXTH
ST.
14.4
PA
11.3
7.3
1613
8.3
SCRAP YARD
1612
29.3
7.8
7.1
ND
MISC. STORAGE
7.0
1540
STORAGE
MEAN HIGH WATER
NA
NA
NA
1629
AVENUE
8.3 -- lead results (mg/kg)
ND -- NOT DETECTED
NA -- NO SAMPLE COLLECTED
-- Not sampled (see memo)
100 0 100
SCALE FEET
ZONE A
DATA SUMMARY
FIGURE 2
SWMUs 1 AND 2
SUBSURFACE LEAD CONCENTRATIONS
DWG DATE:02/26/96
DWG NAME:29CHZA04


3.6 DDD
0.045 DDE
1.5 DDT
(ug/L)
3.3/ND
0.45/ND
7.8/ND
450/1.8
37/0.14
1000/11
2400 TPH (DRO)
0.5 Aroclor-1260
0.04/ND
0.09/ND
0.21/ND
ND/ND
ND/ND
ND/ND
MISC. STORAGE
ND/ND
ND/ND
ND/ND
0.0016/0.0018
0.0082/ND
0.0092/ND
SHALLOW MW
DEEP MW
SOIL BORING
RESULTS (mg/kg)
0.04/ND DDD (Surface/Sub.)
0.09/ND DDE (Surface/Sub.)
0.21/ND DDT (Surface/Sub.)
25 0 25
SCALE FEET
ZONE A
DATA SUMMARY
FIGURE 3
SWMU 38 SIGNIFICANT HITS
DWG DATE:02/26/98
DWG NAME:29CHZA03


RESULTS (mg/kg)
###/### -- TPH-DRO (Surf./Sub.)
###/### -- TPH-GRO (Surf./Sub.)
###/### -- Aroclor 1260 (Surf./Sub.)
###/### -- BEQs (Surf./Sub.)
SOIL BORING
SHALLOW MW
DEEP MW
PROPOSED SECOND ROUND SAMPLE LOCATION
1300/19000
380/9500
0.026/ND
1.1/ND
0.098/ND
48/ND
ND/14000
79/2800
0.015/.00015
150/ND
5.8/ND
STORAGE
(GRAVEL)
1605
1639
1604
SOUTHERN RR
40
0
40
SCALE
FEET
ZONE A
DATA SUMMARY
FIGURE 4
SWMU 39
SIGNIFICANT SOIL HITS
DWG DATE 02/26/96
DWG NAME 29CHZA02


RESULTS (ug/L)
## -- BENZENE
## -- TCE
## -- PCE
## -- VINYL CHLORIDE
SHALLOW MW
DEEP MW
AREA TO BE INVESTIGATED WITH GEOPROBE
STORAGE
(GRAVEL)
DNAPL IN WELL
ND
1.9
1.4
41
12.5
25
1905
1630
1604
SOUTHERN RR
40
0
40
SCALE
FEET
ZONE A
DATA SUMMARY
FIGURE 4 5
SWMU 39
SIGNIFICANT GW HITS
DWG DATE:02/26/96
DWG NAME:2SCHZA02

COMMANDER, NAVAL BASE, CHARLESTON
RESTORATION ADVISORY BOARD (RAB)
Minutes of 9 January 1996

1. Call to Order. The meeting was called to order by Mr. Don Harbert, Co-Chairman of the RAB. He welcomed everyone and thanked the community representatives and other visitors for attending.

2. RAB Members Attending.

| | |
|---|---|
| Mr. Daryle Fontenot | Mr. Don Harbert |
| Mr. Van Robinson | CAPT Jim Augustin |
| Mr. Virgil Johnston | Mr. Doyle Brittain |
| Mr. Bobby Dearhart | Ms. Wannetta Mallette-Pratt |
| Mr. Steve Best | Ms. Ann Ragan |
| Mr. Ralph Laney | Mr. Oliver Addison |
| Ms. Susan Floyd | Mr. Arthur Pinckney |
| Mr. Bob Veronee | |

3 Guests Attending.

| | |
|---|---|
| Mr. Tony Hunt | SOUTHNAVFAC |
| Mr. Brian Stockmaster | SOUTHNAVFAC |
| Gabriel Magwood | SOUTHNAVFAC |
| Mr. Jim Moore | DOD Base Transition Coordinator |
| Ms. Sally Kuhl | COMNAVBASE |
| CDR P. H. Dalby | CSO |
| Ms. Jeri Johnson | RDA |
| Ms. Jeanne Olano | SC DHEC |
| Mr. Joe Bowers | SC DHEC |
| Dr. Ted Simon | EPA Region IV |
| Dr. Jim Speakman | EnSafe/Allen & Hoshall |
| Mr. Todd Haverkost | EnSafe/Allen & Hoshall |
| Mr. Larry Bowers | EnSafe/Allen & Hoshall |
| Mr. Robert Maddox | EnSafe/Allen & Hoshall |
| Ms. Lisa Brown | EnSafe/Allen & Hoshall |
| Mrs. June Brittain | Concerned Citizen |
| J. T. Amey | Concerned Citizen |
| J. A. Manzi | Concerned Citizen |
| Esther Shaw | Concerned Citizen |
| Ms. Faye Fitzgerald | Concerned Citizen |
| Ms. Ivy McNeil Broughton | Concerned Citizen |
| Ms. Margie Cannon | Concerned Citizen |
| Mr. Willie Boyd, Jr. | CAC |
| Mr. H. B. Golightly | CAC |
| I. Bennett | Grassroots Coalition |
| Ms. Mary Anderson | CAC |

| | |
|---|---|
| Ms. Susan Dunn | GCSC |
| Mr. Delbert Dubois | Four Mile Community Association |
| Ms. C. A. Morgan | CNSYD |
| CDR Dan Ries | CNSYD |
| Mr. Tom Gerken | CNSYD |
| Mr. John Lawrence | CNSYD |
| Mr. Dan Morse | CNSYD |
| Mr. Steve Curfman | CNSYD |
| Mr. W. G. Belli | CNSYD |
| Mr. F. C. Willis | CNSYD |
| Mr. A. D. Chaplin | CNSYD |
| Mr. Joe Elliott | CNSYD |
| Mr. Kevin Lang | CNSYD |
| Mr. M. W. Henderson | North Charleston Police Department |
| Ms. Gussie Greene | North Charleston City Council |
| Mr. A. R. Nissanen | North Charleston Fire Department |
| Mr. C. Benjamin Norris | North Charleston Fire Department |
| Mr. James Singleton | Singleton M/S |
| Mr. Jack Stund | Carolina Containers |
| Ms. Ethel J. Smalls | AmeriCorp |

4. Comments on Minutes.

Mr. Arthur Pinckney pointed out that the minutes said that underground storage tanks which were underneath buildings would not be cost effective to remove. He wanted to know if any USTs had been identified under buildings. The answer was that none have been discovered yet. Mr. Daryle Fontenot agreed to talk with him about this after the meeting. The minutes were approved as written and will be placed in the Dorchester Road Library Repository.

5. Sub-Committee Reports.

Mr. Daryle Fontenot reported that no Sub-Committees had met this month, but that a new Fact Sheet No. 5 regarding Findings of Suitability to Lease (FOSLs) was being worked on. A copy of Fact Sheets 1 through 4 are attached to these minutes. The Public Relations Sub-Committee is also working on a better location for RAB meetings - perhaps North Charleston High School.

6. Environmental Clean-up Progress Report.

Mr. Tony Hunt, Remedial Project Manager for Naval Base, Charleston, reported that funding problems have been resolved through Fiscal Year 1996, which ends on 30 September 1996. Negotiations are in progress for the remaining zones.

Captain Augustin mentioned an article in the Post and Courier of 9 January that stated there was a deficit in funding for this fiscal year. He pointed out that the article was in error.

Groundwater monitoring wells are currently being installed in Zone E, the Controlled Industrial Area (CIA). Some results of this sampling should be seen very soon.

The Zone H draft final report was submitted to EPA and SC DHEC in December. Zones C and I will be submitted in the near future. Field work is continuing in Zones A and B, the DRMO area and the housing area.

Mr. Pinckney asked when some "real work"; i.e, clean-up, was going to begin. Mr. Hunt said that some "interim measures" might start as early as April. As far as the normal RCRA process, the Corrective Measures Study will be complete for Zone H about August. Corrective Measures Implementation would begin sometime in September. It will be this year. Mr. Addison asked which Zone Building 199 was in and if anything had been done with it. Mr. Hunt said that it was in Zone F and that the Work Plan is in review. Field work should begin in March.

A visitor asked why the minutes of the previous meeting said that no action was necessary to remove all asbestos. Mr. Hunt explained that Navy policy requires only notification of asbestos. If it is non-friable undamaged and is serving its intended purpose, such as insulation, it poses no health risk and will not be removed.

Mr. Van Robinson said that a study was done in the 1980s by Davis and Floyd that showed that the drainage system for the Chicora neighborhood was stopped up because pipes at the Naval Base are not sufficient. It showed that they were at 10 to 20% of the capacity of what they should be. That means that for at least 15 years the Chicora area has been getting floodwater backup from the Base every time there is any kind of rain. There have also been two studies since that time. He wanted to know what role the Navy would play in that clean-up.

Mr. Hunt said that he was not aware of this and was not sure what effect it would have on the neighborhood. He said he would look into it.

Mr. Robinson said that he understood the Navy has been aware of it.

Mr. Hunt said that if there was some sort of damage or adverse effect, the Navy would remediate it.

7. RAB Organizational Changes.

Ms. Ann Ragan of SC DHEC presented some ideas for improving the RABs way of operating.

She acknowledged that the members of the RAB had individual potential, but felt that their full potential was not being utilized because of the way the RAB conducts its business. Concrete ideas, solutions and answers should be presented at RAB meetings instead of discussions among the members. Sub-Committees should be formed to develop ideas to present in the public forum. When a question comes up and there is not an answer, it should be referred to a sub-committee and at the next a definitive answer provided at the next meeting.

Ms. Ragan said that as a start toward improving the RAB, one or two issues should be chosen and sub-committees formed to work through the issues and come back and report to the general membership.

Mr. Brittain said that he agreed with the concept and suggested some good issues for sub-committees to work on might include which included finances, Shipyard Detachment Employees, and Base Re-use.

Mr. Van Robinson volunteered to chair a Sub-committee on Reuse of the Base. He also said that his committee would look into the drainage problem he mentioned earlier. Ms. Ragan said that the RDA would be a very important part of this particular committee and asked if Mr. Johnston would be willing to serve.

Mr. Arthur Pinckney volunteered to chair a Sub-committee on Shipyard Detachment employees.

It was suggested that perhaps Mr. Lou Mintz might want to chair a Sub-committee on Finances. He was not present at this meeting.

Ms. Susan Floyd said that the high officials of the Naval Base/Shipyard, the Mayor of North Charleston and more elected officials should be more involved.

8. RDA Update.

Mr. Virgil Johnson reported that about 85% of the Shipyard property is spoken for but that actual leases are being held up because Findings of Suitability to Lease (FOSLs) have not been signed. There are 180 buildings that need FOSLs at this time. This is a major problem because it is holding up jobs, but property cannot be leased until a FOSL is signed. The Navy has decided that it can issue a License for certain properties where the prospective tenant can go ahead and get ready to move in; that is, get the utilities on, clean up the building, paint, etc. The FOSLs are supposed to be signed by 21 January, but it probably won't happen until February or March.

Mr. Johnston agreed that the RDA could be an important part of the committee on Re-Use of the Base and said he would be willing to serve on the Sub-Committee. He said that the RDA was hiring a consultant to come up with a Base Re-Use Plan to

match North Charleston's Rezoning Plan. The contract to the consultant will be awarded in about three weeks and the Plan should be complete before 1 April. Ms. Mallette-Pratt asked how the consultant's Re-Use Plan would differ from the Base Re-Use Plan. Mr. Johnston said that the current Base Re-Use Plan did not specifically identify buildings and areas. This new Plan will help determine if areas should be cleaned up to residential or industrial level. It will also help determine if certain roads should be closed off, whether gates will be needed, whether to keep or change certain traffic lights, etc. It will involve more than just buildings.

A visitor asked how the consultant will be selected. Mr. Johnston said that State Law were followed and a Request for Proposal was issued. It was advertised by the State. A State representative will be on the Selection Board.

Mr. Johnston invited everyone to attend the regular RDA meetings and said he would provide a schedule. He also said that the public was welcome to visit the RDA office and look at maps of the Base which show buildings that have been leased or are about to be leased.

9. Risk Assessment Presentation.

As an introduction to the Risk Assessment Presentation, Mr. Doyle Brittain explained that at the last RAB meeting he had said that EPA comments on the Zone H RCRA Facility Investigation (RFI) Report would be ready in February. Because of the government furlough, this date has slipped to late March or early April. That also assumes that the government does not shut down again. Based on those predictions last month, it was suggested that the toxicologist from EPA Region IV come to this month's RAB and talk about Risk Assessment so that when you read the Zone H Report you would be able to understand what it said. The Risk Assessment and Toxicology portions of the RFI are extremely technical. Even though the RFI Report will not be ready next month, the contractor, EnSafe, Allen and Hoshall will be explaining what the data in the RFI Report mean in terms of risk to human health and the environment.

He then introduced Dr. Ted Simon, from the Office of Health Assessment, EPA Region IV Atlanta. Dr. Simon is a toxicologist who has worked at EPA in Atlanta since 1993. His position is devoted to Base Realignment and Closure Process. He received his Ph.D. in neuro-toxicology from Georgia State University in 1988. From 1988 to 1993 he conducted basic biological research at Emory University and Georgia State University. In 1994 he achieved the recognition of Diplomat of the American Board of Toxicology. This is equivalent to Board Certification for a Physician. In 1995, he received an EPA Bronze Medal for his efforts supporting the Base Realignment and Closure Process. Dr. Simon maintains research interests in Exposure Assessment and Human Behavior. Recently he has been studying the Inhalation of Volatile Compounds in the Home.

Because of the technical nature of Mr. Simon's presentation, the following is only a short "Capsule Version" of Mr. Simon's talk. There are detailed handouts and slides used by Mr. Simon included as attachments to these minutes.

Mr. Simon said that the basic thrust of his briefing on Risk is "There is no such thing as Zero Risk." There are voluntary and involuntary risks. There are chronic and catastrophic risks. To evaluate potential risks to human health and the environment at a hazardous waste site, EPA uses a procedure known as Risk Assessment. Reducing risk is EPA's first priority. Because of this EPA tends to overestimate predictions of risk and the seriousness of health problems will generally be lower than predicted by EPA.

EPA is using Risk Assessment to help guide cleanup and land re-use efforts at Naval Base, Charleston. There are four steps to Risk Assessment. Hazard Identification - that is, sample to find out what the hazard is and its concentration. Exposure Assessment - that, is will people come in contact with the hazard. Toxicity Assessment - that is, find out what the harmful nature of the hazard is - cancer causing or non-cancer causing. And then, Risk Characterization - that is, determine the combined results of exposure and toxicity assessments to determine if the risks are great enough to cause human health problems.

The results of the risk assessments performed at Naval Base, Charleston will help EPA and DHEC decide clean-up levels. Generally, EPA does not require clean-up if cancer risks are lower than one in ten thousand and the exposure levels of non-cancer causing agents are less than the reference dose.

After Risk Assessment is completed, the process of decision-making at hazardous waste sites begins. This is called Risk Management. Risk Management considers cost, technical feasibility and community acceptance. Some Risk Management questions would be: Should clean-up be done? What should the clean-up level be? What should the clean-up method be?

Some areas of the Charleston Naval Base will have to be cleaned up. There are nine factors used when determining clean-up. They are:

Protection of Human Health and the Environment
Compliance with State and Federal Standards
Long Term Effectiveness
Reduction in Toxicity, Mobility or Volume
Short Term Effectiveness
Implementability
Cost
State Acceptance
Community Acceptance

He assured everyone that the EPA over-estimates risks. When the Base is cleaned up it will be cleaned up to acceptable risk levels.

Some of the questions fielded in the course of the presentation were:

Who will determine risk management after the risk assessment is completed?

Once the assessment is complete, the data will be presented to the community, RAB, etc. and they will be given the opportunity to make recommendations as to which level the Base should be cleaned - residential, industrial, etc. Then the Regulators will take into consideration all comments and make determinations as to what cleanup level will occur for each hazardous waste site.

Will risk management be done under CERCLA or RCRA?

RCRA. The Base has a RCRA Permit issued by the State.

What will happen if there are problems on property outside of the Base that have been caused by the Navy? For instance, the problem with the stopped up drainage pipes?

Samples are being collected around the perimeter of the Base. If the Navy has spread contamination off the Base, the Navy will pay for it. If the community has spread contamination onto the Base, then those responsible will pay for that. There are regulations that require private citizens to pay for cleanup also.

Where does "background" data come from?

COULD NOT HEAR THE ANSWER TO THIS - IF ANYONE EDITING THE MINUTES KNOWS THE ANSWER, PLEASE FILL IN. IF NOT= I GUESS WE CAN ELIMINATE THE QUESTION.

Is there a list of chemicals or hazardous substances that have been found on the Base?

All of the data accumulated to this point is in the Repository at the Dorchester Road Library and is available to the public.

Why is the Community not being reached out to?

The RAB meetings have been held on the same day each month for almost two years. They are advertised in the newspaper and on bulletin boards around the area. Night and day meetings have been tested. Various locations for the meetings have been tested. Public involvement is important and any suggestions for improving it were solicited.

10. Adjournment.

It was announced that the next meeting is scheduled for 13 February 1996 at 2:30 p.m. in Council Chambers at North Charleston City Hall. The meeting was adjourned.

**Summary of Action Items**

- Look into drainage allegations
- Form Sub-Committees
- Look for More Convenient Meeting Time and Location
- Find out Why FOSLs are not more forthcoming

Attachments to Minutes:
(1) Fact Sheets 1 through 4
(2) Risk Assessment and Risk Management Handouts
(3) Overheads used in Risk Assessment Presentation

Minutes recorded by:
Barbara Eller, SOUTHNAVFAC

Minutes Approve by:

| | |
|---|---|
| Daryle Fontenot<br>Co-Chairman | Don Harbert<br>Co-Chairman |

Tuesday, January 9, 1996

Charleston Naval Base

## RESTORATION ADVISORY BOARD MEETING AGENDA

**2:00 PM** Location North Charleston City Hall located @ 4900 LaCross Road, in North Charleston. Meeting will be in the City Council Chambers.

## 2:00 RAB MEETING

A: Introduction of the RAB Members and Guests

B. Administrative Remarks, Comments on the minutes of last meeting

C. Subcommittee Reports

D. RDA update

| | |
|---|---|
| E. Environmental Cleanup Progress Report | Cleanup Team |
| F. RAB Organizational Changes | Ms. Ann Ragan |
| G. Risk Assessment Presentation | Mr. Doyle Brittain |

H. Remaining Questions and Comments from Visitors

I. Agenda for Next Meeting

Please mark your calendar: Our next meeting is Tuesday, February 13, 1996. Time and location to be determined.

Office of Health Assessment

Ted W. Simon, Ph.D. DABT

(404) 347-1586
(404)347-3555 X6368

# RISK ASSESSMENT & RISK MANAGEMENT AT NAVAL BASE CHARLESTON

January, 1996

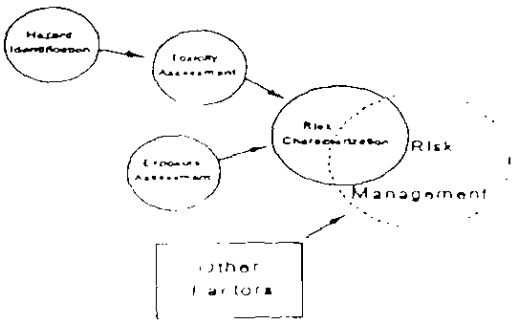
## RISK MANAGEMENT

The process of decision-making at hazardous waste sites is known at "risk management." Risk management includes not only the results of the risk assessment but also factors such as cost, technical feasibility and community acceptance.

By law, the EPA's responsibility is the protection of human health and the environment. Because of the uncertainty inherent in the assumptions underlying EPA's risk estimates, EPA has chosen assumptions that tend to overestimate the predictions of risk. The actual risks at a site will probably be less than predicted by EPA.

RISK MANAGEMENT QUESTIONS:
- Should cleanup be undertaken?
- What should cleanup levels be?
- What cleanup method should be used?

It is vital that risk management considerations such as cost are not considered in the risk assessment in order to obtain an unbiased estimate of site risks. Risk management questions should be examined with an evaluation of site risks in hand.




## NINE CRITERIA FOR REMEDY SELECTION

Some areas of Naval Base Charleston may require an environmental cleanup, commonly called a remedy. The nine factors or criteria used in remedy selection are shown below.

### NINE EVALUATION CRITERIA

**Threshold Criteria**
- Protection of Human Health and the Environment
- Compliance with State and Federal Standards

**Balancing Criteria**
- Long-term Effectiveness
- Reduction in Toxicity, Mobility or Volume
- Short-term Effectiveness
- Implementability
- Cost

**Modifying Criteria**
- State Acceptance
- Community Acceptance

GLOSSARY:

Chemicals of Potential Concern (COPCs) - Chemicals found at a hazardous waste site that have potential human health impacts. Determination of COPCs is the initial step in a risk assessment.

Chemicals of Concern (COCs) - Chemicals shown by the risk assessment to have human health impacts. Risk management decisions address the presence and levels of COCs.

Upper Confidence Limit (UCL) - a conservative statistical estimate of the mean or average concentration in a given environmental medium.

Receptor - a human or animal that might contact a hazardous substance.

Applicable and/or Relevant and Appropriate Requirements (ARARs) - Federal or State standards such as those in the Safe Drinking Water Act or Clean Air Act that may serve as cleanup goals.

Naturally occurring background levels - Ambient concentrations of chemicals present in the environment that have not been influenced by human activities. Generally considered only with inorganic chemicals such as iron, aluminum or manganese.

Intake - A measure of exposure expressed as the mass of a substance contacted per unit body weight per unit time, i.e. mg/kg-day. Generally, intakes are averaged over a long time, up to a lifetime.

Exposure - Contact of an organism with a chemical or physical agent. Exposure is quantified as the amount of the agent available for absorption by the organism.

Exposure Assessment - The determination or estimation of the magnitude, frequency, duration and route of exposure.

Exposure Pathway - The course a chemical takes from a source to an exposed organism. An exposure pathway includes a source, a transport medium, an exposure point and an exposure route. It is a unique mechanism by which a receptor is exposed to chemicals originating from a site.

Exposure Point - A location of potential contact between a receptor and a chemical.

Exposure Route - The way a chemical enters the body of a receptor, i.e. ingestion, inhalation or dermal contact.

Reference Dose (RfD) - An estimate of a daily exposure level for the human population, including sensitive subpopulations, that is likely to be without an appreciable risk of deleterious effects during a lifetime.

Carcinogenic Slope Factor (CSF) - also called a potency factor. A plausible upper bound estimate of the probability of a response per unit intake of a chemical over a lifetime. The CSF is used to estimate an upper bound probability of an individual developing cancer as a result of exposure to a particular level of a carcinogen.

Hazard Quotient (HQ) - The ratio of a single substance exposure level to the RfD for that substance.

Hazard Index (HI) - The sum or more than one HQ for multple substances and/or multiple exposure pathways.

Cancer Risk - a unitless probability representing the incremental chance of an individual contracting cancer over a lifetime.

**DEPARTMENT OF THE NAVY**
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
P.O. BOX 190010
2155 EAGLE DRIVE
NORTH CHARLESTON, S.C 29419-9010

5090/11
Code 1877
8 April 1996

Mr. G. Randall Thompson
Director, Division of Hazardous and Infectious Waste Management
Bureau of Solid and Hazardous Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201

Re: SUBMITTAL OF THE QUARTERLY RCRA FACILITY INVESTIGATION PROGRESS REPORT

Dear Mr. Thompson,

The purpose of this letter is to submit the Quarterly RCRA Facility Investigation (RFI) Progress Report for Naval Base Charleston. This report is submitted in order to comply with condition II.C.5 of the RCRA Part B permit issued to the Naval Base by the Environmental Protection Agency and the South Carolina Department of Health and Environmental Control.

Enclosure (1) is the Quarterly Report which contains the activity for the month of March, 1996. Monthly reports have been submitted previously for the months of January and February which complete the quarter. If you should have any questions, please contact Joe V. Camp Jr. or Tony Hunt at (803) 743-9985 and (803) 820-5525 respectively.

Sincerely,

Thomas F. Fressilli
for PHIL H. DALBY
Commander, U.S. Navy
Caretaker Site Officer
By direction

Encl:
(1) Quarterly RFI Progress Report - March 1996

Copy to (w/encl):
SCDHEC (Bowers)
USEPA (Brittain)
SOUTHNAVFACENGCOM (Hunt)
CSO Naval Base Charleston (Camp, Fontenot)

**NAVBASE CHARLESTON**
**RFI STATUS REPORT**
**PERIOD: SUMMARY OF**
**01 March 1996 To 31 March 1996**

## I. INTRODUCTION

The following status report has been prepared to satisfy condition II.E.3.a of the Part B Permit Renewal dated 5 December 1994 for Naval Base Charleston (NAVBASE). The requirements of this condition are in effect since the total elapsed time to complete the RCRA Facility Investigation (RFI) is projected to be greater than 180 calendar days from the approval date of the *Final Comprehensive RFI Work Plan* as indicated in the Corrective Action Management Plan (CAMP).

In lieu of submitting quarterly reports, NAVBASE is voluntarily submitting monthly reports to provide an update on the progress of the RFI to members of the NAVBASE BRAC Cleanup Team (BCT) in a more timely manner. The content of the monthly reports includes information intended to satisfy condition II.E.3.a of the Part B Permit. Consequently, this report only addresses activities which occurred during the month of March 1996.

## II. PORTION OF THE RFI COMPLETED

- Revision 2 of the *Corrective Action Management Plan* was submitted to SCDHEC and EPA on 26 March 1996 for review and approval.

- The second phase of soil sampling in Zone A was completed the week of 25 March 1996.

- The *Draft Zone B RFI Report* was submitted to SCDHEC and EPA on 4 March 1996 for review and comment.

- Field work continued in Zone E with the initiation of groundwater sampling. Attachment A is a summary of the number of samples collected for each of the sites within Zone E.

- The fourth quarter of groundwater sampling in Zone H began 8 March 1996. To date 47 of the 97 monitoring wells have been sampled. This sampling event is the final round of groundwater sampling to be completed under the scope of the *Final Zone H RFI Work Plan*.

- The *Draft Zone K RFI Work Plan* was submitted to the Navy on 11 March 1996 for review and comment.

## III. SUMMARIES OF FINDINGS

Attachment B is a summary of the analytical data received to date for the surface soil samples collected in Zone E. The data is preliminary pending completion of the validation process.

## IV. DEVIATIONS FROM APPROVED WORK PLANS THIS REPORTING PERIOD

There were no known deviations from the approved RFI Work Plans for this reporting period.

## V. SUMMARY OF CONTACTS WITH LOCAL COMMUNITY PUBLIC INTEREST GROUPS OR STATE GOVERNMENT

As indicated in the January 1995 Quarterly Status Report, the Navy has established a Restoration Advisory Board (RAB) to involve the public in the decisions regarding the investigation and remediation of contaminated sites at Naval Base Charleston. The meetings are held monthly and are open to the public. The minutes of the February 1995 meeting are provided as Attachment C. The minutes of the March 1995 meeting were not available for submittal with this report.

## VI. SUMMARY OF PROBLEMS OR POTENTIAL PROBLEMS AND ACTION TAKEN TO RECTIFY PROBLEMS

Difficulties have been encountered while trying to find an acceptable means to evaluate the unexploded ordnance (UXO) sites located in Zone H and the Cooper River. The two possible alternatives are a geophysical survey to attempt to locate the ordnance so they can be disposed of or a risk evaluation to determine the likelihood of whether the ordnance have deteriorated to the point where they no longer pose a risk. At the last Project Team meeting it was agreed that a second opinion regarding these two options would be sought from private EOD contractors and the issue revisited at the next meeting in April.

## VII. KEY PROJECT PERSONNEL

The January 1995 status report identified key Navy and EnSafe/Allen & Hoshall project personnel for the NAVBASE Charleston RFI. Effective 1 April 1996, significant changes in key Navy personnel will occur as a result of the closure of Charleston Naval Shipyard. The following list reflects those changes.

**Navy Personnel**
**Permittee**
Caretaker Site Office

**Officer in Charge**
Commander Phil H. Dalby

**Permittee Designated Representative**
Environmental Branch

Joe V. Camp

**Remedial Project Managers**
Southern Division, Naval Facilities Engineering Command

**Installation Restoration Branch III (Code 187)**
Matthew A. Hunt and Brian K. Stockmaster

**BRAC Environmental Coordinator**
Naval Base Charleston, Base Closure Office

**BRAC Environmental Coordinator (N4BEC)**
Daryle Fontenot

**Charleston Environmental Engineering Remediation Detachment**

**Program Manager**
Earle H. Dearhart

**Contractor Personnel**
**EnSafe/Allen & Hoshall**
Dr. Jim Speakman - CLEAN Program Manager
Todd Haverkost - Task Order Manager
Lawson Anderson - Zones A & B Site Manager
Ginny Gray - Zones C & I Site Manager
Craig Smith - Zones D, F, & G Site Manager
Dave Backus - Zone E Site Manager
Britton Dotson - Zones H & K Site Manager
Mark Bowers- Risk Assessment
Robert Moser - Senior Engineer
David Trimm - Eco. Assessment
David Isenberg - Health & Safety Officer
Peter McPheters - Sr. Project Assistant

## VIII. PROJECTED WORK FOR THE NEXT REPORTING PERIOD

**Document Preparation and Data Evaluation:**

- The Navy anticipates receipt of comments from SCDHEC and EPA pertaining to the proposed revisions to the *Final Comprehensive RFI Work Plan*. Upon receipt of the comments, the plan will be revised and submitted for approval.

- Data evaluation for Zones A and E will continue.

- The *Draft Zone K RFI Work Plan* is scheduled to be submitted to SCDHEC and EPA on 1 April 1996 for review and comment.

**Field Activities:**

- The groundwater screening effort in Zone A is anticipated to be completed. Additionally, the second quarter of groundwater sampling for the permanent monitoring wells will likely begin.

- The third quarter of groundwater sampling in Zone C is scheduled to begin.

- The initial round of groundwater sampling in Zone E will continue.

- The fourth quarter of groundwater sampling in Zone H will be completed.

- The third quarter of groundwater sampling in Zone I is scheduled to begin.

## IX. COPIES OF DAILY REPORTS, INSPECTION REPORTS, LABORATORY DATA

Daily activities are recorded in accordance with the Data Management Plan included as Section 14 of the Final Comprehensive Sampling and Analysis Plan. Photocopies of these daily records have not been included with this status report; however, this information is available for review upon request.

Per agreement with SCDHEC and EPA, hard copies of the analytical data are not being submitted. A copy of the data is maintained at the EnSafe/Allen & Hoshall office in Charleston and is available for review.

## Status Report for Field Activities — Zone E RFI
## August 21, 1995 - March 28, 1996

Groundwater sampling activities started on March 11, 1996. Thirty-five (35) monitoring wells (29 shallow, 6 deep) have sampled to date. Analytical data from soil sampling activities is being evaluated to determine the need for any additional work at each site. A total of 908 soil, 36 sediment, 82 wipe, 15 air, 43 core, 23 surface water, and 35 groundwater samples have been collected. The initial round of soil sampling activities has been completed with the exception of AOC 578, which will be completed after April 1, 1996. Second round soil sampling activities are anticipated to begin the first week of May.

**Zone E — Site Specific Completion List**

| Site Name | Samples Collected | | | | | | |
|---|---|---|---|---|---|---|---|
| | Soil | Sediment | Wipe | Air | Concrete/ Asphalt Core | Surface Water | Groundwater |
| AOC 525 - Bldg 223 | 8 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 526 - Bldg 212 | 16 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 528 - Bldg 1453 | 8 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 530 - Bldg 35 | 13 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 531 - Bldg 459 | 6 | N/A | 4 | N/A | N/A | N/A | N/A |
| AOC 538 - Bldg 6 | 15 | N/A | 16 | 10 | N/A | N/A | 0 |
| AOC 539 - Bldg 6 | 6 | 1 | 6 | 5 | N/A | N/A | 0 |
| AOC 540 - Bldg 226 | 2 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 541 - Bldg 226 | 1 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 542 - Bldg 226 | 12 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 543 - Bldg 226 | 8 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 544 - Bldg 221 | 8 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 546 - Bldg 221 | N/A | 1 | N/A | N/A | N/A | N/A | N/A |
| AOC 548 - Bldg 5 | 8 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 549 - Bldg 5 | 19 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 550 - Bldg 1111 | 10 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 551 - Bldg 1119 | 12 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 552 - Bldg 1119 | 6 | N/A | N/A | N/A | N/A | N/A | N/A |

| Zone E — Site Specific Completion List | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Samples Collected | | | | | | |
| Site Name | Soil | Sediment | Wipe | Air | Concrete/ Asphalt Core | Surface Water | Groundwater |
| AOC 554 - Bldg 5 | 4 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 555 - Bldg 29 | N/A | 2 | N/A | N/A | N/A | N/A | N/A |
| AOC 556 - Dry Docks | N/A | 9 | N/A | N/A | N/A | 23 | N/A |
| AOC 558 - Bldg 77 | N/A | N/A | 4 | N/A | 4 | N/A | N/A |
| AOC 559 - Bldg 32 | 43 | N/A | 9 | N/A | N/A | N/A | 0 |
| AOC 560 - Bldg 32 | 4 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 561 - Bldg 32 | 8 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 562 - Bldg 84 | 8 | N/A | 4 | N/A | N/A | N/A | N/A |
| AOC 563 - Bldg 37 | 18 | N/A | N/A | N/A | N/A | N/A | 3 |
| AOC 564 - Bldg 80 | 6 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 566 - Bldg 194 | 10 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 567 - Bldg 75 | 7 | N/A | 4 | N/A | N/A | N/A | N/A |
| AOC 569 - Bldg 25 | 10 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 570 - Bldg 25 | 28 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 571 - Bldg 177 | N/A | N/A | N/A | N/A | 3 | N/A | N/A |
| AOC 572 - Bldg 177 | 16 | 1 | N/A | N/A | N/A | N/A | 0 |
| AOC 573 - Bldg 177 | 10 | 2 | N/A | N/A | N/A | N/A | 0 |
| AOC 574 - Bldg 9 | 10 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 576 - Bldg 80 | 10 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 579 - Bldg 1035 | 8 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 580 - Bldg 10 | 12 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 583 - Bldg 236 | 14 | N/A | N/A | N/A | N/A | N/A | 4 |
| AOC 586 - Bldg 1014 | 8 | N/A | N/A | N/A | N/A | N/A | 1 |
| AOC 590 - Bldg 79 | 8 | 1 | N/A | N/A | N/A | N/A | 2 |

**Zone E — Site Specific Completion List**

| Site Name | Samples Collected | | | | | | |
|---|---|---|---|---|---|---|---|
| | Soil | Sediment | Wipe | Air | Concrete/ Asphalt Core | Surface Water | Groundwater |
| AOC 592 - Bldg 1225 | 8 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 596 - Bldg 101 | 22 | N/A | N/A | N/A | N/A | N/A | 4 |
| AOC 597 - Bldg 91 | 8 | N/A | 3 | N/A | 1 | N/A | N/A |
| AOC 598 - Pier J | 8 | 1 | N/A | N/A | N/A | N/A | 1 |
| AOC 599 - Bldg 39 | 8 | 1 | N/A | N/A | N/A | N/A | 1 |
| AOC 602 - Bldg 95 | 8 | N/A | 4 | N/A | N/A | N/A | N/A |
| AOC 603 - DD3 | 10 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 604 - Bldg 96 | 8 | N/A | 4 | N/A | N/A | N/A | N/A |
| AOC 605 - 1278 | 18 | N/A | N/A | N/A | N/A | N/A | 3 |
| SWMU 5 - Pad 1278 | 6 | N/A | N/A | N/A | N/A | N/A | N/A |
| SWMU 18 - 1278 | 8 | N/A | N/A | N/A | N/A | N/A | 2 |
| SWMU 21 - Bldg 1275 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| SWMU 22 - Bldg 5 | 4 | N/A | N/A | N/A | N/A | N/A | N/A |
| SWMU 23 - Bldg 226 | 6 | N/A | N/A | N/A | N/A | N/A | 0 |
| SWMU 25 - Bldg 44 | 20 | 1 | N/A | N/A | N/A | N/A | 0 |
| SWMU 53 - Bldg 212 | 4 | N/A | N/A | N/A | N/A | N/A | 0 |
| SWMU 54 - Bldg 1275 | 75 | 4 | N/A | N/A | N/A | N/A | N/A |
| SWMU 63 - Bldg 226 | 6 | N/A | N/A | N/A | N/A | N/A | 0 |
| SWMU 65 - Bldg 221 | 11 | N/A | N/A | N/A | N/A | N/A | 0 |
| SWMU 67 - Bldg 3 | 14 | N/A | 8 | Random | N/A | N/A | 0 |
| SWMU 70 - Bldg 5 | 8 | N/A | N/A | N/A | N/A | N/A | 0 |
| SWMU 81 - Bldg 1245 | N/A | 2 | N/A | N/A | 3 | N/A | N/A |
| SWMU 83 - Bldg 9 | 16 | N/A | 16 | 0 | N/A | N/A | 0 |
| SWMU 84 - Bldg 9 | 12 | N/A | N/A | N/A | N/A | N/A | 0 |

| Zone E — Site Specific Completion List | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Samples Collected | | | | | | |
| **Site Name** | **Soil** | **Sediment** | **Wipe** | **Air** | **Concrete/ Asphalt Core** | **Surface Water** | **Groundwater** |
| SWMU 87 - Bldg 80 | 2 | N/A | N/A | N/A | N/A | N/A | N/A |
| SWMU 97 - Bldg 236 | 6 | N/A | N/A | N/A | N/A | N/A | 1 |
| SWMU 100 - Bldg 218 | 6 | N/A | N/A | N/A | N/A | N/A | 1 |
| SWMU 102 - Bldg 79 | 57 | N/A | N/A | N/A | N/A | N/A | 1 |
| SWMU 106 - DD3 | 6 | N/A | N/A | N/A | N/A | N/A | 2 |
| SWMU 145 - Bldg 13A | 24 | N/A | N/A | N/A | N/A | N/A | 1 |
| SWMU 170 - DD1 | 25 | 4 | N/A | N/A | 15 | N/A | N/A |
| SWMU 171 - DD2 | 36 | 2 | N/A | N/A | 17 | N/A | N/A |
| SWMU 172 - Bldg 80 | 12 | 1 | N/A | N/A | N/A | N/A | 0 |
| SWMU 173 - Bldg 1297 | 4 | 3 | N/A | N/A | N/A | N/A | N/A |
| Supplemental Samples | 42 | N/A | N/A | N/A | N/A | N/A | 8 |
| TOTAL | 908 | 36 | 82 | 15 | 43 | 23 | 35 |

**Note:**
N/A indicates no samples were proposed for that particular matrix.

**Zone E Unvalidated Data - Do Not Cite**
**Site: 005**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[s] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Cyanide | MG/KG | 1 / 3 | 0.22 - 0.24 | 0.350 | | | | | |
| Acenaphthene | UG/KG | 1 / 3 | 720 - 750 | 130 | | 470000 N | | | |
| Aluminum (Al) | MG/KG | 3 / 3 | | 174 - 3630 | 2260 | 7800 N | | | |
| Anthracene | UG/KG | 1 / 3 | 720 - 750 | 210 | | 230000 N | | | |
| Antimony (Sb) | MG/KG | 3 / 3 | | 1.30 - 14.3 | 6.17 | 3.1 N | 1 | | |
| Arsenic (As) | MG/KG | 3 / 3 | | 2.10 - 5.20 | 3.83 | 2.3 N | 5 | | |
| Barium (Ba) | MG/KG | 3 / 3 | | 24.9 - 32.0 | 29.2 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 2 / 3 | 750 | 150 - 260 | 205 | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 3 / 3 | | 1.28 - 704 | 302 | 88 | 2 | | |
| Benzo(a)anthracene | UG/KG | 2 / 3 | 750 | 140 - 510 | 325 | 880 c | | | |
| Benzo(b)fluoranthene | UG/KG | 2 / 3 | 750 | 400 - 530 | 465 | 880 c | | | |
| Chrysene | UG/KG | 3 / 3 | | 82.0 - 550 | 304 | 88000 c | | | |
| * Dibenz(a,h)anthracene | UG/KG | 1 / 3 | 720 - 750 | 120 | | 88 c | 1 | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 2 / 3 | 750 | 140 - 260 | 200 | 880 c | | | |
| Benzo(k)fluoranthene | UG/KG | 3 / 3 | | 120 - 380 | 247 | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 2 / 3 | 750 | 130 - 450 | 290 | 88 c | 2 | | |
| Beryllium (Be) | MG/KG | 2 / 3 | 0.11 | 0.320 - 0.690 | 0.505 | 0.15 c | 2 | | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 3 / 3 | | 280 - 620 | 423 | 46000 c | | | |
| Cadmium (Cd) | MG/KG | 2 / 3 | 0.11 | 0.220 - 0.680 | 0.450 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 3 / 3 | | 531 - 55800 | 23400 | | | | |
| Carbazole | UG/KG | 1 / 2 | 720 | 110 | | 32000 c | | | |
| Chloroform | UG/KG | 1 / 3 | 5.0 - 6.0 | 4.00 | | 100000 c | | | |
| Chromium (Cr) | MG/KG | 3 / 3 | | 4.90 - 46.8 | 21.7 | 39 | 1 | | |
| Cobalt (Co) | MG/KG | 2 / 3 | 0.22 | 1.90 - 2.80 | 2.35 | 470 N | | | |
| Copper (Cu) | MG/KG | 3 / 3 | | 15.8 - 91.0 | 55.7 | 310 N | | | |
| 4,4'-DDE | UG/KG | 2 / 3 | 2.8 | 3.23 - 4.90 | 4.07 | 1900 c | | | |
| 4,4'-DDT | UG/KG | 2 / 3 | 2.8 | 14.2 - 31.2 | 22.7 | 1900 c | | | |
| Endrin aldehyde | UG/KG | 1 / 3 | 2.7 - 2.8 | 12.5 | | 2300 h | | | |
| Endrin ketone | UG/KG | 1 / 3 | 2.7 - 2.8 | 7.02 | | 2300 h | | | |
| Fluoranthene | UG/KG | 3 / 3 | | 140 - 1200 | 560 | 310000 N | | | |
| Fluorene | UG/KG | 1 / 3 | 720 - 750 | 100 | | 310000 N | | | |
| Iron (Fe) | MG/KG | 3 / 3 | | 2040 - 8180 | 4960 | 2300 N | 2 | | |
| Lead (Pb) | MG/KG | 3 / 3 | | 338 - 10500 | 3770 | 400 j | 2 | | |
| Magnesium (Mg) | MG/KG | 3 / 3 | | 38.3 - 1080 | 507 | | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 005**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Manganese (Mn) | MG/KG | 3 / 3 | | 13.7 - 86.7 | 55.3 | 39 N | 2 | | |
| Mercury (Hg) | MG/KG | 3 / 3 | | 0.150 - 0.230 | 0.187 | 2.3 N | | | |
| Methylene chloride | UG/KG | 1 / 3 | 5.0 - 6.0 | 7.00 | | 85000 C | | | |
| Nickel (Ni) | MG/KG | 3 / 3 | | 1.40 - 17.6 | 9.23 | 160 N | | | |
| Phenanthrene | UG/KG | 2 / 3 | 750 | 81.0 - 1000 | 541 | 310000 K | | | |
| Potassium (K) | MG/KG | 3 / 3 | | 232 - 724 | 515 | | | | |
| Pyrene | UG/KG | 3 / 3 | | 98.0 - 970 | 439 | 230000 N | | | |
| Silver (Ag) | MG/KG | 1 / 3 | 0.22 - 0.24 | 0.280 | | 39 N | | | |
| Sodium (Na) | MG/KG | 2 / 3 | 61 | 115 - 211 | 163 | | | | |
| Tin (Sn) | MG/KG | 3 / 3 | | 7.70 - 22.9 | 12.8 | 4700 | | | |
| Vanadium (V) | MG/KG | 3 / 3 | | 1.70 - 14.5 | 8.10 | 55 N | | | |
| Zinc (Zn) | MG/KG | 3 / 3 | | 21.2 - 451 | 271 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 018**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[s] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Technical Chlordane | UG/KG | 2 / 2 | | 114 - 328 | 221 | | | | |
| 123789-HxCDD | NG/KG | 1 / 1 | | 2.11 | | | | | |
| TECH-CHLORDANE (CAS | UG/KG | 1 / 1 | | 114 | | | | | |
| Cyanide | MG/KG | 1 / 5 | 0.21 - 0.24 | 0.310 | | | | | |
| Acenaphthene | UG/KG | 1 / 5 | 700 - 760 | 140 | | 470000 N | | | |
| Aluminum (Al) | MG/KG | 5 / 5 | | 1370 - 4800 | 2650 | 7800 N | | | |
| Antimony (Sb) | MG/KG | 4 / 5 | 0.48 | 1.60 - 25.6 | 9.51 | 3.1 N | 3 | | |
| Arsenic (As) | MG/KG | 5 / 5 | | 3.20 - 7.60 | 5.54 | 2.3 N | 10 | | |
| Barium (Ba) | MG/KG | 5 / 5 | | 10.9 - 60.3 | 28.8 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 4 / 5 | 760 | 90.0 - 790 | 355 | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 4 / 5 | 1800 | 126 - 1650 | 704 | 88 | 4 | | |
| * Benzo(a)anthracene | UG/KG | 4 / 5 | 760 | 88.0 - 970 | 405 | 880 c | 1 | | |
| * Benzo(b)fluoranthene | UG/KG | 3 / 5 | 760 - 850 | 109 - 1600 | 873 | 880 c | 2 | | |
| Chrysene | UG/KG | 4 / 5 | 760 | 107 - 1600 | 677 | 88000 c | | | |
| * Dibenz(a,h)anthracene | UG/KG | 2 / 5 | 700 - 850 | 140 - 300 | 220 | 88 c | 2 | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 4 / 5 | 760 | 76.0 - 760 | 339 | 880 c | | | |
| Benzo(k)fluoranthene | UG/KG | 4 / 5 | 760 | 115 - 1500 | 641 | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 4 / 5 | 760 | 97.0 - 1000 | 447 | 88 c | 4 | | |
| Beryllium (Be) | MG/KG | 4 / 5 | 0.12 | 0.200 - 0.470 | 0.390 | 0.15 c | 4 | | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 4 / 5 | 850 | 130 - 340 | 224 | 46000 c | | | |
| Cadmium (Cd) | MG/KG | 3 / 5 | 0.12 - 0.13 | 0.150 - 0.495 | 0.315 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 4 / 5 | 19000 | 526 - 18300 | 5710 | | | | |
| Chromium (Cr) | MG/KG | 4 / 5 | 16 | 4.90 - 64.3 | 37.5 | 39 | 2 | | |
| Cobalt (Co) | MG/KG | 4 / 5 | 32 | 0.400 - 9.40 | 4.20 | 470 N | | | |
| Copper (Cu) | MG/KG | 4 / 5 | 28 | 5.20 - 192 | 111 | 310 N | | | |
| 4,4'-DDE | UG/KG | 3 / 5 | 2.9 - 3.2 | 3.04 - 9.45 | 5.30 | 1900 c | | | |
| 4,4'-DDT | UG/KG | 3 / 5 | 2.9 - 3.2 | 17.5 - 24.5 | 20.9 | 1900 c | | | |
| Dieldrin | UG/KG | 2 / 5 | 2.9 - 3.6 | 3.04 - 6.96 | 5.00 | 40 c | | | |
| Diethylphthalate | UG/KG | 1 / 5 | 700 - 760 | 220 | | 630000 N | | | |
| Dioxin (TCDD TEQ) | PG/G | 1 / 1 | | 3.01 | | 4.3 | | | |
| Fluoranthene | UG/KG | 5 / 5 | | 77.0 - 2100 | 736 | 310000 N | | | |
| Iron (Fe) | MG/KG | 4 / 5 | 7400 | 2490 - 10600 | 7210 | 2300 N | 4 | | |
| Lead (Pb) | MG/KG | 4 / 5 | 42 | 8.70 - 1960 | 769 | 400 j | 3 | | |
| Magnesium (Mg) | MG/KG | 5 / 5 | | 176 - 1190 | 506 | | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 018**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Manganese (Mn) | MG/KG | 4 / 5 | 97 | 25.8 - 110 | 54.9 | 39 N | 2 | | |
| Mercury (Hg) | MG/KG | 3 / 5 | 0.020 - 0.11 | 0.400 - 0.700 | 0.563 | 2.3 N | | | |
| Nickel (Ni) | MG/KG | 4 / 5 | 6.3 | 1.70 - 22.4 | 12.8 | 160 N | | | |
| pH | SU | 1 / 1 | | 8.43 | | | | | |
| Phenanthrene | UG/KG | 2 / 5 | 700 - 850 | 180 - 310 | 245 | 310000 k | | | |
| Potassium (K) | MG/KG | 5 / 5 | | 239 - 513 | 416 | | | | |
| Pyrene | UG/KG | 5 / 5 | | 80.0 - 2000 | 737 | 230000 N | | | |
| Sodium (Na) | MG/KG | 3 / 5 | 82 - 82 | 134 - 653 | 316 | | | | |
| Tin (Sn) | MG/KG | 3 / 5 | 6.1 - 6.5 | 8.40 - 26.3 | 19.3 | 4700 | | | |
| Vanadium (V) | MG/KG | 5 / 5 | | 5.50 - 14.0 | 9.07 | 55 N | | | |
| Zinc (Zn) | MG/KG | 4 / 5 | 130 | 9.30 - 784 | 406 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 022**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | UG/KG | 1 / 2 | 410 | 82.0 | | 470000 N | | | |
| Acetone | UG/KG | 1 / 2 | 14 | 12.0 | | 780000 N | | | |
| Aluminum (Al) | MG/KG | 2 / 2 | | 4250 - 4680 | 4470 | 7800 N | | | |
| Anthracene | UG/KG | 1 / 2 | 410 | 71.0 | | 230000 N | | | |
| Arsenic (As) | MG/KG | 2 / 2 | | 3.30 - 6.00 | 4.65 | 2.3 N | 4 | | |
| Barium (Ba) | MG/KG | 2 / 2 | | 10.6 - 12.6 | 11.6 | 550 N | | | |
| Benzo(a)pyrene Equivalents | UG/KG | 1 / 2 | 0.44 | 0.0420 | | 88 | | | |
| Beryllium (Be) | MG/KG | 2 / 2 | | 0.260 - 0.380 | 0.320 | 0.15 C | 2 | | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 1 / 2 | 440 | 3550 | | 46000 C | | | |
| Calcium (Ca) | MG/KG | 2 / 2 | | 62200 - 140000 | 101000 | | | | |
| Chromium (Cr) | MG/KG | 2 / 2 | | 18.0 - 48.6 | 33.3 | 39 | 1 | | |
| Cobalt (Co) | MG/KG | 2 / 2 | | 3.50 - 12.5 | 8.00 | 470 N | | | |
| Copper (Cu) | MG/KG | 2 / 2 | | 7.80 - 11.5 | 9.65 | 310 N | | | |
| 4,4'-DDT | UG/KG | 1 / 2 | 3.4 | 4.05 | | 1900 C | | | |
| Dibenzofuran | UG/KG | 1 / 2 | 410 | 50.0 | | 31000 N | | | |
| Dioxin (TCDD TEQ) | PG/G | 1 / 1 | | 1.24 | | 4.3 | | | |
| Fluoranthene | UG/KG | 2 / 2 | | 48.0 - 230 | 139 | 310000 N | | | |
| Fluorene | UG/KG | 1 / 2 | 410 | 89.0 | | 310000 N | | | |
| Iron (Fe) | MG/KG | 2 / 2 | | 3500 - 4400 | 3950 | 2300 N | 2 | | |
| Lead (Pb) | MG/KG | 2 / 2 | | 5.60 - 15.6 | 10.6 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 2 / 2 | | 1980 - 4310 | 3150 | | | | |
| Manganese (Mn) | MG/KG | 2 / 2 | | 41.1 - 65.0 | 53.1 | 39 N | 2 | | |
| Methylene chloride | UG/KG | 1 / 2 | 7.0 | 13.0 | | 85000 C | | | |
| Nickel (Ni) | MG/KG | 2 / 2 | | 8.30 - 15.7 | 12.0 | 160 N | | | |
| pH | SU | 2 / 2 | | 7.94 - 8.38 | 8.16 | | | | |
| Phenanthrene | UG/KG | 1 / 2 | 410 | 170 | | 310000 k | | | |
| Potassium (K) | MG/KG | 2 / 2 | | 324 - 602 | 463 | | | | |
| Pyrene | UG/KG | 2 / 2 | | 50.0 - 110 | 80.0 | 230000 N | | | |
| Selenium (Se) | MG/KG | 1 / 2 | 0.62 | 0.830 | | 39 N | | | |
| Sodium (Na) | MG/KG | 2 / 2 | | 482 - 643 | 563 | | | | |
| Tetrachloroethene | UG/KG | 2 / 2 | | 3.50 - 16.0 | 9.75 | 12000 C | | | |
| Trichloroethene | UG/KG | 1 / 2 | 6.0 | 2.00 | | 58000 C | | | |
| Vanadium (V) | MG/KG | 2 / 2 | | 9.10 - 17.9 | 13.5 | 55 N | | | |
| Zinc (Zn) | MG/KG | 2 / 2 | | 25.8 - 42.9 | 34.4 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 023**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[s] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Acetone | UG/KG | 1 / 3 | 11 - 11 | 200 | | 780000 N | | | |
| Aluminum (Al) | MG/KG | 3 / 3 | | 1040 - 2820 | 2210 | 7800 N | | | |
| Antimony (Sb) | MG/KG | 1 / 3 | 0.43 - 0.47 | 1.60 | | 3.1 N | | | |
| Arsenic (As) | MG/KG | 3 / 3 | | 0.660 - 5.70 | 2.52 | 2.3 N | 4 | | |
| Barium (Ba) | MG/KG | 3 / 3 | | 4.10 - 15.2 | 9.57 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 2 / 3 | 710 | 78.0 - 180 | 129 | 310000 r | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 2 / 3 | 860 | 182 - 330 | 256 | 88 | 2 | | |
| Benzo(a)anthracene | UG/KG | 2 / 3 | 710 | 190 - 320 | 255 | 880 c | | | |
| Chrysene | UG/KG | 2 / 3 | 710 | 230 - 350 | 290 | 88000 c | | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 1 / 3 | 710 - 770 | 140 | | 880 c | | | |
| Benzo(k)fluoranthene | UG/KG | 2 / 3 | 710 | 270 - 380 | 325 | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 2 / 3 | 710 | 160 - 280 | 220 | 88 c | 2 | | |
| Beryllium (Be) | MG/KG | 2 / 3 | 0.11 | 0.160 - 0.190 | 0.175 | 0.15 c | 2 | | |
| Cadmium (Cd) | MG/KG | 1 / 3 | 0.11 - 0.11 | 0.240 | | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 3 / 3 | | 21900 - 109000 | 55100 | | | | |
| alpha-Chlordane | UG/KG | 1 / 3 | 1.4 - 1.5 | 1.60 | | 470 | | | |
| gamma-Chlordane | UG/KG | 1 / 3 | 1.4 - 1.5 | 3.20 | | 470 | | | |
| Chromium (Cr) | MG/KG | 3 / 3 | | 3.80 - 31.5 | 14.0 | 39 | | | |
| Cobalt (Co) | MG/KG | 3 / 3 | | 1.40 - 29.6 | 10.9 | 470 N | | | |
| Copper (Cu) | MG/KG | 3 / 3 | | 1.20 - 16.9 | 7.23 | 310 N | | | |
| 4,4'-DDT | UG/KG | 1 / 3 | 2.7 - 2.7 | 4.40 | | 1900 c | | | |
| Fluoranthene | UG/KG | 2 / 3 | 710 | 320 - 540 | 430 | 310000 N | | | |
| Iron (Fe) | MG/KG | 3 / 3 | | 1170 - 5330 | 2930 | 2300 N | 1 | | |
| Lead (Pb) | MG/KG | 3 / 3 | | 1.10 - 29.3 | 12.3 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 3 / 3 | | 345 - 1870 | 896 | | | | |
| Manganese (Mn) | MG/KG | 3 / 3 | | 25.5 - 149 | 69.1 | 39 N | 1 | | |
| Mercury (Hg) | MG/KG | 1 / 3 | 0.020 - 0.11 | 0.0200 | | 2.3 N | | | |
| Methylene chloride | UG/KG | 1 / 3 | 5.0 - 5.0 | 3.00 | | 85000 c | | | |
| Nickel (Ni) | MG/KG | 3 / 3 | | 1.70 - 14.8 | 7.57 | 160 N | | | |
| pH | S.U | 3 / 3 | | 7.27 - 8.23 | 7.75 | | | | |
| Phenanthrene | UG/KG | 2 / 3 | 710 | 160 - 380 | 270 | 310000 k | | | |
| Potassium (K) | MG/KG | 2 / 3 | 520 | 438 - 720 | 579 | | | | |
| Pyrene | UG/KG | 2 / 3 | 710 | 330 - 510 | 420 | 230000 N | | | |
| Silver (Ag) | MG/KG | 1 / 3 | 0.21 - 0.22 | 0.240 | | 39 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 023**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Sodium (Na) | MG/KG | 2 / 3 | 53 | 47.7 - 76.7 | 62.2 | | | | |
| Tin (Sn) | MG/KG | 1 / 3 | 2.1 - 2.4 | 9.40 | | 4700 | | | |
| Vanadium (V) | MG/KG | 3 / 3 | | 2.20 - 7.30 | 4.37 | 55 N | | | |
| Xylene (Total) | UG/KG | 1 / 3 | 5.0 - 5.0 | 2.00 | | 160000 N | | | |
| Zinc (Zn) | MG/KG | 3 / 3 | | 3.50 - 23.0 | 14.9 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 025**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[5] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Cyanide | MG/KG | 1 / 4 | 0.22 - 0.23 | 0.560 | | | | | |
| Acetone | UG/KG | 9 / 10 | 11 | 9.00 - 32.0 | 22.2 | 780000 N | | | |
| Aluminum (Al) | MG/KG | 10 / 10 | | 2740 - 6840 | 4630 | 7800 N | | | |
| Anthracene | UG/KG | 2 / 10 | 350 - 720 | 46.0 - 76.0 | 61.0 | 230000 N | | | |
| Antimony (Sb) | MG/KG | 4 / 10 | 0.43 - 0.46 | 0.800 - 5.10 | 2.13 | 3.1 N | 1 | | |
| Arsenic (As) | MG/KG | 10 / 10 | | 1.20 - 4.75 | 2.83 | 0.43 c | 15 | | |
| Barium (Ba) | MG/KG | 10 / 10 | | 15.8 - 93.5 | 40.0 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 9 / 10 | 720 | 44.0 - 295 | 160 | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 10 / 10 | | 9.09 - 621 | 282 | 88 | 8 | | |
| Benzo(a)anthracene | UG/KG | 9 / 10 | 720 | 62.0 - 350 | 179 | 880 c | | | |
| Benzo(b)fluoranthene | UG/KG | 10 / 10 | | 72.0 - 440 | 208 | 880 c | | | |
| Chrysene | UG/KG | 9 / 10 | 720 | 79.0 - 380 | 222 | 88000 c | | | |
| * Dibenz(a,h)anthracene | UG/KG | 7 / 10 | 360 - 720 | 40.0 - 140 | 73.3 | 88 c | 2 | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 8 / 10 | 370 - 720 | 55.0 - 275 | 146 | 880 c | | | |
| Benzo(k)fluoranthene | UG/KG | 7 / 10 | 350 - 380 | 57.0 - 370 | 181 | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 9 / 10 | 720 | 68.0 - 370 | 201 | 88 c | 7 | | |
| Beryllium (Be) | MG/KG | 10 / 10 | | 0.160 - 0.395 | 0.246 | 0.15 c | 10 | | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 4 / 10 | 350 - 380 | 63.0 - 470 | 188 | 46000 c | | | |
| Cadmium (Cd) | MG/KG | 9 / 10 | 0.11 | 0.140 - 30.9 | 9.84 | 3.9 N | 4 | | |
| Calcium (Ca) | MG/KG | 10 / 10 | | 572 - 4620 | 2280 | | | | |
| Carbazole | UG/KG | 1 / 2 | 720 | 42.0 | | 32000 c | | | |
| Chromium (Cr) | MG/KG | 10 / 10 | | 4.35 - 1080 | 163 | 39 | 4 | | |
| Cobalt (Co) | MG/KG | 10 / 10 | | 0.375 - 23.0 | 5.82 | 470 N | | | |
| Copper (Cu) | MG/KG | 10 / 10 | | 4.10 - 539 | 86.5 | 310 N | 1 | | |
| Cyanide (CN) | MG/KG | 3 / 10 | 0.22 - 0.23 | 0.460 - 16.6 | 5.87 | 160 N | | | |
| Dibenzofuran | UG/KG | 1 / 10 | 350 - 720 | 54.5 | | 31000 N | | | |
| 1,2-Dichlorobenzene | UG/KG | 1 / 10 | 350 - 720 | 46.0 | | 700000 N | | | |
| Dioxin (TCDD TEQ) | PG/G | 2 / 2 | | 0.0043 - 0.0070 | 0.0057 | 4.3 | | | |
| Endrin ketone | UG/KG | 1 / 10 | 2.7 - 2.9 | 2.80 | | 2300 h | | | |
| Fluoranthene | UG/KG | 9 / 10 | 720 | 110 - 610 | 327 | 310000 N | | | |
| Iron (Fe) | MG/KG | 10 / 10 | | 2440 - 8870 | 4440 | 2300 N | 10 | | |
| Lead (Pb) | MG/KG | 10 / 10 | | 10.7 - 469 | 121 | 400 j | 1 | | |
| Magnesium (Mg) | MG/KG | 10 / 10 | | 117 - 556 | 278 | | | | |
| Manganese (Mn) | MG/KG | 10 / 10 | | 32.5 - 215 | 77.0 | 39 N | 7 | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 025**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Mercury (Hg) | MG/KG | 10 / 10 | | 0.0550 - 2.20 | 0.376 | 2.3 N | | | |
| 2-Methylnaphthalene | UG/KG | 2 / 10 | 350 - 720 | 40.0 - 185 | 113 | 310000 n | | | |
| Methylene chloride | UG/KG | 10 / 10 | | 2.00 - 43.0 | 15.0 | 85000 c | | | |
| Naphthalene | UG/KG | 1 / 10 | 350 - 720 | 126 | | 310000 N | | | |
| Nickel (Ni) | MG/KG | 10 / 10 | | 1.12 - 85.1 | 25.8 | 160 N | | | |
| pH | SU | 10 / 10 | | 7.35 - 9.92 | 8.61 | | | | |
| Phenanthrene | UG/KG | 9 / 10 | 720 | 46.0 - 430 | 136 | 310000 k | | | |
| Potassium (K) | MG/KG | 10 / 10 | | 159 - 1150 | 599 | | | | |
| Pyrene | UG/KG | 10 / 10 | | 75.0 - 640 | 313 | 230000 N | | | |
| Selenium (Se) | MG/KG | 2 / 10 | 0.54 - 0.57 | 0.620 - 0.670 | 0.645 | 39 N | | | |
| Silver (Ag) | MG/KG | 7 / 10 | 0.22 - 0.22 | 0.350 - 4.40 | 1.65 | 39 N | | | |
| Sodium (Na) | MG/KG | 10 / 10 | | 26.5 - 119 | 74.6 | | | | |
| Tetrachloroethene | UG/KG | 4 / 10 | 5.0 - 6.0 | 1.00 - 3.00 | 2.13 | 12000 c | | | |
| Tin (Sn) | MG/KG | 9 / 10 | 2.2 | 3.20 - 98.3 | 16.8 | 4700 | | | |
| Trichloroethene | UG/KG | 9 / 10 | 5.0 | 7.00 - 97.0 | 25.7 | 58000 c | | | |
| Vanadium (V) | MG/KG | 10 / 10 | | 3.35 - 9.25 | 5.87 | 55 N | | | |
| Zinc (Zn) | MG/KG | 10 / 10 | | 11.2 - 1040 | 205 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 053**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| 123789-HxCDD | NG/KG | 1 / 1 | | 3.96 | | | | | |
| Acetone | UG/KG | 2 / 2 | | 6.00 - 150 | 78.0 | 780000 N | | | |
| Aluminum (Al) | MG/KG | 1 / 2 | 2000 | 1450 | | 7800 N | | | |
| Antimony (Sb) | MG/KG | 2 / 2 | | 0.560 - 1.10 | 0.830 | 3.1 N | | | |
| Arsenic (As) | MG/KG | 2 / 2 | | 6.20 - 10.7 | 8.45 | 2.3 N | 4 | | |
| Barium (Ba) | MG/KG | 2 / 2 | | 14.3 - 19.8 | 17.0 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 1 / 2 | 720 | 220 | | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 1 / 2 | 1700 | 353 | | 88 | 1 | | |
| Benzo(a)anthracene | UG/KG | 1 / 2 | 720 | 140 | | 880 c | | | |
| Benzo(b)fluoranthene | UG/KG | 1 / 2 | 720 | 300 | | 880 c | | | |
| Chrysene | UG/KG | 1 / 2 | 720 | 200 | | 88000 c | | | |
| Dibenz(a,h)anthracene | UG/KG | 1 / 2 | 720 | 79.0 | | 88 c | | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 1 / 2 | 720 | 170 | | 880 c | | | |
| Benzo(k)fluoranthene | UG/KG | 1 / 2 | 720 | 230 | | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 1 / 2 | 720 | 210 | | 88 c | 1 | | |
| Beryllium (Be) | MG/KG | 2 / 2 | | 0.155 - 0.180 | 0.168 | 0.15 c | 2 | | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 1 / 2 | 720 | 180 | | 46000 c | | | |
| Cadmium (Cd) | MG/KG | 2 / 2 | | 0.210 - 0.415 | 0.313 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 2 / 2 | | 2040 - 2700 | 2370 | | | | |
| gamma-Chlordane | UG/KG | 1 / 2 | 1.4 | 2.30 | | 470 | | | |
| Chromium (Cr) | MG/KG | 2 / 2 | | 33.7 - 69.9 | 51.8 | 39 | 1 | | |
| Cobalt (Co) | MG/KG | 2 / 2 | | 0.830 - 3.30 | 2.07 | 470 N | | | |
| Copper (Cu) | MG/KG | 2 / 2 | | 15.0 - 42.7 | 28.9 | 310 N | | | |
| 4,4'-DDD | UG/KG | 1 / 2 | 2.7 | 4.60 | | 2700 c | | | |
| 4,4'-DDE | UG/KG | 2 / 2 | | 23.0 - 26.0 | 24.5 | 1900 c | | | |
| 4,4'-DDT | UG/KG | 1 / 2 | 37 | 12.0 | | 1900 c | | | |
| Di-n-butylphthalate | UG/KG | 1 / 2 | 720 | 93.0 | | 780000 N | | | |
| * Dioxin (TCDD TEQ) | PG/G | 1 / 1 | | 8.49 | | 4.3 | 1 | | |
| 1234678-HpCDD | NG/KG | 1 / 1 | | 257 | | | | | |
| 1234678-HpCDF | NG/KG | 1 / 1 | | 126 | | | | | |
| 123678-HxCDD | NG/KG | 1 / 1 | | 7.43 | | | | | |
| 123678-HxCDF | NG/KG | 1 / 1 | | 14.9 | | | | | |
| OCDD | NG/KG | 1 / 1 | | 1760 | | | | | |
| OCDF | NG/KG | 1 / 1 | | 270 | | | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 053**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Fluoranthene | UG/KG | 1 / 2 | 720 | 120 | | 310000 N | | | |
| Iron (Fe) | MG/KG | 2 / 2 | | 4430 - 7860 | 6150 | 2300 N | 2 | | |
| Lead (Pb) | MG/KG | 2 / 2 | | 68.3 - 105 | 86.7 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 2 / 2 | | 621 - 826 | 724 | | | | |
| Manganese (Mn) | MG/KG | 2 / 2 | | 39.2 - 70.5 | 54.8 | 39 N | 2 | | |
| Mercury (Hg) | MG/KG | 1 / 2 | 0.31 | 8.80 | | 2.3 N | 1 | | |
| Methylene chloride | UG/KG | 2 / 2 | | 4.00 - 11.0 | 7.50 | 85000 C | | | |
| Nickel (Ni) | MG/KG | 2 / 2 | | 4.45 - 11.9 | 8.18 | 160 N | | | |
| Potassium (K) | MG/KG | 2 / 2 | | 384 - 524 | 454 | | | | |
| Pyrene | UG/KG | 1 / 2 | 720 | 200 | | 230000 N | | | |
| Sodium (Na) | MG/KG | 2 / 2 | | 60.2 - 85.0 | 72.6 | | | | |
| Tin (Sn) | MG/KG | 2 / 2 | | 3.60 - 4.20 | 3.90 | 4700 | | | |
| Vanadium (V) | MG/KG | 2 / 2 | | 3.80 - 6.20 | 5.00 | 55 N | | | |
| Zinc (Zn) | MG/KG | 1 / 2 | 140 | 372 | | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 054**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Acetone | UG/KG | 1 / 1 | | 35.0 | | 780000 N | | | |
| Aluminum (Al) | MG/KG | 39 / 39 | | 1140 - 6180 | 3250 | 7800 N | | | |
| Anthracene | UG/KG | 5 / 39 | 350 - 870 | 72.0 - 115 | 92.2 | 230000 N | | | |
| Antimony (Sb) | MG/KG | 35 / 39 | 0.46 - 16 | 0.800 - 50.0 | 7.70 | 3.1 N | 20 | | |
| Arsenic (As) | MG/KG | 39 / 39 | | 0.880 - 16.2 | 5.27 | 2.3 N | 72 | | |
| Barium (Ba) | MG/KG | 39 / 39 | | 8.40 - 238 | 57.5 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 15 / 39 | 350 - 870 | 90.0 - 1040 | 236 | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 22 / 39 | 810 - 2000 | 13.0 - 2710 | 389 | 88 | 19 | | |
| * Benzo(a)anthracene | UG/KG | 20 / 39 | 350 - 870 | 95.0 - 1100 | 295 | 880 c | 1 | | |
| * Benzo(b)fluoranthene | UG/KG | 21 / 39 | 350 - 870 | 100 - 2700 | 383 | 880 c | 1 | | |
| Chrysene | UG/KG | 20 / 39 | 350 - 870 | 92.0 - 2300 | 373 | 88000 c | | | |
| * Dibenz(a,h)anthracene | UG/KG | 6 / 39 | 350 - 870 | 36.0 - 520 | 170 | 88 c | 4 | | |
| * Indeno(1,2,3-cd)pyrene | UG/KG | 15 / 39 | 350 - 870 | 68.0 - 1210 | 232 | 880 c | 1 | | |
| Benzo(k)fluoranthene | UG/KG | 15 / 39 | 350 - 870 | 130 - 1580 | 312 | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 19 / 39 | 350 - 870 | 84.0 - 1670 | 303 | 88 c | 18 | | |
| Benzoic acid | UG/KG | 1 / 39 | 1700 - 4300 | 1100 | | 310000 N | | | |
| Beryllium (Be) | MG/KG | 35 / 39 | 0.11 - 0.53 | 0.130 - 3.90 | 1.03 | 0.15 c | 34 | | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 21 / 39 | 690 - 2500 | 72.0 - 7600 | 730 | 46000 c | | | |
| Butylbenzylphthalate | UG/KG | 5 / 39 | 350 - 870 | 46.0 - 280 | 137 | 160000 N | | | |
| Cadmium (Cd) | MG/KG | 36 / 39 | 0.11 - 0.12 | 0.160 - 8.40 | 1.66 | 3.9 N | 3 | | |
| Calcium (Ca) | MG/KG | 39 / 39 | | 1220 - 110000 | 25600 | | | | |
| Carbazole | UG/KG | 1 / 15 | 690 - 850 | 90.0 | | 32000 c | | | |
| Chromium (Cr) | MG/KG | 39 / 39 | | 6.00 - 226 | 52.4 | 39 | 21 | | |
| Cobalt (Co) | MG/KG | 39 / 39 | | 0.375 - 52.5 | 10.4 | 470 N | | | |
| Copper (Cu) | MG/KG | 39 / 39 | | 4.80 - 2660 | 464 | 310 N | 20 | | |
| Dibenzofuran | UG/KG | 1 / 39 | 350 - 870 | 140 | | 31000 N | | | |
| Di-n-butylphthalate | UG/KG | 12 / 39 | 350 - 870 | 72.0 - 480 | 221 | 780000 N | | | |
| Diethylphthalate | UG/KG | 2 / 39 | 350 - 870 | 100 - 120 | 110 | 630000 N | | | |
| Di-n-octyl phthalate | UG/KG | 1 / 39 | 350 - 870 | 10000 | | 160000 N | | | |
| Dioxin (TCDD TEQ) | PG/G | 9 / 9 | | 0.0054 - 2.14 | 0.644 | 4.3 | | | |
| Fluoranthene | UG/KG | 23 / 39 | 350 - 870 | 120 - 1400 | 443 | 310000 N | | | |
| Fluorene | UG/KG | 1 / 39 | 350 - 870 | 200 | | 310000 N | | | |
| Iron (Fe) | MG/KG | 39 / 39 | | 1440 - 46200 | 15000 | 2300 N | 36 | | |
| Lead (Pb) | MG/KG | 32 / 39 | 49 - 720 | 9.00 - 9520 | 1090 | 400 j | 16 | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 054**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Magnesium (Mg) | MG/KG | 39 / 39 | | 90.0 - 8110 | 1340 | | | | |
| Manganese (Mn) | MG/KG | 39 / 39 | | 9.30 - 490 | 149 | 39 N | 36 | | |
| Mercury (Hg) | MG/KG | 30 / 39 | 0.030 - 0.23 | 0.0300 - 13.6 | 0.973 | 2.3 N | 3 | | |
| 4-Methylphenol (p-Cresol) | UG/KG | 1 / 39 | 350 - 870 | 62.0 | | 39000 N | | | |
| Naphthalene | UG/KG | 2 / 39 | 350 - 870 | 58.0 - 95.0 | 76.5 | 310000 N | | | |
| Nickel (Ni) | MG/KG | 39 / 39 | | 2.30 - 492 | 44.6 | 160 N | 1 | | |
| Phenanthrene | UG/KG | 15 / 39 | 350 - 870 | 40.0 - 525 | 268 | 310000 k | | | |
| Potassium (K) | MG/KG | 32 / 39 | 170 - 1300 | 172 - 1480 | 483 | | | | |
| Pyrene | UG/KG | 27 / 39 | 350 - 870 | 89.0 - 2260 | 454 | 230000 N | | | |
| Selenium (Se) | MG/KG | 11 / 39 | 0.52 - 2.6 | 0.530 - 2.20 | 0.921 | 39 N | | | |
| Silver (Ag) | MG/KG | 21 / 39 | 0.21 - 1.1 | 0.240 - 5.10 | 1.02 | 39 N | | | |
| Sodium (Na) | MG/KG | 35 / 39 | 39 - 75 | 17.2 - 1660 | 346 | | | | |
| * Thallium (Tl) | MG/KG | 8 / 39 | 0.52 - 2.6 | 0.570 - 4.20 | 1.35 | 0.63 | 6 | | |
| Tin (Sn) | MG/KG | 34 / 39 | 3.2 - 14 | 5.20 - 236 | 44.4 | 4700 | | | |
| Vanadium (V) | MG/KG | 39 / 39 | | 1.70 - 21.7 | 8.64 | 55 N | | | |
| Zinc (Zn) | MG/KG | 23 / 39 | 41 - 2900 | 14.3 - 3250 | 1010 | 2300 N | 3 | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 063**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[s] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum (Al) | MG/KG | 3 / 3 | | 821 - 3670 | 2180 | 7800 N | | | |
| Arsenic (As) | MG/KG | 2 / 3 | 0.56 | 1.00 - 2.50 | 1.75 | 0.43 c | 3 | | |
| Barium (Ba) | MG/KG | 3 / 3 | | 0.960 - 11.0 | 6.19 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 1 / 3 | 700 - 750 | 180 | | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 1 / 3 | 920 - 980 | 354 | | 88 | 1 | | |
| Benzo(a)anthracene | UG/KG | 1 / 3 | 700 - 750 | 290 | | 880 c | | | |
| Benzo(b)fluoranthene | UG/KG | 1 / 3 | 700 - 750 | 260 | | 880 c | | | |
| Chrysene | UG/KG | 1 / 3 | 700 - 750 | 310 | | 88000 c | | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 1 / 3 | 700 - 750 | 160 | | 880 c | | | |
| Benzo(k)fluoranthene | UG/KG | 1 / 3 | 700 - 750 | 250 | | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 1 / 3 | 700 - 750 | 280 | | 88 c | 1 | | |
| Beryllium (Be) | MG/KG | 1 / 3 | 0.11 - 0.11 | 0.130 | | 0.15 c | | | |
| Calcium (Ca) | MG/KG | 3 / 3 | | 1660 - 9700 | 6240 | | | | |
| alpha-Chlordane | UG/KG | 2 / 3 | 1.5 | 1.50 - 67.0 | 34.3 | 470 | | | |
| gamma-Chlordane | UG/KG | 1 / 3 | 1.4 - 1.5 | 77.0 | | 470 | | | |
| Chromium (Cr) | MG/KG | 3 / 3 | | 2.60 - 5.30 | 3.80 | 39 | | | |
| Cobalt (Co) | MG/KG | 2 / 3 | 0.22 | 0.470 - 0.650 | 0.560 | 470 N | | | |
| Copper (Cu) | MG/KG | 3 / 3 | | 0.250 - 8.50 | 3.75 | 310 N | | | |
| 4,4'-DDE | UG/KG | 1 / 3 | 2.6 - 2.8 | 14.0 | | 1900 c | | | |
| Fluoranthene | UG/KG | 1 / 3 | 700 - 750 | 490 | | 310000 N | | | |
| Heptachlor | UG/KG | 1 / 3 | 1.4 - 1.5 | 1.80 | | 140 c | | | |
| Iron (Fe) | MG/KG | 3 / 3 | | 1160 - 3660 | 2600 | 2300 N | 2 | | |
| Lead (Pb) | MG/KG | 3 / 3 | | 2.70 - 29.8 | 12.3 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 3 / 3 | | 26.4 - 494 | 236 | | | | |
| Manganese (Mn) | MG/KG | 3 / 3 | | 5.90 - 59.8 | 27.2 | 39 N | 1 | | |
| Mercury (Hg) | MG/KG | 1 / 3 | 0.11 - 0.11 | 1.70 | | 2.3 N | | | |
| Nickel (Ni) | MG/KG | 3 / 3 | | 0.290 - 1.80 | 1.23 | 160 N | | | |
| pH | S.U | 3 / 3 | | 7.89 - 8.20 | 8.09 | | | | |
| Phenanthrene | UG/KG | 1 / 3 | 700 - 750 | 230 | | 310000 k | | | |
| Pyrene | UG/KG | 1 / 3 | 700 - 750 | 390 | | 230000 N | | | |
| Vanadium (V) | MG/KG | 3 / 3 | | 3.20 - 5.80 | 4.67 | 55 N | | | |
| Zinc (Zn) | MG/KG | 3 / 3 | | 0.690 - 20.0 | 9.60 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 065**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[s] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Acetone | UG/KG | 4 / 6 | 12 - 12 | 34.0 - 230 | 117 | 780000 N | | | |
| Aluminum (Al) | MG/KG | 3 / 6 | 1200 - 6500 | 1780 - 4080 | 2920 | 7800 N | | | |
| Antimony (Sb) | MG/KG | 2 / 6 | 0.44 - 0.49 | 0.790 - 2.90 | 1.85 | 3.1 N | | | |
| Arsenic (As) | MG/KG | 6 / 6 | | 0.790 - 6.95 | 2.94 | 0.43 c | 9 | | |
| Barium (Ba) | MG/KG | 6 / 6 | | 7.40 - 22.8 | 13.3 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 1 / 6 | 750 - 960 | 74.0 | | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 2 / 6 | 980 - 1300 | 122 - 214 | 168 | 88 | 2 | | |
| Benzo(a)anthracene | UG/KG | 2 / 6 | 750 - 960 | 113 - 200 | 156 | 880 c | | | |
| Benzo(b)fluoranthene | UG/KG | 2 / 6 | 750 - 960 | 93.5 - 240 | 167 | 880 c | | | |
| Chrysene | UG/KG | 2 / 6 | 750 - 960 | 125 - 420 | 273 | 88000 c | | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 1 / 6 | 750 - 960 | 72.0 | | 880 c | | | |
| Benzo(k)fluoranthene | UG/KG | 2 / 6 | 750 - 960 | 110 - 270 | 190 | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 2 / 6 | 750 - 960 | 100 - 160 | 130 | 88 c | 2 | | |
| Beryllium (Be) | MG/KG | 4 / 6 | 0.12 - 0.13 | 0.150 - 0.440 | 0.319 | 0.15 c | 4 | | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 3 / 6 | 730 - 960 | 100 - 1300 | 563 | 46000 c | | | |
| Cadmium (Cd) | MG/KG | 5 / 6 | 0.11 | 0.160 - 1.45 | 0.661 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 6 / 6 | | 1970 - 94800 | 22300 | | | | |
| alpha-Chlordane | UG/KG | 1 / 6 | 1.3 - 1.9 | 9.60 | | 470 | | | |
| gamma-Chlordane | UG/KG | 1 / 6 | 1.3 - 1.9 | 13.5 | | 470 | | | |
| 4-Chloroaniline | UG/KG | 1 / 6 | 370 - 960 | 100 | | 31000 N | | | |
| Chromium (Cr) | MG/KG | 3 / 6 | 4.9 - 37 | 6.85 - 11.8 | 8.95 | 39 | | | |
| Chromium (Hexavalent) | MG/KG | 1 / 2 | 0.56 | 0.167 | | 39 N | | | |
| Cobalt (Co) | MG/KG | 6 / 6 | | 0.600 - 15.9 | 6.54 | 470 N | | | |
| Copper (Cu) | MG/KG | 3 / 6 | 9.1 - 61 | 4.90 - 72.5 | 34.6 | 310 N | | | |
| 4,4'-DDT | UG/KG | 1 / 6 | 2.5 - 3.6 | 3.20 | | 1900 c | | | |
| 1,2-Dichloroethene (total) | UG/KG | 1 / 6 | 6.0 - 7.0 | 2.00 | | 70000 N | | | |
| Dieldrin | UG/KG | 1 / 6 | 2.5 - 3.6 | 22.0 | | 40 c | | | |
| Diethylphthalate | UG/KG | 1 / 6 | 370 - 960 | 330 | | 630000 N | | | |
| Dioxin (TCDD TEQ) | PG/G | 2 / 2 | | 0.0284 - 1.01 | 0.521 | 4.3 | | | |
| Fluoranthene | UG/KG | 2 / 6 | 750 - 960 | 170 - 740 | 455 | 310000 N | | | |
| Heptachlor | UG/KG | 1 / 6 | 1.3 - 1.9 | 1.80 | | 140 c | | | |
| Iron (Fe) | MG/KG | 6 / 6 | | 1450 - 6160 | 3880 | 2300 N | 4 | | |
| Lead (Pb) | MG/KG | 6 / 6 | | 6.60 - 165 | 59.4 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 5 / 6 | 2600 | 118 - 1010 | 422 | | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 065**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Manganese (Mn) | MG/KG | 6 / 6 | | 8.90 - 84.4 | 40.2 | 39 N | 3 | | |
| Mercury (Hg) | MG/KG | 5 / 6 | 0.020 | 0.0400 - 0.220 | 0.107 | 2.3 N | | | |
| Methylene chloride | UG/KG | 3 / 6 | 6.0 - 7.0 | 2.00 - 60.0 | 27.0 | 85000 C | | | |
| Naphthalene | UG/KG | 1 / 6 | 370 - 960 | 390 | | 310000 N | | | |
| Nickel (Ni) | MG/KG | 6 / 6 | | 1.90 - 49.1 | 12.8 | 160 N | | | |
| pH | SU | 6 / 6 | | 7.62 - 11.0 | 9.39 | | | | |
| Phenanthrene | UG/KG | 2 / 6 | 750 - 960 | 38.0 - 95.0 | 66.5 | 310000 K | | | |
| Potassium (K) | MG/KG | 5 / 6 | 1200 | 246 - 969 | 535 | | | | |
| Pyrene | UG/KG | 2 / 6 | 750 - 960 | 205 - 540 | 373 | 230000 N | | | |
| Selenium (Se) | MG/KG | 2 / 6 | 0.55 - 0.63 | 0.770 - 1.40 | 1.09 | 39 N | | | |
| Silver (Ag) | MG/KG | 1 / 6 | 0.22 - 0.28 | 0.380 | | 39 N | | | |
| Sodium (Na) | MG/KG | 5 / 6 | 58 | 89.4 - 441 | 276 | | | | |
| Tin (Sn) | MG/KG | 3 / 6 | 3.3 - 7.1 | 3.50 - 34.6 | 14.4 | 4700 | | | |
| Vanadium (V) | MG/KG | 6 / 6 | | 2.20 - 18.8 | 8.48 | 55 N | | | |
| Zinc (Zn) | MG/KG | 6 / 6 | | 19.1 - 243 | 109 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 067**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Mercury (Hg) | MG/KG | 3 / 7 | 0.11 - 0.11 | 0.0400 - 0.180 | 0.0967 | 2.3 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 070**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[s] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum (Al) | MG/KG | 4 / 4 | | 4790 - 9650 | 6540 | 7800 N | 1 | | |
| Arsenic (As) | MG/KG | 4 / 4 | | 2.50 - 3.60 | 3.05 | 2.3 N | 8 | | |
| delta-BHC | UG/KG | 2 / 4 | 1.4 - 1.4 | 2.30 - 4.80 | 3.55 | 490 I | | | |
| Barium (Ba) | MG/KG | 4 / 4 | | 17.3 - 45.0 | 26.1 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 1 / 4 | 350 - 370 | 49.0 | | 310000 F | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 1 / 4 | 460 - 490 | 101 | | 88 | 1 | | |
| Benzo(a)anthracene | UG/KG | 1 / 4 | 350 - 370 | 71.0 | | 880 C | | | |
| Benzo(b)fluoranthene | UG/KG | 1 / 4 | 350 - 370 | 80.0 | | 880 C | | | |
| Chrysene | UG/KG | 1 / 4 | 350 - 370 | 100 | | 88000 C | | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 1 / 4 | 350 - 370 | 42.0 | | 880 C | | | |
| Benzo(k)fluoranthene | UG/KG | 1 / 4 | 350 - 370 | 79.0 | | 8800 C | | | |
| Benzo(a)pyrene | UG/KG | 1 / 4 | 350 - 370 | 81.0 | | 88 C | | | |
| Beryllium (Be) | MG/KG | 2 / 4 | 0.11 - 0.11 | 0.140 - 0.380 | 0.260 | 0.15 C | 1 | | |
| Cadmium (Cd) | MG/KG | 1 / 4 | 0.11 - 0.11 | 0.235 | | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 4 / 4 | | 583 - 1020 | 752 | | | | |
| 2-Chlorophenol | UG/KG | 1 / 4 | 350 - 370 | 68.0 | | 39000 N | | | |
| Chromium (Cr) | MG/KG | 4 / 4 | | 7.00 - 9.30 | 7.71 | 39 | | | |
| Cobalt (Co) | MG/KG | 4 / 4 | | 0.520 - 5.80 | 2.25 | 470 N | | | |
| Copper (Cu) | MG/KG | 4 / 4 | | 1.70 - 25.7 | 15.2 | 310 N | | | |
| 4,4'-DDE | UG/KG | 1 / 4 | 2.7 - 2.8 | 2.70 | | 1900 C | | | |
| Dioxin (TCDD TEQ) | PG/G | 1 / 1 | | 0.103 | | 4.3 | | | |
| Endrin aldehyde | UG/KG | 2 / 4 | 2.6 - 2.8 | 2.70 - 4.00 | 3.35 | 2300 h | | | |
| Fluoranthene | UG/KG | 2 / 4 | 350 - 370 | 36.0 - 140 | 88.0 | 310000 N | | | |
| Iron (Fe) | MG/KG | 4 / 4 | | 3380 - 5800 | 4650 | 2300 N | 4 | | |
| Lead (Pb) | MG/KG | 4 / 4 | | 9.00 - 26.1 | 15.5 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 4 / 4 | | 264 - 436 | 315 | | | | |
| Manganese (Mn) | MG/KG | 4 / 4 | | 15.9 - 85.1 | 36.6 | 39 N | 1 | | |
| Nickel (Ni) | MG/KG | 4 / 4 | | 2.00 - 3.75 | 2.51 | 160 N | | | |
| pH | S.U | 4 / 4 | | 7.10 - 8.19 | 7.80 | | | | |
| Potassium (K) | MG/KG | 2 / 4 | 170 - 170 | 203 - 234 | 218 | | | | |
| Pyrene | UG/KG | 2 / 4 | 350 - 370 | 71.5 - 110 | 90.8 | 230000 N | | | |
| Sodium (Na) | MG/KG | 4 / 4 | | 46.9 - 75.0 | 57.8 | | | | |
| Tin (Sn) | MG/KG | 1 / 4 | 2.1 - 2.2 | 2.30 | | 4700 | | | |
| Vanadium (V) | MG/KG | 4 / 4 | | 5.70 - 12.3 | 9.10 | 55 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 070**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[5] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Zinc (Zn) | MG/KG | 4 / 4 | | 6.40 - 86.5 | 31.9 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 083**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline | MG/KG | 1 / 1 | | 5460 | | | | | |
| MISCELLANEOUS C10-C28 | MG/KG | 1 / 1 | | 5640 | | | | | |
| Acenaphthene | UG/KG | 1 / 8 | 720 - 800 | 3600 | | 470000 N | | | |
| Acetone | UG/KG | 6 / 8 | 11 - 1400 | 6.00 - 88.0 | 54.7 | 780000 N | | | |
| Aluminum (Al) | MG/KG | 8 / 8 | | 2960 - 6300 | 4390 | 7800 N | | | |
| Anthracene | UG/KG | 3 / 8 | 720 - 800 | 160 - 1800 | 1090 | 230000 N | | | |
| Antimony (Sb) | MG/KG | 1 / 8 | 0.44 - 0.48 | 3.70 | | 3.1 N | 1 | | |
| Arsenic (As) | MG/KG | 8 / 8 | | 1.30 - 9.30 | 3.08 | 0.43 C | 13 | | |
| Barium (Ba) | MG/KG | 8 / 8 | | 14.2 - 47.1 | 25.3 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 4 / 8 | 720 - 800 | 130 - 1700 | 658 | 310000 r | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 4 / 8 | 1700 - 1800 | 170 - 4280 | 1520 | 88 | 4 | | |
| * Benzo(a)anthracene | UG/KG | 3 / 8 | 720 - 800 | 320 - 3500 | 1520 | 880 C | 1 | | |
| * Benzo(b)fluoranthene | UG/KG | 2 / 8 | 720 - 800 | 800 - 2500 | 1650 | 880 C | 1 | | |
| Chrysene | UG/KG | 3 / 8 | 720 - 800 | 240 - 3000 | 1340 | 88000 C | | | |
| * Dibenz(a,h)anthracene | UG/KG | 2 / 8 | 720 - 800 | 210 - 550 | 380 | 88 C | 2 | | |
| * Indeno(1,2,3-cd)pyrene | UG/KG | 3 / 8 | 720 - 800 | 220 - 2000 | 930 | 880 C | 1 | | |
| Benzo(k)fluoranthene | UG/KG | 3 / 8 | 720 - 800 | 340 - 2800 | 1330 | 8800 C | | | |
| * Benzo(a)pyrene | UG/KG | 4 / 8 | 720 - 800 | 170 - 2900 | 1050 | 88 C | 4 | | |
| Beryllium (Be) | MG/KG | 8 / 8 | | 0.140 - 0.560 | 0.356 | 0.15 C | 7 | | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 1 / 8 | 720 - 1100 | 140 | | 46000 C | | | |
| 2-Butanone (MEK) | UG/KG | 1 / 8 | 11 - 1400 | 6.00 | | 470000 N | | | |
| Butylbenzylphthalate | UG/KG | 3 / 8 | 720 - 800 | 190 - 300 | 243 | 160000 N | | | |
| Cadmium (Cd) | MG/KG | 5 / 8 | 0.11 - 0.12 | 0.240 - 0.430 | 0.370 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 8 / 8 | | 657 - 19200 | 6980 | | | | |
| Carbazole | UG/KG | 1 / 1 | | 130 | | 32000 C | | | |
| gamma-Chlordane | UG/KG | 1 / 8 | 1.4 - 2.1 | 12.0 | | 470 | | | |
| 2-Chlorophenol | UG/KG | 1 / 8 | 720 - 1100 | 100 | | 39000 N | | | |
| Chromium (Cr) | MG/KG | 8 / 8 | | 3.30 - 10.5 | 5.83 | 39 | | | |
| Cobalt (Co) | MG/KG | 8 / 8 | | 1.00 - 21.0 | 7.74 | 470 N | | | |
| Copper (Cu) | MG/KG | 8 / 8 | | 5.00 - 243 | 85.3 | 310 N | | | |
| Diethylphthalate | UG/KG | 1 / 8 | 720 - 1100 | 210 | | 630000 N | | | |
| Fluoranthene | UG/KG | 4 / 8 | 720 - 800 | 310 - 7500 | 2590 | 310000 N | | | |
| Fluorene | UG/KG | 2 / 8 | 720 - 800 | 3300 - 5600 | 4450 | 310000 N | | | |
| Heptachlor | UG/KG | 2 / 8 | 1.5 - 2.1 | 1.80 - 2.30 | 2.05 | 140 C | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 083**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Iron (Fe) | MG/KG | 8 / 8 | | 2680 - 8870 | 4710 | 2300 N | 8 | | |
| Lead (Pb) | MG/KG | 2 / 8 | 12 - 94 | 9.60 - 30.2 | 19.9 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 8 / 8 | | 210 - 912 | 491 | | | | |
| Manganese (Mn) | MG/KG | 8 / 8 | | 22.7 - 144 | 71.7 | 39 N | 7 | | |
| Mercury (Hg) | MG/KG | 4 / 8 | 0.020 - 0.020 | 0.0300 - 0.110 | 0.0550 | 2.3 N | | | |
| 2-Methylnaphthalene | UG/KG | 2 / 8 | 720 - 1100 | 96.0 - 5500 | 2800 | 310000 n | | | |
| Methylene chloride | UG/KG | 4 / 8 | 6.0 - 710 | 1.00 - 2.00 | 1.50 | 85000 c | | | |
| Nickel (Ni) | MG/KG | 8 / 8 | | 2.90 - 7.80 | 4.51 | 160 N | | | |
| Phenanthrene | UG/KG | 4 / 8 | 720 - 800 | 240 - 7000 | 3680 | 310000 k | | | |
| Potassium (K) | MG/KG | 8 / 8 | | 308 - 1060 | 707 | | | | |
| Pyrene | UG/KG | 5 / 8 | 720 - 800 | 160 - 6100 | 1680 | 230000 N | | | |
| Selenium (Se) | MG/KG | 2 / 8 | 0.55 - 0.60 | 0.600 - 0.710 | 0.655 | 39 N | | | |
| Silver (Ag) | MG/KG | 3 / 8 | 0.22 - 0.24 | 0.340 - 3.00 | 1.91 | 39 N | | | |
| Sodium (Na) | MG/KG | 7 / 8 | 79 | 50.7 - 187 | 97.3 | | | | |
| Tin (Sn) | MG/KG | 7 / 8 | 11 | 3.30 - 30.3 | 9.07 | 4700 | | | |
| Toluene | UG/KG | 1 / 8 | 5.0 - 710 | 1.00 | | 160000 N | | | |
| Vanadium (V) | MG/KG | 8 / 8 | | 4.10 - 17.6 | 7.38 | 55 N | | | |
| Zinc (Zn) | MG/KG | 8 / 8 | | 13.2 - 251 | 91.7 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 084**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | UG/KG | 4 / 6 | 710 - 720 | 120 - 2200 | 795 | 470000 N | | | |
| Acenaphthylene | UG/KG | 2 / 6 | 710 - 760 | 84.0 - 88.0 | 86.0 | 470000 e | | | |
| Acetone | UG/KG | 5 / 6 | 11 | 8.00 - 170 | 54.4 | 780000 N | | | |
| Aluminum (Al) | MG/KG | 6 / 6 | | 1350 - 6640 | 3750 | 7800 N | | | |
| Anthracene | UG/KG | 4 / 6 | 710 - 720 | 500 - 4100 | 1670 | 230000 N | | | |
| Antimony (Sb) | MG/KG | 4 / 6 | 0.43 - 0.44 | 0.590 - 2.10 | 1.22 | 3.1 N | | | |
| Arsenic (As) | MG/KG | 5 / 6 | 0.54 | 0.870 - 6.80 | 4.39 | 2.3 N | 8 | | |
| Barium (Ba) | MG/KG | 3 / 6 | 57 - 140 | 10.7 - 31.1 | 17.5 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 5 / 6 | 720 | 230 - 5400 | 2550 | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 5 / 6 | 1700 | 541 - 13700 | 5690 | 88 | 5 | | |
| * Benzo(a)anthracene | UG/KG | 5 / 6 | 720 | 270 - 10000 | 3830 | 880 c | 4 | | |
| * Benzo(b)fluoranthene | UG/KG | 5 / 6 | 720 | 380 - 9000 | 3580 | 880 c | 4 | | |
| Chrysene | UG/KG | 5 / 6 | 720 | 320 - 10000 | 3940 | 88000 c | | | |
| * Dibenz(a,h)anthracene | UG/KG | 5 / 6 | 720 | 83.0 - 2700 | 1060 | 88 c | 4 | | |
| * Indeno(1,2,3-cd)pyrene | UG/KG | 5 / 6 | 720 | 200 - 4900 | 2340 | 880 c | 4 | | |
| Benzo(k)fluoranthene | UG/KG | 5 / 6 | 720 | 290 - 6600 | 2980 | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 5 / 6 | 720 | 370 - 8500 | 3610 | 88 c | 5 | | |
| Beryllium (Be) | MG/KG | 6 / 6 | | 0.110 - 0.720 | 0.385 | 0.15 c | 5 | | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 1 / 6 | 710 - 780 | 320 | | 46000 c | | | |
| Cadmium (Cd) | MG/KG | 3 / 6 | 0.11 - 0.11 | 1.30 - 2.50 | 1.70 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 2 / 6 | 2300 - 14000 | 123 - 6700 | 3410 | | | | |
| Carbazole | UG/KG | 1 / 1 | | 840 | | 32000 c | | | |
| Chromium (Cr) | MG/KG | 6 / 6 | | 1.90 - 37.9 | 11.3 | 39 | | | |
| Cobalt (Co) | MG/KG | 6 / 6 | | 1.60 - 61.6 | 13.1 | 470 N | | | |
| Copper (Cu) | MG/KG | 1 / 6 | 4.2 - 480 | 16.3 | | 310 N | | | |
| Cyanide (CN) | MG/KG | 1 / 6 | 0.21 - 0.24 | 0.390 | | 160 N | | | |
| 4,4'-DDE | UG/KG | 1 / 6 | 2.7 - 2.9 | 16.0 | | 1900 c | | | |
| Dibenzofuran | UG/KG | 3 / 6 | 710 - 780 | 110 - 2400 | 997 | 31000 N | | | |
| Di-n-octyl phthalate | UG/KG | 1 / 6 | 710 - 780 | 170 | | 160000 N | | | |
| Endrin aldehyde | UG/KG | 1 / 6 | 2.7 - 2.9 | 14.0 | | 2300 h | | | |
| Fluoranthene | UG/KG | 4 / 6 | 720 - 26000 | 450 - 12000 | 5540 | 310000 N | | | |
| Fluorene | UG/KG | 4 / 6 | 710 - 720 | 130 - 2100 | 748 | 310000 N | | | |
| Heptachlor | UG/KG | 1 / 6 | 1.4 - 1.5 | 2.00 | | 140 c | | | |
| Heptachlor epoxide | UG/KG | 1 / 6 | 1.4 - 1.5 | 3.90 | | 70 c | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 084**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Iron (Fe) | MG/KG | 1 / 6 | 1300 - 29000 | 3230 | | 2300 N | 1 | | |
| Lead (Pb) | MG/KG | 6 / 6 | | 2.90 - 408 | 185 | 400 j | 1 | | |
| Magnesium (Mg) | MG/KG | 6 / 6 | | 199 - 9220 | 1910 | | | | |
| Manganese (Mn) | MG/KG | 1 / 6 | 23 - 220 | 138 | | 39 N | 1 | | |
| Mercury (Hg) | MG/KG | 1 / 6 | 0.020 - 0.30 | 0.0400 | | 2.3 N | | | |
| 2-Methylnaphthalene | UG/KG | 2 / 6 | 710 - 780 | 290 - 1400 | 845 | 310000 n | | | |
| Methylene chloride | UG/KG | 4 / 6 | 5.0 - 10 | 2.00 - 3.00 | 2.50 | 85000 c | | | |
| 4-Methylphenol (p-Cresol) | UG/KG | 1 / 6 | 710 - 780 | 110 | | 39000 N | | | |
| Naphthalene | UG/KG | 2 / 6 | 710 - 780 | 630 - 2700 | 1670 | 310000 N | | | |
| Nickel (Ni) | MG/KG | 6 / 6 | | 1.40 - 28.1 | 13.9 | 160 N | | | |
| Phenanthrene | UG/KG | 4 / 6 | 720 - 25000 | 100 - 8300 | 3380 | 310000 k | | | |
| Potassium (K) | MG/KG | 6 / 6 | | 363 - 805 | 668 | | | | |
| Pyrene | UG/KG | 4 / 6 | 720 - 17000 | 410 - 6800 | 3880 | 230000 N | | | |
| Selenium (Se) | MG/KG | 2 / 6 | 0.54 - 0.59 | 0.620 - 0.630 | 0.625 | 39 N | | | |
| Silver (Ag) | MG/KG | 1 / 6 | 0.21 - 0.24 | 0.260 | | 39 N | | | |
| Sodium (Na) | MG/KG | 5 / 6 | 45 | 38.0 - 109 | 73.4 | | | | |
| Thallium (Tl) | MG/KG | 1 / 6 | 0.54 - 0.59 | 0.590 | | 0.63 | | | |
| Tin (Sn) | MG/KG | 5 / 6 | 4.8 | 4.00 - 30.0 | 15.5 | 4700 | | | |
| Toluene | UG/KG | 2 / 6 | 5.0 - 6.0 | 1.00 - 1.00 | 1.00 | 160000 N | | | |
| Tributyltin | UG/KG | 1 / 6 | 64 - 70 | 615 | | | | | |
| Trichloroethene | UG/KG | 1 / 6 | 5.0 - 6.0 | 37.0 | | 58000 c | | | |
| Vanadium (V) | MG/KG | 6 / 6 | | 1.80 - 17.9 | 8.05 | 55 N | | | |
| Xylene (Total) | UG/KG | 1 / 6 | 5.0 - 6.0 | 2.00 | | 160000 N | | | |
| Zinc (Zn) | MG/KG | 1 / 6 | 12 - 600 | 28.1 | | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 087**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Cyanide | MG/KG | 1 / 1 | | 0.410 | | | | | |
| Aluminum (Al) | MG/KG | 1 / 1 | | 6200 | | 7800 N | | | |
| Antimony (Sb) | MG/KG | 1 / 1 | | 3.90 | | 3.1 N | 1 | | |
| Arsenic (As) | MG/KG | 1 / 1 | | 37.1 | | 2.3 N | 2 | | |
| delta-BHC | UG/KG | 1 / 1 | | 3.27 | | 490 I | | | |
| Barium (Ba) | MG/KG | 1 / 1 | | 42.0 | | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 1 / 1 | | 220 | | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 1 / 1 | | 485 | | 88 | 1 | | |
| Benzo(a)anthracene | UG/KG | 1 / 1 | | 260 | | 880 c | | | |
| Benzo(b)fluoranthene | UG/KG | 1 / 1 | | 230 | | 880 c | | | |
| Chrysene | UG/KG | 1 / 1 | | 335 | | 88000 c | | | |
| * Dibenz(a,h)anthracene | UG/KG | 1 / 1 | | 88.5 | | 88 c | 1 | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 1 / 1 | | 185 | | 880 c | | | |
| Benzo(k)fluoranthene | UG/KG | 1 / 1 | | 320 | | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 1 / 1 | | 325 | | 88 c | 1 | | |
| Beryllium (Be) | MG/KG | 1 / 1 | | 0.495 | | 0.15 c | 1 | | |
| Cadmium (Cd) | MG/KG | 1 / 1 | | 0.590 | | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 1 / 1 | | 12900 | | | | | |
| alpha-Chlordane | UG/KG | 1 / 1 | | 40.9 | | 470 | | | |
| gamma-Chlordane | UG/KG | 1 / 1 | | 42.3 | | 470 | | | |
| Chromium (Cr) | MG/KG | 1 / 1 | | 89.7 | | 39 | 1 | | |
| Cobalt (Co) | MG/KG | 1 / 1 | | 3.40 | | 470 N | | | |
| Copper (Cu) | MG/KG | 1 / 1 | | 109 | | 310 N | | | |
| 4,4'-DDD | UG/KG | 1 / 1 | | 115 | | 2700 c | | | |
| 4,4'-DDE | UG/KG | 1 / 1 | | 664 | | 1900 c | | | |
| 4,4'-DDT | UG/KG | 1 / 1 | | 55.7 | | 1900 c | | | |
| * Dieldrin | UG/KG | 1 / 1 | | 151 | | 40 c | 1 | | |
| Dioxin (TCDD TEQ) | PG/G | 1 / 1 | | 1.45 | | 4.3 | | | |
| Endrin | UG/KG | 1 / 1 | | 14.3 | | 2300 N | | | |
| Endrin aldehyde | UG/KG | 1 / 1 | | 4.19 | | 2300 h | | | |
| Fluoranthene | UG/KG | 1 / 1 | | 520 | | 310000 N | | | |
| Iron (Fe) | MG/KG | 1 / 1 | | 8700 | | 2300 N | 1 | | |
| Lead (Pb) | MG/KG | 1 / 1 | | 100 | | 400 j | | | |
| Magnesium (Mg) | MG/KG | 1 / 1 | | 1640 | | | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 087**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Manganese (Mn) | MG/KG | 1 / 1 | | 51.4 | | 39 N | 1 | | |
| Mercury (Hg) | MG/KG | 1 / 1 | | 0.450 | | 2.3 N | | | |
| Methylene chloride | UG/KG | 1 / 1 | | 18.0 | | 85000 C | | | |
| Nickel (Ni) | MG/KG | 1 / 1 | | 12.3 | | 160 N | | | |
| Phenanthrene | UG/KG | 1 / 1 | | 215 | | 310000 K | | | |
| Potassium (K) | MG/KG | 1 / 1 | | 511 | | | | | |
| Pyrene | UG/KG | 1 / 1 | | 505 | | 230000 N | | | |
| Silver (Ag) | MG/KG | 1 / 1 | | 1.52 | | 39 N | | | |
| Sodium (Na) | MG/KG | 1 / 1 | | 281 | | | | | |
| * Thallium (Tl) | MG/KG | 1 / 1 | | 0.850 | | 0.63 | 1 | | |
| Tin (Sn) | MG/KG | 1 / 1 | | 9.10 | | 4700 | | | |
| Vanadium (V) | MG/KG | 1 / 1 | | 16.0 | | 55 N | | | |
| Zinc (Zn) | MG/KG | 1 / 1 | | 249 | | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 097**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[s] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | UG/KG | 1 / 3 | 360 - 380 | 54.0 | | 470000 N | | | |
| Acetone | UG/KG | 1 / 3 | 11 - 11 | 37.0 | | 780000 N | | | |
| Aluminum (Al) | MG/KG | 3 / 3 | | 2010 - 3050 | 2650 | 7800 N | | | |
| Arsenic (As) | MG/KG | 3 / 3 | | 0.870 - 4.70 | 3.29 | 2.3 N | 5 | | |
| Barium (Ba) | MG/KG | 3 / 3 | | 3.20 - 17.7 | 12.6 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 1 / 3 | 360 - 380 | 49.5 | | 310000 r | | | |
| Benzo(a)pyrene Equivalents | UG/KG | 2 / 3 | 470 | 54.8 - 83.8 | 69.3 | 88 | | | |
| Benzoic acid | UG/KG | 2 / 3 | 1800 | 130 - 200 | 165 | 310000 N | | | |
| Beryllium (Be) | MG/KG | 2 / 3 | 0.11 | 0.330 - 0.335 | 0.333 | 0.15 C | 2 | | |
| Cadmium (Cd) | MG/KG | 1 / 3 | 0.11 - 0.12 | 0.260 | | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 3 / 3 | | 19100 - 113000 | 50700 | | | | |
| alpha-Chlordane | UG/KG | 2 / 3 | 1.4 | 2.68 - 56.7 | 29.7 | 470 | | | |
| gamma-Chlordane | UG/KG | 2 / 3 | 1.4 | 6.41 - 153 | 79.8 | 470 | | | |
| 4-Chloro-3-methylphenol | UG/KG | 1 / 3 | 360 - 380 | 67.0 | | | | | |
| Chromium (Cr) | MG/KG | 3 / 3 | | 3.80 - 33.3 | 17.3 | 39 | | | |
| Cobalt (Co) | MG/KG | 3 / 3 | | 0.900 - 2.10 | 1.52 | 470 N | | | |
| Copper (Cu) | MG/KG | 3 / 3 | | 1.90 - 7.15 | 4.88 | 310 N | | | |
| 4,4'-DDE | UG/KG | 1 / 3 | 2.8 - 2.8 | 15.1 | | 1900 C | | | |
| Dieldrin | UG/KG | 1 / 3 | 2.8 - 2.8 | 5.50 | | 40 C | | | |
| Dioxin (TCDD TEQ) | PG/G | 1 / 1 | | 0.304 | | 4.3 | | | |
| Endrin | UG/KG | 1 / 3 | 2.8 - 2.8 | 4.91 | | 2300 N | | | |
| Fluoranthene | UG/KG | 2 / 3 | 360 | 66.0 - 95.5 | 80.8 | 310000 N | | | |
| Heptachlor | UG/KG | 1 / 3 | 1.4 - 1.5 | 4.77 | | 140 C | | | |
| Heptachlor epoxide | UG/KG | 1 / 3 | 1.4 - 1.5 | 7.37 | | 70 C | | | |
| Iron (Fe) | MG/KG | 3 / 3 | | 1050 - 5970 | 3340 | 2300 N | 2 | | |
| Lead (Pb) | MG/KG | 3 / 3 | | 1.50 - 41.2 | 23.2 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 3 / 3 | | 396 - 1930 | 1330 | | | | |
| Manganese (Mn) | MG/KG | 3 / 3 | | 24.8 - 179 | 93.8 | 39 N | 2 | | |
| Methylene chloride | UG/KG | 1 / 3 | 5.0 - 6.0 | 2.00 | | 85000 C | | | |
| Nickel (Ni) | MG/KG | 3 / 3 | | 1.90 - 5.50 | 3.73 | 160 N | | | |
| Pentachlorophenol | UG/KG | 1 / 3 | 1800 - 1800 | 43.0 | | 5300 C | | | |
| Phenanthrene | UG/KG | 1 / 3 | 360 - 380 | 76.0 | | 310000 k | | | |
| Potassium (K) | MG/KG | 3 / 3 | | 511 - 912 | 705 | | | | |
| Pyrene | UG/KG | 2 / 3 | 360 | 79.0 - 155 | 117 | 230000 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 097**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Sodium (Na) | MG/KG | 2 / 3 | 200 | 389 - 684 | 536 | | | | |
| Vanadium (V) | MG/KG | 3 / 3 | | 2.20 - 8.65 | 5.22 | 55 N | | | |
| Zinc (Zn) | MG/KG | 3 / 3 | | 4.50 - 28.6 | 19.4 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 100**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Cyanide | MG/KG | 1 / 3 | 0.23 - 0.23 | 0.560 | | | | | |
| Acetone | UG/KG | 1 / 3 | 11 - 11 | 16.0 | | 780000 N | | | |
| Arsenic (As) | MG/KG | 3 / 3 | | 1.50 - 2.30 | 1.80 | 2.3 N | 4 | | |
| Barium (Ba) | MG/KG | 3 / 3 | | 7.10 - 21.0 | 12.5 | 550 N | | | |
| Beryllium (Be) | MG/KG | 1 / 3 | 0.11 - 0.11 | 0.300 | | 0.15 C | 1 | | |
| Calcium (Ca) | MG/KG | 3 / 3 | | 1180 - 27400 | 10200 | | | | |
| Cobalt (Co) | MG/KG | 3 / 3 | | 0.240 - 3.10 | 1.98 | 470 N | | | |
| Copper (Cu) | MG/KG | 2 / 3 | 5.3 | 0.770 - 2.00 | 1.39 | 310 N | | | |
| Iron (Fe) | MG/KG | 3 / 3 | | 3570 - 4900 | 4130 | 2300 N | 3 | | |
| Lead (Pb) | MG/KG | 3 / 3 | | 3.50 - 16.7 | 8.20 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 2 / 3 | 760 | 124 - 145 | 135 | | | | |
| Manganese (Mn) | MG/KG | 3 / 3 | | 6.80 - 44.7 | 20.2 | 39 N | 1 | | |
| Mercury (Hg) | MG/KG | 1 / 3 | 0.020 - 0.020 | 0.0600 | | 2.3 N | | | |
| Nickel (Ni) | MG/KG | 3 / 3 | | 1.40 - 5.50 | 3.17 | 160 N | | | |
| Potassium (K) | MG/KG | 2 / 3 | 620 | 254 - 319 | 287 | | | | |
| Selenium (Se) | MG/KG | 1 / 3 | 0.56 - 0.57 | 0.770 | | 39 N | | | |
| Sodium (Na) | MG/KG | 1 / 3 | 56 - 57 | 300 | | | | | |
| Vanadium (V) | MG/KG | 3 / 3 | | 6.40 - 12.6 | 8.60 | 55 N | | | |
| Zinc (Zn) | MG/KG | 3 / 3 | | 4.50 - 21.5 | 11.8 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 102**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | UG/KG | 6 / 9 | 770 - 930 | 140 - 1500 | 559 | 470000 N | | | |
| Acetone | UG/KG | 9 / 9 | | 29.0 - 74.5 | 47.6 | 780000 N | | | |
| Aluminum (Al) | MG/KG | 9 / 9 | | 2380 - 12500 | 7910 | 7800 N | 4 | | |
| Anthracene | UG/KG | 7 / 9 | 770 - 930 | 230 - 2400 | 767 | 230000 N | | | |
| Antimony (Sb) | MG/KG | 7 / 9 | 0.46 - 0.50 | 0.600 - 1.60 | 0.926 | 3.1 N | | | |
| Arsenic (As) | MG/KG | 9 / 9 | | 3.10 - 14.3 | 9.54 | 2.3 N | 18 | | |
| Barium (Ba) | MG/KG | 9 / 9 | | 15.5 - 78.5 | 34.9 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 7 / 9 | 770 - 930 | 230 - 1100 | 704 | 310000 r | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 8 / 9 | 1800 | 20.7 - 2630 | 1320 | 88 | 7 | | |
| * Benzo(a)anthracene | UG/KG | 8 / 9 | 770 | 96.0 - 2400 | 1010 | 880 c | 4 | | |
| * Benzo(b)fluoranthene | UG/KG | 7 / 9 | 770 - 900 | 110 - 1400 | 736 | 880 c | 3 | | |
| Chrysene | UG/KG | 8 / 9 | 770 | 140 - 3000 | 1180 | 88000 c | | | |
| * Dibenz(a,h)anthracene | UG/KG | 7 / 9 | 770 - 930 | 97.0 - 540 | 322 | 88 c | 7 | | |
| * Indeno(1,2,3-cd)pyrene | UG/KG | 7 / 9 | 770 - 930 | 240 - 2200 | 762 | 880 c | 2 | | |
| Benzo(k)fluoranthene | UG/KG | 7 / 9 | 770 - 930 | 420 - 1500 | 831 | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 7 / 9 | 770 - 930 | 480 - 1600 | 909 | 88 c | 7 | | |
| Beryllium (Be) | MG/KG | 9 / 9 | | 0.310 - 0.770 | 0.603 | 0.15 c | 9 | | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 3 / 9 | 770 - 940 | 92.0 - 150 | 117 | 46000 c | | | |
| 2-Butanone (MEK) | UG/KG | 1 / 9 | 12 - 15 | 8.00 | | 470000 N | | | |
| Cadmium (Cd) | MG/KG | 7 / 9 | 0.12 - 1.2 | 0.340 - 1.30 | 0.607 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 5 / 9 | 28000 - 50000 | 29800 - 48800 | 40900 | | | | |
| Chromium (Cr) | MG/KG | 9 / 9 | | 6.60 - 29.3 | 19.6 | 39 | | | |
| Cobalt (Co) | MG/KG | 9 / 9 | | 2.70 - 11.8 | 4.82 | 470 N | | | |
| Copper (Cu) | MG/KG | 9 / 9 | | 2.40 - 40.0 | 21.0 | 310 N | | | |
| Dibenzofuran | UG/KG | 4 / 9 | 770 - 940 | 160 - 530 | 300 | 31000 N | | | |
| Di-n-butylphthalate | UG/KG | 1 / 9 | 810 - 980 | 280 | | 780000 N | | | |
| Dioxin (TCDD TEQ) | PG/G | 1 / 1 | | 0.131 | | 4.3 | | | |
| Fluoranthene | UG/KG | 8 / 9 | 770 | 240 - 7200 | 2290 | 310000 N | | | |
| Fluorene | UG/KG | 7 / 9 | 770 - 930 | 100 - 1400 | 481 | 310000 N | | | |
| Iron (Fe) | MG/KG | 5 / 9 | 4400 - 17000 | 8120 - 17800 | 13300 | 2300 N | 5 | | |
| Lead (Pb) | MG/KG | 5 / 9 | 5.7 - 430 | 60.2 - 387 | 140 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 6 / 9 | 3400 - 5000 | 488 - 4320 | 2830 | | | | |
| Manganese (Mn) | MG/KG | 5 / 9 | 37 - 390 | 98.6 - 224 | 170 | 39 N | 5 | | |
| Mercury (Hg) | MG/KG | 15 / 30 | 0.040 - 19 | 0.0600 - 27.3 | 6.22 | 2.3 N | 7 | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 102**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| 2-Methylnaphthalene | UG/KG | 3 / 9 | 770 - 980 | 190 - 290 | 253 | 310000 n | | | |
| Methylene chloride | UG/KG | 9 / 9 | | 5.00 - 40.0 | 12.6 | 85000 c | | | |
| Naphthalene | UG/KG | 3 / 9 | 770 - 980 | 120 - 460 | 260 | 310000 N | | | |
| Nickel (Ni) | MG/KG | 9 / 9 | | 3.30 - 12.4 | 9.06 | 160 N | | | |
| Phenanthrene | UG/KG | 8 / 9 | 770 | 280 - 8000 | 2550 | 310000 k | | | |
| Potassium (K) | MG/KG | 5 / 9 | 1500 - 2200 | 555 - 1920 | 1550 | | | | |
| Pyrene | UG/KG | 8 / 9 | 770 | 240 - 6300 | 2610 | 230000 N | | | |
| Selenium (Se) | MG/KG | 7 / 9 | 0.58 - 0.67 | 0.730 - 1.50 | 1.07 | 39 N | | | |
| Silver (Ag) | MG/KG | 2 / 9 | 0.27 - 0.32 | 0.970 - 1.40 | 1.19 | 39 N | | | |
| Sodium (Na) | MG/KG | 8 / 9 | 960 | 300 - 1290 | 752 | | | | |
| Tin (Sn) | MG/KG | 9 / 9 | | 2.90 - 8.40 | 5.16 | 4700 | | | |
| Vanadium (V) | MG/KG | 9 / 9 | | 6.60 - 35.2 | 23.3 | 55 N | | | |
| Zinc (Zn) | MG/KG | 5 / 9 | 11 - 1100 | 78.3 - 502 | 219 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 106**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[s] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | UG/KG | 2 / 3 | 820 | 78.0 - 220 | 149 | 470000 N | | | |
| Acetone | UG/KG | 2 / 3 | 32 | 28.0 - 58.0 | 43.0 | 780000 N | | | |
| Aluminum (Al) | MG/KG | 3 / 3 | | 5650 - 9370 | 7410 | 7800 N | 1 | | |
| Antimony (Sb) | MG/KG | 3 / 3 | | 0.510 - 0.640 | 0.557 | 3.1 N | | | |
| Arsenic (As) | MG/KG | 3 / 3 | | 4.70 - 26.8 | 12.4 | 2.3 N | 6 | | |
| Barium (Ba) | MG/KG | 3 / 3 | | 17.0 - 411 | 152 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 3 / 3 | | 300 - 430 | 370 | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 2 / 3 | 860 | 133 - 338 | 236 | 88 | 2 | | |
| Benzo(a)anthracene | UG/KG | 2 / 3 | 770 | 120 - 180 | 150 | 880 c | | | |
| Chrysene | UG/KG | 2 / 3 | 770 | 140 - 330 | 235 | 88000 c | | | |
| Benzo(k)fluoranthene | UG/KG | 1 / 3 | 770 - 860 | 120 | | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 2 / 3 | 770 | 120 - 320 | 220 | 88 c | 2 | | |
| Beryllium (Be) | MG/KG | 3 / 3 | | 0.220 - 0.930 | 0.470 | 0.15 c | 3 | | |
| Cadmium (Cd) | MG/KG | 1 / 3 | 0.12 - 0.13 | 1.90 | | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 2 / 3 | 7100 | 11400 - 20800 | 16100 | | | | |
| Chloroform | UG/KG | 2 / 3 | 7.0 | 4.00 - 4.00 | 4.00 | 100000 c | | | |
| 4-Chloro-3-methylphenol | UG/KG | 1 / 3 | 820 - 860 | 100 | | | | | |
| Chromium (Cr) | MG/KG | 2 / 3 | 23 | 8.60 - 11.0 | 9.80 | 39 | | | |
| Cobalt (Co) | MG/KG | 3 / 3 | | 1.10 - 6.50 | 2.93 | 470 N | | | |
| Copper (Cu) | MG/KG | 2 / 3 | 28 | 6.50 - 21.1 | 13.8 | 310 N | | | |
| Fluoranthene | UG/KG | 2 / 3 | 820 | 79.0 - 170 | 125 | 310000 N | | | |
| Iron (Fe) | MG/KG | 2 / 3 | 20000 | 7020 - 7690 | 7360 | 2300 N | 2 | | |
| Lead (Pb) | MG/KG | 2 / 3 | 43 | 10.4 - 84.3 | 47.4 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 3 / 3 | | 857 - 3320 | 1830 | | | | |
| Manganese (Mn) | MG/KG | 2 / 3 | 200 | 51.7 - 85.2 | 68.5 | 39 N | 2 | | |
| Methylene chloride | UG/KG | 2 / 3 | 7.0 | 11.0 - 16.0 | 13.5 | 85000 c | | | |
| Nickel (Ni) | MG/KG | 2 / 3 | 8.9 | 4.00 - 6.30 | 5.15 | 160 N | | | |
| pH | SU | 1 / 1 | | 7.76 | | | | | |
| Phenanthrene | UG/KG | 2 / 3 | 770 | 88.0 - 110 | 99.0 | 310000 k | | | |
| Potassium (K) | MG/KG | 3 / 3 | | 861 - 1760 | 1210 | | | | |
| Pyrene | UG/KG | 3 / 3 | | 130 - 680 | 340 | 230000 N | | | |
| Sodium (Na) | MG/KG | 3 / 3 | | 1350 - 2340 | 1880 | | | | |
| Tin (Sn) | MG/KG | 2 / 3 | 6.6 | 2.40 - 6.10 | 4.25 | 4700 | | | |
| Vanadium (V) | MG/KG | 3 / 3 | | 13.0 - 44.5 | 24.3 | 55 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 106**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Zinc (Zn) | MG/KG | 2 / 3 | 110 | 25.9 - 478 | 252 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 145**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Chromium (Hexavalent) | MG/KG | 1 / 2 | 0.062 | 0.122 | | 39 N | | | |
| * Dioxin (TCDD TEQ) | PG/G | 2 / 2 | | 0.0156 - 44.2 | 22.1 | 4.3 | 1 | | |
| 1234678-HpCDD | NG/KG | 1 / 2 | 1.1 | 7.27 | | | | | |
| 123478-HxCDF | NG/KG | 1 / 2 | 0.41 | 99.7 | | | | | |
| OCDD | NG/KG | 2 / 2 | | 15.6 - 43.6 | 29.6 | | | | |
| OCDF | NG/KG | 1 / 2 | 0.72 | 1.09 | | | | | |
| 23478-PeCDF | NG/KG | 1 / 2 | 0.71 | 40.6 | | | | | |
| 2378-TCDF | NG/KG | 1 / 2 | 3.1 | 138 | | | | | |
| Mercury (Hg) | MG/KG | 6 / 12 | 0.040 - 0.040 | 0.0500 - 0.610 | 0.157 | 2.3 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 170**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Acetone | UG/KG | 2 / 4 | 300 - 380 | 73.0 - 4400 | 2240 | 780000 N | | | |
| Aroclor-1260 | UG/KG | 2 / 15 | 11 - 89 | 24.0 - 29.0 | 26.5 | 83 | | | |
| Chloroform | UG/KG | 3 / 4 | 670 | 1.00 - 2.00 | 1.33 | 100000 C | | | |
| Methylene chloride | UG/KG | 3 / 4 | 670 | 7.00 - 41.0 | 23.0 | 85000 C | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 171**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[s] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| * Aroclor-1260 | UG/KG | 9 / 20 | 74 - 90 | 55.0 - 480 | 191 | 83 | 6 | | |
| gamma-Chlordane | UG/KG | 1 / 2 | 1.8 | 1.50 | | 470 | | | |
| 4,4'-DDE | UG/KG | 1 / 2 | 3.4 | 14.0 | | 1900 c | | | |
| 4,4'-DDT | UG/KG | 1 / 2 | 3.4 | 25.0 | | 1900 c | | | |
| Dioxin (TCDD TEQ) | PG/G | 2 / 2 | | 0.0937 - 0.104 | 0.0989 | 4.3 | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 172**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Cyanide | MG/KG | 5 / 6 | 0.25 | 0.340 - 1.00 | 0.598 | | | | |
| Acenaphthene | UG/KG | 1 / 6 | 410 - 590 | 120 | | 470000 N | | | |
| Acetone | UG/KG | 5 / 6 | 13 | 31.0 - 300 | 167 | 780000 N | | | |
| Aluminum (Al) | MG/KG | 6 / 6 | | 4650 - 25700 | 12000 | 7800 N | 3 | | |
| Anthracene | UG/KG | 1 / 6 | 410 - 590 | 60.0 | | 230000 N | | | |
| Antimony (Sb) | MG/KG | 1 / 6 | 0.57 - 4.8 | 0.750 | | 3.1 N | | | |
| Arsenic (As) | MG/KG | 6 / 6 | | 4.80 - 22.6 | 11.6 | 2.3 N | 12 | | |
| Barium (Ba) | MG/KG | 6 / 6 | | 11.5 - 49.7 | 29.4 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 4 / 6 | 420 - 590 | 57.0 - 220 | 133 | 310000 r | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 5 / 6 | 970 | 63.1 - 485 | 220 | 88 | 3 | | |
| Benzo(a)anthracene | UG/KG | 4 / 6 | 420 - 590 | 53.0 - 300 | 149 | 880 c | | | |
| Benzo(b)fluoranthene | UG/KG | 4 / 6 | 420 - 590 | 58.0 - 330 | 170 | 880 c | | | |
| Chrysene | UG/KG | 5 / 6 | 420 | 62.0 - 330 | 156 | 88000 c | | | |
| * Dibenz(a,h)anthracene | UG/KG | 2 / 6 | 410 - 590 | 78.0 - 91.0 | 84.5 | 88 c | 1 | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 3 / 6 | 410 - 590 | 48.0 - 200 | 136 | 880 c | | | |
| Benzo(k)fluoranthene | UG/KG | 4 / 6 | 420 - 590 | 41.0 - 290 | 125 | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 5 / 6 | 420 | 62.0 - 320 | 152 | 88 c | 2 | | |
| Beryllium (Be) | MG/KG | 6 / 6 | | 0.330 - 1.60 | 0.838 | 0.15 c | 6 | | |
| Calcium (Ca) | MG/KG | 6 / 6 | | 5650 - 17000 | 10400 | | | | |
| alpha-Chlordane | UG/KG | 1 / 6 | 1.6 - 2.3 | 2.66 | | 470 | | | |
| gamma-Chlordane | UG/KG | 1 / 6 | 1.6 - 2.3 | 2.58 | | 470 | | | |
| Chlorobenzene | UG/KG | 1 / 6 | 6.0 - 32 | 130 | | 160000 N | | | |
| 4-Chloro-3-methylphenol | UG/KG | 1 / 6 | 410 - 590 | 160 | | | | | |
| 2-Chlorophenol | UG/KG | 1 / 6 | 410 - 590 | 190 | | 39000 N | | | |
| Chromium (Cr) | MG/KG | 6 / 6 | | 10.7 - 101 | 38.6 | 39 | 2 | | |
| Cobalt (Co) | MG/KG | 6 / 6 | | 3.50 - 24.3 | 13.1 | 470 N | | | |
| Copper (Cu) | MG/KG | 6 / 6 | | 3.30 - 44.2 | 25.2 | 310 N | | | |
| 4,4'-DDD | UG/KG | 2 / 6 | 3.1 - 4.5 | 13.0 - 15.0 | 14.0 | 2700 c | | | |
| 4,4'-DDE | UG/KG | 2 / 6 | 3.1 - 4.5 | 8.70 - 37.8 | 23.3 | 1900 c | | | |
| Dibenzofuran | UG/KG | 1 / 6 | 410 - 590 | 120 | | 31000 N | | | |
| 1,2-Dichlorobenzene | UG/KG | 2 / 6 | 410 - 460 | 120 - 3500 | 1810 | 700000 N | | | |
| 1,2-Dichloroethene (total) | UG/KG | 2 / 6 | 6.0 - 7.0 | 31.0 - 58.0 | 44.5 | 70000 N | | | |
| Di-n-octyl phthalate | UG/KG | 1 / 6 | 410 - 590 | 54.0 | | 160000 N | | | |
| Dioxin (TCDD TEQ) | PG/G | 1 / 1 | | 0.101 | | 4.3 | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 172**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Ethylbenzene | UG/KG | 1 / 6 | 6.0 - 9.0 | 17.0 | | 780000 N | | | |
| Fluoranthene | UG/KG | 5 / 6 | 420 | 92.0 - 680 | 282 | 310000 N | | | |
| Iron (Fe) | MG/KG | 6 / 6 | | 5940 - 34700 | 16300 | 2300 N | 6 | | |
| Lead (Pb) | MG/KG | 6 / 6 | | 6.90 - 92.2 | 56.0 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 6 / 6 | | 1070 - 4160 | 2440 | | | | |
| Manganese (Mn) | MG/KG | 6 / 6 | | 46.2 - 495 | 260 | 39 N | 6 | | |
| Mercury (Hg) | MG/KG | 5 / 6 | 0.020 | 0.0900 - 0.620 | 0.356 | 2.3 N | | | |
| 2-Methylnaphthalene | UG/KG | 1 / 6 | 410 - 590 | 1900 | | 310000 n | | | |
| Methylene chloride | UG/KG | 3 / 6 | 6.0 - 32 | 6.00 - 12.0 | 8.67 | 85000 c | | | |
| Naphthalene | UG/KG | 1 / 6 | 410 - 590 | 1800 | | 310000 N | | | |
| Nickel (Ni) | MG/KG | 5 / 6 | 6.9 | 4.00 - 14.1 | 8.91 | 160 N | | | |
| Pentachlorophenol | UG/KG | 1 / 6 | 2000 - 2800 | 69.0 | | 5300 c | | | |
| Phenanthrene | UG/KG | 4 / 6 | 410 - 590 | 70.0 - 310 | 208 | 310000 k | | | |
| Potassium (K) | MG/KG | 6 / 6 | | 578 - 1930 | 1320 | | | | |
| Pyrene | UG/KG | 5 / 6 | 420 | 82.0 - 610 | 267 | 230000 N | | | |
| Sodium (Na) | MG/KG | 6 / 6 | | 236 - 1750 | 606 | | | | |
| Tetrachloroethene | UG/KG | 1 / 6 | 6.0 - 9.0 | 520 | | 12000 c | | | |
| Tin (Sn) | MG/KG | 6 / 6 | | 2.80 - 7.40 | 4.72 | 4700 | | | |
| Toluene | UG/KG | 1 / 6 | 6.0 - 9.0 | 16.0 | | 160000 N | | | |
| Vanadium (V) | MG/KG | 6 / 6 | | 10.1 - 78.5 | 36.1 | 55 N | 1 | | |
| Xylene (Total) | UG/KG | 1 / 6 | 6.0 - 9.0 | 180 | | 160000 N | | | |
| Zinc (Zn) | MG/KG | 6 / 6 | | 13.7 - 204 | 108 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 173**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum (Al) | MG/KG | 2 / 2 | | 1670 - 5600 | 3640 | 7800 N | | | |
| Arsenic (As) | MG/KG | 2 / 2 | | 0.670 - 5.80 | 3.24 | 2.3 N | 3 | | |
| Barium (Ba) | MG/KG | 2 / 2 | | 21.9 - 25.5 | 23.7 | 550 N | | | |
| Beryllium (Be) | MG/KG | 2 / 2 | | 0.170 - 0.190 | 0.180 | 0.15 C | 2 | | |
| Calcium (Ca) | MG/KG | 1 / 2 | 1500 | 462 | | | | | |
| Copper (Cu) | MG/KG | 1 / 2 | 41 | 1.10 | | 310 N | | | |
| Magnesium (Mg) | MG/KG | 2 / 2 | | 107 - 517 | 312 | | | | |
| Nickel (Ni) | MG/KG | 2 / 2 | | 1.60 - 2.60 | 2.10 | 160 N | | | |
| Sodium (Na) | MG/KG | 1 / 2 | 55 | 63.1 | | | | | |
| Vanadium (V) | MG/KG | 2 / 2 | | 1.70 - 20.2 | 11.0 | 55 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 17O**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Dioxin (TCDD TEQ) | PG/G | 2 / 2 | | 0.0279 - 0.664 | 0.346 | 4.3 | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 525**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[5] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| TECH-CHLORDANE (CAS | UG/KG | 3 / 3 | | 230 - 5200 | 2020 | | | | |
| Acenaphthene | UG/KG | 1 / 4 | 720 - 740 | 100 | | 470000 N | | | |
| Acetone | UG/KG | 2 / 4 | 11 - 11 | 52.0 - 4500 | 2280 | 780000 N | | | |
| Aluminum (Al) | MG/KG | 4 / 4 | | 3760 - 4640 | 4290 | 7800 N | | | |
| Antimony (Sb) | MG/KG | 1 / 4 | 0.44 - 0.45 | 0.490 | | 3.1 N | | | |
| Arsenic (As) | MG/KG | 4 / 4 | | 1.60 - 4.00 | 2.65 | 2.3 N | 6 | | |
| Barium (Ba) | MG/KG | 4 / 4 | | 9.80 - 22.3 | 16.4 | 550 N | | | |
| Beryllium (Be) | MG/KG | 4 / 4 | | 0.110 - 0.200 | 0.150 | 0.15 C | 2 | | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 3 / 4 | 750 | 78.0 - 720 | 319 | 46000 C | | | |
| 2-Butanone (MEK) | UG/KG | 1 / 4 | 11 - 11 | 8700 | | 470000 N | | | |
| Cadmium (Cd) | MG/KG | 1 / 4 | 0.11 - 0.11 | 0.130 | | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 4 / 4 | | 141 - 11200 | 3550 | | | | |
| Chromium (Cr) | MG/KG | 4 / 4 | | 3.80 - 6.20 | 5.05 | 39 | | | |
| Cobalt (Co) | MG/KG | 4 / 4 | | 1.50 - 9.60 | 4.43 | 470 N | | | |
| Copper (Cu) | MG/KG | 4 / 4 | | 1.40 - 13.1 | 5.60 | 310 N | | | |
| Cyanide (CN) | MG/KG | 1 / 4 | 0.22 - 0.23 | 0.290 | | 160 N | | | |
| 4,4'-DDD | UG/KG | 1 / 3 | 2.8 - 27 | 8.20 | | 2700 C | | | |
| 4,4'-DDT | UG/KG | 1 / 3 | 2.8 - 27 | 3.60 | | 1900 C | | | |
| Dibenzofuran | UG/KG | 1 / 4 | 720 - 740 | 90.0 | | 31000 N | | | |
| Dieldrin | UG/KG | 1 / 3 | 2.8 - 27 | 3.20 | | 40 C | | | |
| Diethylphthalate | UG/KG | 4 / 4 | | 92.0 - 300 | 154 | 630000 N | | | |
| Dimethyl phthalate | UG/KG | 1 / 4 | 720 - 740 | 92.0 | | 780000 N | | | |
| Endrin | UG/KG | 3 / 3 | | 4.60 - 43.0 | 18.9 | 2300 N | | | |
| Fluoranthene | UG/KG | 1 / 4 | 720 - 740 | 140 | | 310000 N | | | |
| Fluorene | UG/KG | 1 / 4 | 720 - 740 | 170 | | 310000 N | | | |
| Heptachlor | UG/KG | 3 / 3 | | 4.70 - 54.0 | 21.8 | 140 C | | | |
| Iron (Fe) | MG/KG | 4 / 4 | | 879 - 3260 | 2000 | 2300 N | 1 | | |
| Lead (Pb) | MG/KG | 4 / 4 | | 2.20 - 52.5 | 18.4 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 4 / 4 | | 105 - 387 | 216 | | | | |
| Manganese (Mn) | MG/KG | 4 / 4 | | 3.00 - 31.9 | 15.3 | 39 N | | | |
| Mercury (Hg) | MG/KG | 1 / 4 | 0.020 - 0.020 | 0.0800 | | 2.3 N | | | |
| Methylene chloride | UG/KG | 3 / 4 | 700 | 2.00 - 4.00 | 2.67 | 85000 C | | | |
| Nickel (Ni) | MG/KG | 4 / 4 | | 2.20 - 4.70 | 2.98 | 160 N | | | |
| Phenanthrene | UG/KG | 1 / 4 | 720 - 740 | 520 | | 310000 k | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 525**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Potassium (K) | MG/KG | 1 / 4 | 170 - 170 | 172 | | | | | |
| Pyrene | UG/KG | 1 / 4 | 720 - 740 | 130 | | 230000 N | | | |
| Silver (Ag) | MG/KG | 1 / 4 | 0.22 - 0.23 | 0.940 | | 39 N | | | |
| Sodium (Na) | MG/KG | 3 / 4 | 11 | 49.3 - 125 | 77.4 | | | | |
| Tin (Sn) | MG/KG | 4 / 4 | | 2.90 - 3.90 | 3.28 | 4700 | | | |
| Vanadium (V) | MG/KG | 4 / 4 | | 3.20 - 5.40 | 4.48 | 55 N | | | |
| Zinc (Zn) | MG/KG | 4 / 4 | | 4.20 - 52.1 | 26.1 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 526**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthylene | UG/KG | 1 / 8 | 710 - 800 | 200 | | 470000 e | | | |
| Acetone | UG/KG | 7 / 8 | 11 | 5.00 - 120 | 31.6 | 780000 N | | | |
| Aluminum (Al) | MG/KG | 6 / 8 | 2500 - 2700 | 2590 - 9170 | 5340 | 7800 N | 1 | | |
| Anthracene | UG/KG | 1 / 8 | 710 - 800 | 230 | | 230000 N | | | |
| Antimony (Sb) | MG/KG | 5 / 8 | 0.43 - 0.46 | 0.870 - 2.60 | 1.52 | 3.1 N | | | |
| Arsenic (As) | MG/KG | 8 / 8 | | 2.20 - 9.35 | 5.56 | 0.43 c | 15 | | |
| Barium (Ba) | MG/KG | 8 / 8 | | 10.2 - 25.9 | 19.2 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 3 / 8 | 710 - 800 | 170 - 2050 | 813 | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 4 / 8 | 1700 - 1800 | 21.1 - 2860 | 891 | 88 | 3 | | |
| * Benzo(a)anthracene | UG/KG | 3 / 8 | 720 - 800 | 110 - 1040 | 425 | 880 c | 1 | | |
| * Benzo(b)fluoranthene | UG/KG | 4 / 8 | 720 - 800 | 100 - 2900 | 965 | 880 c | 1 | | |
| Chrysene | UG/KG | 3 / 8 | 720 - 800 | 110 - 1500 | 617 | 88000 c | | | |
| * Dibenz(a,h)anthracene | UG/KG | 1 / 8 | 710 - 800 | 655 | | 88 c | 1 | | |
| * Indeno(1,2,3-cd)pyrene | UG/KG | 3 / 8 | 710 - 800 | 130 - 1400 | 580 | 880 c | 1 | | |
| Benzo(k)fluoranthene | UG/KG | 3 / 8 | 710 - 800 | 280 - 2150 | 963 | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 3 / 8 | 710 - 800 | 240 - 1650 | 730 | 88 c | 3 | | |
| Beryllium (Be) | MG/KG | 8 / 8 | | 0.170 - 0.480 | 0.298 | 0.15 c | 8 | | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 2 / 8 | 720 - 800 | 200 - 750 | 475 | 46000 c | | | |
| Cadmium (Cd) | MG/KG | 4 / 8 | 0.11 - 0.12 | 0.210 - 0.705 | 0.389 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 6 / 8 | 7100 -46000 | 1810 - 17000 | 6240 | | | | |
| alpha-Chlordane | UG/KG | 1 / 8 | 1.4 - 1.6 | 1.70 | | 470 | | | |
| gamma-Chlordane | UG/KG | 1 / 8 | 1.4 - 1.6 | 3.40 | | 470 | | | |
| Chromium (Cr) | MG/KG | 8 / 8 | | 4.00 - 57.7 | 25.8 | 39 | 3 | | |
| Cobalt (Co) | MG/KG | 8 / 8 | | 1.25 - 10.5 | 4.36 | 470 N | | | |
| Copper (Cu) | MG/KG | 8 / 8 | | 6.10 - 163 | 33.9 | 310 N | | | |
| 4,4'-DDD | UG/KG | 3 / 8 | 2.7 - 3.0 | 3.00 - 7.60 | 4.90 | 2700 c | | | |
| 4,4'-DDE | UG/KG | 5 / 8 | 2.7 - 3.0 | 3.20 - 140 | 36.7 | 1900 c | | | |
| 4,4'-DDT | UG/KG | 3 / 8 | 2.6 - 3.0 | 14.0 - 58.0 | 32.0 | 1900 c | | | |
| Di-n-butylphthalate | UG/KG | 1 / 8 | 710 - 800 | 100 | | 780000 N | | | |
| Diethylphthalate | UG/KG | 2 / 8 | 710 - 780 | 410 - 460 | 435 | 630000 N | | | |
| Dimethyl phthalate | UG/KG | 2 / 8 | 710 - 780 | 180 - 180 | 180 | 780000 N | | | |
| Dioxin (TCDD TEQ) | PG/G | 1 / 1 | | 2.06 | | 4.3 | | | |
| Endrin aldehyde | UG/KG | 1 / 8 | 2.6 - 3.0 | 3.20 | | 2300 h | | | |
| Fluoranthene | UG/KG | 3 / 8 | 720 - 800 | 140 - 805 | 408 | 310000 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 526**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[s] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Heptachlor | UG/KG | 2 / 8 | 1.4 - 1.5 | 1.60 - 2.00 | 1.80 | 140 c | | | |
| Iron (Fe) | MG/KG | 8 / 8 | | 4130 - 16300 | 8750 | 2300 N | 8 | | |
| Lead (Pb) | MG/KG | 8 / 8 | | 25.0 - 193 | 61.7 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 7 / 8 | 800 | 262 - 1820 | 814 | | | | |
| Manganese (Mn) | MG/KG | 8 / 8 | | 45.2 - 125 | 66.2 | 39 N | 8 | | |
| Mercury (Hg) | MG/KG | 3 / 8 | 0.090 - 0.30 | 0.0600 - 0.190 | 0.120 | 2.3 N | | | |
| Methylene chloride | UG/KG | 3 / 8 | 5.0 - 6.0 | 3.00 - 24.0 | 10.3 | 85000 c | | | |
| Nickel (Ni) | MG/KG | 8 / 8 | | 2.40 - 49.4 | 13.2 | 160 N | | | |
| Phenanthrene | UG/KG | 2 / 8 | 720 - 800 | 160 - 170 | 165 | 310000 k | | | |
| Potassium (K) | MG/KG | 4 / 8 | 570 - 740 | 469 - 571 | 516 | | | | |
| Pyrene | UG/KG | 4 / 8 | 720 - 800 | 180 - 1060 | 431 | 230000 N | | | |
| Selenium (Se) | MG/KG | 4 / 8 | 0.54 - 0.58 | 0.580 - 1.70 | 0.930 | 39 N | | | |
| Silver (Ag) | MG/KG | 2 / 8 | 0.21 - 2.1 | 0.440 - 2.20 | 1.32 | 39 N | | | |
| Sodium (Na) | MG/KG | 8 / 8 | | 40.8 - 925 | 170 | | | | |
| * Thallium (Tl) | MG/KG | 3 / 8 | 0.53 - 0.58 | 0.590 - 2.60 | 1.43 | 0.63 | 2 | | |
| Tin (Sn) | MG/KG | 8 / 8 | | 2.90 - 22.2 | 6.98 | 4700 | | | |
| Vanadium (V) | MG/KG | 8 / 8 | | 5.50 - 17.5 | 10.5 | 55 N | | | |
| Zinc (Zn) | MG/KG | 6 / 8 | 120 - 160 | 19.0 - 772 | 191 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 528**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Technical Chlordane | UG/KG | 1 / 1 | | 67.0 | | | | | |
| Aluminum (Al) | MG/KG | 1 / 1 | | 4310 | | 7800 N | | | |
| Arsenic (As) | MG/KG | 1 / 1 | | 2.80 | | 2.3 N | 2 | | |
| Barium (Ba) | MG/KG | 1 / 1 | | 23.3 | | 550 N | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 1 / 4 | 770 - 870 | 123 | | 88 | 1 | | |
| Benzo(a)anthracene | UG/KG | 1 / 4 | 690 - 780 | 110 | | 880 C | | | |
| Chrysene | UG/KG | 1 / 4 | 690 - 780 | 120 | | 88000 C | | | |
| Benzo(k)fluoranthene | UG/KG | 1 / 4 | 690 - 780 | 190 | | 8800 C | | | |
| * Benzo(a)pyrene | UG/KG | 1 / 4 | 690 - 780 | 110 | | 88 C | 1 | | |
| Beryllium (Be) | MG/KG | 1 / 1 | | 0.370 | | 0.15 C | 1 | | |
| Butylbenzylphthalate | UG/KG | 1 / 4 | 690 - 750 | 160 | | 160000 N | | | |
| Cadmium (Cd) | MG/KG | 1 / 1 | | 0.420 | | 3.9 N | | | |
| Carbon tetrachloride | UG/KG | 1 / 4 | 5.0 - 6.0 | 4.00 | | 4900 C | | | |
| Cobalt (Co) | MG/KG | 1 / 1 | | 3.20 | | 470 N | | | |
| Fluoranthene | UG/KG | 1 / 4 | 690 - 780 | 220 | | 310000 N | | | |
| Magnesium (Mg) | MG/KG | 1 / 1 | | 741 | | | | | |
| Methylene chloride | UG/KG | 1 / 4 | 57 - 77 | 2.00 | | 85000 C | | | |
| pH | SU | 4 / 4 | | 7.99 - 10.2 | 9.11 | | | | |
| Phenanthrene | UG/KG | 1 / 4 | 690 - 780 | 110 | | 310000 K | | | |
| Pyrene | UG/KG | 1 / 4 | 690 - 780 | 190 | | 230000 N | | | |
| Sodium (Na) | MG/KG | 1 / 1 | | 62.1 | | | | | |
| Tin (Sn) | MG/KG | 1 / 1 | | 14.1 | | 4700 | | | |
| Vanadium (V) | MG/KG | 1 / 1 | | 5.20 | | 55 N | | | |
| Xylene (Total) | UG/KG | 1 / 4 | 5.0 - 6.0 | 3.00 | | 160000 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 530**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[s] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | UG/KG | 5 / 8 | 690 - 740 | 250 - 11000 | 4250 | 470000 N | | | |
| Acenaphthylene | UG/KG | 3 / 8 | 690 - 3800 | 280 - 2500 | 1690 | 470000 e | | | |
| Acetone | UG/KG | 6 / 8 | 10 - 11 | 24.0 - 480 | 117 | 780000 N | | | |
| Aluminum (Al) | MG/KG | 8 / 8 | | 2930 - 7650 | 4150 | 7800 N | | | |
| Anthracene | UG/KG | 5 / 8 | 690 - 740 | 730 - 32000 | 10900 | 230000 N | | | |
| Antimony (Sb) | MG/KG | 4 / 8 | 0.42 - 0.45 | 1.40 - 3.50 | 2.43 | 3.1 N | 1 | | |
| Arsenic (As) | MG/KG | 6 / 8 | 0.72 - 1.1 | 3.20 - 68.3 | 21.3 | 2.3 N | 12 | | |
| Barium (Ba) | MG/KG | 7 / 8 | 120 | 9.70 - 117 | 51.2 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 5 / 8 | 690 - 740 | 2000 - 18000 | 9260 | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 5 / 8 | 1600 - 1700 | 4440 - 57300 | 24100 | 88 | 5 | | |
| * Benzo(a)anthracene | UG/KG | 5 / 8 | 690 - 740 | 3400 - 49000 | 19900 | 880 c | 5 | | |
| * Benzo(b)fluoranthene | UG/KG | 2 / 8 | 690 - 3800 | 3000 - 3900 | 3450 | 880 c | 2 | | |
| Chrysene | UG/KG | 5 / 8 | 690 - 740 | 3400 - 46000 | 20100 | 88000 c | | | |
| * Dibenz(a,h)anthracene | UG/KG | 5 / 8 | 690 - 740 | 650 - 12000 | 5080 | 88 c | 5 | | |
| * Indeno(1,2,3-cd)pyrene | UG/KG | 5 / 8 | 690 - 740 | 2200 - 18000 | 8580 | 880 c | 5 | | |
| * Benzo(k)fluoranthene | UG/KG | 5 / 8 | 690 - 740 | 2400 - 57000 | 22800 | 8800 c | 3 | | |
| * Benzo(a)pyrene | UG/KG | 5 / 8 | 690 - 740 | 2900 - 38000 | 15800 | 88 c | 5 | | |
| Beryllium (Be) | MG/KG | 8 / 8 | | 0.170 - 0.410 | 0.259 | 0.15 c | 8 | | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 4 / 8 | 710 - 3800 | 110 - 170 | 138 | 46000 c | | | |
| Cadmium (Cd) | MG/KG | 5 / 8 | 0.11 - 0.11 | 0.300 - 7.60 | 4.36 | 3.9 N | 3 | | |
| Calcium (Ca) | MG/KG | 8 / 8 | | 584 - 17800 | 5270 | | | | |
| Chromium (Cr) | MG/KG | 8 / 8 | | 2.50 - 32.6 | 13.2 | 39 | | | |
| Cobalt (Co) | MG/KG | 7 / 8 | 38 | 0.360 - 2.50 | 1.77 | 470 N | | | |
| Copper (Cu) | MG/KG | 8 / 8 | | 1.30 - 236 | 89.3 | 310 N | | | |
| Dibenzofuran | UG/KG | 5 / 8 | 690 - 740 | 110 - 10000 | 3690 | 31000 N | | | |
| 2,4-Dimethylphenol | UG/KG | 1 / 8 | 690 - 3800 | 88.0 | | 160000 N | | | |
| Fluoranthene | UG/KG | 4 / 8 | 690 - 10000 | 5600 - 56000 | 26400 | 310000 N | | | |
| Fluorene | UG/KG | 5 / 8 | 690 - 740 | 240 - 12000 | 4980 | 310000 N | | | |
| Iron (Fe) | MG/KG | 8 / 8 | | 1550 - 13000 | 5830 | 2300 N | 5 | | |
| Lead (Pb) | MG/KG | 8 / 8 | | 3.60 - 1060 | 420 | 400 j | 4 | | |
| Magnesium (Mg) | MG/KG | 8 / 8 | | 97.7 - 1750 | 493 | | | | |
| Manganese (Mn) | MG/KG | 3 / 8 | 28 - 110 | 94.0 - 138 | 113 | 39 N | 3 | | |
| Mercury (Hg) | MG/KG | 7 / 8 | 0.020 | 0.0300 - 9.10 | 3.96 | 2.3 N | 4 | | |
| 2-Methylnaphthalene | UG/KG | 4 / 8 | 690 - 740 | 560 - 13000 | 7340 | 310000 n | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 530**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Methylene chloride | UG/KG | 6 / 8 | 5.0 - 14 | 1.00 - 45.0 | 17.8 | 85000 C | | | |
| Naphthalene | UG/KG | 4 / 8 | 690 - 740 | 350 - 23000 | 9090 | 310000 N | | | |
| Nickel (Ni) | MG/KG | 8 / 8 | | 1.20 - 30.9 | 12.1 | 160 N | | | |
| Phenanthrene | UG/KG | 3 / 8 | 690 - 10000 | 3300 - 21000 | 10100 | 310000 K | | | |
| Potassium (K) | MG/KG | 8 / 8 | | 54.5 - 729 | 295 | | | | |
| Pyrene | UG/KG | 4 / 8 | 690 - 82000 | 5000 - 56000 | 24800 | 230000 N | | | |
| Selenium (Se) | MG/KG | 4 / 8 | 0.53 - 0.56 | 0.680 - 0.790 | 0.740 | 39 N | | | |
| Silver (Ag) | MG/KG | 4 / 8 | 0.21 - 0.22 | 0.480 - 4.20 | 1.72 | 39 N | | | |
| Sodium (Na) | MG/KG | 8 / 8 | | 18.5 - 111 | 44.6 | | | | |
| 1,1,2,2-Tetrachloroethane | UG/KG | 1 / 8 | 5.0 - 14 | 8.00 | | 3200 C | | | |
| * Thallium (Tl) | MG/KG | 1 / 8 | 0.51 - 0.64 | 1.40 | | 0.63 | 1 | | |
| Tin (Sn) | MG/KG | 8 / 8 | | 2.90 - 13.2 | 7.08 | 4700 | | | |
| Toluene | UG/KG | 3 / 8 | 5.0 - 5.0 | 2.00 - 6.00 | 3.67 | 160000 N | | | |
| Vanadium (V) | MG/KG | 8 / 8 | | 1.90 - 11.9 | 6.70 | 55 N | | | |
| Xylene (Total) | UG/KG | 1 / 8 | 5.0 - 14 | 2.00 | | 160000 N | | | |
| Zinc (Zn) | MG/KG | 3 / 8 | 5.2 - 600 | 744 - 1490 | 1130 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 531**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[s] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | UG/KG | 1 / 3 | 720 - 750 | 130 | | 470000 N | | | |
| Aluminum (Al) | MG/KG | 3 / 3 | | 1680 - 4540 | 3170 | 7800 N | | | |
| Anthracene | UG/KG | 2 / 3 | 750 | 170 - 370 | 270 | 230000 N | | | |
| Antimony (Sb) | MG/KG | 2 / 3 | 0.46 | 0.730 - 2.60 | 1.67 | 3.1 N | | | |
| * Aroclor-1260 | UG/KG | 2 / 3 | 76 | 82.0 - 110 | 96.0 | 83 | 1 | | |
| Arsenic (As) | MG/KG | 3 / 3 | | 2.00 - 76.7 | 27.2 | 0.43 c | 5 | | |
| Barium (Ba) | MG/KG | 3 / 3 | | 12.8 - 29.8 | 19.7 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 3 / 3 | | 310 - 3100 | 1460 | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 3 / 3 | | 548 - 6600 | 3040 | 88 | 3 | | |
| * Benzo(a)anthracene | UG/KG | 3 / 3 | | 340 - 3600 | 1680 | 880 c | 2 | | |
| * Benzo(b)fluoranthene | UG/KG | 3 / 3 | | 560 - 5700 | 2410 | 880 c | 2 | | |
| Chrysene | UG/KG | 3 / 3 | | 450 - 3800 | 1850 | 88000 c | | | |
| * Dibenz(a,h)anthracene | UG/KG | 2 / 3 | 750 | 450 - 1300 | 875 | 88 c | 2 | | |
| * Indeno(1,2,3-cd)pyrene | UG/KG | 3 / 3 | | 280 - 2700 | 1270 | 880 c | 1 | | |
| Benzo(k)fluoranthene | UG/KG | 1 / 3 | 740 - 750 | 1600 | | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 3 / 3 | | 430 - 4100 | 1910 | 88 c | 3 | | |
| Beryllium (Be) | MG/KG | 3 / 3 | | 0.160 - 0.260 | 0.210 | 0.15 c | 3 | | |
| Cadmium (Cd) | MG/KG | 2 / 3 | 0.11 | 0.190 - 0.300 | 0.245 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 3 / 3 | | 1630 - 120000 | 41500 | | | | |
| 4-Chloro-3-methylphenol | UG/KG | 1 / 3 | 720 - 750 | 95.0 | | | | | |
| 2-Chlorophenol | UG/KG | 1 / 3 | 720 - 750 | 80.0 | | 39000 N | | | |
| Chromium (Cr) | MG/KG | 3 / 3 | | 4.60 - 6.10 | 5.20 | 39 | | | |
| Cobalt (Co) | MG/KG | 3 / 3 | | 0.680 - 13.7 | 6.76 | 470 N | | | |
| Copper (Cu) | MG/KG | 3 / 3 | | 9.80 - 23.1 | 16.2 | 310 N | | | |
| Fluoranthene | UG/KG | 3 / 3 | | 720 - 6500 | 3110 | 310000 N | | | |
| Iron (Fe) | MG/KG | 3 / 3 | | 3490 - 18500 | 8760 | 2300 N | 3 | | |
| Lead (Pb) | MG/KG | 3 / 3 | | 31.2 - 86.8 | 52.6 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 3 / 3 | | 186 - 1310 | 580 | | | | |
| Manganese (Mn) | MG/KG | 3 / 3 | | 51.2 - 88.7 | 65.5 | 39 N | 3 | | |
| Mercury (Hg) | MG/KG | 3 / 3 | | 0.0600 - 1.30 | 0.500 | 2.3 N | | | |
| Nickel (Ni) | MG/KG | 3 / 3 | | 2.10 - 47.4 | 18.9 | 160 N | | | |
| pH | SU | 3 / 3 | | 7.83 - 10.1 | 8.74 | | | | |
| Phenanthrene | UG/KG | 3 / 3 | | 300 - 2200 | 1120 | 310000 k | | | |
| Potassium (K) | MG/KG | 3 / 3 | | 304 - 504 | 404 | | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 531**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Pyrene | UG/KG | 3 / 3 | | 540 - 6900 | 3080 | 230000 N | | | |
| Sodium (Na) | MG/KG | 3 / 3 | | 23.8 - 89.6 | 46.4 | | | | |
| * Thallium (Tl) | MG/KG | 1 / 3 | 0.57 - 0.57 | 1.20 | | 0.63 | 1 | | |
| Tin (Sn) | MG/KG | 3 / 3 | | 3.60 - 4.00 | 3.83 | 4700 | | | |
| Toluene | UG/KG | 1 / 3 | 5.0 - 6.0 | 1.00 | | 160000 N | | | |
| Vanadium (V) | MG/KG | 3 / 3 | | 3.10 - 9.70 | 5.67 | 55 N | | | |
| Zinc (Zn) | MG/KG | 3 / 3 | | 16.7 - 88.6 | 54.1 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 538**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[s] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Acetone | UG/KG | 6 / 7 | 33 | 20.0 - 71.0 | 43.7 | 780000 N | | | |
| Aluminum (Al) | MG/KG | 8 / 8 | | 2150 - 7400 | 4330 | 7800 N | | | |
| Antimony (Sb) | MG/KG | 1 / 8 | 0.42 - 0.45 | 0.630 | | 3.1 N | | | |
| Arsenic (As) | MG/KG | 8 / 8 | | 0.990 - 5.30 | 2.55 | 2.3 N | 11 | | |
| Barium (Ba) | MG/KG | 8 / 8 | | 5.40 - 27.5 | 15.8 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 2 / 8 | 690 - 1100 | 120 - 400 | 260 | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 2 / 8 | 840 - 1300 | 152 - 538 | 345 | 88 | 2 | | |
| Benzo(a)anthracene | UG/KG | 1 / 8 | 690 - 1100 | 480 | | 880 c | | | |
| Chrysene | UG/KG | 2 / 8 | 690 - 1100 | 200 - 540 | 370 | 88000 c | | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 1 / 8 | 690 - 1100 | 320 | | 880 c | | | |
| Benzo(k)fluoranthene | UG/KG | 2 / 8 | 690 - 1100 | 140 - 740 | 440 | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 2 / 8 | 690 - 1100 | 150 - 450 | 300 | 88 c | 2 | | |
| Beryllium (Be) | MG/KG | 7 / 8 | 0.11 | 0.110 - 0.200 | 0.159 | 0.15 c | 5 | | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 4 / 8 | 710 - 1100 | 81.0 - 330 | 168 | 46000 c | | | |
| Cadmium (Cd) | MG/KG | 2 / 8 | 0.11 - 0.12 | 0.310 - 3.70 | 2.01 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 8 / 8 | | 882 - 146000 | 20500 | | | | |
| Chromium (Cr) | MG/KG | 8 / 8 | | 3.80 - 19.9 | 7.65 | 39 | | | |
| Cobalt (Co) | MG/KG | 8 / 8 | | 0.220 - 4.70 | 2.24 | 470 N | | | |
| Copper (Cu) | MG/KG | 8 / 8 | | 1.60 - 103 | 21.3 | 310 N | | | |
| Fluoranthene | UG/KG | 1 / 8 | 690 - 1100 | 690 | | 310000 N | | | |
| Iron (Fe) | MG/KG | 8 / 8 | | 1690 - 17000 | 6240 | 2300 N | 5 | | |
| Lead (Pb) | MG/KG | 8 / 8 | | 2.30 - 116 | 23.6 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 8 / 8 | | 134 - 1440 | 398 | | | | |
| Manganese (Mn) | MG/KG | 8 / 8 | | 11.8 - 105 | 41.5 | 39 N | 2 | | |
| Mercury (Hg) | MG/KG | 1 / 8 | 0.11 - 0.12 | 0.0900 | | 2.3 N | | | |
| 2-Methylnaphthalene | UG/KG | 1 / 8 | 690 - 1100 | 450 | | 310000 n | | | |
| Methylene chloride | UG/KG | 6 / 7 | 51 | 2.00 - 32.0 | 18.8 | 85000 c | | | |
| Naphthalene | UG/KG | 1 / 8 | 690 - 1100 | 470 | | 310000 N | | | |
| Nickel (Ni) | MG/KG | 8 / 8 | | 1.50 - 65.6 | 12.0 | 160 N | | | |
| Phenanthrene | UG/KG | 2 / 8 | 690 - 1100 | 210 - 220 | 215 | 310000 k | | | |
| Potassium (K) | MG/KG | 8 / 8 | | 223 - 933 | 494 | | | | |
| Pyrene | UG/KG | 1 / 8 | 690 - 1100 | 650 | | 230000 N | | | |
| Sodium (Na) | MG/KG | 7 / 8 | 11 | 59.6 - 218 | 131 | | | | |
| Tin (Sn) | MG/KG | 1 / 8 | 2.1 - 2.8 | 5.90 | | 4700 | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 538**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Vanadium (V) | MG/KG | 8 / 8 | | 1.80 - 29.2 | 9.16 | 55 N | | | |
| Xylene (Total) | UG/KG | 1 / 7 | 5.0 - 8.0 | 2.00 | | 160000 N | | | |
| Zinc (Zn) | MG/KG | 8 / 8 | | 7.50 - 1100 | 155 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 539**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[s] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | UG/KG | 1 / 3 | 380 - 700 | 160 | | 470000 N | | | |
| Aluminum (Al) | MG/KG | 3 / 3 | | 2930 - 3260 | 3060 | 7800 N | | | |
| Anthracene | UG/KG | 1 / 3 | 380 - 700 | 140 | | 230000 N | | | |
| Arsenic (As) | MG/KG | 3 / 3 | | 0.550 - 1.50 | 1.08 | 0.43 c | 3 | | |
| Barium (Ba) | MG/KG | 3 / 3 | | 8.30 - 10.5 | 9.47 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 2 / 3 | 700 | 71.0 - 140 | 106 | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 2 / 3 | 920 | 89.6 - 246 | 168 | 88 | 2 | | |
| Benzo(a)anthracene | UG/KG | 2 / 3 | 700 | 60.0 - 220 | 140 | 880 c | | | |
| Benzo(b)fluoranthene | UG/KG | 1 / 3 | 370 - 700 | 62.0 | | 880 c | | | |
| Chrysene | UG/KG | 2 / 3 | 700 | 88.0 - 230 | 159 | 88000 c | | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 2 / 3 | 700 | 58.0 - 120 | 89.0 | 880 c | | | |
| Benzo(k)fluoranthene | UG/KG | 2 / 3 | 700 | 50.0 - 220 | 135 | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 2 / 3 | 700 | 71.0 - 210 | 141 | 88 c | 1 | | |
| Beryllium (Be) | MG/KG | 1 / 3 | 0.11 - 0.11 | 0.120 | | 0.15 c | | | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 2 / 3 | 700 | 80.0 - 190 | 135 | 46000 c | | | |
| Cadmium (Cd) | MG/KG | 1 / 3 | 0.11 - 0.11 | 0.220 | | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 1 / 3 | 1100 - 3000 | 384 | | | | | |
| Chromium (Cr) | MG/KG | 3 / 3 | | 3.40 - 45.4 | 17.4 | 39 | 1 | | |
| Cobalt (Co) | MG/KG | 3 / 3 | | 0.520 - 0.740 | 0.607 | 470 N | | | |
| Copper (Cu) | MG/KG | 3 / 3 | | 1.50 - 108 | 42.7 | 310 N | | | |
| Dibenzofuran | UG/KG | 1 / 3 | 380 - 700 | 160 | | 31000 N | | | |
| Fluoranthene | UG/KG | 2 / 3 | 700 | 93.0 - 580 | 337 | 310000 N | | | |
| Fluorene | UG/KG | 1 / 3 | 380 - 700 | 140 | | 310000 N | | | |
| Iron (Fe) | MG/KG | 3 / 3 | | 1080 - 2770 | 1860 | 2300 N | 1 | | |
| Lead (Pb) | MG/KG | 3 / 3 | | 2.00 - 19.7 | 11.8 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 3 / 3 | | 141 - 1170 | 497 | | | | |
| Manganese (Mn) | MG/KG | 3 / 3 | | 5.30 - 19.8 | 11.4 | 39 N | | | |
| Mercury (Hg) | MG/KG | 1 / 3 | 0.020 - 0.11 | 0.180 | | 2.3 N | | | |
| 2-Methylnaphthalene | UG/KG | 1 / 3 | 380 - 700 | 44.0 | | 310000 n | | | |
| Methylene chloride | UG/KG | 2 / 3 | 5.0 | 12.0 - 14.0 | 13.0 | 85000 c | | | |
| Nickel (Ni) | MG/KG | 3 / 3 | | 1.30 - 5.20 | 2.87 | 160 N | | | |
| Phenanthrene | UG/KG | 2 / 3 | 700 | 64.0 - 830 | 447 | 310000 k | | | |
| Potassium (K) | MG/KG | 2 / 3 | 190 | 251 - 356 | 304 | | | | |
| Pyrene | UG/KG | 2 / 3 | 700 | 150 - 490 | 320 | 230000 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 539**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Sodium (Na) | MG/KG | 3 / 3 | | 29.6 - 76.7 | 60.3 | | | | |
| Vanadium (V) | MG/KG | 3 / 3 | | 3.00 - 4.10 | 3.73 | 55 N | | | |
| Zinc (Zn) | MG/KG | 3 / 3 | | 1.70 - 61.7 | 32.1 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 540**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum (Al) | MG/KG | 1 / 1 | | 4230 | | 7800 N | | | |
| Antimony (Sb) | MG/KG | 1 / 1 | | 2.60 | | 3.1 N | | | |
| Arsenic (As) | MG/KG | 1 / 1 | | 7.70 | | 2.3 N | 2 | | |
| Barium (Ba) | MG/KG | 1 / 1 | | 26.4 | | 550 N | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 1 / 1 | | 145 | | 88 | 1 | | |
| Benzo(b)fluoranthene | UG/KG | 1 / 1 | | 140 | | 880 C | | | |
| Chrysene | UG/KG | 1 / 1 | | 150 | | 88000 C | | | |
| Benzo(k)fluoranthene | UG/KG | 1 / 1 | | 120 | | 8800 C | | | |
| * Benzo(a)pyrene | UG/KG | 1 / 1 | | 130 | | 88 C | 1 | | |
| Beryllium (Be) | MG/KG | 1 / 1 | | 0.290 | | 0.15 C | 1 | | |
| Cadmium (Cd) | MG/KG | 1 / 1 | | 0.150 | | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 1 / 1 | | 8520 | | | | | |
| alpha-Chlordane | UG/KG | 1 / 1 | | 82.0 | | 470 | | | |
| gamma-Chlordane | UG/KG | 1 / 1 | | 140 | | 470 | | | |
| Chromium (Cr) | MG/KG | 1 / 1 | | 9.30 | | 39 | | | |
| Cobalt (Co) | MG/KG | 1 / 1 | | 5.50 | | 470 N | | | |
| Copper (Cu) | MG/KG | 1 / 1 | | 36.7 | | 310 N | | | |
| Dieldrin | UG/KG | 1 / 1 | | 9.90 | | 40 C | | | |
| Fluoranthene | UG/KG | 1 / 1 | | 210 | | 310000 N | | | |
| Heptachlor | UG/KG | 1 / 1 | | 130 | | 140 C | | | |
| Heptachlor epoxide | UG/KG | 1 / 1 | | 6.60 | | 70 C | | | |
| Iron (Fe) | MG/KG | 1 / 1 | | 10800 | | 2300 N | 1 | | |
| Lead (Pb) | MG/KG | 1 / 1 | | 97.3 | | 400 J | | | |
| Magnesium (Mg) | MG/KG | 1 / 1 | | 353 | | | | | |
| Manganese (Mn) | MG/KG | 1 / 1 | | 59.3 | | 39 N | 1 | | |
| Mercury (Hg) | MG/KG | 1 / 1 | | 0.660 | | 2.3 N | | | |
| Nickel (Ni) | MG/KG | 1 / 1 | | 3.20 | | 160 N | | | |
| pH | S.U | 1 / 1 | | 8.19 | | | | | |
| Pyrene | UG/KG | 1 / 1 | | 210 | | 230000 N | | | |
| Tin (Sn) | MG/KG | 1 / 1 | | 3.10 | | 4700 | | | |
| Vanadium (V) | MG/KG | 1 / 1 | | 13.1 | | 55 N | | | |
| Zinc (Zn) | MG/KG | 1 / 1 | | 129 | | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 541**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[s] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum (Al) | MG/KG | 1 / 1 | | 3130 | | 7800 N | | | |
| Antimony (Sb) | MG/KG | 1 / 1 | | 29.5 | | 3.1 N | 1 | | |
| Arsenic (As) | MG/KG | 1 / 1 | | 3.90 | | 2.3 N | 2 | | |
| Barium (Ba) | MG/KG | 1 / 1 | | 33.2 | | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 1 / 1 | | 400 | | 310000 r | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 1 / 1 | | 430 | | 88 | 1 | | |
| Chrysene | UG/KG | 1 / 1 | | 200 | | 88000 c | | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 1 / 1 | | 340 | | 880 c | | | |
| Benzo(k)fluoranthene | UG/KG | 1 / 1 | | 540 | | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 1 / 1 | | 390 | | 88 c | 1 | | |
| Beryllium (Be) | MG/KG | 1 / 1 | | 0.240 | | 0.15 c | 1 | | |
| Cadmium (Cd) | MG/KG | 1 / 1 | | 0.250 | | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 1 / 1 | | 12900 | | | | | |
| Chromium (Cr) | MG/KG | 1 / 1 | | 8.00 | | 39 | | | |
| Cobalt (Co) | MG/KG | 1 / 1 | | 0.920 | | 470 N | | | |
| Copper (Cu) | MG/KG | 1 / 1 | | 747 | | 310 N | 1 | | |
| Iron (Fe) | MG/KG | 1 / 1 | | 4150 | | 2300 N | 1 | | |
| Lead (Pb) | MG/KG | 1 / 1 | | 75.4 | | 400 j | | | |
| Magnesium (Mg) | MG/KG | 1 / 1 | | 344 | | | | | |
| Manganese (Mn) | MG/KG | 1 / 1 | | 47.6 | | 39 N | 1 | | |
| Mercury (Hg) | MG/KG | 1 / 1 | | 0.160 | | 2.3 N | | | |
| Nickel (Ni) | MG/KG | 1 / 1 | | 4.70 | | 160 N | | | |
| pH | S.U | 1 / 1 | | 8.04 | | | | | |
| Pyrene | UG/KG | 1 / 1 | | 130 | | 230000 N | | | |
| Tin (Sn) | MG/KG | 1 / 1 | | 54.3 | | 4700 | | | |
| Toluene | UG/KG | 1 / 1 | | 2.00 | | 160000 N | | | |
| Vanadium (V) | MG/KG | 1 / 1 | | 4.60 | | 55 N | | | |
| Xylene (Total) | UG/KG | 1 / 1 | | 2.00 | | 160000 N | | | |
| Zinc (Zn) | MG/KG | 1 / 1 | | 141 | | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 542**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | UG/KG | 1 / 7 | 350 - 730 | 43.0 | | 470000 N | | | |
| Aluminum (Al) | MG/KG | 7 / 7 | | 2280 - 5560 | 3990 | 7800 N | | | |
| Anthracene | UG/KG | 1 / 7 | 350 - 730 | 160 | | 230000 N | | | |
| Antimony (Sb) | MG/KG | 2 / 7 | 0.43 - 3.3 | 3.80 - 27.4 | 15.6 | 3.1 N | 2 | | |
| Arsenic (As) | MG/KG | 7 / 7 | | 1.00 - 7.90 | 3.57 | 2.3 N | 11 | | |
| alpha-BHC | UG/KG | 1 / 7 | 1.4 - 1.4 | 5.40 | | 100 c | | | |
| gamma-BHC (Lindane) | UG/KG | 1 / 7 | 1.4 - 1.4 | 5.10 | | 490 c | | | |
| Barium (Ba) | MG/KG | 7 / 7 | | 18.6 - 54.8 | 34.0 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 3 / 7 | 350 - 730 | 39.0 - 820 | 390 | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 4 / 7 | 770 - 1600 | 0.566 - 1690 | 550 | 88 | 2 | | |
| * Benzo(a)anthracene | UG/KG | 2 / 7 | 350 - 730 | 280 - 970 | 625 | 880 c | 1 | | |
| Chrysene | UG/KG | 4 / 7 | 350 - 730 | 46.0 - 1000 | 394 | 88000 c | | | |
| * Dibenz(a,h)anthracene | UG/KG | 1 / 7 | 350 - 730 | 410 | | 88 c | 1 | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 2 / 7 | 350 - 730 | 260 - 690 | 475 | 880 c | | | |
| Benzo(k)fluoranthene | UG/KG | 4 / 7 | 350 - 730 | 52.0 - 1100 | 443 | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 2 / 7 | 350 - 730 | 450 - 1100 | 775 | 88 c | 2 | | |
| Beryllium (Be) | MG/KG | 7 / 7 | | 0.170 - 0.440 | 0.271 | 0.15 c | 7 | | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 3 / 7 | 350 - 730 | 52.0 - 120 | 87.7 | 46000 c | | | |
| Cadmium (Cd) | MG/KG | 4 / 7 | 0.11 - 0.11 | 0.200 - 18.0 | 4.77 | 3.9 N | 1 | | |
| Calcium (Ca) | MG/KG | 3 / 7 | 3800 - 17000 | 9710 - 12300 | 10600 | | | | |
| alpha-Chlordane | UG/KG | 4 / 7 | 1.4 - 7.9 | 4.10 - 52.0 | 21.3 | 470 | | | |
| gamma-Chlordane | UG/KG | 3 / 7 | 1.4 - 11 | 19.0 - 74.0 | 38.0 | 470 | | | |
| Chromium (Cr) | MG/KG | 7 / 7 | | 2.60 - 22.9 | 8.61 | 39 | | | |
| Cobalt (Co) | MG/KG | 7 / 7 | | 0.680 - 2.60 | 1.29 | 470 N | | | |
| Copper (Cu) | MG/KG | 7 / 7 | | 1.10 - 82.8 | 45.7 | 310 N | | | |
| 4,4'-DDD | UG/KG | 1 / 7 | 2.6 - 4.3 | 5.70 | | 2700 c | | | |
| 4,4'-DDE | UG/KG | 1 / 7 | 2.7 - 74 | 12.0 | | 1900 c | | | |
| 4,4'-DDT | UG/KG | 2 / 7 | 2.7 - 92 | 16.0 - 48.0 | 32.0 | 1900 c | | | |
| Endosulfan sulfate | UG/KG | 1 / 7 | 2.6 - 2.8 | 5.10 | | 47000 g | | | |
| Fluoranthene | UG/KG | 4 / 7 | 350 - 730 | 71.0 - 1500 | 568 | 310000 N | | | |
| Fluorene | UG/KG | 1 / 7 | 350 - 730 | 39.0 | | 310000 N | | | |
| Heptachlor | UG/KG | 5 / 7 | 1.4 - 1.4 | 1.40 - 7.20 | 3.06 | 140 c | | | |
| Iron (Fe) | MG/KG | 7 / 7 | | 2110 - 10500 | 4880 | 2300 N | 6 | | |
| Lead (Pb) | MG/KG | 7 / 7 | | 2.10 - 138 | 66.3 | 400 j | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 542**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Magnesium (Mg) | MG/KG | 7 / 7 | | 180 - 629 | 343 | | | | |
| Manganese (Mn) | MG/KG | 7 / 7 | | 20.0 - 101 | 55.2 | 39 N | 5 | | |
| Mercury (Hg) | MG/KG | 2 / 7 | 0.11 - 1.1 | 0.130 - 0.980 | 0.555 | 2.3 N | | | |
| Methoxychlor | UG/KG | 1 / 7 | 14 - 14 | 22.0 | | 39000 N | | | |
| 2-Methylnaphthalene | UG/KG | 1 / 7 | 350 - 730 | 91.0 | | 310000 n | | | |
| Methylene chloride | UG/KG | 3 / 7 | 5.0 - 28 | 13.0 - 19.0 | 16.7 | 85000 c | | | |
| Nickel (Ni) | MG/KG | 7 / 7 | | 1.50 - 6.20 | 3.71 | 160 N | | | |
| pH | S.U | 7 / 7 | | 7.71 - 8.21 | 8.03 | | | | |
| Phenanthrene | UG/KG | 3 / 7 | 350 - 730 | 47.0 - 710 | 342 | 310000 k | | | |
| Potassium (K) | MG/KG | 4 / 7 | 500 - 550 | 407 - 724 | 517 | | | | |
| Pyrene | UG/KG | 4 / 7 | 350 - 730 | 84.0 - 1900 | 664 | 230000 N | | | |
| Sodium (Na) | MG/KG | 3 / 7 | 11 - 57 | 45.1 - 59.5 | 50.7 | | | | |
| Tin (Sn) | MG/KG | 4 / 7 | 2.1 - 2.2 | 2.60 - 12.0 | 6.60 | 4700 | | | |
| Toluene | UG/KG | 1 / 7 | 5.0 - 28 | 2.00 | | 160000 N | | | |
| Vanadium (V) | MG/KG | 7 / 7 | | 3.20 - 9.10 | 5.76 | 55 N | | | |
| Zinc (Zn) | MG/KG | 7 / 7 | | 4.80 - 4080 | 663 | 2300 N | 1 | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 543**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[s] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Technical Chlordane | UG/KG | 2 / 2 | | 46.0 - 680 | 363 | | | | |
| Cyanide | MG/KG | 1 / 2 | 0.22 | 0.380 | | | | | |
| Aldrin | UG/KG | 1 / 3 | 1.4 - 1.5 | 1.80 | | 38 c | | | |
| Aluminum (Al) | MG/KG | 3 / 3 | | 2120 - 3510 | 2960 | 7800 N | | | |
| Antimony (Sb) | MG/KG | 1 / 3 | 0.44 - 0.45 | 2.60 | | 3.1 N | | | |
| Arsenic (As) | MG/KG | 3 / 3 | | 2.90 - 5.00 | 4.27 | 2.3 N | 6 | | |
| delta-BHC | UG/KG | 1 / 3 | 1.4 - 1.4 | 11.0 | | 490 f | | | |
| Barium (Ba) | MG/KG | 3 / 3 | | 16.5 - 39.4 | 26.6 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 3 / 3 | | 160 - 220 | 183 | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 3 / 3 | | 214 - 474 | 348 | 88 | 3 | | |
| Benzo(a)anthracene | UG/KG | 3 / 3 | | 180 - 470 | 313 | 880 c | | | |
| Chrysene | UG/KG | 3 / 3 | | 200 - 460 | 320 | 88000 c | | | |
| Dibenz(a,h)anthracene | UG/KG | 1 / 3 | 730 - 760 | 77.0 | | 88 c | | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 3 / 3 | | 130 - 220 | 163 | 880 c | | | |
| Benzo(k)fluoranthene | UG/KG | 3 / 3 | | 300 - 490 | 387 | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 3 / 3 | | 180 - 400 | 270 | 88 c | 3 | | |
| Beryllium (Be) | MG/KG | 3 / 3 | | 0.200 - 0.310 | 0.270 | 0.15 c | 3 | | |
| Cadmium (Cd) | MG/KG | 2 / 3 | 0.12 | 0.420 - 1.70 | 1.06 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 1 / 3 | 3300 - 15000 | 2290 | | | | | |
| alpha-Chlordane | UG/KG | 1 / 1 | | 130 | | 470 | | | |
| gamma-Chlordane | UG/KG | 1 / 1 | | 240 | | 470 | | | |
| Chromium (Cr) | MG/KG | 1 / 3 | 6.0 - 7.6 | 7.40 | | 39 | | | |
| Cobalt (Co) | MG/KG | 2 / 3 | 51 | 2.10 - 2.70 | 2.40 | 470 N | | | |
| Copper (Cu) | MG/KG | 1 / 3 | 45 - 1800 | 16.7 | | 310 N | | | |
| Cyanide (CN) | MG/KG | 1 / 1 | | 0.500 | | 160 N | | | |
| 4,4'-DDE | UG/KG | 2 / 3 | 2.8 | 7.50 - 18.0 | 12.8 | 1900 c | | | |
| 4,4'-DDT | UG/KG | 2 / 3 | 2.8 | 4.50 - 7.60 | 6.05 | 1900 c | | | |
| Dieldrin | UG/KG | 1 / 3 | 2.8 - 2.9 | 8.60 | | 40 c | | | |
| Endrin | UG/KG | 1 / 3 | 2.8 - 2.9 | 5.30 | | 2300 N | | | |
| Fluoranthene | UG/KG | 3 / 3 | | 310 - 670 | 470 | 310000 N | | | |
| Heptachlor | UG/KG | 2 / 3 | 1.4 | 3.70 - 65.0 | 34.4 | 140 c | | | |
| Heptachlor epoxide | UG/KG | 2 / 3 | 1.4 | 2.50 - 19.0 | 10.8 | 70 c | | | |
| Iron (Fe) | MG/KG | 1 / 3 | 3100 - 9500 | 7950 | | 2300 N | 1 | | |
| Lead (Pb) | MG/KG | 1 / 3 | 42 - 150 | 63.4 | | 400 j | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 543**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Magnesium (Mg) | MG/KG | 3 / 3 | | 233 - 1500 | 655 | | | | |
| Manganese (Mn) | MG/KG | 1 / 3 | 140 - 150 | 41.6 | | 39 N | 1 | | |
| Mercury (Hg) | MG/KG | 1 / 3 | 0.030 - 0.060 | 0.220 | | 2.3 N | | | |
| Nickel (Ni) | MG/KG | 1 / 3 | 12 - 190 | 1.80 | | 160 N | | | |
| pH | S.U | 3 / 3 | | 7.92 - 8.74 | 8.27 | | | | |
| Phenanthrene | UG/KG | 3 / 3 | | 180 - 280 | 223 | 310000 k | | | |
| Potassium (K) | MG/KG | 1 / 3 | 170 - 410 | 176 | | | | | |
| Pyrene | UG/KG | 3 / 3 | | 360 - 560 | 477 | 230000 N | | | |
| Silver (Ag) | MG/KG | 1 / 3 | 0.23 - 0.55 | 1.20 | | 39 N | | | |
| Sodium (Na) | MG/KG | 1 / 3 | 56 - 59 | 90.6 | | | | | |
| Tin (Sn) | MG/KG | 3 / 3 | | 5.90 - 26.0 | 12.8 | 4700 | | | |
| Toluene | UG/KG | 1 / 3 | 6.0 - 6.0 | 2.00 | | 160000 N | | | |
| Vanadium (V) | MG/KG | 3 / 3 | | 4.00 - 16.1 | 10.3 | 55 N | | | |
| Zinc (Zn) | MG/KG | 1 / 3 | 72 - 1200 | 43.7 | | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 544**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[s] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Technical Chlordane | UG/KG | 2 / 3 | 12000 | 43.0 - 1240 | 642 | | | | |
| Acenaphthene | UG/KG | 2 / 4 | 380 - 840 | 77.0 - 120 | 98.5 | 470000 N | | | |
| Acetone | UG/KG | 2 / 4 | 6.0 - 2200 | 14.0 - 120 | 67.0 | 780000 N | | | |
| Aluminum (Al) | MG/KG | 1 / 4 | 2500 - 4200 | 2150 | | 7800 N | | | |
| Antimony (Sb) | MG/KG | 2 / 4 | 0.46 - 0.47 | 0.610 - 1.50 | 1.06 | 3.1 N | | | |
| Arsenic (As) | MG/KG | 4 / 4 | | 0.700 - 2.20 | 1.33 | 0.43 c | 4 | | |
| beta-BHC | UG/KG | 1 / 4 | 1.5 - 15 | 11.7 | | 350 c | | | |
| delta-BHC | UG/KG | 2 / 4 | 1.5 - 1.6 | 2.41 - 96.0 | 49.2 | 490 i | | | |
| gamma-BHC (Lindane) | UG/KG | 1 / 4 | 1.5 - 1.6 | 9.54 | | 490 c | | | |
| Barium (Ba) | MG/KG | 4 / 4 | | 5.40 - 25.1 | 11.1 | 550 N | | | |
| Beryllium (Be) | MG/KG | 1 / 4 | 0.11 - 0.13 | 0.130 | | 0.15 c | | | |
| Cadmium (Cd) | MG/KG | 2 / 4 | 0.11 - 0.13 | 0.140 - 0.240 | 0.190 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 4 / 4 | | 381 - 12200 | 4760 | | | | |
| Carbon disulfide | UG/KG | 1 / 4 | 6.0 - 6.0 | 2.00 | | 780000 N | | | |
| Carbon tetrachloride | UG/KG | 1 / 4 | 6.0 - 6.0 | 5.00 | | 4900 c | | | |
| 4-Chloro-3-methylphenol | UG/KG | 1 / 4 | 380 - 840 | 120 | | | | | |
| 2-Chlorophenol | UG/KG | 1 / 4 | 380 - 840 | 96.0 | | 39000 N | | | |
| Chromium (Cr) | MG/KG | 1 / 4 | 5.0 - 36 | 3.80 | | 39 | | | |
| Cobalt (Co) | MG/KG | 4 / 4 | | 1.30 - 505 | 141 | 470 N | 1 | | |
| Copper (Cu) | MG/KG | 1 / 4 | 6.8 - 35 | 10.4 | | 310 N | | | |
| 4,4'-DDE | UG/KG | 2 / 4 | 3.1 - 29 | 2.97 - 10.5 | 6.74 | 1900 c | | | |
| Dibenzofuran | UG/KG | 1 / 4 | 380 - 840 | 75.0 | | 31000 N | | | |
| Di-n-butylphthalate | UG/KG | 1 / 4 | 380 - 840 | 220 | | 780000 N | | | |
| Dieldrin | UG/KG | 1 / 4 | 3.1 - 520 | 15.1 | | 40 c | | | |
| Endosulfan II | UG/KG | 1 / 4 | 2.8 - 3.1 | 9.01 | | 47000 | | | |
| Endrin | UG/KG | 1 / 4 | 2.8 - 29 | 4.91 | | 2300 N | | | |
| Endrin aldehyde | UG/KG | 1 / 4 | 2.8 - 3.1 | 4.73 | | 2300 h | | | |
| Fluorene | UG/KG | 1 / 4 | 380 - 840 | 61.0 | | 310000 N | | | |
| Heptachlor epoxide | UG/KG | 2 / 4 | 1.5 - 1.6 | 2.86 - 19.0 | 10.9 | 70 c | | | |
| Iron (Fe) | MG/KG | 4 / 4 | | 1740 - 3770 | 2910 | 2300 N | 3 | | |
| Lead (Pb) | MG/KG | 4 / 4 | | 6.60 - 32.6 | 16.4 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 4 / 4 | | 80.4 - 412 | 182 | | | | |
| Manganese (Mn) | MG/KG | 4 / 4 | | 10.0 - 24.1 | 17.6 | 39 N | | | |
| Mercury (Hg) | MG/KG | 4 / 4 | | 0.0300 - 0.0600 | 0.0375 | 2.3 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 544**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[5] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| 2-Methylnaphthalene | UG/KG | 1 / 4 | 380 - 840 | 130 | | 310000 n | | | |
| Methylene chloride | UG/KG | 1 / 4 | 6.0 - 7.0 | 24.0 | | 85000 c | | | |
| Naphthalene | UG/KG | 1 / 4 | 380 - 840 | 360 | | 310000 N | | | |
| Nickel (Ni) | MG/KG | 4 / 4 | | 3.30 - 19.2 | 8.03 | 160 N | | | |
| pH | SU | 4 / 4 | | 7.96 - 11.3 | 8.95 | | | | |
| Phenanthrene | UG/KG | 1 / 4 | 380 - 840 | 76.0 | | 310000 k | | | |
| Phenol | UG/KG | 1 / 4 | 380 - 840 | 110 | | 470000 N | | | |
| Potassium (K) | MG/KG | 4 / 4 | | 179 - 508 | 337 | | | | |
| Sodium (Na) | MG/KG | 3 / 4 | 37 | 71.5 - 242 | 138 | | | | |
| Tin (Sn) | MG/KG | 2 / 4 | 5.7 - 5.8 | 2.60 - 10.4 | 6.50 | 4700 | | | |
| Vanadium (V) | MG/KG | 4 / 4 | | 3.20 - 5.40 | 4.15 | 55 N | | | |
| Zinc (Zn) | MG/KG | 4 / 4 | | 6.40 - 39.5 | 21.0 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 546**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Acetone | UG/KG | 1 / 2 | 12 | 21.0 | | 780000 N | | | |
| Aluminum (Al) | MG/KG | 2 / 2 | | 4830 - 5700 | 5270 | 7800 N | | | |
| Antimony (Sb) | MG/KG | 2 / 2 | | 0.600 - 2.00 | 1.30 | 3.1 N | | | |
| Arsenic (As) | MG/KG | 2 / 2 | | 5.70 - 6.90 | 6.30 | 2.3 N | 4 | | |
| Barium (Ba) | MG/KG | 2 / 2 | | 26.8 - 46.4 | 36.6 | 550 N | | | |
| Beryllium (Be) | MG/KG | 2 / 2 | | 0.290 - 0.370 | 0.330 | 0.15 C | 2 | | |
| Cadmium (Cd) | MG/KG | 2 / 2 | | 0.320 - 1.10 | 0.710 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 2 / 2 | | 11300 - 20300 | 15800 | | | | |
| Chromium (Cr) | MG/KG | 2 / 2 | | 10.6 - 93.1 | 51.9 | 39 | 1 | | |
| Cobalt (Co) | MG/KG | 2 / 2 | | 1.50 - 2.40 | 1.95 | 470 N | | | |
| Copper (Cu) | MG/KG | 2 / 2 | | 22.1 - 58.0 | 40.1 | 310 N | | | |
| Ethylbenzene | UG/KG | 1 / 2 | 6.0 | 7.00 | | 780000 N | | | |
| Iron (Fe) | MG/KG | 2 / 2 | | 6280 - 6590 | 6440 | 2300 N | 2 | | |
| Lead (Pb) | MG/KG | 2 / 2 | | 48.9 - 119 | 84.0 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 2 / 2 | | 597 - 1430 | 1010 | | | | |
| Manganese (Mn) | MG/KG | 2 / 2 | | 49.7 - 84.0 | 66.9 | 39 N | 2 | | |
| Mercury (Hg) | MG/KG | 2 / 2 | | 0.0600 - 0.210 | 0.135 | 2.3 N | | | |
| Methylene chloride | UG/KG | 2 / 2 | | 2.00 - 48.0 | 25.0 | 85000 C | | | |
| Nickel (Ni) | MG/KG | 2 / 2 | | 4.90 - 8.30 | 6.60 | 160 N | | | |
| Potassium (K) | MG/KG | 2 / 2 | | 758 - 853 | 806 | | | | |
| Selenium (Se) | MG/KG | 2 / 2 | | 0.590 - 0.590 | 0.590 | 39 N | | | |
| Sodium (Na) | MG/KG | 1 / 2 | 69 | 177 | | | | | |
| * Thallium (Tl) | MG/KG | 1 / 2 | 0.58 | 0.660 | | 0.63 | 1 | | |
| Tin (Sn) | MG/KG | 2 / 2 | | 4.50 - 42.3 | 23.4 | 4700 | | | |
| Vanadium (V) | MG/KG | 2 / 2 | | 11.8 - 13.0 | 12.4 | 55 N | | | |
| Xylene (Total) | UG/KG | 1 / 2 | 6.0 | 150 | | 160000 N | | | |
| Zinc (Zn) | MG/KG | 2 / 2 | | 109 - 228 | 169 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 548**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[s] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum (Al) | MG/KG | 4 / 4 | | 4110 - 5630 | 4590 | 7800 N | | | |
| Arsenic (As) | MG/KG | 4 / 4 | | 1.70 - 2.20 | 1.93 | 0.43 C | 4 | | |
| Barium (Ba) | MG/KG | 4 / 4 | | 15.1 - 25.1 | 19.3 | 550 N | | | |
| Beryllium (Be) | MG/KG | 2 / 4 | 0.11 - 0.11 | 0.130 - 0.160 | 0.145 | 0.15 C | 1 | | |
| Calcium (Ca) | MG/KG | 4 / 4 | | 345 - 777 | 528 | | | | |
| Chromium (Cr) | MG/KG | 4 / 4 | | 3.80 - 6.20 | 4.73 | 39 | | | |
| Cobalt (Co) | MG/KG | 4 / 4 | | 1.80 - 13.4 | 7.55 | 470 N | | | |
| Copper (Cu) | MG/KG | 4 / 4 | | 0.760 - 1.20 | 1.01 | 310 N | | | |
| Endrin aldehyde | UG/KG | 3 / 4 | 2.7 | 2.60 - 4.20 | 3.37 | 2300 h | | | |
| Iron (Fe) | MG/KG | 4 / 4 | | 3580 - 4370 | 3880 | 2300 N | 4 | | |
| Lead (Pb) | MG/KG | 4 / 4 | | 4.90 - 7.90 | 6.33 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 4 / 4 | | 187 - 344 | 254 | | | | |
| Manganese (Mn) | MG/KG | 4 / 4 | | 15.4 - 44.3 | 29.9 | 39 N | 1 | | |
| Methylene chloride | UG/KG | 3 / 4 | 48 | 10.0 - 11.0 | 10.3 | 85000 C | | | |
| Nickel (Ni) | MG/KG | 4 / 4 | | 1.80 - 3.00 | 2.43 | 160 N | | | |
| pH | SU | 4 / 4 | | 6.54 - 7.65 | 7.25 | | | | |
| Potassium (K) | MG/KG | 4 / 4 | | 238 - 543 | 362 | | | | |
| Sodium (Na) | MG/KG | 4 / 4 | | 58.4 - 91.6 | 78.1 | | | | |
| Vanadium (V) | MG/KG | 4 / 4 | | 5.70 - 8.10 | 6.63 | 55 N | | | |
| Zinc (Zn) | MG/KG | 4 / 4 | | 3.70 - 5.80 | 4.63 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 549**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[5] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum (Al) | MG/KG | 10 / 10 | | 1430 - 5520 | 3750 | 7800 N | | | |
| Anthracene | UG/KG | 2 / 10 | 350 - 420 | 76.0 - 78.0 | 77.0 | 230000 N | | | |
| Antimony (Sb) | MG/KG | 3 / 10 | 0.43 - 0.47 | 1.10 - 1.60 | 1.37 | 3.1 N | | | |
| Aroclor-1260 | UG/KG | 1 / 10 | 71 - 86 | 68.0 | | 83 | | | |
| Arsenic (As) | MG/KG | 10 / 10 | | 1.50 - 12.6 | 4.69 | 2.3 N | 18 | | |
| delta-BHC | UG/KG | 1 / 10 | 1.4 - 1.5 | 1.90 | | 490 I | | | |
| Barium (Ba) | MG/KG | 10 / 10 | | 8.10 - 45.6 | 28.0 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 7 / 10 | 350 - 420 | 40.0 - 2900 | 541 | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 9 / 10 | 810 | 0.520 - 4670 | 723 | 88 | 7 | | |
| Benzo(a)anthracene | UG/KG | 8 / 10 | 350 - 420 | 41.0 - 560 | 204 | 880 c | | | |
| * Benzo(b)fluoranthene | UG/KG | 5 / 10 | 350 - 420 | 64.0 - 4900 | 1120 | 880 c | 1 | | |
| Chrysene | UG/KG | 8 / 10 | 350 - 420 | 67.0 - 2200 | 439 | 88000 c | | | |
| * Dibenz(a,h)anthracene | UG/KG | 3 / 10 | 350 - 420 | 39.0 - 790 | 343 | 88 c | 2 | | |
| * Indeno(1,2,3-cd)pyrene | UG/KG | 7 / 10 | 350 - 420 | 58.0 - 2000 | 389 | 880 c | 1 | | |
| Benzo(k)fluoranthene | UG/KG | 9 / 10 | 350 | 52.0 - 2800 | 466 | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 8 / 10 | 350 - 420 | 41.0 - 3100 | 554 | 88 c | 6 | | |
| Beryllium (Be) | MG/KG | 8 / 10 | 0.11 - 0.11 | 0.140 - 0.220 | 0.178 | 0.15 c | 5 | | |
| Cadmium (Cd) | MG/KG | 7 / 10 | 0.11 - 0.12 | 0.120 - 1.80 | 0.719 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 10 / 10 | | 274 - 20300 | 5810 | | | | |
| alpha-Chlordane | UG/KG | 1 / 10 | 1.4 - 1.7 | 5.40 | | 470 | | | |
| gamma-Chlordane | UG/KG | 4 / 10 | 1.4 - 1.5 | 1.60 - 4.90 | 3.53 | 470 | | | |
| Chromium (Cr) | MG/KG | 10 / 10 | | 2.90 - 31.4 | 9.69 | 39 | | | |
| Cobalt (Co) | MG/KG | 10 / 10 | | 0.100 - 196 | 34.1 | 470 N | | | |
| Copper (Cu) | MG/KG | 10 / 10 | | 7.20 - 18200 | 2090 | 310 N | 3 | | |
| 4,4'-DDE | UG/KG | 3 / 10 | 2.6 - 3.2 | 3.30 - 49.0 | 21.4 | 1900 c | | | |
| 4,4'-DDT | UG/KG | 3 / 10 | 2.6 - 3.2 | 6.70 - 40.0 | 19.9 | 1900 c | | | |
| Dibenzofuran | UG/KG | 1 / 10 | 350 - 420 | 44.0 | | 31000 N | | | |
| Endosulfan II | UG/KG | 2 / 10 | 2.6 - 3.2 | 3.90 - 3.90 | 3.90 | 47000 | | | |
| Endrin | UG/KG | 2 / 10 | 2.6 - 3.2 | 4.30 - 18.0 | 11.2 | 2300 N | | | |
| Endrin aldehyde | UG/KG | 3 / 10 | 2.6 - 3.2 | 2.70 - 5.50 | 4.00 | 2300 h | | | |
| Fluoranthene | UG/KG | 9 / 10 | 350 | 53.0 - 720 | 292 | 310000 N | | | |
| Heptachlor epoxide | UG/KG | 1 / 10 | 1.4 - 1.7 | 1.70 | | 70 c | | | |
| Iron (Fe) | MG/KG | 10 / 10 | | 2350 - 9440 | 6190 | 2300 N | 10 | | |
| Lead (Pb) | MG/KG | 10 / 10 | | 22.1 - 1620 | 298 | 400 j | 2 | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 549**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Magnesium (Mg) | MG/KG | 10 / 10 | | 81.2 - 662 | 326 | | | | |
| Manganese (Mn) | MG/KG | 10 / 10 | | 10.8 - 76.3 | 45.0 | 39 N | 6 | | |
| Mercury (Hg) | MG/KG | 7 / 10 | 0.11 - 0.11 | 0.120 - 0.640 | 0.350 | 2.3 N | | | |
| Methylene chloride | UG/KG | 2 / 10 | 5.0 - 40 | 10.0 - 14.0 | 12.0 | 85000 C | | | |
| Nickel (Ni) | MG/KG | 10 / 10 | | 0.960 - 112 | 22.1 | 160 N | | | |
| pH | S.U | 10 / 10 | | 7.71 - 10.3 | 8.67 | | | | |
| Phenanthrene | UG/KG | 8 / 10 | 350 - 420 | 40.0 - 400 | 173 | 310000 K | | | |
| Potassium (K) | MG/KG | 8 / 10 | 160 - 240 | 231 - 712 | 445 | | | | |
| Pyrene | UG/KG | 9 / 10 | 350 | 43.0 - 4600 | 742 | 230000 N | | | |
| Selenium (Se) | MG/KG | 1 / 10 | 0.53 - 0.59 | 0.730 | | 39 N | | | |
| Silver (Ag) | MG/KG | 1 / 10 | 0.21 - 0.57 | 3.80 | | 39 N | | | |
| Sodium (Na) | MG/KG | 5 / 10 | 11 - 12 | 32.2 - 90.2 | 60.1 | | | | |
| Tin (Sn) | MG/KG | 9 / 10 | 2.1 | 2.50 - 1800 | 224 | 4700 | | | |
| Toluene | UG/KG | 4 / 10 | 5.0 - 6.0 | 1.00 - 3.00 | 1.75 | 160000 N | | | |
| Vanadium (V) | MG/KG | 10 / 10 | | 3.00 - 11.2 | 7.23 | 55 N | | | |
| Xylene (Total) | UG/KG | 4 / 10 | 5.0 - 6.0 | 1.00 - 4.00 | 2.25 | 160000 N | | | |
| Zinc (Zn) | MG/KG | 10 / 10 | | 13.8 - 591 | 218 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 550**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Acetone | UG/KG | 5 / 5 | | 14.0 - 190 | 71.7 | 780000 N | | | |
| Aluminum (Al) | MG/KG | 5 / 5 | | 2530 - 6290 | 3810 | 7800 N | | | |
| Arsenic (As) | MG/KG | 5 / 5 | | 0.720 - 2.10 | 1.17 | 0.43 C | 5 | | |
| Barium (Ba) | MG/KG | 5 / 5 | | 10.3 - 15.6 | 12.6 | 550 N | | | |
| Benzo(a)pyrene Equivalents | UG/KG | 1 / 5 | 140 - 140 | 26.8 | | 88 | | | |
| Beryllium (Be) | MG/KG | 5 / 5 | | 0.120 - 0.260 | 0.160 | 0.15 C | 2 | | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 5 / 5 | | 140 - 390 | 245 | 46000 C | | | |
| Cadmium (Cd) | MG/KG | 1 / 5 | 0.11 - 0.11 | 0.150 | | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 1 / 5 | 7500 -38000 | 2600 | | | | | |
| Chromium (Cr) | MG/KG | 5 / 5 | | 3.20 - 6.70 | 4.85 | 39 | | | |
| Cobalt (Co) | MG/KG | 5 / 5 | | 0.565 - 37.9 | 9.06 | 470 N | | | |
| Copper (Cu) | MG/KG | 5 / 5 | | 1.10 - 10.2 | 3.40 | 310 N | | | |
| Dioxin (TCDD TEQ) | PG/G | 1 / 1 | | 0.0291 | | 4.3 | | | |
| Fluoranthene | UG/KG | 1 / 5 | 720 - 720 | 140 | | 310000 N | | | |
| Iron (Fe) | MG/KG | 5 / 5 | | 1220 - 3560 | 1910 | 2300 N | 1 | | |
| Lead (Pb) | MG/KG | 5 / 5 | | 1.80 - 36.0 | 9.34 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 5 / 5 | | 257 - 502 | 382 | | | | |
| Manganese (Mn) | MG/KG | 5 / 5 | | 11.0 - 32.5 | 21.6 | 39 N | | | |
| Mercury (Hg) | MG/KG | 1 / 5 | 0.040 - 0.040 | 0.0900 | | 2.3 N | | | |
| Methylene chloride | UG/KG | 2 / 5 | 5.0 - 6.0 | 1.00 - 26.0 | 13.5 | 85000 C | | | |
| Nickel (Ni) | MG/KG | 5 / 5 | | 1.35 - 6.10 | 2.73 | 160 N | | | |
| Potassium (K) | MG/KG | 5 / 5 | | 362 - 654 | 474 | | | | |
| Pyrene | UG/KG | 1 / 5 | 720 - 720 | 160 | | 230000 N | | | |
| Selenium (Se) | MG/KG | 1 / 5 | 0.54 - 0.57 | 0.580 | | 39 N | | | |
| Sodium (Na) | MG/KG | 2 / 5 | 11 - 11 | 11.1 - 323 | 167 | | | | |
| Tin (Sn) | MG/KG | 5 / 5 | | 2.60 - 3.20 | 2.82 | 4700 | | | |
| Vanadium (V) | MG/KG | 5 / 5 | | 3.70 - 5.60 | 4.79 | 55 N | | | |
| Zinc (Zn) | MG/KG | 5 / 5 | | 4.55 - 40.7 | 14.0 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 551**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| 123789-HxCDD | NG/KG | 1 / 2 | 0.13 | 3.12 | | | | | |
| Acetone | UG/KG | 2 / 6 | 6.0 - 12 | 12.0 - 18.0 | 15.0 | 780000 N | | | |
| Aluminum (Al) | MG/KG | 6 / 6 | | 2130 - 4680 | 3290 | 7800 N | | | |
| Anthracene | UG/KG | 1 / 6 | 720 - 780 | 88.0 | | 230000 N | | | |
| Antimony (Sb) | MG/KG | 4 / 6 | 0.45 - 0.45 | 0.830 - 22.2 | 7.53 | 3.1 N | 2 | | |
| Arsenic (As) | MG/KG | 6 / 6 | | 1.50 - 12.4 | 4.49 | 2.3 N | 10 | | |
| Barium (Ba) | MG/KG | 6 / 6 | | 10.8 - 163 | 39.6 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 4 / 6 | 720 - 780 | 110 - 210 | 143 | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 4 / 6 | 1700 - 1800 | 164 - 416 | 257 | 88 | 4 | | |
| Benzo(a)anthracene | UG/KG | 4 / 6 | 720 - 780 | 93.0 - 200 | 133 | 880 c | | | |
| Benzo(b)fluoranthene | UG/KG | 3 / 6 | 720 - 780 | 120 - 220 | 153 | 880 c | | | |
| Chrysene | UG/KG | 4 / 6 | 720 - 780 | 92.0 - 365 | 187 | 88000 c | | | |
| * Dibenz(a,h)anthracene | UG/KG | 2 / 6 | 720 - 780 | 85.0 - 107 | 96.0 | 88 c | 1 | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 4 / 6 | 720 - 780 | 110 - 220 | 156 | 880 c | | | |
| Benzo(k)fluoranthene | UG/KG | 4 / 6 | 720 - 780 | 87.0 - 295 | 178 | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 4 / 6 | 720 - 780 | 140 - 245 | 166 | 88 c | 4 | | |
| Beryllium (Be) | MG/KG | 5 / 6 | 0.11 | 0.195 - 0.810 | 0.403 | 0.15 c | 5 | | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 2 / 6 | 720 - 780 | 85.0 - 270 | 178 | 46000 c | | | |
| Cadmium (Cd) | MG/KG | 4 / 6 | 0.12 - 0.12 | 0.110 - 1.75 | 0.600 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 6 / 6 | | 1440 - 85400 | 27100 | | | | |
| Chromium (Cr) | MG/KG | 6 / 6 | | 4.70 - 34.7 | 12.1 | 39 | | | |
| Cobalt (Co) | MG/KG | 6 / 6 | | 0.790 - 54.9 | 11.2 | 470 N | | | |
| Copper (Cu) | MG/KG | 6 / 6 | | 5.80 - 272 | 65.5 | 310 N | | | |
| Dibenzofuran | UG/KG | 1 / 6 | 720 - 780 | 16.0 | | 31000 N | | | |
| Di-n-butylphthalate | UG/KG | 1 / 6 | 720 - 780 | 77.0 | | 780000 N | | | |
| * Dioxin (TCDD TEQ) | PG/G | 2 / 2 | | 0.169 - 21.0 | 10.6 | 4.3 | 1 | | |
| 1234678-HpCDD | NG/KG | 2 / 2 | | 1.42 - 762 | 382 | | | | |
| 1234678-HpCDF | NG/KG | 2 / 2 | | 3.31 - 139 | 71.0 | | | | |
| 1234789-HpCDF | NG/KG | 1 / 2 | 0.16 | 6.01 | | | | | |
| 123678-HxCDD | NG/KG | 1 / 2 | 0.14 | 15.6 | | | | | |
| 123678-HxCDF | NG/KG | 1 / 2 | 22 | 0.332 | | | | | |
| 123789-HxCDF | NG/KG | 1 / 2 | 0.36 | 0.409 | | | | | |
| 234678-HxCDF | NG/KG | 1 / 2 | 0.89 | 0.209 | | | | | |
| OCDD | NG/KG | 2 / 2 | | 21.5 - 9210 | 4620 | | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 551**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| OCDF | NG/KG | 2 / 2 | | 5.18 - 804 | 405 | | | | |
| Fluoranthene | UG/KG | 4 / 6 | 720 - 780 | 150 - 250 | 193 | 310000 N | | | |
| Iron (Fe) | MG/KG | 6 / 6 | | 1750 - 10400 | 5290 | 2300 N | 5 | | |
| Lead (Pb) | MG/KG | 6 / 6 | | 17.9 - 845 | 177 | 400 j | 1 | | |
| Magnesium (Mg) | MG/KG | 6 / 6 | | 121 - 1130 | 554 | | | | |
| Manganese (Mn) | MG/KG | 6 / 6 | | 13.3 - 89.5 | 45.8 | 39 N | 4 | | |
| Mercury (Hg) | MG/KG | 6 / 6 | | 0.0550 - 3.15 | 0.591 | 2.3 N | 1 | | |
| 2-Methylnaphthalene | UG/KG | 1 / 6 | 720 - 780 | 88.0 | | 310000 n | | | |
| Methylene chloride | UG/KG | 2 / 6 | 5.0 - 6.0 | 17.0 - 23.0 | 20.0 | 85000 c | | | |
| Nickel (Ni) | MG/KG | 6 / 6 | | 3.00 - 35.1 | 9.98 | 160 N | | | |
| pH | SU | 6 / 6 | | 7.90 - 9.51 | 8.45 | | | | |
| Phenanthrene | UG/KG | 4 / 6 | 720 - 780 | 93.0 - 265 | 152 | 310000 k | | | |
| Potassium (K) | MG/KG | 6 / 6 | | 157 - 829 | 604 | | | | |
| Pyrene | UG/KG | 5 / 6 | 720 | 92.0 - 285 | 206 | 230000 N | | | |
| Selenium (Se) | MG/KG | 1 / 6 | 0.54 - 0.62 | 0.650 | | 39 N | | | |
| Sodium (Na) | MG/KG | 5 / 6 | 11 | 78.9 - 308 | 177 | | | | |
| Tin (Sn) | MG/KG | 4 / 6 | 2.2 - 2.4 | 2.70 - 212 | 57.9 | 4700 | | | |
| Trichlorofluoromethane | UG/KG | 1 / 2 | 6.0 | 4.00 | | 230000 N | | | |
| Vanadium (V) | MG/KG | 6 / 6 | | 2.30 - 21.1 | 9.10 | 55 N | | | |
| Zinc (Zn) | MG/KG | 6 / 6 | | 26.6 - 755 | 184 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 552**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[s] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Acetone | UG/KG | 2 / 3 | 12 | 18.0 - 110 | 64.0 | 780000 N | | | |
| Aluminum (Al) | MG/KG | 1 / 3 | 4100 - 6500 | 6230 | | 7800 N | | | |
| Antimony (Sb) | MG/KG | 2 / 3 | 0.45 | 0.890 - 1.00 | 0.945 | 3.1 N | | | |
| Arsenic (As) | MG/KG | 3 / 3 | | 0.680 - 4.90 | 2.86 | 2.3 N | 5 | | |
| Barium (Ba) | MG/KG | 3 / 3 | | 13.6 - 21.1 | 18.3 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 1 / 3 | 370 - 780 | 180 | | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 2 / 3 | 490 | 8.90 - 240 | 125 | 88 | 1 | | |
| Benzo(a)anthracene | UG/KG | 1 / 3 | 370 - 780 | 120 | | 880 c | | | |
| Benzo(b)fluoranthene | UG/KG | 1 / 3 | 370 - 370 | 89.0 | | 880 c | | | |
| Chrysene | UG/KG | 1 / 3 | 370 - 780 | 140 | | 88000 c | | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 1 / 3 | 370 - 780 | 140 | | 880 c | | | |
| Benzo(k)fluoranthene | UG/KG | 1 / 3 | 370 - 780 | 400 | | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 1 / 3 | 370 - 780 | 210 | | 88 c | 1 | | |
| Beryllium (Be) | MG/KG | 3 / 3 | | 0.140 - 0.410 | 0.280 | 0.15 c | 2 | | |
| Cadmium (Cd) | MG/KG | 2 / 3 | 0.11 | 0.190 - 0.720 | 0.455 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 3 / 3 | | 13900 - 31300 | 24800 | | | | |
| Chromium (Cr) | MG/KG | 1 / 3 | 7.0 - 46 | 16.3 | | 39 | | | |
| Cobalt (Co) | MG/KG | 3 / 3 | | 1.60 - 4.20 | 2.83 | 470 N | | | |
| Copper (Cu) | MG/KG | 1 / 3 | 5.8 - 45 | 33.1 | | 310 N | | | |
| Fluoranthene | UG/KG | 1 / 3 | 370 - 780 | 120 | | 310000 N | | | |
| Iron (Fe) | MG/KG | 3 / 3 | | 1860 - 6810 | 4400 | 2300 N | 2 | | |
| Lead (Pb) | MG/KG | 3 / 3 | | 10.5 - 41.7 | 27.3 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 2 / 3 | 1900 | 557 - 1130 | 844 | | | | |
| Manganese (Mn) | MG/KG | 3 / 3 | | 31.2 - 80.0 | 53.6 | 39 N | 2 | | |
| Mercury (Hg) | MG/KG | 1 / 3 | 0.020 - 0.020 | 0.0900 | | 2.3 N | | | |
| Nickel (Ni) | MG/KG | 3 / 3 | | 4.60 - 7.30 | 6.23 | 160 N | | | |
| pH | SU | 3 / 3 | | 7.81 - 8.78 | 8.15 | | | | |
| Potassium (K) | MG/KG | 1 / 3 | 820 - 880 | 971 | | | | | |
| Pyrene | UG/KG | 2 / 3 | 370 | 81.0 - 190 | 136 | 230000 N | | | |
| Silver (Ag) | MG/KG | 2 / 3 | 0.23 | 0.240 - 0.270 | 0.255 | 39 N | | | |
| Sodium (Na) | MG/KG | 3 / 3 | | 82.7 - 161 | 134 | | | | |
| Tin (Sn) | MG/KG | 1 / 3 | 5.6 - 5.7 | 3.10 | | 4700 | | | |
| Vanadium (V) | MG/KG | 3 / 3 | | 6.90 - 13.3 | 11.1 | 55 N | | | |
| Zinc (Zn) | MG/KG | 3 / 3 | | 16.6 - 89.2 | 59.7 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 554**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum (Al) | MG/KG | 2 / 2 | | 3910 - 4880 | 4400 | 7800 N | | | |
| Arsenic (As) | MG/KG | 2 / 2 | | 4.10 - 6.00 | 5.05 | 2.3 N | 4 | | |
| Barium (Ba) | MG/KG | 2 / 2 | | 16.6 - 32.8 | 24.7 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 1 / 2 | 360 | 44.0 | | 310000 f | | | |
| Benzo(a)pyrene Equivalents | UG/KG | 1 / 2 | 440 | 60.3 | | 88 | | | |
| Beryllium (Be) | MG/KG | 2 / 2 | | 0.240 - 0.330 | 0.285 | 0.15 c | 2 | | |
| Bromodichloromethane | UG/KG | 1 / 2 | 5.0 | 3.00 | | 10000 c | | | |
| Calcium (Ca) | MG/KG | 2 / 2 | | 726 - 3190 | 1960 | | | | |
| gamma-Chlordane | UG/KG | 1 / 2 | 1.4 | 2.00 | | 470 | | | |
| Chloroform | UG/KG | 1 / 2 | 5.0 | 9.00 | | 100000 c | | | |
| Chromium (Cr) | MG/KG | 2 / 2 | | 18.8 - 44.8 | 31.8 | 39 | 1 | | |
| Cobalt (Co) | MG/KG | 2 / 2 | | 1.70 - 5.20 | 3.45 | 470 N | | | |
| Copper (Cu) | MG/KG | 2 / 2 | | 10.6 - 133 | 71.8 | 310 N | | | |
| 4,4'-DDT | UG/KG | 1 / 2 | 2.7 | 7.20 | | 1900 c | | | |
| Fluoranthene | UG/KG | 1 / 2 | 360 | 78.0 | | 310000 N | | | |
| Iron (Fe) | MG/KG | 2 / 2 | | 4130 - 13400 | 8770 | 2300 N | 2 | | |
| Lead (Pb) | MG/KG | 2 / 2 | | 3.60 - 37.7 | 20.7 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 2 / 2 | | 230 - 411 | 321 | | | | |
| Manganese (Mn) | MG/KG | 2 / 2 | | 32.9 - 38.5 | 35.7 | 39 N | | | |
| Mercury (Hg) | MG/KG | 2 / 2 | | 0.120 - 0.120 | 0.120 | 2.3 N | | | |
| Nickel (Ni) | MG/KG | 2 / 2 | | 3.00 - 3.90 | 3.45 | 160 N | | | |
| pH | SU | 2 / 2 | | 8.07 - 8.20 | 8.14 | | | | |
| Phenanthrene | UG/KG | 1 / 2 | 360 | 38.0 | | 310000 k | | | |
| Potassium (K) | MG/KG | 2 / 2 | | 185 - 201 | 193 | | | | |
| Pyrene | UG/KG | 1 / 2 | 360 | 66.0 | | 230000 N | | | |
| Silver (Ag) | MG/KG | 1 / 2 | 0.22 | 0.240 | | 39 N | | | |
| Sodium (Na) | MG/KG | 2 / 2 | | 127 - 128 | 128 | | | | |
| Thallium (Tl) | MG/KG | 1 / 2 | 0.55 | 0.560 | | 0.63 | | | |
| Vanadium (V) | MG/KG | 2 / 2 | | 15.3 - 18.4 | 16.9 | 55 N | | | |
| Zinc (Zn) | MG/KG | 2 / 2 | | 18.6 - 50.2 | 34.4 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 559**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| 123789-HxCDD | NG/KG | 1 / 3 | 0.23 - 0.33 | 2.22 | | | | | |
| Acenaphthene | UG/KG | 2 / 22 | 360 - 40000 | 420 - 440 | 430 | 470000 N | | | |
| Acetone | UG/KG | 12 / 22 | 11 - 140 | 3.00 - 200 | 51.7 | 780000 N | | | |
| Aluminum (Al) | MG/KG | 21 / 22 | 4200 | 2700 - 6630 | 4060 | 7800 N | | | |
| Anthracene | UG/KG | 6 / 22 | 360 - 86000 | 48.0 - 1200 | 424 | 230000 N | | | |
| Antimony (Sb) | MG/KG | 16 / 22 | 0.44 - 0.55 | 0.470 - 7.00 | 2.00 | 3.1 N | 2 | | |
| * Aroclor-1254 | UG/KG | 2 / 22 | 72 - 86 | 150 - 1400 | 775 | 160 N | 1 | | |
| * Aroclor-1260 | UG/KG | 2 / 22 | 72 - 86 | 400 - 680 | 540 | 83 | 2 | | |
| Arsenic (As) | MG/KG | 22 / 22 | | 2.75 - 225 | 35.3 | 2.3 N | 44 | | |
| Barium (Ba) | MG/KG | 22 / 22 | | 7.90 - 163 | 36.6 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 12 / 22 | 730 - 51000 | 75.0 - 2550 | 751 | 310000 r | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 14 / 22 | 1700 - 16000 | 2.50 - 5830 | 1460 | 88 | 12 | | |
| * Benzo(a)anthracene | UG/KG | 12 / 22 | 720 - 17000 | 68.0 - 3000 | 946 | 880 c | 4 | | |
| * Benzo(b)fluoranthene | UG/KG | 10 / 22 | 720 - 13000 | 150 - 7500 | 1850 | 880 c | 4 | | |
| Chrysene | UG/KG | 13 / 22 | 720 - 13000 | 90.0 - 3100 | 973 | 88000 c | | | |
| * Dibenz(a,h)anthracene | UG/KG | 7 / 22 | 380 - 37000 | 110 - 1100 | 526 | 88 c | 7 | | |
| * Indeno(1,2,3-cd)pyrene | UG/KG | 11 / 22 | 720 - 50000 | 82.0 - 2100 | 674 | 880 c | 4 | | |
| Benzo(k)fluoranthene | UG/KG | 7 / 22 | 360 - 880 | 110 - 2600 | 986 | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 12 / 22 | 380 - 90000 | 140 - 3500 | 1080 | 88 c | 12 | | |
| Beryllium (Be) | MG/KG | 22 / 22 | | 0.110 - 1.80 | 0.439 | 0.15 c | 21 | | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 16 / 22 | 720 - 850 | 89.0 - 6800 | 725 | 46000 c | | | |
| 2-Butanone (MEK) | UG/KG | 2 / 22 | 6.0 - 13 | 4.00 - 6.00 | 5.00 | 470000 N | | | |
| Butylbenzylphthalate | UG/KG | 1 / 22 | 360 - 880 | 580 | | 160000 N | | | |
| Cadmium (Cd) | MG/KG | 19 / 22 | 0.11 - 0.11 | 0.110 - 3.80 | 0.787 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 22 / 22 | | 893 - 194000 | 59400 | | | | |
| Carbazole | UG/KG | 1 / 3 | 720 - 730 | 440 | | 32000 c | | | |
| Carbon disulfide | UG/KG | 1 / 22 | 5.0 - 7.0 | 1.00 | | 780000 N | | | |
| alpha-Chlordane | UG/KG | 5 / 22 | 1.4 - 1.9 | 3.20 - 27.0 | 9.86 | 470 | | | |
| gamma-Chlordane | UG/KG | 10 / 22 | 1.4 - 1.7 | 2.50 - 26.0 | 10.5 | 470 | | | |
| 4-Chloro-3-methylphenol | UG/KG | 1 / 22 | 360 - 880 | 83.0 | | | | | |
| 2-Chlorophenol | UG/KG | 1 / 22 | 360 - 880 | 79.0 | | 39000 N | | | |
| Chromium (Cr) | MG/KG | 22 / 22 | | 3.50 - 42.0 | 19.0 | 39 | 1 | | |
| Cobalt (Co) | MG/KG | 22 / 22 | | 0.360 - 17.1 | 4.48 | 470 N | | | |
| Copper (Cu) | MG/KG | 22 / 22 | | 8.10 - 791 | 85.5 | 310 N | 1 | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 559**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[s] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| 4,4'-DDD | UG/KG | 4 / 22 | 2.7 - 3.2 | 3.50 - 400 | 107 | 2700 c | | | |
| 4,4'-DDE | UG/KG | 15 / 22 | 2.7 - 3.2 | 4.10 - 740 | 67.0 | 1900 c | | | |
| 4,4'-DDT | UG/KG | 12 / 22 | 2.7 - 11 | 4.30 - 38.0 | 16.0 | 1900 c | | | |
| Dibenzofuran | UG/KG | 4 / 22 | 420 - 26000 | 37.0 - 290 | 143 | 31000 N | | | |
| Di-n-butylphthalate | UG/KG | 1 / 22 | 360 - 880 | 48.0 | | 780000 N | | | |
| Dieldrin | UG/KG | 4 / 22 | 2.7 - 3.2 | 3.60 - 19.0 | 7.93 | 40 c | | | |
| 2,4-Dimethylphenol | UG/KG | 1 / 22 | 360 - 880 | 2900 | | 160000 N | | | |
| Dioxin (TCDD TEQ) | PG/G | 3 / 3 | | 0.219 - 3.51 | 1.37 | 4.3 | | | |
| Endosulfan sulfate | UG/KG | 2 / 22 | 2.7 - 3.2 | 3.30 - 6.40 | 4.85 | 47000 g | | | |
| Endrin aldehyde | UG/KG | 1 / 22 | 2.7 - 3.2 | 6.90 | | 2300 h | | | |
| Endrin ketone | UG/KG | 3 / 22 | 2.7 - 3.2 | 3.00 - 13.0 | 6.37 | 2300 h | | | |
| Fluoranthene | UG/KG | 13 / 22 | 720 - 16000 | 120 - 6100 | 1540 | 310000 N | | | |
| Fluorene | UG/KG | 3 / 22 | 360 - 40000 | 85.0 - 320 | 202 | 310000 N | | | |
| Heptachlor | UG/KG | 4 / 22 | 1.4 - 1.7 | 1.80 - 7.40 | 3.65 | 140 c | | | |
| Heptachlor epoxide | UG/KG | 4 / 22 | 1.4 - 1.7 | 2.50 - 3.30 | 2.78 | 70 c | | | |
| Iron (Fe) | MG/KG | 22 / 22 | | 1430 - 35300 | 7920 | 2300 N | 21 | | |
| Lead (Pb) | MG/KG | 22 / 22 | | 5.20 - 526 | 129 | 400 j | 1 | | |
| Magnesium (Mg) | MG/KG | 22 / 22 | | 130 - 3640 | 1400 | | | | |
| Manganese (Mn) | MG/KG | 22 / 22 | | 14.7 - 236 | 88.8 | 39 N | 19 | | |
| Mercury (Hg) | MG/KG | 21 / 22 | 0.13 | 0.0400 - 2.20 | 0.349 | 2.3 N | | | |
| Methoxychlor | UG/KG | 2 / 22 | 14 - 17 | 51.0 - 55.0 | 53.0 | 39000 N | | | |
| 2-Methylnaphthalene | UG/KG | 4 / 22 | 380 - 16000 | 46.0 - 210 | 119 | 310000 n | | | |
| Methylene chloride | UG/KG | 4 / 22 | 5.0 - 110 | 2.00 - 5.00 | 4.00 | 85000 c | | | |
| 2-Methylphenol (o-Cresol) | UG/KG | 1 / 22 | 360 - 880 | 1300 | | 390000 N | | | |
| 4-Methylphenol (p-Cresol) | UG/KG | 1 / 22 | 360 - 880 | 4000 | | 39000 N | | | |
| Naphthalene | UG/KG | 5 / 22 | 710 - 30000 | 43.0 - 210 | 112 | 310000 N | | | |
| Nickel (Ni) | MG/KG | 22 / 22 | | 2.20 - 134 | 20.4 | 160 N | | | |
| * N-Nitrosomethylethylamine | UG/KG | 1 / 3 | 720 - 740 | 2100 | | 29 c | 1 | | |
| Phenanthrene | UG/KG | 12 / 22 | 720 - 17000 | 82.0 - 4100 | 863 | 310000 k | | | |
| Phenol | UG/KG | 1 / 22 | 360 - 880 | 1200 | | 470000 N | | | |
| Potassium (K) | MG/KG | 22 / 22 | | 299 - 1400 | 715 | | | | |
| Pyrene | UG/KG | 14 / 22 | 720 - 20000 | 130 - 6000 | 1580 | 230000 N | | | |
| Selenium (Se) | MG/KG | 13 / 22 | 0.55 - 0.58 | 0.760 - 3.90 | 1.48 | 39 N | | | |
| Silver (Ag) | MG/KG | 5 / 22 | 0.22 - 0.26 | 0.320 - 10.4 | 4.89 | 39 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 559**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Sodium (Na) | MG/KG | 18 / 22 | 33 - 86 | 29.6 - 687 | 308 | | | | |
| Tetrachloroethene | UG/KG | 1 / 22 | 5.0 - 7.0 | 2.00 | | 12000 C | | | |
| * Thallium (Tl) | MG/KG | 3 / 22 | 0.55 - 0.69 | 0.570 - 2.00 | 1.10 | 0.63 | 2 | | |
| Tin (Sn) | MG/KG | 6 / 22 | 3.2 - 8.4 | 5.10 - 39.5 | 15.1 | 4700 | | | |
| Toluene | UG/KG | 3 / 22 | 5.0 - 7.0 | 4.00 - 22.0 | 10.0 | 160000 N | | | |
| 1,1,1-Trichloroethane | UG/KG | 2 / 22 | 5.0 - 7.0 | 1.00 - 2.00 | 1.50 | 700000 N | | | |
| Trichlorofluoromethane | UG/KG | 1 / 3 | 6.0 - 9.0 | 1.00 | | 230000 N | | | |
| Vanadium (V) | MG/KG | 22 / 22 | | 3.10 - 23.3 | 12.9 | 55 N | | | |
| Xylene (Total) | UG/KG | 1 / 22 | 5.0 - 7.0 | 3.00 | | 160000 N | | | |
| Zinc (Zn) | MG/KG | 21 / 22 | 90 | 18.5 - 982 | 225 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 560**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[s] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum (Al) | MG/KG | 2 / 2 | | 3200 - 5190 | 4200 | 7800 N | | | |
| Antimony (Sb) | MG/KG | 2 / 2 | | 0.520 - 0.650 | 0.585 | 3.1 N | | | |
| * Aroclor-1260 | UG/KG | 1 / 2 | 79 | 220 | | 83 | 1 | | |
| Arsenic (As) | MG/KG | 2 / 2 | | 4.80 - 5.60 | 5.20 | 2.3 N | 4 | | |
| Barium (Ba) | MG/KG | 2 / 2 | | 29.1 - 34.0 | 31.6 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 1 / 2 | 800 | 120 | | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 2 / 2 | | 0.220 - 260 | 130 | 88 | 1 | | |
| Benzo(a)anthracene | UG/KG | 1 / 2 | 800 | 200 | | 880 c | | | |
| Benzo(b)fluoranthene | UG/KG | 1 / 2 | 800 | 190 | | 880 c | | | |
| Chrysene | UG/KG | 2 / 2 | | 220 - 260 | 240 | 88000 c | | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 1 / 2 | 800 | 94.0 | | 880 c | | | |
| Benzo(k)fluoranthene | UG/KG | 1 / 2 | 800 | 180 | | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 1 / 2 | 800 | 210 | | 88 c | 1 | | |
| Beryllium (Be) | MG/KG | 2 / 2 | | 0.330 - 0.390 | 0.360 | 0.15 c | 2 | | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 1 / 2 | 780 | 130 | | 46000 c | | | |
| Cadmium (Cd) | MG/KG | 1 / 2 | 0.12 | 0.290 | | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 2 / 2 | | 5280 - 35100 | 20200 | | | | |
| gamma-Chlordane | UG/KG | 1 / 2 | 1.5 | 2.00 | | 470 | | | |
| Chromium (Cr) | MG/KG | 2 / 2 | | 5.00 - 14.7 | 9.85 | 39 | | | |
| Cobalt (Co) | MG/KG | 2 / 2 | | 1.60 - 28.0 | 14.8 | 470 N | | | |
| Copper (Cu) | MG/KG | 2 / 2 | | 9.90 - 18.0 | 14.0 | 310 N | | | |
| 4,4'-DDE | UG/KG | 1 / 2 | 2.9 | 3.70 | | 1900 c | | | |
| 4,4'-DDT | UG/KG | 1 / 2 | 2.9 | 10.0 | | 1900 c | | | |
| Fluoranthene | UG/KG | 2 / 2 | | 210 - 310 | 260 | 310000 N | | | |
| Heptachlor | UG/KG | 1 / 2 | 1.5 | 1.80 | | 140 c | | | |
| Iron (Fe) | MG/KG | 2 / 2 | | 4330 - 5430 | 4880 | 2300 N | 2 | | |
| Lead (Pb) | MG/KG | 2 / 2 | | 27.1 - 67.3 | 47.2 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 2 / 2 | | 233 - 1260 | 747 | | | | |
| Manganese (Mn) | MG/KG | 2 / 2 | | 28.7 - 39.7 | 34.2 | 39 N | 1 | | |
| Mercury (Hg) | MG/KG | 2 / 2 | | 0.0600 - 0.0800 | 0.0700 | 2.3 N | | | |
| Methylene chloride | UG/KG | 1 / 2 | 6.0 | 3.00 | | 85000 c | | | |
| Nickel (Ni) | MG/KG | 2 / 2 | | 6.80 - 6.80 | 6.80 | 160 N | | | |
| Phenanthrene | UG/KG | 2 / 2 | | 220 - 260 | 240 | 310000 k | | | |
| Potassium (K) | MG/KG | 1 / 2 | 500 | 966 | | | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 560**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Pyrene | UG/KG | 2 / 2 | | 260 - 360 | 310 | 230000 N | | | |
| Selenium (Se) | MG/KG | 2 / 2 | | 0.700 - 0.700 | 0.700 | 39 N | | | |
| Sodium (Na) | MG/KG | 1 / 2 | 51 | 334 | | | | | |
| Vanadium (V) | MG/KG | 2 / 2 | | 6.90 - 11.2 | 9.05 | 55 N | | | |
| Zinc (Zn) | MG/KG | 2 / 2 | | 28.4 - 76.0 | 52.2 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 561**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Acetone | UG/KG | 2 / 4 | 11 - 11 | 4.00 - 84.0 | 44.0 | 780000 N | | | |
| Aluminum (Al) | MG/KG | 4 / 4 | | 1920 - 3390 | 2740 | 7800 N | | | |
| Antimony (Sb) | MG/KG | 2 / 4 | 0.45 - 0.45 | 0.490 - 0.670 | 0.580 | 3.1 N | | | |
| * Aroclor-1260 | UG/KG | 2 / 4 | 75 - 76 | 400 - 1000 | 700 | 83 | 2 | | |
| Arsenic (As) | MG/KG | 4 / 4 | | 0.730 - 24.1 | 11.4 | 2.3 N | 7 | | |
| Barium (Ba) | MG/KG | 4 / 4 | | 6.30 - 22.1 | 16.5 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 2 / 4 | 710 - 750 | 99.0 - 420 | 260 | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 2 / 4 | 1600 - 1700 | 186 - 863 | 525 | 88 | 2 | | |
| Benzo(a)anthracene | UG/KG | 2 / 4 | 710 - 750 | 110 - 440 | 275 | 880 c | | | |
| Benzo(b)fluoranthene | UG/KG | 2 / 4 | 710 - 750 | 82.0 - 450 | 266 | 880 c | | | |
| Chrysene | UG/KG | 2 / 4 | 710 - 750 | 110 - 580 | 345 | 88000 c | | | |
| * Dibenz(a,h)anthracene | UG/KG | 2 / 4 | 710 - 750 | 38.0 - 130 | 84.0 | 88 c | 1 | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 2 / 4 | 710 - 750 | 76.0 - 370 | 223 | 880 c | | | |
| Benzo(k)fluoranthene | UG/KG | 2 / 4 | 710 - 750 | 120 - 650 | 385 | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 2 / 4 | 710 - 750 | 120 - 600 | 360 | 88 c | 2 | | |
| Beryllium (Be) | MG/KG | 3 / 4 | 0.11 | 0.190 - 0.300 | 0.243 | 0.15 c | 3 | | |
| Cadmium (Cd) | MG/KG | 3 / 4 | 0.11 | 0.190 - 0.380 | 0.260 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 4 / 4 | | 1230 - 28200 | 14100 | | | | |
| alpha-Chlordane | UG/KG | 1 / 4 | 1.4 - 1.5 | 3.70 | | 470 | | | |
| gamma-Chlordane | UG/KG | 2 / 4 | 1.4 - 1.5 | 1.50 - 4.10 | 2.80 | 470 | | | |
| Chromium (Cr) | MG/KG | 4 / 4 | | 4.10 - 9.10 | 6.80 | 39 | | | |
| Cobalt (Co) | MG/KG | 3 / 4 | 0.22 | 0.840 - 42.4 | 14.8 | 470 N | | | |
| Copper (Cu) | MG/KG | 4 / 4 | | 1.45 - 42.6 | 26.6 | 310 N | | | |
| Cyanide (CN) | MG/KG | 1 / 4 | 0.21 - 0.22 | 0.310 | | 160 N | | | |
| 4,4'-DDE | UG/KG | 1 / 4 | 2.8 - 2.8 | 6.20 | | 1900 c | | | |
| 4,4'-DDT | UG/KG | 3 / 4 | 2.8 | 3.90 - 15.0 | 8.07 | 1900 c | | | |
| Dioxin (TCDD TEQ) | PG/G | 1 / 1 | | 0.0166 | | 4.3 | | | |
| Endrin | UG/KG | 1 / 4 | 2.8 - 2.8 | 13.0 | | 2300 N | | | |
| Fluoranthene | UG/KG | 2 / 4 | 710 - 750 | 160 - 760 | 460 | 310000 N | | | |
| Iron (Fe) | MG/KG | 4 / 4 | | 1080 - 4110 | 2880 | 2300 N | 3 | | |
| Lead (Pb) | MG/KG | 4 / 4 | | 5.25 - 159 | 73.1 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 4 / 4 | | 82.4 - 321 | 243 | | | | |
| Manganese (Mn) | MG/KG | 4 / 4 | | 5.85 - 39.3 | 26.5 | 39 N | 1 | | |
| Mercury (Hg) | MG/KG | 4 / 4 | | 0.0400 - 0.130 | 0.0800 | 2.3 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 561**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| 2-Methylnaphthalene | UG/KG | 2 / 4 | 370 - 750 | 97.0 - 110 | 104 | 310000 n | | | |
| Methylene chloride | UG/KG | 3 / 4 | 6.0 | 2.00 - 5.00 | 4.00 | 85000 c | | | |
| Nickel (Ni) | MG/KG | 4 / 4 | | 0.660 - 26.5 | 9.34 | 160 N | | | |
| Phenanthrene | UG/KG | 2 / 4 | 710 - 750 | 59.0 - 380 | 220 | 310000 k | | | |
| Potassium (K) | MG/KG | 1 / 4 | 420 - 630 | 47.9 | | | | | |
| Pyrene | UG/KG | 2 / 4 | 710 - 750 | 220 - 1000 | 610 | 230000 N | | | |
| Selenium (Se) | MG/KG | 1 / 4 | 0.56 - 0.56 | 0.670 | | 39 N | | | |
| Silver (Ag) | MG/KG | 1 / 4 | 0.21 - 0.22 | 12.6 | | 39 N | | | |
| Toluene | UG/KG | 2 / 4 | 5.0 - 6.0 | 1.00 - 2.00 | 1.50 | 160000 N | | | |
| 1,1,1-Trichloroethane | UG/KG | 1 / 4 | 5.0 - 6.0 | 3.00 | | 700000 N | | | |
| Vanadium (V) | MG/KG | 4 / 4 | | 1.75 - 17.9 | 8.36 | 55 N | | | |
| Xylene (Total) | UG/KG | 1 / 4 | 5.0 - 6.0 | 2.00 | | 160000 N | | | |
| Zinc (Zn) | MG/KG | 4 / 4 | | 7.75 - 95.5 | 60.1 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 562**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Acetone | UG/KG | 1 / 1 | | 62.0 | | 780000 N | | | |
| Carbon disulfide | UG/KG | 1 / 1 | | 2.00 | | 780000 N | | | |
| Methylene chloride | UG/KG | 1 / 1 | | 4.00 | | 85000 C | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 563**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[s] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Acetone | UG/KG | 7 / 9 | 11 - 11 | 14.0 - 72.0 | 29.6 | 780000 N | | | |
| Aluminum (Al) | MG/KG | 9 / 9 | | 5080 - 12200 | 8130 | 7800 N | 5 | | |
| Antimony (Sb) | MG/KG | 5 / 9 | 0.44 - 0.46 | 0.510 - 0.660 | 0.560 | 3.1 N | | | |
| Arsenic (As) | MG/KG | 9 / 9 | | 3.00 - 9.90 | 5.66 | 2.3 N | 18 | | |
| Barium (Ba) | MG/KG | 9 / 9 | | 20.6 - 112 | 45.5 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 2 / 9 | 360 - 410 | 47.0 - 59.0 | 53.0 | 310000 r | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 5 / 9 | 470 - 540 | 0.501 - 138 | 43.5 | 88 | 1 | | |
| Benzo(a)anthracene | UG/KG | 2 / 9 | 360 - 410 | 55.0 - 100 | 77.5 | 880 c | | | |
| Benzo(b)fluoranthene | UG/KG | 4 / 9 | 360 - 410 | 40.0 - 110 | 69.1 | 880 c | | | |
| Chrysene | UG/KG | 5 / 9 | 360 - 410 | 49.0 - 120 | 68.7 | 88000 c | | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 2 / 9 | 360 - 410 | 41.0 - 57.0 | 49.0 | 880 c | | | |
| Benzo(k)fluoranthene | UG/KG | 4 / 9 | 360 - 410 | 45.0 - 98.0 | 61.5 | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 2 / 9 | 360 - 410 | 51.5 - 110 | 80.8 | 88 c | 1 | | |
| Benzoic acid | UG/KG | 1 / 9 | 1700 - 2000 | 76.0 | | 310000 N | | | |
| Benzyl alcohol | UG/KG | 1 / 9 | 360 - 410 | 39.0 | | 230000 N | | | |
| Beryllium (Be) | MG/KG | 9 / 9 | | 0.190 - 0.410 | 0.309 | 0.15 c | 9 | | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 7 / 9 | 400 - 15000 | 44.0 - 900 | 194 | 46000 c | | | |
| Cadmium (Cd) | MG/KG | 6 / 9 | 0.11 - 0.11 | 0.120 - 0.290 | 0.205 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 9 / 9 | | 1360 - 8950 | 3030 | | | | |
| Chromium (Cr) | MG/KG | 9 / 9 | | 6.30 - 22.2 | 13.8 | 39 | | | |
| Cobalt (Co) | MG/KG | 9 / 9 | | 0.950 - 38.3 | 11.4 | 470 N | | | |
| Copper (Cu) | MG/KG | 9 / 9 | | 2.30 - 51.5 | 10.9 | 310 N | | | |
| 4,4'-DDE | UG/KG | 5 / 9 | 2.9 - 3.0 | 3.10 - 44.0 | 13.4 | 1900 c | | | |
| 4,4'-DDT | UG/KG | 2 / 9 | 2.9 - 59 | 9.70 - 48.0 | 28.9 | 1900 c | | | |
| Dioxin (TCDD TEQ) | PG/G | 1 / 1 | | 0.452 | | 4.3 | | | |
| Fluoranthene | UG/KG | 4 / 9 | 360 - 410 | 55.5 - 170 | 86.4 | 310000 N | | | |
| Iron (Fe) | MG/KG | 1 / 9 | 6500 - 24000 | 10200 | | 2300 N | 1 | | |
| Lead (Pb) | MG/KG | 9 / 9 | | 9.40 - 29.8 | 16.5 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 9 / 9 | | 277 - 1180 | 628 | | | | |
| Manganese (Mn) | MG/KG | 1 / 9 | 19 - 120 | 52.7 | | 39 N | 1 | | |
| Mercury (Hg) | MG/KG | 5 / 9 | 0.040 - 0.040 | 0.0400 - 0.0650 | 0.0510 | 2.3 N | | | |
| Methylene chloride | UG/KG | 6 / 9 | 6.0 - 6.0 | 1.00 - 16.0 | 8.92 | 85000 c | | | |
| Nickel (Ni) | MG/KG | 9 / 9 | | 2.10 - 6.00 | 3.74 | 160 N | | | |
| Phenanthrene | UG/KG | 3 / 9 | 360 - 410 | 40.0 - 60.0 | 47.3 | 310000 k | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 563**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Potassium (K) | MG/KG | 2 / 9 | 710 - 2100 | 517 - 1040 | 779 | | | | |
| Pyrene | UG/KG | 5 / 9 | 360 - 410 | 49.0 - 200 | 95.7 | 230000 N | | | |
| Selenium (Se) | MG/KG | 4 / 9 | 0.55 - 0.59 | 0.590 - 0.820 | 0.688 | 39 N | | | |
| Sodium (Na) | MG/KG | 9 / 9 | | 62.4 - 175 | 98.1 | | | | |
| Tin (Sn) | MG/KG | 9 / 9 | | 3.10 - 4.30 | 3.50 | 4700 | | | |
| Trichloroethene | UG/KG | 1 / 9 | 5.0 - 6.0 | 2.00 | | 58000 C | | | |
| Vanadium (V) | MG/KG | 9 / 9 | | 8.70 - 34.9 | 19.2 | 55 N | | | |
| Zinc (Zn) | MG/KG | 9 / 9 | | 12.6 - 34.2 | 18.6 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 564**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[s] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Cyanide | MG/KG | 2 / 3 | 0.26 | 0.550 - 0.650 | 0.600 | | | | |
| Acetone | UG/KG | 3 / 3 | | 10.0 - 81.0 | 49.7 | 780000 N | | | |
| Aluminum (Al) | MG/KG | 3 / 3 | | 4080 - 7610 | 5520 | 7800 N | | | |
| Arsenic (As) | MG/KG | 3 / 3 | | 3.30 - 4.30 | 3.73 | 2.3 N | 6 | | |
| Barium (Ba) | MG/KG | 3 / 3 | | 17.3 - 38.5 | 31.0 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 2 / 3 | 440 | 81.0 - 110 | 95.5 | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 2 / 3 | 970 | 73.8 - 168 | 121 | 88 | 1 | | |
| Benzo(a)anthracene | UG/KG | 1 / 3 | 370 - 440 | 74.0 | | 880 c | | | |
| Chrysene | UG/KG | 2 / 3 | 440 | 61.0 - 100 | 80.5 | 88000 c | | | |
| Dibenz(a,h)anthracene | UG/KG | 1 / 3 | 370 - 440 | 41.0 | | 88 c | | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 2 / 3 | 440 | 68.0 - 80.0 | 74.0 | 880 c | | | |
| Benzo(k)fluoranthene | UG/KG | 2 / 3 | 440 | 96.0 - 150 | 123 | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 2 / 3 | 440 | 66.0 - 110 | 88.0 | 88 c | 1 | | |
| Beryllium (Be) | MG/KG | 3 / 3 | | 0.310 - 0.540 | 0.430 | 0.15 c | 3 | | |
| Bromodichloromethane | UG/KG | 1 / 3 | 5.0 - 6.0 | 3.00 | | 10000 c | | | |
| Calcium (Ca) | MG/KG | 3 / 3 | | 9810 - 28100 | 20200 | | | | |
| Chloroform | UG/KG | 1 / 3 | 5.0 - 6.0 | 12.0 | | 100000 c | | | |
| Chromium (Cr) | MG/KG | 3 / 3 | | 10.2 - 59.0 | 33.8 | 39 | 1 | | |
| Cobalt (Co) | MG/KG | 3 / 3 | | 2.00 - 3.80 | 2.80 | 470 N | | | |
| Copper (Cu) | MG/KG | 3 / 3 | | 7.50 - 29.3 | 16.9 | 310 N | | | |
| Fluoranthene | UG/KG | 2 / 3 | 440 | 56.0 - 110 | 83.0 | 310000 N | | | |
| Iron (Fe) | MG/KG | 3 / 3 | | 4280 - 8340 | 6400 | 2300 N | 3 | | |
| Lead (Pb) | MG/KG | 3 / 3 | | 8.40 - 40.7 | 23.3 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 3 / 3 | | 888 - 2170 | 1490 | | | | |
| Manganese (Mn) | MG/KG | 3 / 3 | | 53.0 - 98.8 | 76.1 | 39 N | 3 | | |
| Mercury (Hg) | MG/KG | 2 / 3 | 0.030 | 0.0300 - 0.0300 | 0.0300 | 2.3 N | | | |
| Methylene chloride | UG/KG | 2 / 3 | 6.0 | 2.00 - 5.00 | 3.50 | 85000 c | | | |
| Nickel (Ni) | MG/KG | 3 / 3 | | 4.10 - 9.90 | 6.77 | 160 N | | | |
| Phenanthrene | UG/KG | 1 / 3 | 370 - 440 | 72.0 | | 310000 k | | | |
| Potassium (K) | MG/KG | 3 / 3 | | 254 - 552 | 416 | | | | |
| Pyrene | UG/KG | 2 / 3 | 440 | 50.0 - 97.0 | 73.5 | 230000 N | | | |
| Selenium (Se) | MG/KG | 1 / 3 | 0.58 - 0.66 | 0.620 | | 39 N | | | |
| Silver (Ag) | MG/KG | 1 / 3 | 0.22 - 0.26 | 2.00 | | 39 N | | | |
| Sodium (Na) | MG/KG | 3 / 3 | | 364 - 656 | 468 | | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 564**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Tin (Sn) | MG/KG | 3 / 3 | | 2.80 - 5.70 | 3.83 | 4700 | | | |
| Vanadium (V) | MG/KG | 3 / 3 | | 7.60 - 17.5 | 13.5 | 55 N | | | |
| Zinc (Zn) | MG/KG | 3 / 3 | | 19.7 - 56.2 | 36.9 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 566**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Acetone | UG/KG | 4 / 5 | 11 | 44.0 - 120 | 72.0 | 780000 N | | | |
| Aluminum (Al) | MG/KG | 5 / 5 | | 7270 - 12700 | 10700 | 7800 N | 4 | | |
| Anthracene | UG/KG | 1 / 5 | 360 - 380 | 59.0 | | 230000 N | | | |
| Arsenic (As) | MG/KG | 5 / 5 | | 2.30 - 3.50 | 3.18 | 2.3 N | 10 | | |
| Barium (Ba) | MG/KG | 5 / 5 | | 15.8 - 18.8 | 17.2 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 1 / 5 | 360 - 380 | 45.0 | | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 1 / 5 | 470 - 500 | 93.1 | | 88 | 1 | | |
| Benzo(a)anthracene | UG/KG | 1 / 5 | 360 - 380 | 88.0 | | 880 c | | | |
| Benzo(b)fluoranthene | UG/KG | 1 / 5 | 360 - 380 | 52.0 | | 880 c | | | |
| Chrysene | UG/KG | 1 / 5 | 360 - 380 | 73.0 | | 88000 c | | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 1 / 5 | 360 - 380 | 44.0 | | 880 c | | | |
| Benzo(k)fluoranthene | UG/KG | 1 / 5 | 360 - 380 | 59.0 | | 8800 c | | | |
| Benzo(a)pyrene | UG/KG | 1 / 5 | 360 - 380 | 74.0 | | 88 c | | | |
| Beryllium (Be) | MG/KG | 5 / 5 | | 0.220 - 0.390 | 0.312 | 0.15 c | 5 | | |
| Calcium (Ca) | MG/KG | 5 / 5 | | 3580 - 9010 | 5250 | | | | |
| Chromium (Cr) | MG/KG | 5 / 5 | | 8.50 - 14.4 | 12.3 | 39 | | | |
| Cobalt (Co) | MG/KG | 5 / 5 | | 2.10 - 3.50 | 2.88 | 470 N | | | |
| Copper (Cu) | MG/KG | 5 / 5 | | 5.00 - 8.60 | 6.24 | 310 N | | | |
| Fluoranthene | UG/KG | 1 / 5 | 360 - 380 | 180 | | 310000 N | | | |
| Iron (Fe) | MG/KG | 5 / 5 | | 5920 - 12400 | 10000 | 2300 N | 5 | | |
| Lead (Pb) | MG/KG | 5 / 5 | | 5.20 - 6.90 | 5.96 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 5 / 5 | | 851 - 1920 | 1550 | | | | |
| Manganese (Mn) | MG/KG | 5 / 5 | | 134 - 234 | 196 | 39 N | 5 | | |
| Mercury (Hg) | MG/KG | 1 / 5 | 0.020 - 0.020 | 0.0300 | | 2.3 N | | | |
| Phenanthrene | UG/KG | 1 / 5 | 360 - 380 | 200 | | 310000 k | | | |
| Potassium (K) | MG/KG | 5 / 5 | | 856 - 1100 | 972 | | | | |
| Pyrene | UG/KG | 1 / 5 | 360 - 380 | 180 | | 230000 N | | | |
| Sodium (Na) | MG/KG | 5 / 5 | | 136 - 167 | 151 | | | | |
| Tin (Sn) | MG/KG | 3 / 5 | 2.2 - 2.2 | 2.40 - 2.60 | 2.47 | 4700 | | | |
| Vanadium (V) | MG/KG | 5 / 5 | | 11.9 - 20.7 | 17.2 | 55 N | | | |
| Zinc (Zn) | MG/KG | 5 / 5 | | 25.5 - 39.7 | 35.0 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 567**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum (Al) | MG/KG | 4 / 4 | | 1650 - 5300 | 3350 | 7800 N | | | |
| Antimony (Sb) | MG/KG | 3 / 4 | 0.47 | 0.970 - 6.70 | 3.86 | 3.1 N | 2 | | |
| Aroclor-1260 | UG/KG | 3 / 4 | 80 | 25.9 - 58.1 | 45.8 | 83 | | | |
| Arsenic (As) | MG/KG | 4 / 4 | | 3.90 - 7.20 | 5.15 | 2.3 N | 8 | | |
| Barium (Ba) | MG/KG | 4 / 4 | | 12.6 - 41.9 | 29.9 | 550 N | | | |
| Beryllium (Be) | MG/KG | 4 / 4 | | 0.250 - 0.330 | 0.300 | 0.15 C | 4 | | |
| Cadmium (Cd) | MG/KG | 3 / 4 | 0.12 | 0.290 - 0.710 | 0.433 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 4 / 4 | | 5560 - 29900 | 18700 | | | | |
| Chromium (Cr) | MG/KG | 4 / 4 | | 5.90 - 78.6 | 30.3 | 39 | 1 | | |
| Cobalt (Co) | MG/KG | 4 / 4 | | 1.20 - 11.2 | 3.95 | 470 N | | | |
| Copper (Cu) | MG/KG | 4 / 4 | | 5.70 - 127 | 60.1 | 310 N | | | |
| Iron (Fe) | MG/KG | 4 / 4 | | 4930 - 9730 | 6520 | 2300 N | 4 | | |
| Lead (Pb) | MG/KG | 4 / 4 | | 26.4 - 135 | 84.9 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 4 / 4 | | 535 - 819 | 665 | | | | |
| Manganese (Mn) | MG/KG | 4 / 4 | | 82.7 - 108 | 91.1 | 39 N | 4 | | |
| Mercury (Hg) | MG/KG | 3 / 4 | 0.020 | 0.0600 - 0.180 | 0.117 | 2.3 N | | | |
| Nickel (Ni) | MG/KG | 4 / 4 | | 4.20 - 7.40 | 5.93 | 160 N | | | |
| pH | SU | 4 / 4 | | 8.34 - 8.47 | 8.39 | | | | |
| Potassium (K) | MG/KG | 2 / 4 | 580 - 650 | 762 - 835 | 799 | | | | |
| Silver (Ag) | MG/KG | 1 / 4 | 0.22 - 0.24 | 0.430 | | 39 N | | | |
| Sodium (Na) | MG/KG | 4 / 4 | | 273 - 392 | 312 | | | | |
| Tin (Sn) | MG/KG | 2 / 4 | 2.4 - 2.4 | 4.00 - 4.00 | 4.00 | 4700 | | | |
| Vanadium (V) | MG/KG | 4 / 4 | | 6.60 - 9.80 | 7.80 | 55 N | | | |
| Zinc (Zn) | MG/KG | 4 / 4 | | 31.3 - 426 | 243 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 569**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Acetone | UG/KG | 4 / 5 | 11 | 7.00 - 40.0 | 21.0 | 780000 N | | | |
| Aluminum (Al) | MG/KG | 5 / 5 | | 2250 - 3710 | 2870 | 7800 N | | | |
| Anthracene | UG/KG | 1 / 5 | 720 - 780 | 160 | | 230000 N | | | |
| Antimony (Sb) | MG/KG | 2 / 5 | 0.44 - 0.47 | 0.490 - 0.530 | 0.510 | 3.1 N | | | |
| Arsenic (As) | MG/KG | 5 / 5 | | 0.870 - 14.8 | 6.25 | 0.43 C | 7 | | |
| Barium (Ba) | MG/KG | 5 / 5 | | 14.0 - 31.5 | 19.9 | 550 N | | | |
| Benzene | UG/KG | 1 / 5 | 6.0 - 6.0 | 2.00 | | 22000 C | | | |
| Benzo(g,h,i)perylene | UG/KG | 3 / 5 | 740 - 780 | 160 - 580 | 327 | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 3 / 5 | 1700 - 1800 | 231 - 1170 | 605 | 88 | 3 | | |
| Benzo(a)anthracene | UG/KG | 3 / 5 | 740 - 780 | 150 - 510 | 333 | 880 C | | | |
| Benzo(b)fluoranthene | UG/KG | 2 / 5 | 720 - 780 | 230 - 380 | 305 | 880 C | | | |
| Chrysene | UG/KG | 3 / 5 | 740 - 780 | 210 - 700 | 467 | 88000 C | | | |
| * Dibenz(a,h)anthracene | UG/KG | 1 / 5 | 740 - 780 | 270 | | 88 C | 1 | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 3 / 5 | 740 - 780 | 110 - 560 | 290 | 880 C | | | |
| Benzo(k)fluoranthene | UG/KG | 3 / 5 | 740 - 780 | 150 - 1200 | 557 | 8800 C | | | |
| * Benzo(a)pyrene | UG/KG | 3 / 5 | 740 - 780 | 180 - 780 | 427 | 88 C | 3 | | |
| Beryllium (Be) | MG/KG | 5 / 5 | | 0.140 - 0.210 | 0.168 | 0.15 C | 4 | | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 2 / 5 | 720 - 780 | 80.0 - 130 | 105 | 46000 C | | | |
| Cadmium (Cd) | MG/KG | 4 / 5 | 0.11 | 0.150 - 0.490 | 0.295 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 5 / 5 | | 6750 - 80100 | 39100 | | | | |
| Chromium (Cr) | MG/KG | 5 / 5 | | 3.80 - 10.3 | 6.54 | 39 | | | |
| Cobalt (Co) | MG/KG | 5 / 5 | | 0.530 - 5.10 | 2.53 | 470 N | | | |
| Copper (Cu) | MG/KG | 5 / 5 | | 1.50 - 20.3 | 10.9 | 310 N | | | |
| Ethylbenzene | UG/KG | 1 / 5 | 6.0 - 6.0 | 3.00 | | 780000 N | | | |
| Fluoranthene | UG/KG | 3 / 5 | 740 - 780 | 260 - 940 | 627 | 310000 N | | | |
| Iron (Fe) | MG/KG | 5 / 5 | | 1720 - 13200 | 5820 | 2300 N | 4 | | |
| Lead (Pb) | MG/KG | 5 / 5 | | 3.60 - 108 | 46.4 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 5 / 5 | | 187 - 930 | 571 | | | | |
| Manganese (Mn) | MG/KG | 5 / 5 | | 17.2 - 64.0 | 43.1 | 39 N | 3 | | |
| Mercury (Hg) | MG/KG | 5 / 5 | | 0.0200 - 0.0700 | 0.0500 | 2.3 N | | | |
| 2-Methylnaphthalene | UG/KG | 2 / 5 | 750 - 780 | 160 - 1700 | 930 | 310000 n | | | |
| Methylene chloride | UG/KG | 4 / 5 | 5.0 | 2.00 - 3.00 | 2.50 | 85000 C | | | |
| Naphthalene | UG/KG | 2 / 5 | 750 - 780 | 240 - 670 | 455 | 310000 N | | | |
| Nickel (Ni) | MG/KG | 5 / 5 | | 1.20 - 4.50 | 3.12 | 160 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 569**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| pH | SU | 5 / 5 | | 7.59 - 9.18 | 8.10 | | | | |
| Phenanthrene | UG/KG | 4 / 5 | 780 | 75.0 - 410 | 201 | 310000 K | | | |
| Potassium (K) | MG/KG | 5 / 5 | | 467 - 601 | 557 | | | | |
| Pyrene | UG/KG | 4 / 5 | 780 | 100 - 840 | 460 | 230000 N | | | |
| Selenium (Se) | MG/KG | 2 / 5 | 0.54 - 0.59 | 0.620 - 0.750 | 0.685 | 39 N | | | |
| Silver (Ag) | MG/KG | 1 / 5 | 0.22 - 0.23 | 1.10 | | 39 N | | | |
| Sodium (Na) | MG/KG | 5 / 5 | | 14.0 - 61.7 | 38.3 | | | | |
| * Thallium (Tl) | MG/KG | 2 / 5 | 0.54 - 0.59 | 0.730 - 1.20 | 0.965 | 0.63 | 2 | | |
| Tin (Sn) | MG/KG | 2 / 5 | 2.2 - 2.3 | 3.50 - 4.20 | 3.85 | 4700 | | | |
| Vanadium (V) | MG/KG | 5 / 5 | | 4.10 - 8.50 | 6.50 | 55 N | | | |
| Zinc (Zn) | MG/KG | 5 / 5 | | 5.00 - 107 | 51.6 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 570**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | UG/KG | 2 / 14 | 350 - 780 | 260 - 690 | 475 | 470000 N | | | |
| Acetone | UG/KG | 6 / 14 | 11 - 340 | 15.0 - 160 | 74.2 | 780000 N | | | |
| Aluminum (Al) | MG/KG | 9 / 14 | 1300 - 2400 | 1930 - 8640 | 4300 | 7800 N | 1 | | |
| Anthracene | UG/KG | 3 / 14 | 350 - 780 | 78.0 - 1000 | 536 | 230000 N | | | |
| Antimony (Sb) | MG/KG | 10 / 14 | 0.42 - 0.45 | 0.500 - 2.00 | 1.02 | 3.1 N | | | |
| Arsenic (As) | MG/KG | 14 / 14 | | 2.90 - 70.9 | 13.8 | 2.3 N | 28 | | |
| Barium (Ba) | MG/KG | 14 / 14 | | 15.2 - 62.5 | 36.9 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 7 / 14 | 700 - 780 | 58.0 - 1700 | 547 | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 8 / 14 | 1700 - 1800 | 8.08 - 3780 | 953 | 88 | 7 | | |
| * Benzo(a)anthracene | UG/KG | 7 / 14 | 700 - 780 | 77.0 - 2700 | 772 | 880 c | 2 | | |
| * Benzo(b)fluoranthene | UG/KG | 7 / 14 | 700 - 780 | 76.0 - 1400 | 489 | 880 c | 1 | | |
| Chrysene | UG/KG | 8 / 14 | 720 - 780 | 80.0 - 3100 | 841 | 88000 c | | | |
| * Dibenz(a,h)anthracene | UG/KG | 4 / 14 | 350 - 780 | 100 - 800 | 350 | 88 c | 4 | | |
| * Indeno(1,2,3-cd)pyrene | UG/KG | 6 / 14 | 700 - 780 | 70.0 - 1600 | 603 | 880 c | 1 | | |
| Benzo(k)fluoranthene | UG/KG | 7 / 14 | 700 - 780 | 67.0 - 4900 | 1070 | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 6 / 14 | 700 - 780 | 78.0 - 2500 | 816 | 88 c | 5 | | |
| Beryllium (Be) | MG/KG | 13 / 14 | 0.11 | 0.145 - 0.740 | 0.320 | 0.15 c | 12 | | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 9 / 14 | 720 - 780 | 79.0 - 2100 | 367 | 46000 c | | | |
| Cadmium (Cd) | MG/KG | 14 / 14 | | 0.150 - 0.790 | 0.390 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 9 / 14 | 13000 - 12000 | 1940 - 29800 | 8830 | | | | |
| Chromium (Cr) | MG/KG | 14 / 14 | | 2.90 - 32.5 | 9.91 | 39 | | | |
| Chromium (Hexavalent) | MG/KG | 1 / 1 | | 0.0951 | | 39 N | | | |
| Cobalt (Co) | MG/KG | 13 / 14 | 18 | 0.545 - 5.70 | 2.16 | 470 N | | | |
| Copper (Cu) | MG/KG | 14 / 14 | | 4.75 - 192 | 40.0 | 310 N | | | |
| Dibenzofuran | UG/KG | 2 / 14 | 350 - 780 | 100 - 310 | 205 | 31000 N | | | |
| Di-n-butylphthalate | UG/KG | 1 / 14 | 350 - 780 | 78.0 | | 780000 N | | | |
| Dioxin (TCDD TEQ) | PG/G | 1 / 1 | | 0.0703 | | 4.3 | | | |
| Fluoranthene | UG/KG | 7 / 14 | 700 - 780 | 93.5 - 5400 | 1620 | 310000 N | | | |
| Fluorene | UG/KG | 1 / 14 | 350 - 780 | 460 | | 310000 N | | | |
| Iron (Fe) | MG/KG | 9 / 14 | 3900 - 9400 | 2660 - 6980 | 4750 | 2300 N | 9 | | |
| Lead (Pb) | MG/KG | 9 / 14 | 24 - 140 | 14.3 - 332 | 119 | 400 J | | | |
| Magnesium (Mg) | MG/KG | 13 / 14 | 1200 | 170 - 610 | 369 | | | | |
| Manganese (Mn) | MG/KG | 9 / 14 | 20 - 86 | 24.6 - 408 | 113 | 39 N | 6 | | |
| Mercury (Hg) | MG/KG | 13 / 14 | 0.060 | 0.0500 - 1.40 | 0.233 | 2.3 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 570**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| 2-Methylnaphthalene | UG/KG | 5 / 14 | 350 - 780 | 75.0 - 390 | 193 | 310000 n | | | |
| Methylene chloride | UG/KG | 9 / 14 | 5.0 - 60 | 2.00 - 21.0 | 11.7 | 85000 c | | | |
| Naphthalene | UG/KG | 5 / 14 | 350 - 780 | 92.0 - 420 | 240 | 310000 N | | | |
| Nickel (Ni) | MG/KG | 14 / 14 | | 1.65 - 9.50 | 5.05 | 160 N | | | |
| pH | SU | 14 / 14 | | 6.50 - 9.92 | 7.83 | | | | |
| Phenanthrene | UG/KG | 8 / 14 | 720 - 780 | 51.0 - 4800 | 1110 | 310000 k | | | |
| Potassium (K) | MG/KG | 9 / 14 | 320 - 930 | 422 - 628 | 518 | | | | |
| Pyrene | UG/KG | 8 / 14 | 720 - 780 | 81.0 - 5600 | 1370 | 230000 N | | | |
| Selenium (Se) | MG/KG | 7 / 14 | 0.53 - 0.59 | 0.590 - 1.30 | 0.873 | 39 N | | | |
| Silver (Ag) | MG/KG | 2 / 14 | 0.21 - 0.23 | 0.430 - 14.3 | 7.37 | 39 N | | | |
| Sodium (Na) | MG/KG | 7 / 14 | 37 - 83 | 36.9 - 109 | 62.3 | | | | |
| Tin (Sn) | MG/KG | 8 / 14 | 3.0 - 6.5 | 2.90 - 20.8 | 5.93 | 4700 | | | |
| Toluene | UG/KG | 1 / 14 | 5.0 - 6.0 | 7.00 | | 160000 N | | | |
| 1,1,1-Trichloroethane | UG/KG | 1 / 14 | 5.0 - 6.0 | 2.00 | | 700000 N | | | |
| Vanadium (V) | MG/KG | 14 / 14 | | 2.20 - 14.4 | 7.84 | 55 N | | | |
| Zinc (Zn) | MG/KG | 9 / 14 | 16 - 74 | 14.5 - 187 | 98.4 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 572**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | UG/KG | 2 / 8 | 740 - 840 | 100 - 520 | 310 | 470000 N | | | |
| Acetone | UG/KG | 8 / 8 | | 19.0 - 150 | 54.6 | 780000 N | | | |
| Aluminum (Al) | MG/KG | 7 / 8 | 3400 | 3110 - 6720 | 4320 | 7800 N | | | |
| Anthracene | UG/KG | 3 / 8 | 740 - 840 | 100 - 260 | 157 | 230000 N | | | |
| Antimony (Sb) | MG/KG | 2 / 8 | 0.45 - 0.49 | 0.780 - 1.20 | 0.990 | 3.1 N | | | |
| Arsenic (As) | MG/KG | 8 / 8 | | 2.40 - 15.0 | 5.84 | 2.3 N | 16 | | |
| Barium (Ba) | MG/KG | 7 / 8 | 31 | 31.8 - 77.3 | 52.3 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 6 / 8 | 740 - 810 | 110 - 800 | 373 | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 7 / 8 | 1900 | 137 - 1630 | 607 | 88 | 7 | | |
| * Benzo(a)anthracene | UG/KG | 7 / 8 | 810 | 110 - 1000 | 354 | 880 c | 1 | | |
| * Benzo(b)fluoranthene | UG/KG | 4 / 8 | 770 - 840 | 150 - 1000 | 565 | 880 c | 1 | | |
| Chrysene | UG/KG | 7 / 8 | 810 | 190 - 1300 | 526 | 88000 c | | | |
| * Dibenz(a,h)anthracene | UG/KG | 4 / 8 | 740 - 810 | 86.0 - 360 | 214 | 88 c | 3 | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 6 / 8 | 740 - 810 | 95.0 - 640 | 288 | 880 c | | | |
| Benzo(k)fluoranthene | UG/KG | 7 / 8 | 810 | 86.0 - 870 | 349 | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 7 / 8 | 810 | 110 - 1000 | 389 | 88 c | 7 | | |
| Beryllium (Be) | MG/KG | 8 / 8 | | 0.290 - 0.540 | 0.391 | 0.15 c | 8 | | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 1 / 8 | 740 - 850 | 80.0 | | 46000 c | | | |
| Cadmium (Cd) | MG/KG | 5 / 8 | 0.12 - 0.12 | 0.120 - 0.670 | 0.256 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 7 / 8 | 2700 | 3360 - 51100 | 16600 | | | | |
| Chloroform | UG/KG | 1 / 8 | 6.0 - 6.0 | 2.00 | | 100000 c | | | |
| Chromium (Cr) | MG/KG | 7 / 8 | 5.0 | 3.10 - 13.8 | 7.34 | 39 | | | |
| Cobalt (Co) | MG/KG | 8 / 8 | | 1.50 - 384 | 53.6 | 470 N | | | |
| Copper (Cu) | MG/KG | 7 / 8 | 86 | 12.8 - 155 | 49.5 | 310 N | | | |
| Dibenzofuran | UG/KG | 2 / 8 | 740 - 850 | 100 - 200 | 150 | 31000 N | | | |
| Fluoranthene | UG/KG | 7 / 8 | 810 | 160 - 1700 | 599 | 310000 N | | | |
| Fluorene | UG/KG | 1 / 8 | 740 - 850 | 350 | | 310000 N | | | |
| Iron (Fe) | MG/KG | 7 / 8 | 12000 | 2690 - 9440 | 5380 | 2300 N | 7 | | |
| Lead (Pb) | MG/KG | 7 / 8 | 59 | 9.00 - 445 | 154 | 400 j | 1 | | |
| Magnesium (Mg) | MG/KG | 8 / 8 | | 199 - 3050 | 712 | | | | |
| Manganese (Mn) | MG/KG | 8 / 8 | | 27.5 - 117 | 79.1 | 39 N | 7 | | |
| Mercury (Hg) | MG/KG | 8 / 8 | | 0.0800 - 0.450 | 0.150 | 2.3 N | | | |
| 2-Methylnaphthalene | UG/KG | 3 / 8 | 740 - 840 | 97.0 - 1100 | 469 | 310000 n | | | |
| Methylene chloride | UG/KG | 8 / 8 | | 3.00 - 27.0 | 10.5 | 85000 c | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 572**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| 4-Methylphenol (p-Cresol) | UG/KG | 1 / 8 | 740 - 850 | 81.0 | | 39000 N | | | |
| Naphthalene | UG/KG | 3 / 8 | 740 - 840 | 490 - 1100 | 720 | 310000 N | | | |
| Nickel (Ni) | MG/KG | 8 / 8 | | 3.70 - 46.7 | 10.7 | 160 N | | | |
| Phenanthrene | UG/KG | 7 / 8 | 810 | 100 - 1500 | 436 | 310000 k | | | |
| Potassium (K) | MG/KG | 8 / 8 | | 318 - 930 | 631 | | | | |
| Pyrene | UG/KG | 7 / 8 | 810 | 150 - 1700 | 569 | 230000 N | | | |
| Selenium (Se) | MG/KG | 2 / 8 | 0.56 - 0.62 | 0.650 - 0.770 | 0.710 | 39 N | | | |
| Silver (Ag) | MG/KG | 2 / 8 | 0.23 - 0.25 | 2.70 - 10.8 | 6.75 | 39 N | | | |
| Sodium (Na) | MG/KG | 8 / 8 | | 72.5 - 301 | 137 | | | | |
| Tin (Sn) | MG/KG | 7 / 8 | 2.4 | 2.60 - 13.2 | 5.96 | 4700 | | | |
| Vanadium (V) | MG/KG | 8 / 8 | | 3.20 - 19.4 | 8.29 | 55 N | | | |
| Zinc (Zn) | MG/KG | 7 / 8 | 88 | 25.9 - 286 | 123 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 573**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[s] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | UG/KG | 1 / 5 | 380 - 1100 | 200 | | 470000 N | | | |
| Acetone | UG/KG | 3 / 5 | 12 - 17 | 30.5 - 48.0 | 41.5 | 780000 N | | | |
| Aluminum (Al) | MG/KG | 3 / 5 | 2400 - 4800 | 3700 - 7580 | 5440 | 7800 N | | | |
| Anthracene | UG/KG | 1 / 5 | 380 - 1100 | 575 | | 230000 N | | | |
| Antimony (Sb) | MG/KG | 3 / 5 | 0.44 - 3.6 | 0.620 - 1.30 | 0.877 | 3.1 N | | | |
| Arsenic (As) | MG/KG | 5 / 5 | | 1.80 - 16.0 | 6.14 | 2.3 N | 9 | | |
| Barium (Ba) | MG/KG | 3 / 5 | 22 - 31 | 20.9 - 34.2 | 29.3 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 4 / 5 | 380 | 140 - 1490 | 558 | 310000 r | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 4 / 5 | 880 | 191 - 3980 | 1330 | 88 | 4 | | |
| * Benzo(a)anthracene | UG/KG | 4 / 5 | 380 | 160 - 2650 | 855 | 880 c | 1 | | |
| * Benzo(b)fluoranthene | UG/KG | 3 / 5 | 380 - 710 | 120 - 4600 | 1780 | 880 c | 1 | | |
| Chrysene | UG/KG | 4 / 5 | 380 | 160 - 2900 | 1010 | 88000 c | | | |
| * Dibenz(a,h)anthracene | UG/KG | 2 / 5 | 380 - 710 | 170 - 695 | 433 | 88 c | 2 | | |
| * Indeno(1,2,3-cd)pyrene | UG/KG | 4 / 5 | 380 | 110 - 1380 | 505 | 880 c | 1 | | |
| Benzo(k)fluoranthene | UG/KG | 4 / 5 | 380 | 150 - 1750 | 640 | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 4 / 5 | 380 | 150 - 2400 | 833 | 88 c | 4 | | |
| Benzoic acid | UG/KG | 1 / 5 | 3400 - 5500 | 88.0 | | 310000 N | | | |
| Beryllium (Be) | MG/KG | 5 / 5 | | 0.150 - 1.10 | 0.552 | 0.15 c | 5 | | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 5 / 5 | | 97.0 - 570 | 248 | 46000 c | | | |
| Cadmium (Cd) | MG/KG | 2 / 5 | 0.11 - 0.48 | 0.260 - 0.305 | 0.283 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 2 / 5 | 4100 -27000 | 4960 - 11200 | 8080 | | | | |
| Carbazole | UG/KG | 1 / 2 | 380 | 170 | | 32000 c | | | |
| Chloroform | UG/KG | 3 / 5 | 6.0 - 6.0 | 3.00 - 3.00 | 3.00 | 100000 c | | | |
| 4-Chloro-3-methylphenol | UG/KG | 1 / 5 | 390 - 1100 | 80.0 | | | | | |
| 2-Chlorophenol | UG/KG | 1 / 5 | 390 - 1100 | 54.0 | | 39000 N | | | |
| Chromium (Cr) | MG/KG | 3 / 5 | 9.5 - 12 | 5.50 - 7.20 | 6.17 | 39 | | | |
| Cobalt (Co) | MG/KG | 5 / 5 | | 3.50 - 25.9 | 11.6 | 470 N | | | |
| Copper (Cu) | MG/KG | 3 / 5 | 11 - 240 | 3.35 - 35.7 | 16.1 | 310 N | | | |
| 4,4'-DDD | UG/KG | 1 / 1 | | 4.90 | | 2700 c | | | |
| 4,4'-DDE | UG/KG | 1 / 1 | | 5.44 | | 1900 c | | | |
| Dioxin (TCDD TEQ) | PG/G | 2 / 2 | | 0.0405 - 0.234 | 0.137 | 4.3 | | | |
| Endrin | UG/KG | 1 / 1 | | 7.52 | | 2300 N | | | |
| Fluoranthene | UG/KG | 4 / 5 | 380 | 240 - 5100 | 1550 | 310000 N | | | |
| Fluorene | UG/KG | 1 / 5 | 380 - 1100 | 175 | | 310000 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 573**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Iron (Fe) | MG/KG | 2 / 5 | 3900 -37000 | 2470 - 4430 | 3450 | 2300 N | 2 | | |
| Lead (Pb) | MG/KG | 3 / 5 | 26 - 71 | 7.35 - 148 | 73.8 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 5 / 5 | | 236 - 501 | 382 | | | | |
| Manganese (Mn) | MG/KG | 5 / 5 | | 26.5 - 149 | 80.7 | 39 N | 3 | | |
| Mercury (Hg) | MG/KG | 4 / 5 | 0.12 | 0.0400 - 0.350 | 0.136 | 2.3 N | | | |
| Methylene chloride | UG/KG | 3 / 5 | 6.0 - 18 | 10.0 - 27.0 | 15.7 | 85000 c | | | |
| Nickel (Ni) | MG/KG | 5 / 5 | | 3.60 - 11.0 | 5.58 | 160 N | | | |
| pH | SU | 5 / 5 | | 8.32 - 8.83 | 8.64 | | | | |
| Phenanthrene | UG/KG | 3 / 5 | 380 - 710 | 160 - 2650 | 1020 | 310000 k | | | |
| Potassium (K) | MG/KG | 3 / 5 | 630 - 670 | 479 - 862 | 716 | | | | |
| Pyrene | UG/KG | 5 / 5 | | 96.0 - 4300 | 1090 | 230000 N | | | |
| Selenium (Se) | MG/KG | 2 / 5 | 0.54 - 0.59 | 0.570 - 0.610 | 0.590 | 39 N | | | |
| Silver (Ag) | MG/KG | 1 / 5 | 0.21 - 0.24 | 1.30 | | 39 N | | | |
| Sodium (Na) | MG/KG | 5 / 5 | | 84.4 - 141 | 104 | | | | |
| Tin (Sn) | MG/KG | 3 / 5 | 2.1 - 2.7 | 2.50 - 7.00 | 4.18 | 4700 | | | |
| Vanadium (V) | MG/KG | 3 / 5 | 6.2 - 24 | 4.35 - 7.20 | 5.85 | 55 N | | | |
| Xylene (Total) | UG/KG | 1 / 5 | 5.0 - 9.0 | 1.00 | | 160000 N | | | |
| Zinc (Zn) | MG/KG | 3 / 5 | 57 - 150 | 9.00 - 132 | 58.1 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 574**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[s] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| MISCELLANEOUS C22-C24 | UG/KG | 1 / 1 | | 8.60 | | | | | |
| MISCELLANEOUS C8-C24 | UG/KG | 1 / 1 | | 34.2 | | | | | |
| MISCELLANEOUS C10-C22 | UG/KG | 1 / 1 | | 6490 | | | | | |
| Acenaphthene | UG/KG | 2 / 5 | 770 - 3900 | 110 - 8800 | 4460 | 470000 N | | | |
| Acenaphthylene | UG/KG | 2 / 5 | 770 - 7600 | 110 - 290 | 200 | 470000 e | | | |
| Acetone | UG/KG | 5 / 5 | | 28.0 - 200 | 80.8 | 780000 N | | | |
| Aluminum (Al) | MG/KG | 5 / 5 | | 3680 - 6550 | 5070 | 7800 N | | | |
| Anthracene | UG/KG | 4 / 5 | 3900 | 95.0 - 18000 | 4690 | 230000 N | | | |
| Antimony (Sb) | MG/KG | 4 / 5 | 1.4 | 0.930 - 9.10 | 4.51 | 3.1 N | 2 | | |
| Arsenic (As) | MG/KG | 5 / 5 | | 2.30 - 9.90 | 6.26 | 2.3 N | 10 | | |
| Barium (Ba) | MG/KG | 5 / 5 | | 34.8 - 74.0 | 50.2 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 4 / 5 | 3900 | 420 - 7700 | 2760 | 310000 r | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 4 / 5 | 9000 | 874 - 29000 | 9460 | 88 | 4 | | |
| * Benzo(a)anthracene | UG/KG | 4 / 5 | 3900 | 490 - 26000 | 7950 | 880 c | 3 | | |
| * Benzo(b)fluoranthene | UG/KG | 4 / 5 | 3900 | 710 - 21000 | 7080 | 880 c | 3 | | |
| Chrysene | UG/KG | 4 / 5 | 3900 | 560 - 21000 | 6940 | 88000 c | | | |
| * Dibenz(a,h)anthracene | UG/KG | 3 / 5 | 770 - 3900 | 200 - 3100 | 1260 | 88 c | 3 | | |
| * Indeno(1,2,3-cd)pyrene | UG/KG | 4 / 5 | 3900 | 460 - 10000 | 3420 | 880 c | 3 | | |
| * Benzo(k)fluoranthene | UG/KG | 4 / 5 | 3900 | 710 - 17000 | 6150 | 8800 c | 1 | | |
| * Benzo(a)pyrene | UG/KG | 4 / 5 | 3900 | 700 - 20000 | 6600 | 88 c | 4 | | |
| Benzoic acid | UG/KG | 1 / 5 | 3600 -37000 | 89.0 | | 310000 N | | | |
| Beryllium (Be) | MG/KG | 5 / 5 | | 0.240 - 0.510 | 0.386 | 0.15 c | 5 | | |
| Cadmium (Cd) | MG/KG | 5 / 5 | | 0.170 - 2.00 | 1.17 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 5 / 5 | | 1040 - 18700 | 7930 | | | | |
| Carbazole | UG/KG | 2 / 5 | 770 - 3900 | 220 - 11000 | 5610 | 32000 c | | | |
| Chromium (Cr) | MG/KG | 5 / 5 | | 4.50 - 18.8 | 12.2 | 39 | | | |
| Cobalt (Co) | MG/KG | 5 / 5 | | 1.70 - 6.70 | 4.40 | 470 N | | | |
| Copper (Cu) | MG/KG | 5 / 5 | | 292 - 1260 | 842 | 310 N | 4 | | |
| Dibenzofuran | UG/KG | 1 / 5 | 740 - 3900 | 5600 | | 31000 N | | | |
| Diethylphthalate | UG/KG | 2 / 5 | 740 - 780 | 790 - 5900 | 3350 | 630000 N | | | |
| Dimethyl phthalate | UG/KG | 1 / 5 | 740 - 3900 | 2400 | | 780000 N | | | |
| Fluoranthene | UG/KG | 4 / 5 | 3900 | 730 - 73000 | 20200 | 310000 N | | | |
| Fluorene | UG/KG | 3 / 5 | 770 - 780 | 100 - 8200 | 3100 | 310000 N | | | |
| 2-Hexanone | UG/KG | 1 / 5 | 11 - 30 | 20.0 | | | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 574**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[s] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Iron (Fe) | MG/KG | 5 / 5 | | 3310 - 60000 | 20400 | 2300 N | 5 | | |
| Lead (Pb) | MG/KG | 5 / 5 | | 46.8 - 700 | 354 | 400 j | 3 | | |
| Magnesium (Mg) | MG/KG | 5 / 5 | | 278 - 1790 | 883 | | | | |
| Manganese (Mn) | MG/KG | 5 / 5 | | 33.4 - 441 | 178 | 39 N | 4 | | |
| Mercury (Hg) | MG/KG | 5 / 5 | | 0.0500 - 19.4 | 4.01 | 2.3 N | 1 | | |
| 2-Methylnaphthalene | UG/KG | 2 / 5 | 740 - 780 | 1500 - 3300 | 2400 | 310000 n | | | |
| Naphthalene | UG/KG | 1 / 5 | 740 - 3900 | 6900 | | 310000 N | | | |
| Nickel (Ni) | MG/KG | 5 / 5 | | 7.60 - 66.9 | 31.6 | 160 N | | | |
| Phenanthrene | UG/KG | 5 / 5 | | 310 - 83000 | 17700 | 310000 k | | | |
| Potassium (K) | MG/KG | 4 / 5 | 420 | 791 - 1040 | 919 | | | | |
| Pyrene | UG/KG | 4 / 5 | 3900 | 580 - 59000 | 16300 | 230000 N | | | |
| Selenium (Se) | MG/KG | 3 / 5 | 0.56 - 0.60 | 0.640 - 0.740 | 0.683 | 39 N | | | |
| Silver (Ag) | MG/KG | 2 / 5 | 0.23 - 0.24 | 0.250 - 0.560 | 0.405 | 39 N | | | |
| Sodium (Na) | MG/KG | 3 / 5 | 55 - 66 | 97.5 - 265 | 165 | | | | |
| TPH - Gasoline Range | UG/KG | 1 / 4 | 11 - 7200 | 124 | | 100000 | | | |
| * Thallium (Tl) | MG/KG | 1 / 5 | 0.56 - 0.60 | 2.80 | | 0.63 | 1 | | |
| Tin (Sn) | MG/KG | 5 / 5 | | 18.5 - 148 | 67.9 | 4700 | | | |
| Toluene | UG/KG | 1 / 5 | 6.0 - 15 | 1.00 | | 160000 N | | | |
| 1,1,1-Trichloroethane | UG/KG | 2 / 5 | 6.0 - 15 | 1.00 - 1.00 | 1.00 | 700000 N | | | |
| Vanadium (V) | MG/KG | 5 / 5 | | 5.00 - 21.9 | 14.5 | 55 N | | | |
| Xylene (Total) | UG/KG | 1 / 5 | 6.0 - 6.0 | 6.00 | | 160000 N | | | |
| Zinc (Zn) | MG/KG | 5 / 5 | | 129 - 1080 | 692 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 576**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| 123789-HxCDD | NG/KG | 1 / 1 | | 1.80 | | | | | |
| Acenaphthene | UG/KG | 1 / 5 | 370 - 410 | 170 | | 470000 N | | | |
| Acetone | UG/KG | 3 / 5 | 12 - 12 | 27.0 - 70.0 | 45.0 | 780000 N | | | |
| Aluminum (Al) | MG/KG | 5 / 5 | | 3730 - 6110 | 4970 | 7800 N | | | |
| Anthracene | UG/KG | 1 / 5 | 370 - 410 | 250 | | 230000 N | | | |
| Antimony (Sb) | MG/KG | 2 / 5 | 0.44 - 0.50 | 0.680 - 0.725 | 0.703 | 3.1 N | | | |
| Arsenic (As) | MG/KG | 5 / 5 | | 2.10 - 5.70 | 4.11 | 2.3 N | 9 | | |
| Barium (Ba) | MG/KG | 5 / 5 | | 19.0 - 28.5 | 24.9 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 4 / 5 | 370 | 110 - 173 | 128 | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 5 / 5 | | 82.9 - 501 | 222 | 88 | 4 | | |
| Benzo(a)anthracene | UG/KG | 4 / 5 | 370 | 42.0 - 354 | 164 | 880 c | | | |
| Benzo(b)fluoranthene | UG/KG | 2 / 5 | 370 - 410 | 92.0 - 239 | 165 | 880 c | | | |
| Chrysene | UG/KG | 4 / 5 | 370 | 62.0 - 415 | 207 | 88000 c | | | |
| * Dibenz(a,h)anthracene | UG/KG | 3 / 5 | 370 - 410 | 43.0 - 140 | 80.3 | 88 c | 1 | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 4 / 5 | 370 | 80.0 - 144 | 99.0 | 880 c | | | |
| Benzo(k)fluoranthene | UG/KG | 4 / 5 | 370 | 120 - 250 | 185 | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 5 / 5 | | 69.0 - 285 | 144 | 88 c | 4 | | |
| Beryllium (Be) | MG/KG | 5 / 5 | | 0.390 - 0.480 | 0.423 | 0.15 c | 5 | | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 1 / 5 | 370 - 390 | 440 | | 46000 c | | | |
| Butylbenzylphthalate | UG/KG | 2 / 5 | 370 - 410 | 390 - 520 | 455 | 160000 N | | | |
| Cadmium (Cd) | MG/KG | 2 / 5 | 0.11 - 0.12 | 0.140 - 0.160 | 0.150 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 5 / 5 | | 3860 - 36300 | 15200 | | | | |
| Carbazole | UG/KG | 1 / 3 | 380 - 390 | 160 | | 32000 c | | | |
| Chromium (Cr) | MG/KG | 5 / 5 | | 5.80 - 11.6 | 8.17 | 39 | | | |
| Cobalt (Co) | MG/KG | 5 / 5 | | 0.670 - 28.9 | 12.7 | 470 N | | | |
| Copper (Cu) | MG/KG | 5 / 5 | | 1.40 - 24.1 | 11.4 | 310 N | | | |
| Dibenzofuran | UG/KG | 1 / 5 | 370 - 410 | 110 | | 31000 N | | | |
| Di-n-butylphthalate | UG/KG | 1 / 5 | 370 - 410 | 44.0 | | 780000 N | | | |
| Dioxin (TCDD TEQ) | PG/G | 1 / 1 | | 0.376 | | 4.3 | | | |
| Endrin aldehyde | UG/KG | 1 / 1 | | 9.70 | | 2300 h | | | |
| Fluoranthene | UG/KG | 4 / 5 | 370 | 67.0 - 705 | 331 | 310000 N | | | |
| Fluorene | UG/KG | 1 / 5 | 370 - 410 | 190 | | 310000 N | | | |
| Iron (Fe) | MG/KG | 5 / 5 | | 3560 - 5940 | 4890 | 2300 N | 5 | | |
| Lead (Pb) | MG/KG | 5 / 5 | | 4.10 - 335 | 108 | 400 j | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 576**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[s] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Magnesium (Mg) | MG/KG | 5 / 5 | | 224 - 911 | 673 | | | | |
| Manganese (Mn) | MG/KG | 5 / 5 | | 20.4 - 136 | 61.3 | 39 N | 4 | | |
| Mercury (Hg) | MG/KG | 4 / 5 | 0.12 | 0.0400 - 0.430 | 0.194 | 2.3 N | | | |
| 2-Methylnaphthalene | UG/KG | 1 / 5 | 370 - 410 | 73.0 | | 310000 n | | | |
| Methylene chloride | UG/KG | 3 / 5 | 6.0 - 6.0 | 20.0 - 25.0 | 23.0 | 85000 C | | | |
| Naphthalene | UG/KG | 1 / 5 | 370 - 410 | 170 | | 310000 N | | | |
| Nickel (Ni) | MG/KG | 3 / 5 | 3.0 - 6.8 | 4.50 - 5.30 | 4.93 | 160 N | | | |
| Phenanthrene | UG/KG | 3 / 5 | 370 - 410 | 150 - 655 | 322 | 310000 k | | | |
| Potassium (K) | MG/KG | 5 / 5 | | 323 - 1010 | 568 | | | | |
| Pyrene | UG/KG | 4 / 5 | 370 | 71.0 - 740 | 340 | 230000 N | | | |
| Selenium (Se) | MG/KG | 1 / 5 | 0.55 - 0.62 | 0.580 | | 39 N | | | |
| Sodium (Na) | MG/KG | 5 / 5 | | 143 - 269 | 203 | | | | |
| Tin (Sn) | MG/KG | 3 / 5 | 2.2 - 2.5 | 2.60 - 3.70 | 3.10 | 4700 | | | |
| Vanadium (V) | MG/KG | 5 / 5 | | 5.75 - 11.0 | 8.61 | 55 N | | | |
| Zinc (Zn) | MG/KG | 5 / 5 | | 6.00 - 247 | 76.0 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 579**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | UG/KG | 1 / 4 | 380 - 410 | 170 | | 470000 N | | | |
| Acetone | UG/KG | 1 / 4 | 11 - 12 | 13.0 | | 780000 N | | | |
| Aluminum (Al) | MG/KG | 4 / 4 | | 3600 - 7310 | 5050 | 7800 N | | | |
| Antimony (Sb) | MG/KG | 1 / 4 | 0.45 - 0.47 | 7.70 | | 3.1 N | 1 | | |
| Arsenic (As) | MG/KG | 4 / 4 | | 1.75 - 61.7 | 17.6 | 0.43 C | 6 | | |
| Barium (Ba) | MG/KG | 4 / 4 | | 7.25 - 76.6 | 39.6 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 4 / 4 | | 46.0 - 470 | 183 | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 4 / 4 | | 87.1 - 799 | 315 | 88 | 3 | | |
| Benzo(a)anthracene | UG/KG | 4 / 4 | | 59.0 - 620 | 253 | 880 C | | | |
| Benzo(b)fluoranthene | UG/KG | 1 / 4 | 380 - 760 | 180 | | 880 C | | | |
| Chrysene | UG/KG | 4 / 4 | | 81.0 - 2600 | 765 | 88000 C | | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 4 / 4 | | 43.0 - 440 | 169 | 880 C | | | |
| Benzo(k)fluoranthene | UG/KG | 4 / 4 | | 82.0 - 2000 | 611 | 8800 C | | | |
| * Benzo(a)pyrene | UG/KG | 4 / 4 | | 76.0 - 670 | 261 | 88 C | 3 | | |
| Beryllium (Be) | MG/KG | 3 / 4 | 0.11 | 0.170 - 0.700 | 0.383 | 0.15 C | 3 | | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 2 / 4 | 400 - 410 | 98.0 - 2200 | 1150 | 46000 C | | | |
| Cadmium (Cd) | MG/KG | 1 / 4 | 0.11 - 0.12 | 2.90 | | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 4 / 4 | | 858 - 11700 | 4070 | | | | |
| Chromium (Cr) | MG/KG | 4 / 4 | | 5.55 - 50.6 | 17.8 | 39 | 1 | | |
| Cobalt (Co) | MG/KG | 4 / 4 | | 2.30 - 27.4 | 12.3 | 470 N | | | |
| Copper (Cu) | MG/KG | 4 / 4 | | 2.55 - 686 | 180 | 310 N | 1 | | |
| Dibenzofuran | UG/KG | 1 / 4 | 380 - 410 | 140 | | 31000 N | | | |
| Di-n-octyl phthalate | UG/KG | 1 / 4 | 380 - 410 | 560 | | 160000 N | | | |
| Dioxin (TCDD TEQ) | PG/G | 1 / 1 | | 0.0073 | | 4.3 | | | |
| Fluoranthene | UG/KG | 4 / 4 | | 94.0 - 7500 | 2020 | 310000 N | | | |
| Fluorene | UG/KG | 1 / 4 | 380 - 410 | 140 | | 310000 N | | | |
| Iron (Fe) | MG/KG | 4 / 4 | | 2030 - 12200 | 6070 | 2300 N | 3 | | |
| Lead (Pb) | MG/KG | 4 / 4 | | 4.45 - 362 | 120 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 4 / 4 | | 114 - 566 | 340 | | | | |
| Manganese (Mn) | MG/KG | 4 / 4 | | 22.3 - 247 | 98.9 | 39 N | 2 | | |
| Mercury (Hg) | MG/KG | 4 / 4 | | 0.0600 - 8.00 | 2.06 | 2.3 N | 1 | | |
| 2-Methylnaphthalene | UG/KG | 1 / 4 | 380 - 410 | 80.0 | | 310000 n | | | |
| Nickel (Ni) | MG/KG | 4 / 4 | | 4.30 - 31.9 | 16.3 | 160 N | | | |
| Phenanthrene | UG/KG | 4 / 4 | | 46.0 - 5000 | 1330 | 310000 k | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 579**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Potassium (K) | MG/KG | 4 / 4 | | 221 - 661 | 469 | | | | |
| Pyrene | UG/KG | 4 / 4 | | 92.0 - 6400 | 1760 | 230000 N | | | |
| Silver (Ag) | MG/KG | 2 / 4 | 0.23 - 0.23 | 0.390 - 5.10 | 2.75 | 39 N | | | |
| Sodium (Na) | MG/KG | 4 / 4 | | 102 - 139 | 125 | | | | |
| Tin (Sn) | MG/KG | 4 / 4 | | 2.55 - 41.0 | 12.6 | 4700 | | | |
| Vanadium (V) | MG/KG | 4 / 4 | | 3.25 - 13.5 | 8.19 | 55 N | | | |
| Zinc (Zn) | MG/KG | 4 / 4 | | 8.50 - 901 | 253 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 580**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[s] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | UG/KG | 2 / 6 | 390 - 560 | 68.0 - 110 | 89.0 | 470000 N | | | |
| Acetone | UG/KG | 5 / 6 | 14 | 38.0 - 180 | 106 | 780000 N | | | |
| Aluminum (Al) | MG/KG | 6 / 6 | | 3820 - 11400 | 7070 | 7800 N | 3 | | |
| Anthracene | UG/KG | 3 / 6 | 440 - 560 | 57.0 - 140 | 106 | 230000 N | | | |
| Antimony (Sb) | MG/KG | 2 / 6 | 3.8 - 9.1 | 1.10 - 1.90 | 1.50 | 3.1 N | | | |
| Arsenic (As) | MG/KG | 6 / 6 | | 10.2 - 102 | 30.9 | 2.3 N | 12 | | |
| Barium (Ba) | MG/KG | 2 / 6 | 26 - 100 | 30.5 - 34.8 | 32.7 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 6 / 6 | | 75.0 - 490 | 245 | 310000 r | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 6 / 6 | | 125 - 1110 | 531 | 88 | 6 | | |
| Benzo(a)anthracene | UG/KG | 6 / 6 | | 100 - 640 | 317 | 880 c | | | |
| Benzo(b)fluoranthene | UG/KG | 6 / 6 | | 84.0 - 580 | 305 | 880 c | | | |
| Chrysene | UG/KG | 6 / 6 | | 110 - 790 | 392 | 88000 c | | | |
| * Dibenz(a,h)anthracene | UG/KG | 3 / 6 | 440 - 560 | 160 - 240 | 188 | 88 c | 3 | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 6 / 6 | | 60.0 - 390 | 196 | 880 c | | | |
| Benzo(k)fluoranthene | UG/KG | 6 / 6 | | 77.0 - 550 | 305 | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 6 / 6 | | 100 - 700 | 352 | 88 c | 6 | | |
| Benzoic acid | UG/KG | 4 / 6 | 1900 - 2600 | 110 - 380 | 238 | 310000 N | | | |
| Beryllium (Be) | MG/KG | 6 / 6 | | 0.300 - 0.870 | 0.562 | 0.15 c | 6 | | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 5 / 6 | 440 | 50.0 - 180 | 129 | 46000 c | | | |
| 2-Butanone (MEK) | UG/KG | 1 / 6 | 12 - 17 | 10.0 | | 470000 N | | | |
| Cadmium (Cd) | MG/KG | 2 / 6 | 0.49 - 0.65 | 0.260 - 1.20 | 0.730 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 2 / 6 | 3000 - 8100 | 17900 - 28000 | 23000 | | | | |
| Carbazole | UG/KG | 1 / 1 | | 84.0 | | 32000 c | | | |
| Chloroform | UG/KG | 2 / 6 | 6.0 - 8.0 | 2.00 - 4.00 | 3.00 | 100000 c | | | |
| 2-Chlorophenol | UG/KG | 1 / 6 | 390 - 560 | 65.0 | | 39000 N | | | |
| Chromium (Cr) | MG/KG | 6 / 6 | | 12.0 - 27.1 | 19.3 | 39 | | | |
| Chromium (Hexavalent) | MG/KG | 1 / 1 | | 0.0608 | | 39 N | | | |
| Cobalt (Co) | MG/KG | 6 / 6 | | 5.05 - 10.4 | 6.89 | 470 N | | | |
| Copper (Cu) | MG/KG | 6 / 6 | | 24.0 - 739 | 183 | 310 N | 1 | | |
| Dibenzofuran | UG/KG | 1 / 6 | 390 - 560 | 64.0 | | 31000 N | | | |
| Dioxin (TCDD TEQ) | PG/G | 1 / 1 | | 0.655 | | 4.3 | | | |
| Fluoranthene | UG/KG | 6 / 6 | | 92.0 - 1150 | 550 | 310000 N | | | |
| Fluorene | UG/KG | 2 / 6 | 390 - 560 | 51.0 - 70.0 | 60.5 | 310000 N | | | |
| Iron (Fe) | MG/KG | 6 / 6 | | 8280 - 26400 | 16800 | 2300 N | 6 | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 580**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[5] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Lead (Pb) | MG/KG | 2 / 6 | 130 - 1200 | 47.9 - 113 | 80.5 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 6 / 6 | | 780 - 2720 | 1590 | | | | |
| Manganese (Mn) | MG/KG | 2 / 6 | 160 - 740 | 69.9 - 311 | 190 | 39 N | 2 | | |
| Mercury (Hg) | MG/KG | 6 / 6 | | 0.0400 - 1.50 | 0.438 | 2.3 N | | | |
| 2-Methylnaphthalene | UG/KG | 2 / 6 | 390 - 560 | 48.0 - 85.0 | 66.5 | 310000 n | | | |
| Methylene chloride | UG/KG | 3 / 6 | 6.0 - 8.0 | 3.00 - 21.0 | 9.33 | 85000 c | | | |
| Naphthalene | UG/KG | 1 / 6 | 390 - 560 | 150 | | 310000 N | | | |
| Nickel (Ni) | MG/KG | 6 / 6 | | 5.55 - 13.5 | 9.38 | 160 N | | | |
| Phenanthrene | UG/KG | 5 / 6 | 540 | 94.0 - 690 | 360 | 310000 k | | | |
| Potassium (K) | MG/KG | 6 / 6 | | 343 - 1860 | 1010 | | | | |
| Pyrene | UG/KG | 6 / 6 | | 140 - 1300 | 631 | 230000 N | | | |
| Selenium (Se) | MG/KG | 2 / 6 | 0.63 - 0.81 | 0.660 - 0.720 | 0.690 | 39 N | | | |
| Silver (Ag) | MG/KG | 1 / 6 | 0.24 - 0.33 | 3.20 | | 39 N | | | |
| Sodium (Na) | MG/KG | 6 / 6 | | 246 - 534 | 340 | | | | |
| Tin (Sn) | MG/KG | 6 / 6 | | 2.75 - 61.4 | 15.1 | 4700 | | | |
| Vanadium (V) | MG/KG | 6 / 6 | | 16.5 - 49.9 | 29.5 | 55 N | | | |
| Zinc (Zn) | MG/KG | 6 / 6 | | 67.2 - 889 | 372 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 583**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | UG/KG | 1 / 7 | 360 - 380 | 160 | | 470000 N | | | |
| Acetone | UG/KG | 2 / 7 | 11 - 11 | 82.0 - 93.0 | 87.5 | 780000 N | | | |
| Aluminum (Al) | MG/KG | 7 / 7 | | 3740 - 14000 | 7010 | 7800 N | 2 | | |
| Anthracene | UG/KG | 1 / 7 | 360 - 380 | 110 | | 230000 N | | | |
| Antimony (Sb) | MG/KG | 2 / 7 | 0.44 - 0.46 | 0.460 - 1.00 | 0.730 | 3.1 N | | | |
| Arsenic (As) | MG/KG | 7 / 7 | | 0.760 - 5.10 | 3.17 | 2.3 N | 13 | | |
| Barium (Ba) | MG/KG | 7 / 7 | | 14.2 - 33.2 | 20.4 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 3 / 7 | 360 - 380 | 89.0 - 152 | 117 | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 3 / 7 | 830 - 880 | 156 - 375 | 256 | 88 | 3 | | |
| Benzo(a)anthracene | UG/KG | 3 / 7 | 360 - 380 | 97.0 - 200 | 152 | 880 c | | | |
| Benzo(b)fluoranthene | UG/KG | 3 / 7 | 360 - 380 | 90.0 - 205 | 145 | 880 c | | | |
| Chrysene | UG/KG | 3 / 7 | 360 - 380 | 120 - 245 | 188 | 88000 c | | | |
| * Dibenz(a,h)anthracene | UG/KG | 3 / 7 | 360 - 380 | 40.0 - 95.0 | 61.0 | 88 c | 1 | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 3 / 7 | 360 - 380 | 64.0 - 121 | 90.7 | 880 c | | | |
| Benzo(k)fluoranthene | UG/KG | 3 / 7 | 360 - 380 | 94.0 - 200 | 138 | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 3 / 7 | 360 - 380 | 90.0 - 225 | 155 | 88 c | 3 | | |
| Benzoic acid | UG/KG | 4 / 7 | 1700 - 1800 | 64.0 - 210 | 110 | 310000 N | | | |
| Beryllium (Be) | MG/KG | 7 / 7 | | 0.150 - 0.440 | 0.289 | 0.15 c | 7 | | |
| Cadmium (Cd) | MG/KG | 2 / 7 | 0.11 - 0.11 | 0.110 - 0.110 | 0.110 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 7 / 7 | | 6110 - 24000 | 14200 | | | | |
| Carbazole | UG/KG | 1 / 1 | | 82.0 | | 32000 c | | | |
| Chromium (Cr) | MG/KG | 7 / 7 | | 9.80 - 179 | 46.7 | 39 | 2 | | |
| Cobalt (Co) | MG/KG | 7 / 7 | | 1.00 - 3.80 | 2.01 | 470 N | | | |
| Copper (Cu) | MG/KG | 7 / 7 | | 2.20 - 22.3 | 12.2 | 310 N | | | |
| Dioxin (TCDD TEQ) | PG/G | 1 / 1 | | 0.309 | | 4.3 | | | |
| Fluoranthene | UG/KG | 4 / 7 | 360 - 380 | 56.0 - 495 | 235 | 310000 N | | | |
| Fluorene | UG/KG | 1 / 7 | 360 - 380 | 71.0 | | 310000 N | | | |
| Iron (Fe) | MG/KG | 7 / 7 | | 2230 - 12000 | 6080 | 2300 N | 6 | | |
| Lead (Pb) | MG/KG | 7 / 7 | | 5.00 - 39.8 | 18.5 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 7 / 7 | | 460 - 3130 | 1730 | | | | |
| Manganese (Mn) | MG/KG | 7 / 7 | | 22.1 - 238 | 104 | 39 N | 6 | | |
| Mercury (Hg) | MG/KG | 6 / 7 | 0.020 | 0.0200 - 0.0800 | 0.0533 | 2.3 N | | | |
| Methylene chloride | UG/KG | 4 / 7 | 6.0 - 24 | 2.00 - 28.0 | 15.3 | 85000 c | | | |
| Nickel (Ni) | MG/KG | 7 / 7 | | 2.20 - 7.80 | 4.89 | 160 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 583**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| 4-Nitrophenol | UG/KG | 1 / 7 | 1700 - 1800 | 55.0 | | 480000 N | | | |
| N-Nitroso-di-n-propylamine | UG/KG | 1 / 7 | 360 - 380 | 47.0 | | 91 C | | | |
| Pentachlorophenol | UG/KG | 1 / 7 | 1700 - 1800 | 59.0 | | 5300 C | | | |
| Phenanthrene | UG/KG | 3 / 7 | 360 - 380 | 65.0 - 410 | 198 | 310000 K | | | |
| Potassium (K) | MG/KG | 7 / 7 | | 236 - 1150 | 645 | | | | |
| Pyrene | UG/KG | 3 / 7 | 360 - 380 | 190 - 460 | 337 | 230000 N | | | |
| Sodium (Na) | MG/KG | 5 / 7 | 200 - 250 | 225 - 353 | 285 | | | | |
| Tin (Sn) | MG/KG | 1 / 7 | 2.2 - 2.3 | 2.90 | | 4700 | | | |
| 1,2,4-Trichlorobenzene | UG/KG | 1 / 7 | 360 - 380 | 38.0 | | 78000 N | | | |
| Vanadium (V) | MG/KG | 7 / 7 | | 6.70 - 21.4 | 12.0 | 55 N | | | |
| Zinc (Zn) | MG/KG | 7 / 7 | | 7.00 - 87.8 | 43.0 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 586**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Acetone | UG/KG | 3 / 4 | 12 | 17.0 - 220 | 88.0 | 780000 N | | | |
| Aluminum (Al) | MG/KG | 4 / 4 | | 6400 - 11700 | 7970 | 7800 N | 1 | | |
| Antimony (Sb) | MG/KG | 2 / 4 | 0.61 - 0.76 | 1.30 - 1.80 | 1.55 | 3.1 N | | | |
| * Aroclor-1260 | UG/KG | 3 / 4 | 94 | 110 - 870 | 373 | 83 | 3 | | |
| Arsenic (As) | MG/KG | 4 / 4 | | 7.90 - 23.3 | 14.6 | 2.3 N | 8 | | |
| Barium (Ba) | MG/KG | 4 / 4 | | 22.0 - 35.8 | 28.9 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 2 / 4 | 930 - 940 | 280 - 310 | 295 | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 3 / 4 | 2100 | 0.140 - 641 | 347 | 88 | 2 | | |
| Benzo(a)anthracene | UG/KG | 2 / 4 | 930 - 940 | 170 - 380 | 275 | 880 c | | | |
| Benzo(b)fluoranthene | UG/KG | 2 / 4 | 930 - 940 | 460 - 590 | 525 | 880 c | | | |
| Chrysene | UG/KG | 3 / 4 | 930 | 140 - 460 | 303 | 88000 c | | | |
| * Dibenz(a,h)anthracene | UG/KG | 1 / 4 | 820 - 940 | 94.0 | | 88 c | 1 | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 2 / 4 | 930 - 940 | 240 - 260 | 250 | 880 c | | | |
| Benzo(k)fluoranthene | UG/KG | 2 / 4 | 930 - 940 | 330 - 390 | 360 | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 2 / 4 | 930 - 940 | 310 - 420 | 365 | 88 c | 2 | | |
| Beryllium (Be) | MG/KG | 4 / 4 | | 0.630 - 0.960 | 0.753 | 0.15 c | 4 | | |
| 2-Butanone (MEK) | UG/KG | 1 / 4 | 12 - 35 | 4.00 | | 470000 N | | | |
| Cadmium (Cd) | MG/KG | 3 / 4 | 0.19 | 0.340 - 0.800 | 0.500 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 4 / 4 | | 18100 - 85400 | 62200 | | | | |
| Chromium (Cr) | MG/KG | 4 / 4 | | 25.8 - 32.9 | 28.9 | 39 | | | |
| Cobalt (Co) | MG/KG | 4 / 4 | | 3.20 - 13.4 | 6.45 | 470 N | | | |
| Copper (Cu) | MG/KG | 4 / 4 | | 16.5 - 104 | 46.2 | 310 N | | | |
| Fluoranthene | UG/KG | 2 / 4 | 930 - 940 | 170 - 600 | 385 | 310000 N | | | |
| Iron (Fe) | MG/KG | 4 / 4 | | 8440 - 22500 | 12700 | 2300 N | 4 | | |
| Lead (Pb) | MG/KG | 4 / 4 | | 19.1 - 132 | 61.9 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 4 / 4 | | 3790 - 4220 | 3950 | | | | |
| Manganese (Mn) | MG/KG | 4 / 4 | | 140 - 431 | 241 | 39 N | 4 | | |
| Mercury (Hg) | MG/KG | 4 / 4 | | 0.0600 - 0.300 | 0.168 | 2.3 N | | | |
| Methylene chloride | UG/KG | 4 / 4 | | 1.00 - 53.0 | 15.3 | 85000 c | | | |
| Nickel (Ni) | MG/KG | 4 / 4 | | 9.50 - 15.2 | 12.9 | 160 N | | | |
| pH | SU | 4 / 4 | | 8.40 - 9.24 | 8.69 | | | | |
| Phenanthrene | UG/KG | 1 / 4 | 820 - 940 | 210 | | 310000 k | | | |
| Potassium (K) | MG/KG | 4 / 4 | | 1230 - 2430 | 1690 | | | | |
| Pyrene | UG/KG | 3 / 4 | 930 | 170 - 660 | 360 | 230000 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 586**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Selenium (Se) | MG/KG | 4 / 4 | | 1.00 - 1.20 | 1.10 | 39 N | | | |
| Sodium (Na) | MG/KG | 4 / 4 | | 305 - 929 | 660 | | | | |
| * Thallium (Tl) | MG/KG | 4 / 4 | | 0.870 - 1.70 | 1.10 | 0.63 | 4 | | |
| Tin (Sn) | MG/KG | 1 / 4 | 2.8 - 3.8 | 4.80 | | 4700 | | | |
| Vanadium (V) | MG/KG | 4 / 4 | | 19.2 - 48.5 | 27.5 | 55 N | | | |
| Zinc (Zn) | MG/KG | 4 / 4 | | 73.6 - 178 | 115 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 590**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[5] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline | MG/KG | 1 / 1 | | 6.30 | | | | | |
| MISCELLANEOUS C12-C28 | MG/KG | 1 / 1 | | 103 | | | | | |
| MISCELLANEOUS C9 | MG/KG | 1 / 1 | | 1.70 | | | | | |
| Acenaphthene | UG/KG | 3 / 5 | 760 - 840 | 110 - 950 | 470 | 470000 N | | | |
| Acetone | UG/KG | 5 / 5 | | 57.0 - 200 | 113 | 780000 N | | | |
| Aluminum (Al) | MG/KG | 5 / 5 | | 4490 - 15400 | 8460 | 7800 N | 2 | | |
| Anthracene | UG/KG | 3 / 5 | 760 - 840 | 260 - 870 | 520 | 230000 N | | | |
| Antimony (Sb) | MG/KG | 5 / 5 | | 0.540 - 11.6 | 2.83 | 3.1 N | 1 | | |
| Arsenic (As) | MG/KG | 5 / 5 | | 4.00 - 10.5 | 6.96 | 2.3 N | 10 | | |
| Barium (Ba) | MG/KG | 5 / 5 | | 15.7 - 66.9 | 30.3 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 4 / 5 | 840 | 310 - 1100 | 623 | 310000 r | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 5 / 5 | | 17.8 - 2870 | 1090 | 88 | 4 | | |
| * Benzo(a)anthracene | UG/KG | 4 / 5 | 840 | 340 - 1800 | 915 | 880 c | 2 | | |
| * Benzo(b)fluoranthene | UG/KG | 5 / 5 | | 86.0 - 1700 | 687 | 880 c | 2 | | |
| Chrysene | UG/KG | 4 / 5 | 840 | 490 - 1700 | 1030 | 88000 c | | | |
| * Dibenz(a,h)anthracene | UG/KG | 3 / 5 | 780 - 840 | 93.0 - 600 | 304 | 88 c | 3 | | |
| * Indeno(1,2,3-cd)pyrene | UG/KG | 5 / 5 | | 92.0 - 1000 | 544 | 880 c | 2 | | |
| Benzo(k)fluoranthene | UG/KG | 4 / 5 | 840 | 260 - 1400 | 690 | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 4 / 5 | 840 | 360 - 1800 | 880 | 88 c | 4 | | |
| Beryllium (Be) | MG/KG | 5 / 5 | | 0.220 - 0.830 | 0.394 | 0.15 c | 5 | | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 1 / 5 | 760 - 840 | 180 | | 46000 c | | | |
| 2-Butanone (MEK) | UG/KG | 4 / 5 | 13 | 8.00 - 15.0 | 11.3 | 470000 N | | | |
| Cadmium (Cd) | MG/KG | 5 / 5 | | 0.150 - 0.900 | 0.430 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 5 / 5 | | 6730 - 61100 | 20500 | | | | |
| Carbon disulfide | UG/KG | 2 / 5 | 6.0 - 6.0 | 1.00 - 2.00 | 1.50 | 780000 N | | | |
| Chloroform | UG/KG | 2 / 5 | 6.0 - 6.0 | 1.00 - 2.00 | 1.50 | 100000 c | | | |
| Chromium (Cr) | MG/KG | 5 / 5 | | 17.1 - 79.1 | 44.4 | 39 | 2 | | |
| Cobalt (Co) | MG/KG | 5 / 5 | | 1.20 - 9.90 | 3.46 | 470 N | | | |
| Copper (Cu) | MG/KG | 5 / 5 | | 16.8 - 235 | 96.1 | 310 N | | | |
| Dibenzofuran | UG/KG | 1 / 5 | 760 - 840 | 260 | | 31000 N | | | |
| Di-n-butylphthalate | UG/KG | 1 / 5 | 760 - 840 | 100 | | 780000 N | | | |
| Fluoranthene | UG/KG | 5 / 5 | | 130 - 3800 | 1640 | 310000 N | | | |
| Fluorene | UG/KG | 3 / 5 | 760 - 840 | 92.0 - 490 | 264 | 310000 N | | | |
| Iron (Fe) | MG/KG | 5 / 5 | | 5070 - 16100 | 9180 | 2300 N | 5 | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 590**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Lead (Pb) | MG/KG | 5 / 5 | | 26.0 - 301 | 122 | 400 J | | | |
| Magnesium (Mg) | MG/KG | 5 / 5 | | 909 - 5080 | 2320 | | | | |
| Manganese (Mn) | MG/KG | 5 / 5 | | 52.4 - 239 | 112 | 39 N | 5 | | |
| Mercury (Hg) | MG/KG | 5 / 5 | | 0.270 - 9.90 | 2.36 | 2.3 N | 1 | | |
| 2-Methylnaphthalene | UG/KG | 1 / 5 | 760 - 840 | 120 | | 310000 n | | | |
| Methylene chloride | UG/KG | 5 / 5 | | 4.00 - 38.0 | 11.8 | 85000 c | | | |
| Naphthalene | UG/KG | 1 / 5 | 760 - 840 | 660 | | 310000 N | | | |
| Nickel (Ni) | MG/KG | 5 / 5 | | 6.50 - 22.8 | 11.9 | 160 N | | | |
| Phenanthrene | UG/KG | 4 / 5 | 840 | 330 - 3500 | 1580 | 310000 k | | | |
| Potassium (K) | MG/KG | 5 / 5 | | 513 - 1720 | 857 | | | | |
| Pyrene | UG/KG | 5 / 5 | | 130 - 2600 | 1390 | 230000 N | | | |
| Selenium (Se) | MG/KG | 2 / 5 | 0.57 - 0.59 | 1.10 - 1.60 | 1.35 | 39 N | | | |
| Sodium (Na) | MG/KG | 5 / 5 | | 83.9 - 374 | 163 | | | | |
| Tin (Sn) | MG/KG | 4 / 5 | 4.5 | 4.60 - 12.7 | 8.00 | 4700 | | | |
| Toluene | UG/KG | 1 / 5 | 6.0 - 6.0 | 1.00 | | 160000 N | | | |
| Vanadium (V) | MG/KG | 5 / 5 | | 9.70 - 39.9 | 20.8 | 55 N | | | |
| Xylene (Total) | UG/KG | 2 / 5 | 6.0 - 6.0 | 2.00 - 2.00 | 2.00 | 160000 N | | | |
| Zinc (Zn) | MG/KG | 5 / 5 | | 67.4 - 352 | 159 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 596**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[s] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | UG/KG | 1 / 11 | 750 - 960 | 20000 | | 470000 N | | | |
| Acetone | UG/KG | 1 / 9 | 11 - 130 | 150 | | 780000 N | | | |
| Aluminum (Al) | MG/KG | 9 / 9 | | 2070 - 8290 | 5590 | 7800 N | 3 | | |
| Anthracene | UG/KG | 1 / 11 | 750 - 18000 | 210 | | 230000 N | | | |
| Antimony (Sb) | MG/KG | 7 / 9 | 0.48 - 0.50 | 0.480 - 2.30 | 1.57 | 3.1 N | | | |
| Arsenic (As) | MG/KG | 9 / 9 | | 5.10 - 155 | 24.8 | 2.3 N | 18 | | |
| Barium (Ba) | MG/KG | 9 / 9 | | 18.8 - 110 | 43.4 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 4 / 11 | 750 - 960 | 110 - 36000 | 9190 | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 7 / 11 | 1700 - 2200 | 11.1 - 89900 | 13100 | 88 | 6 | | |
| * Benzo(a)anthracene | UG/KG | 6 / 11 | 750 - 960 | 100 - 70000 | 11800 | 880 c | 1 | | |
| * Benzo(b)fluoranthene | UG/KG | 5 / 11 | 750 - 960 | 91.0 - 58000 | 11700 | 880 c | 1 | | |
| Chrysene | UG/KG | 7 / 11 | 750 - 960 | 110 - 82000 | 11900 | 88000 c | | | |
| * Dibenz(a,h)anthracene | UG/KG | 3 / 11 | 750 - 960 | 110 - 18000 | 6100 | 88 c | 3 | | |
| * Indeno(1,2,3-cd)pyrene | UG/KG | 4 / 11 | 750 - 960 | 92.0 - 34000 | 8650 | 880 c | 1 | | |
| * Benzo(k)fluoranthene | UG/KG | 5 / 11 | 750 - 960 | 86.0 - 58000 | 11800 | 8800 c | 1 | | |
| * Benzo(a)pyrene | UG/KG | 6 / 11 | 750 - 960 | 91.0 - 55000 | 9360 | 88 c | 6 | | |
| Beryllium (Be) | MG/KG | 9 / 9 | | 0.340 - 0.600 | 0.468 | 0.15 c | 9 | | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 6 / 11 | 760 - 18000 | 86.0 - 410 | 226 | 46000 c | | | |
| 2-Butanone (MEK) | UG/KG | 3 / 9 | 11 - 14 | 6.00 - 12.0 | 9.33 | 470000 N | | | |
| Butylbenzylphthalate | UG/KG | 1 / 11 | 750 - 18000 | 210 | | 160000 N | | | |
| Cadmium (Cd) | MG/KG | 8 / 9 | 0.11 | 0.170 - 1.70 | 0.711 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 9 / 9 | | 2280 - 179000 | 45400 | | | | |
| Carbon disulfide | UG/KG | 3 / 9 | 6.0 - 7.0 | 2.00 - 4.00 | 2.67 | 780000 N | | | |
| Chromium (Cr) | MG/KG | 9 / 9 | | 11.2 - 52.4 | 25.1 | 39 | 1 | | |
| Cobalt (Co) | MG/KG | 9 / 9 | | 1.10 - 97.5 | 18.0 | 470 N | | | |
| Copper (Cu) | MG/KG | 9 / 9 | | 8.70 - 194 | 46.1 | 310 N | | | |
| Dibenzofuran | UG/KG | 2 / 11 | 750 - 960 | 120 - 26000 | 13100 | 31000 N | | | |
| Fluoranthene | UG/KG | 4 / 11 | 750 - 960 | 170 - 220000 | 55400 | 310000 N | | | |
| Fluorene | UG/KG | 2 / 11 | 750 - 960 | 120 - 18000 | 9060 | 310000 N | | | |
| Iron (Fe) | MG/KG | 9 / 9 | | 4570 - 19300 | 9390 | 2300 N | 9 | | |
| Lead (Pb) | MG/KG | 9 / 9 | | 25.7 - 317 | 115 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 9 / 9 | | 373 - 5630 | 2130 | | | | |
| Manganese (Mn) | MG/KG | 9 / 9 | | 37.9 - 184 | 84.4 | 39 N | 8 | | |
| Mercury (Hg) | MG/KG | 9 / 9 | | 0.0400 - 0.390 | 0.153 | 2.3 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 596**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| 2-Methylnaphthalene | UG/KG | 1 / 11 | 750 - 960 | 11000 | | 310000 n | | | |
| Methylene chloride | UG/KG | 1 / 9 | 6.0 - 34 | 2.00 | | 85000 c | | | |
| Naphthalene | UG/KG | 2 / 11 | 750 - 960 | 120 - 26000 | 13100 | 310000 N | | | |
| Nickel (Ni) | MG/KG | 9 / 9 | | 3.50 - 20.3 | 11.6 | 160 N | | | |
| Phenanthrene | UG/KG | 5 / 11 | 750 - 960 | 96.0 - 220000 | 44200 | 310000 k | | | |
| Potassium (K) | MG/KG | 8 / 9 | 880 | 398 - 1710 | 1130 | | | | |
| Pyrene | UG/KG | 7 / 11 | 750 - 960 | 140 - 160000 | 23100 | 230000 N | | | |
| Selenium (Se) | MG/KG | 7 / 9 | 0.59 - 0.64 | 0.610 - 2.00 | 1.24 | 39 N | | | |
| Sodium (Na) | MG/KG | 8 / 9 | 61 | 140 - 1130 | 401 | | | | |
| * Thallium (Tl) | MG/KG | 1 / 9 | 0.52 - 1.8 | 0.700 | | 0.63 | 1 | | |
| Tin (Sn) | MG/KG | 6 / 9 | 4.2 - 8.0 | 3.70 - 11.4 | 7.15 | 4700 | | | |
| Toluene | UG/KG | 2 / 9 | 6.0 - 7.0 | 1.00 - 2.00 | 1.50 | 160000 N | | | |
| Vanadium (V) | MG/KG | 9 / 9 | | 12.8 - 33.5 | 20.0 | 55 N | | | |
| Zinc (Zn) | MG/KG | 9 / 9 | | 29.4 - 270 | 121 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 597**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[s] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum (Al) | MG/KG | 4 / 4 | | 1600 - 4150 | 2830 | 7800 N | | | |
| Antimony (Sb) | MG/KG | 4 / 4 | | 1.60 - 4.30 | 2.59 | 3.1 N | 1 | | |
| * Aroclor-1248 | UG/KG | 3 / 4 | 37 | 63.0 - 1600 | 648 | 83 | 2 | | |
| * Aroclor-1254 | UG/KG | 1 / 4 | 71 - 75 | 1600 | | 160 N | 1 | | |
| * Aroclor-1260 | UG/KG | 3 / 4 | 75 | 177 - 340 | 236 | 83 | 3 | | |
| Arsenic (As) | MG/KG | 4 / 4 | | 0.640 - 48.1 | 21.7 | 0.43 C | 7 | | |
| Barium (Ba) | MG/KG | 4 / 4 | | 6.30 - 35.6 | 27.8 | 550 N | | | |
| Beryllium (Be) | MG/KG | 4 / 4 | | 0.110 - 0.470 | 0.291 | 0.15 C | 3 | | |
| Cadmium (Cd) | MG/KG | 4 / 4 | | 0.140 - 0.950 | 0.486 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 4 / 4 | | 652 - 7470 | 4440 | | | | |
| Chromium (Cr) | MG/KG | 4 / 4 | | 4.50 - 20.3 | 15.0 | 39 | | | |
| Cobalt (Co) | MG/KG | 4 / 4 | | 0.390 - 7.50 | 3.15 | 470 N | | | |
| Copper (Cu) | MG/KG | 4 / 4 | | 7.60 - 151 | 60.6 | 310 N | | | |
| * Dioxin (TCDD TEQ) | PG/G | 1 / 1 | | 5.46 | | 4.3 | 1 | | |
| 1234678-HpCDD | NG/KG | 1 / 1 | | 93.3 | | | | | |
| 1234678-HpCDF | NG/KG | 1 / 1 | | 38.5 | | | | | |
| 123678-HxCDD | NG/KG | 1 / 1 | | 3.46 | | | | | |
| 123678-HxCDF | NG/KG | 1 / 1 | | 8.81 | | | | | |
| 234678-HxCDF | NG/KG | 1 / 1 | | 1.54 | | | | | |
| OCDD | NG/KG | 1 / 1 | | 872 | | | | | |
| OCDF | NG/KG | 1 / 1 | | 117 | | | | | |
| 23478-PeCDF | NG/KG | 1 / 1 | | 1.66 | | | | | |
| 2378-TCDF | NG/KG | 1 / 1 | | 9.42 | | | | | |
| Iron (Fe) | MG/KG | 4 / 4 | | 2060 - 11200 | 6980 | 2300 N | 3 | | |
| Lead (Pb) | MG/KG | 4 / 4 | | 38.8 - 230 | 126 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 4 / 4 | | 73.0 - 628 | 372 | | | | |
| Manganese (Mn) | MG/KG | 4 / 4 | | 6.90 - 60.1 | 44.2 | 39 N | 3 | | |
| Mercury (Hg) | MG/KG | 4 / 4 | | 0.0200 - 1.00 | 0.358 | 2.3 N | | | |
| Nickel (Ni) | MG/KG | 4 / 4 | | 1.50 - 11.1 | 8.00 | 160 N | | | |
| pH | SU | 4 / 4 | | 7.63 - 8.39 | 8.05 | | | | |
| Potassium (K) | MG/KG | 1 / 4 | 250 - 770 | 593 | | | | | |
| Selenium (Se) | MG/KG | 2 / 4 | 0.54 - 0.55 | 0.780 - 0.780 | 0.780 | 39 N | | | |
| Sodium (Na) | MG/KG | 1 / 4 | 35 - 72 | 148 | | | | | |
| Tin (Sn) | MG/KG | 4 / 4 | | 3.10 - 13.8 | 7.89 | 4700 | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 597**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Vanadium (V) | MG/KG | 4 / 4 | | 3.30 - 17.5 | 11.4 | 55 N | | | |
| Zinc (Zn) | MG/KG | 4 / 4 | | 56.3 - 499 | 237 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 598**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[s] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | UG/KG | 3 / 4 | 360 | 840 - 1700 | 1280 | 470000 N | | | |
| Acenaphthylene | UG/KG | 1 / 4 | 360 - 2000 | 82.0 | | 470000 e | | | |
| Acetone | UG/KG | 1 / 4 | 30 - 81 | 29.0 | | 780000 N | | | |
| Aldrin | UG/KG | 1 / 4 | 1.6 - 1.6 | 2.91 | | 38 c | | | |
| Aluminum (Al) | MG/KG | 4 / 4 | | 2020 - 6400 | 4470 | 7800 N | | | |
| Anthracene | UG/KG | 4 / 4 | | 67.0 - 6900 | 1950 | 230000 N | | | |
| Antimony (Sb) | MG/KG | 3 / 4 | 0.47 | 0.780 - 4.90 | 2.49 | 3.1 N | 1 | | |
| Arsenic (As) | MG/KG | 4 / 4 | | 7.40 - 13.5 | 11.0 | 2.3 N | 8 | | |
| delta-BHC | UG/KG | 1 / 4 | 1.4 - 1.6 | 6.27 | | 490 i | | | |
| gamma-BHC (Lindane) | UG/KG | 1 / 4 | 1.6 - 1.6 | 2.39 | | 490 c | | | |
| Barium (Ba) | MG/KG | 4 / 4 | | 32.9 - 46.6 | 38.3 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 4 / 4 | | 280 - 1700 | 640 | 310000 r | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 4 / 4 | | 591 - 7100 | 2260 | 88 | 4 | | |
| * Benzo(a)anthracene | UG/KG | 4 / 4 | | 190 - 9200 | 2550 | 880 c | 1 | | |
| Benzo(b)fluoranthene | UG/KG | 3 / 4 | 2000 | 440 - 460 | 453 | 880 c | | | |
| Chrysene | UG/KG | 4 / 4 | | 450 - 13000 | 3620 | 88000 c | | | |
| * Dibenz(a,h)anthracene | UG/KG | 4 / 4 | | 130 - 1000 | 363 | 88 c | 4 | | |
| * Indeno(1,2,3-cd)pyrene | UG/KG | 4 / 4 | | 240 - 1800 | 660 | 880 c | 1 | | |
| Benzo(k)fluoranthene | UG/KG | 4 / 4 | | 230 - 8200 | 2280 | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 4 / 4 | | 360 - 4900 | 1520 | 88 c | 4 | | |
| Benzoic acid | UG/KG | 2 / 4 | 1800 - 9500 | 120 - 250 | 185 | 310000 N | | | |
| Beryllium (Be) | MG/KG | 4 / 4 | | 0.320 - 0.780 | 0.458 | 0.15 c | 4 | | |
| 4-Bromophenyl-phenylether | UG/KG | 1 / 4 | 360 - 2000 | 99.0 | | 450000 N | | | |
| Butylbenzylphthalate | UG/KG | 1 / 4 | 360 - 2000 | 98.0 | | 160000 N | | | |
| Cadmium (Cd) | MG/KG | 4 / 4 | | 0.370 - 0.570 | 0.460 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 4 / 4 | | 11800 - 49600 | 32000 | | | | |
| alpha-Chlordane | UG/KG | 1 / 4 | 1.6 - 1.6 | 7.99 | | 470 | | | |
| gamma-Chlordane | UG/KG | 1 / 4 | 1.6 - 1.6 | 3.80 | | 470 | | | |
| Chromium (Cr) | MG/KG | 4 / 4 | | 15.1 - 24.7 | 18.4 | 39 | | | |
| Cobalt (Co) | MG/KG | 4 / 4 | | 2.10 - 3.30 | 2.63 | 470 N | | | |
| Copper (Cu) | MG/KG | 4 / 4 | | 19.6 - 85.6 | 47.7 | 310 N | | | |
| 4,4'-DDD | UG/KG | 1 / 4 | 3.0 - 3.1 | 132 | | 2700 c | | | |
| 4,4'-DDE | UG/KG | 1 / 4 | 3.0 - 3.1 | 59.6 | | 1900 c | | | |
| 4,4'-DDT | UG/KG | 1 / 4 | 3.0 - 3.1 | 21.6 | | 1900 c | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 598**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Dibenzofuran | UG/KG | 3 / 4 | 360 | 320 - 740 | 460 | 31000 N | | | |
| Di-n-butylphthalate | UG/KG | 1 / 4 | 360 - 2000 | 190 | | 780000 N | | | |
| Diethylphthalate | UG/KG | 3 / 4 | 360 | 100 - 250 | 153 | 630000 N | | | |
| Di-n-octyl phthalate | UG/KG | 1 / 4 | 360 - 2000 | 85.0 | | 160000 N | | | |
| Endosulfan II | UG/KG | 1 / 4 | 3.0 - 3.1 | 10.9 | | 47000 | | | |
| Endrin aldehyde | UG/KG | 1 / 4 | 3.0 - 3.1 | 13.8 | | 2300 h | | | |
| Fluoranthene | UG/KG | 4 / 4 | | 320 - 21000 | 6180 | 310000 N | | | |
| Fluorene | UG/KG | 3 / 4 | 360 | 270 - 1700 | 767 | 310000 N | | | |
| Heptachlor epoxide | UG/KG | 1 / 4 | 1.6 - 1.6 | 6.20 | | 70 c | | | |
| Iron (Fe) | MG/KG | 4 / 4 | | 5320 - 10200 | 8250 | 2300 N | 4 | | |
| Lead (Pb) | MG/KG | 4 / 4 | | 60.3 - 229 | 157 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 4 / 4 | | 404 - 2460 | 1510 | | | | |
| Manganese (Mn) | MG/KG | 4 / 4 | | 48.4 - 86.9 | 76.1 | 39 N | 4 | | |
| Mercury (Hg) | MG/KG | 4 / 4 | | 0.0400 - 0.0700 | 0.0500 | 2.3 N | | | |
| Methoxychlor | UG/KG | 1 / 4 | 16 - 16 | 24.9 | | 39000 N | | | |
| 2-Methylnaphthalene | UG/KG | 2 / 4 | 360 - 2000 | 120 - 150 | 135 | 310000 n | | | |
| Methylene chloride | UG/KG | 1 / 4 | 12 - 25 | 4.00 | | 85000 c | | | |
| Naphthalene | UG/KG | 2 / 4 | 360 - 2000 | 320 - 1300 | 810 | 310000 N | | | |
| Nickel (Ni) | MG/KG | 4 / 4 | | 7.50 - 13.7 | 11.0 | 160 N | | | |
| N-Nitrosodiphenylamine | UG/KG | 1 / 4 | 360 - 2000 | 240 | | 130000 c | | | |
| Phenanthrene | UG/KG | 4 / 4 | | 230 - 15000 | 4580 | 310000 k | | | |
| Potassium (K) | MG/KG | 4 / 4 | | 687 - 1540 | 1070 | | | | |
| Pyrene | UG/KG | 4 / 4 | | 350 - 21000 | 6060 | 230000 N | | | |
| Selenium (Se) | MG/KG | 2 / 4 | 0.55 - 0.59 | 0.790 - 0.980 | 0.885 | 39 N | | | |
| Sodium (Na) | MG/KG | 4 / 4 | | 292 - 932 | 548 | | | | |
| Tin (Sn) | MG/KG | 4 / 4 | | 2.90 - 7.30 | 5.45 | 4700 | | | |
| Vanadium (V) | MG/KG | 4 / 4 | | 8.80 - 20.3 | 15.3 | 55 N | | | |
| Zinc (Zn) | MG/KG | 4 / 4 | | 138 - 312 | 249 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 599**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[s] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Cyanide | MG/KG | 1 / 5 | 0.23 - 0.26 | 0.450 | | | | | |
| Acenaphthene | UG/KG | 2 / 5 | 770 - 890 | 93.0 - 160 | 127 | 470000 N | | | |
| Acetone | UG/KG | 2 / 5 | 60 - 72 | 50.0 - 60.0 | 55.0 | 780000 N | | | |
| Aluminum (Al) | MG/KG | 5 / 5 | | 3760 - 7560 | 5810 | 7800 N | | | |
| Anthracene | UG/KG | 1 / 5 | 770 - 890 | 120 | | 230000 N | | | |
| Antimony (Sb) | MG/KG | 4 / 5 | 0.46 | 0.620 - 1.20 | 0.803 | 3.1 N | | | |
| Arsenic (As) | MG/KG | 5 / 5 | | 5.20 - 12.1 | 9.86 | 2.3 N | 10 | | |
| Barium (Ba) | MG/KG | 5 / 5 | | 15.8 - 51.8 | 32.7 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 5 / 5 | | 92.0 - 400 | 244 | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 5 / 5 | | 20.3 - 1020 | 431 | 88 | 4 | | |
| Benzo(a)anthracene | UG/KG | 4 / 5 | 890 | 130 - 870 | 385 | 880 c | | | |
| Benzo(b)fluoranthene | UG/KG | 5 / 5 | | 93.0 - 760 | 337 | 880 c | | | |
| Chrysene | UG/KG | 4 / 5 | 890 | 160 - 1000 | 485 | 88000 c | | | |
| * Dibenz(a,h)anthracene | UG/KG | 3 / 5 | 800 - 890 | 130 - 230 | 170 | 88 c | 3 | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 4 / 5 | 800 | 110 - 390 | 238 | 880 c | | | |
| Benzo(k)fluoranthene | UG/KG | 3 / 5 | 800 - 890 | 180 - 440 | 273 | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 4 / 5 | 890 | 89.0 - 580 | 305 | 88 c | 4 | | |
| Benzoic acid | UG/KG | 3 / 5 | 3700 - 4300 | 130 - 160 | 147 | 310000 N | | | |
| Beryllium (Be) | MG/KG | 5 / 5 | | 0.200 - 0.470 | 0.360 | 0.15 c | 5 | | |
| Cadmium (Cd) | MG/KG | 2 / 5 | 0.11 - 0.13 | 0.220 - 0.810 | 0.515 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 5 / 5 | | 4920 - 108000 | 32900 | | | | |
| Chromium (Cr) | MG/KG | 5 / 5 | | 8.60 - 26.1 | 15.2 | 39 | | | |
| Cobalt (Co) | MG/KG | 5 / 5 | | 1.20 - 2.40 | 1.74 | 470 N | | | |
| Copper (Cu) | MG/KG | 5 / 5 | | 8.40 - 68.0 | 25.4 | 310 N | | | |
| 4,4'-DDE | UG/KG | 1 / 5 | 2.9 - 3.4 | 6.12 | | 1900 c | | | |
| Dibenzofuran | UG/KG | 1 / 5 | 770 - 890 | 85.0 | | 31000 N | | | |
| Fluoranthene | UG/KG | 4 / 5 | 890 | 240 - 3600 | 1210 | 310000 N | | | |
| Fluorene | UG/KG | 1 / 5 | 800 - 890 | 870 | | 310000 N | | | |
| Iron (Fe) | MG/KG | 5 / 5 | | 6990 - 13000 | 10100 | 2300 N | 5 | | |
| Lead (Pb) | MG/KG | 5 / 5 | | 27.5 - 423 | 150 | 400 j | 1 | | |
| Magnesium (Mg) | MG/KG | 5 / 5 | | 594 - 2930 | 1360 | | | | |
| Manganese (Mn) | MG/KG | 5 / 5 | | 29.0 - 121 | 67.7 | 39 N | 4 | | |
| Mercury (Hg) | MG/KG | 5 / 5 | | 0.0300 - 0.240 | 0.100 | 2.3 N | | | |
| Methoxychlor | UG/KG | 1 / 5 | 15 - 18 | 24.1 | | 39000 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 599**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| 2-Methylnaphthalene | UG/KG | 1 / 5 | 800 - 890 | 510 | | 310000 n | | | |
| Naphthalene | UG/KG | 1 / 5 | 800 - 890 | 320 | | 310000 N | | | |
| Nickel (Ni) | MG/KG | 5 / 5 | | 3.90 - 11.5 | 7.16 | 160 N | | | |
| Phenanthrene | UG/KG | 4 / 5 | 890 | 130 - 1900 | 580 | 310000 k | | | |
| Potassium (K) | MG/KG | 5 / 5 | | 920 - 1450 | 1160 | | | | |
| Pyrene | UG/KG | 5 / 5 | | 160 - 2500 | 852 | 230000 N | | | |
| Selenium (Se) | MG/KG | 1 / 5 | 0.57 - 0.64 | 0.970 | | 39 N | | | |
| Sodium (Na) | MG/KG | 5 / 5 | | 254 - 778 | 425 | | | | |
| Tin (Sn) | MG/KG | 5 / 5 | | 2.50 - 12.3 | 5.44 | 4700 | | | |
| Vanadium (V) | MG/KG | 5 / 5 | | 13.3 - 25.1 | 19.4 | 55 N | | | |
| Zinc (Zn) | MG/KG | 5 / 5 | | 36.0 - 354 | 115 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 602**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| * Aroclor-1254 | UG/KG | 1 / 4 | 78 - 82 | 190 | | 160 N | 1 | | |
| Dioxin (TCDD TEQ) | PG/G | 3 / 3 | | 0.156 - 0.538 | 0.373 | 4.3 | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 603**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[s] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum (Al) | MG/KG | 4 / 4 | | 1030 - 7840 | 4560 | 7800 N | 1 | | |
| Antimony (Sb) | MG/KG | 3 / 4 | 0.44 | 0.610 - 3.30 | 1.70 | 3.1 N | 1 | | |
| Arsenic (As) | MG/KG | 4 / 4 | | 0.610 - 6.70 | 3.50 | 2.3 N | 6 | | |
| Barium (Ba) | MG/KG | 4 / 4 | | 3.80 - 14.4 | 9.40 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 3 / 4 | 740 | 100 - 160 | 127 | 310000 f | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 3 / 4 | 1700 | 128 - 200 | 176 | 88 | 3 | | |
| Benzo(a)anthracene | UG/KG | 1 / 4 | 710 - 740 | 170 | | 880 c | | | |
| Benzo(b)fluoranthene | UG/KG | 1 / 4 | 740 - 810 | 82.0 | | 880 c | | | |
| Chrysene | UG/KG | 3 / 4 | 740 | 80.0 - 180 | 137 | 88000 c | | | |
| * Dibenz(a,h)anthracene | UG/KG | 2 / 4 | 740 - 810 | 100 - 120 | 110 | 88 c | 2 | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 2 / 4 | 710 - 740 | 99.0 - 110 | 105 | 880 c | | | |
| Benzo(k)fluoranthene | UG/KG | 2 / 4 | 710 - 740 | 110 - 240 | 175 | 8800 c | | | |
| * Benzo(a)pyrene | UG/KG | 2 / 4 | 710 - 740 | 88.0 - 170 | 129 | 88 c | 2 | | |
| Benzoic acid | UG/KG | 2 / 4 | 3600 - 4000 | 120 - 180 | 150 | 310000 N | | | |
| Beryllium (Be) | MG/KG | 2 / 4 | 0.11 - 0.11 | 0.150 - 0.160 | 0.155 | 0.15 c | 2 | | |
| Cadmium (Cd) | MG/KG | 1 / 4 | 0.11 - 0.11 | 0.160 | | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 4 / 4 | | 269 - 22600 | 11800 | | | | |
| alpha-Chlordane | UG/KG | 1 / 4 | 1.4 - 1.5 | 3.01 | | 470 | | | |
| Chloroform | UG/KG | 2 / 4 | 5.0 - 6.0 | 3.00 - 3.00 | 3.00 | 100000 c | | | |
| Chromium (Cr) | MG/KG | 4 / 4 | | 3.30 - 12.6 | 7.90 | 39 | | | |
| Cobalt (Co) | MG/KG | 4 / 4 | | 0.290 - 30.6 | 8.33 | 470 N | | | |
| Copper (Cu) | MG/KG | 4 / 4 | | 2.50 - 24.1 | 11.7 | 310 N | | | |
| 4,4'-DDT | UG/KG | 1 / 4 | 2.7 - 2.8 | 8.23 | | 1900 c | | | |
| Endrin aldchyde | UG/KG | 1 / 4 | 2.7 - 2.8 | 3.55 | | 2300 h | | | |
| Fluoranthene | UG/KG | 1 / 4 | 710 - 740 | 240 | | 310000 N | | | |
| Iron (Fe) | MG/KG | 4 / 4 | | 1360 - 9660 | 5530 | 2300 N | 2 | | |
| Lead (Pb) | MG/KG | 4 / 4 | | 3.40 - 34.1 | 16.6 | 400 j | | | |
| Magnesium (Mg) | MG/KG | 4 / 4 | | 58.2 - 527 | 324 | | | | |
| Manganese (Mn) | MG/KG | 4 / 4 | | 5.40 - 95.8 | 34.7 | 39 N | 1 | | |
| Mercury (Hg) | MG/KG | 1 / 4 | 0.020 - 0.020 | 0.0300 | | 2.3 N | | | |
| Methylene chloride | UG/KG | 2 / 4 | 5.0 - 6.0 | 19.0 - 19.0 | 19.0 | 85000 c | | | |
| Nickel (Ni) | MG/KG | 4 / 4 | | 2.60 - 13.2 | 5.78 | 160 N | | | |
| Phenanthrene | UG/KG | 1 / 4 | 710 - 740 | 130 | | 310000 k | | | |
| Potassium (K) | MG/KG | 2 / 4 | 120 - 610 | 651 - 724 | 688 | | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 603**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Pyrene | UG/KG | 2 / 4 | 740 - 740 | 120 - 230 | 175 | 230000 N | | | |
| Silver (Ag) | MG/KG | 1 / 4 | 0.22 - 0.23 | 0.280 | | 39 N | | | |
| Sodium (Na) | MG/KG | 4 / 4 | | 105 - 431 | 236 | | | | |
| Tin (Sn) | MG/KG | 3 / 4 | 2.2 | 2.70 - 2.90 | 2.77 | 4700 | | | |
| Vanadium (V) | MG/KG | 4 / 4 | | 2.20 - 16.1 | 9.50 | 55 N | | | |
| Zinc (Zn) | MG/KG | 4 / 4 | | 2.60 - 51.7 | 26.7 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 604**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[5] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline | MG/KG | 1 / 1 | | 3800 | | | | | |
| KEROSENE C9-C18 | MG/KG | 1 / 1 | | 1610 | | | | | |
| Acetone | UG/KG | 1 / 1 | | 62.0 | | 780000 N | | | |
| Chloroform | UG/KG | 1 / 1 | | 2.00 | | 100000 C | | | |
| Methylene chloride | UG/KG | 1 / 1 | | 2.00 | | 85000 C | | | |
| Xylene (Total) | UG/KG | 1 / 1 | | 4.00 | | 160000 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 605**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | UG/KG | 2 / 11 | 730 - 850 | 190 - 470 | 330 | 470000 N | | | |
| Acetone | UG/KG | 5 / 11 | 11 - 13 | 40.0 - 180 | 93.0 | 780000 N | | | |
| Aldrin | UG/KG | 1 / 11 | 1.4 - 1.7 | 1.78 | | 38 C | | | |
| Aluminum (Al) | MG/KG | 11 / 11 | | 85.1 - 15000 | 3450 | 7800 N | 1 | | |
| Anthracene | UG/KG | 3 / 11 | 730 - 850 | 160 - 1100 | 553 | 230000 N | | | |
| Antimony (Sb) | MG/KG | 11 / 11 | | 1.10 - 9.50 | 4.13 | 3.1 N | 5 | | |
| Arsenic (As) | MG/KG | 11 / 11 | | 1.10 - 18.6 | 6.15 | 0.43 C | 20 | | |
| Barium (Ba) | MG/KG | 11 / 11 | | 13.7 - 117 | 46.9 | 550 N | | | |
| Benzo(g,h,i)perylene | UG/KG | 7 / 11 | 730 - 850 | 57.0 - 2400 | 600 | 310000 F | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 10 / 11 | 1800 | 0.860 - 6200 | 945 | 88 | 8 | | |
| * Benzo(a)anthracene | UG/KG | 8 / 11 | 760 - 850 | 80.0 - 5700 | 919 | 880 C | 1 | | |
| * Benzo(b)fluoranthene | UG/KG | 5 / 11 | 730 - 780 | 100 - 4400 | 1170 | 880 C | 2 | | |
| Chrysene | UG/KG | 8 / 11 | 760 - 850 | 140 - 6900 | 1130 | 88000 C | | | |
| * Dibenz(a,h)anthracene | UG/KG | 3 / 11 | 460 - 850 | 290 - 860 | 483 | 88 C | 3 | | |
| * Indeno(1,2,3-cd)pyrene | UG/KG | 7 / 11 | 730 - 850 | 49.0 - 2900 | 638 | 880 C | 1 | | |
| Benzo(k)fluoranthene | UG/KG | 10 / 11 | 760 | 86.0 - 3400 | 600 | 8800 C | | | |
| * Benzo(a)pyrene | UG/KG | 8 / 11 | 760 - 850 | 100 - 4000 | 770 | 88 C | 8 | | |
| Beryllium (Be) | MG/KG | 10 / 11 | 0.13 | 0.310 - 3.70 | 1.08 | 0.15 C | 10 | | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 10 / 11 | 850 | 90.0 - 1600 | 473 | 46000 C | | | |
| 2-Butanone (MEK) | UG/KG | 1 / 11 | 11 - 13 | 30.0 | | 470000 N | | | |
| Cadmium (Cd) | MG/KG | 9 / 11 | 0.11 - 0.13 | 0.170 - 1.40 | 0.574 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 11 / 11 | | 246 - 124000 | 30300 | | | | |
| Carbazole | UG/KG | 1 / 4 | 750 - 850 | 88.0 | | 32000 C | | | |
| alpha-Chlordane | UG/KG | 2 / 11 | 1.4 - 1.7 | 3.80 - 5.70 | 4.75 | 470 | | | |
| gamma-Chlordane | UG/KG | 1 / 11 | 1.4 - 1.7 | 11.2 | | 470 | | | |
| Chloroform | UG/KG | 8 / 11 | 6.0 - 6.0 | 3.00 - 4.50 | 3.94 | 100000 C | | | |
| Chromium (Cr) | MG/KG | 11 / 11 | | 1.40 - 74.7 | 34.1 | 39 | 4 | | |
| Cobalt (Co) | MG/KG | 10 / 11 | 0.25 | 1.95 - 27.3 | 7.82 | 470 N | | | |
| Copper (Cu) | MG/KG | 11 / 11 | | 3.80 - 746 | 166 | 310 N | 1 | | |
| 4,4'-DDD | UG/KG | 4 / 11 | 2.8 - 3.0 | 4.59 - 9.76 | 6.00 | 2700 C | | | |
| 4,4'-DDE | UG/KG | 3 / 11 | 2.8 - 3.3 | 3.78 - 8.66 | 5.42 | 1900 C | | | |
| 4,4'-DDT | UG/KG | 7 / 11 | 2.9 - 3.2 | 4.56 - 11.4 | 7.31 | 1900 C | | | |
| Dibenzofuran | UG/KG | 3 / 11 | 730 - 850 | 79.0 - 120 | 99.0 | 31000 N | | | |
| Dieldrin | UG/KG | 1 / 11 | 2.8 - 3.3 | 5.01 | | 40 C | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: 605**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Di-n-octyl phthalate | UG/KG | 1 / 11 | 460 - 850 | 220 | | 160000 N | | | |
| Dioxin (TCDD TEQ) | PG/G | 1 / 1 | | 0.420 | | 4.3 | | | |
| Endosulfan II | UG/KG | 1 / 11 | 2.8 - 3.3 | 4.63 | | 47000 | | | |
| Endrin aldehyde | UG/KG | 4 / 11 | 2.8 - 3.3 | 3.60 - 18.2 | 12.0 | 2300 h | | | |
| Endrin ketone | UG/KG | 3 / 11 | 2.8 - 3.0 | 3.84 - 6.62 | 5.01 | 2300 h | | | |
| Fluoranthene | UG/KG | 9 / 11 | 780 - 850 | 82.0 - 8500 | 1370 | 310000 N | | | |
| Fluorene | UG/KG | 2 / 11 | 730 - 850 | 240 - 340 | 290 | 310000 N | | | |
| Heptachlor epoxide | UG/KG | 1 / 11 | 1.4 - 1.7 | 2.34 | | 70 C | | | |
| Iron (Fe) | MG/KG | 11 / 11 | | 482 - 20000 | 9490 | 2300 N | 10 | | |
| Lead (Pb) | MG/KG | 11 / 11 | | 66.6 - 1600 | 496 | 400 j | 4 | | |
| Magnesium (Mg) | MG/KG | 10 / 11 | 13 | 233 - 2240 | 874 | | | | |
| Manganese (Mn) | MG/KG | 11 / 11 | | 1.10 - 227 | 104 | 39 N | 9 | | |
| Mercury (Hg) | MG/KG | 10 / 11 | 0.020 | 0.0300 - 1.80 | 0.361 | 2.3 N | | | |
| 2-Methylnaphthalene | UG/KG | 1 / 11 | 730 - 870 | 47.0 | | 310000 n | | | |
| Methylene chloride | UG/KG | 8 / 11 | 6.0 - 6.0 | 6.00 - 12.0 | 9.13 | 85000 C | | | |
| Naphthalene | UG/KG | 3 / 11 | 730 - 850 | 90.0 - 270 | 153 | 310000 N | | | |
| Nickel (Ni) | MG/KG | 11 / 11 | | 0.770 - 245 | 46.2 | 160 N | 1 | | |
| Phenanthrene | UG/KG | 7 / 11 | 740 - 850 | 100 - 4400 | 867 | 310000 k | | | |
| Potassium (K) | MG/KG | 10 / 11 | 13 | 250 - 1770 | 673 | | | | |
| Pyrene | UG/KG | 9 / 11 | 780 - 850 | 78.0 - 9800 | 1430 | 230000 N | | | |
| Selenium (Se) | MG/KG | 3 / 11 | 0.55 - 0.63 | 0.690 - 0.850 | 0.767 | 39 N | | | |
| Silver (Ag) | MG/KG | 5 / 11 | 0.22 - 0.25 | 0.220 - 1.10 | 0.450 | 39 N | | | |
| Sodium (Na) | MG/KG | 10 / 11 | 38 | 82.7 - 738 | 247 | | | | |
| Tin (Sn) | MG/KG | 10 / 11 | 6.3 | 4.80 - 152 | 32.2 | 4700 | | | |
| Vanadium (V) | MG/KG | 11 / 11 | | 1.20 - 40.0 | 12.0 | 55 N | | | |
| Zinc (Zn) | MG/KG | 11 / 11 | | 5.30 - 2670 | 700 | 2300 N | 1 | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: GDE**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Cyanide | MG/KG | 3 / 15 | 0.21 - 0.27 | 0.290 - 0.500 | 0.363 | | | | |
| Acenaphthene | UG/KG | 4 / 25 | 350 - 4000 | 59.0 - 1500 | 495 | 470000 N | | | |
| Acetone | UG/KG | 15 / 25 | 11 - 290 | 12.0 - 4150 | 324 | 780000 N | | | |
| Aldrin | UG/KG | 1 / 25 | 1.4 - 2.2 | 2.80 | | 38 C | | | |
| Aluminum (Al) | MG/KG | 23 / 25 | 3500 - 4400 | 1920 - 19000 | 7650 | 7800 N | 9 | | |
| Anthracene | UG/KG | 6 / 25 | 350 - 4000 | 64.0 - 2100 | 442 | 230000 N | | | |
| Antimony (Sb) | MG/KG | 10 / 25 | 0.42 - 4.1 | 0.500 - 7.40 | 1.64 | 3.1 N | 1 | | |
| * Aroclor-1260 | UG/KG | 2 / 25 | 71 - 110 | 76.0 - 360 | 218 | 83 | 1 | | |
| Arsenic (As) | MG/KG | 23 / 25 | 0.58 - 0.60 | 1.30 - 67.5 | 11.1 | 2.3 N | 41 | | |
| Barium (Ba) | MG/KG | 23 / 25 | 55 - 76 | 5.70 - 1980 | 111 | 550 N | 1 | | |
| Benzo(g,h,i)perylene | UG/KG | 14 / 25 | 350 - 4000 | 82.0 - 1130 | 272 | 310000 F | | | |
| * Benzo(a)pyrene Equivalents | UG/KG | 15 / 25 | 810 - 9200 | 0.0640 - 3630 | 556 | 88 | 13 | | |
| * Benzo(a)anthracene | UG/KG | 11 / 25 | 350 - 4000 | 99.0 - 3150 | 586 | 880 C | 1 | | |
| * Benzo(b)fluoranthene | UG/KG | 10 / 25 | 350 - 4000 | 76.0 - 1500 | 395 | 880 C | 1 | | |
| Chrysene | UG/KG | 13 / 25 | 350 - 4000 | 64.0 - 3850 | 629 | 88000 C | | | |
| * Dibenz(a,h)anthracene | UG/KG | 6 / 25 | 350 - 4000 | 58.0 - 770 | 223 | 88 C | 4 | | |
| Indeno(1,2,3-cd)pyrene | UG/KG | 11 / 25 | 350 - 4000 | 50.0 - 825 | 251 | 880 C | | | |
| Benzo(k)fluoranthene | UG/KG | 11 / 25 | 350 - 4000 | 100 - 1130 | 445 | 8800 C | | | |
| * Benzo(a)pyrene | UG/KG | 13 / 25 | 350 - 4000 | 91.0 - 2300 | 434 | 88 C | 13 | | |
| Benzoic acid | UG/KG | 3 / 25 | 1700 - 19000 | 56.0 - 120 | 91.0 | 310000 N | | | |
| Beryllium (Be) | MG/KG | 21 / 25 | 0.11 - 0.12 | 0.140 - 1.60 | 0.574 | 0.15 C | 19 | | |
| bis(2-Ethylhexyl)phthalate | UG/KG | 16 / 25 | 350 - 4000 | 63.0 - 960 | 267 | 46000 C | | | |
| 2-Butanone (MEK) | UG/KG | 2 / 25 | 11 - 1300 | 10.0 - 17.0 | 13.5 | 470000 N | | | |
| Butylbenzylphthalate | UG/KG | 3 / 25 | 350 - 890 | 95.0 - 2200 | 832 | 160000 N | | | |
| Cadmium (Cd) | MG/KG | 11 / 25 | 0.10 - 0.44 | 0.230 - 1.50 | 0.760 | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 19 / 25 | 7500 - 48000 | 218 - 60500 | 13800 | | | | |
| Carbazole | UG/KG | 2 / 6 | 350 - 860 | 100 - 470 | 285 | 32000 C | | | |
| alpha-Chlordane | UG/KG | 2 / 25 | 1.4 - 2.2 | 4.90 - 5.40 | 5.15 | 470 | | | |
| gamma-Chlordane | UG/KG | 2 / 25 | 1.4 - 2.2 | 1.60 - 6.20 | 3.90 | 470 | | | |
| 4-Chloro-3-methylphenol | UG/KG | 1 / 25 | 350 - 4000 | 120 | | | | | |
| Chromium (Cr) | MG/KG | 25 / 25 | | 2.30 - 561 | 42.2 | 39 | 4 | | |
| Chromium (Hexavalent) | MG/KG | 1 / 6 | 0.053 - 0.069 | 0.0608 | | 39 N | | | |
| Cobalt (Co) | MG/KG | 25 / 25 | | 0.870 - 111 | 8.89 | 470 N | | | |
| Copper (Cu) | MG/KG | 25 / 25 | | 0.760 - 531 | 73.1 | 310 N | 2 | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: GDE**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| 4,4'-DDD | UG/KG | 3 / 25 | 2.6 - 4.2 | 9.50 - 30.0 | 18.2 | 2700 c | | | |
| 4,4'-DDE | UG/KG | 7 / 25 | 2.6 - 4.2 | 3.00 - 110 | 25.1 | 1900 c | | | |
| 4,4'-DDT | UG/KG | 6 / 25 | 2.6 - 4.2 | 3.00 - 79.0 | 19.8 | 1900 c | | | |
| Dibenzofuran | UG/KG | 2 / 25 | 350 - 4000 | 120 - 190 | 155 | 31000 N | | | |
| Di-n-butylphthalate | UG/KG | 2 / 25 | 350 - 4000 | 44.0 - 76.0 | 60.0 | 780000 N | | | |
| Dieldrin | UG/KG | 2 / 25 | 2.6 - 4.2 | 4.50 - 7.50 | 6.00 | 40 c | | | |
| Dioxin (TCDD TEQ) | PG/G | 6 / 6 | | 0.0066 - 0.799 | 0.329 | 4.3 | | | |
| Endrin | UG/KG | 1 / 25 | 2.6 - 4.2 | 38.0 | | 2300 N | | | |
| Endrin aldehyde | UG/KG | 1 / 25 | 2.6 - 4.2 | 3.20 | | 2300 h | | | |
| Endrin ketone | UG/KG | 1 / 25 | 2.6 - 4.2 | 16.0 | | 2300 h | | | |
| Fluoranthene | UG/KG | 16 / 25 | 350 - 4000 | 51.0 - 4350 | 681 | 310000 N | | | |
| Fluorene | UG/KG | 4 / 25 | 350 - 4000 | 39.0 - 1030 | 347 | 310000 N | | | |
| Heptachlor | UG/KG | 1 / 25 | 1.4 - 2.2 | 3.00 | | 140 c | | | |
| Iron (Fe) | MG/KG | 20 / 25 | 4000 - 25000 | 1090 - 30500 | 9590 | 2300 N | 17 | | |
| Lead (Pb) | MG/KG | 24 / 25 | 31 | 2.20 - 400 | 85.7 | 400 j | 1 | | |
| Magnesium (Mg) | MG/KG | 24 / 25 | 710 | 75.7 - 14200 | 1880 | | | | |
| Manganese (Mn) | MG/KG | 24 / 25 | 51 | 6.80 - 508 | 125 | 39 N | 19 | | |
| Mercury (Hg) | MG/KG | 14 / 25 | 0.020 - 2.7 | 0.0300 - 0.720 | 0.271 | 2.3 N | | | |
| 2-Methylnaphthalene | UG/KG | 1 / 25 | 350 - 4000 | 370 | | 310000 n | | | |
| Methylene chloride | UG/KG | 6 / 25 | 5.0 - 660 | 3.00 - 15.0 | 7.17 | 85000 c | | | |
| Naphthalene | UG/KG | 1 / 25 | 350 - 4000 | 120 | | 310000 N | | | |
| Nickel (Ni) | MG/KG | 25 / 25 | | 2.00 - 62.8 | 12.8 | 160 N | | | |
| 4-Nitrophenol | UG/KG | 1 / 25 | 1700 - 19000 | 110 | | 480000 N | | | |
| Pentachlorophenol | UG/KG | 1 / 25 | 1700 - 19000 | 120 | | 5300 c | | | |
| pH | SU | 1 / 1 | | 8.37 | | | | | |
| Phenanthrene | UG/KG | 11 / 25 | 350 - 4000 | 38.0 - 8000 | 939 | 310000 k | | | |
| Potassium (K) | MG/KG | 22 / 25 | 500 - 990 | 214 - 2130 | 886 | | | | |
| Pyrene | UG/KG | 17 / 25 | 350 - 4000 | 50.0 - 6600 | 765 | 230000 N | | | |
| Selenium (Se) | MG/KG | 10 / 25 | 0.52 - 0.75 | 0.570 - 1.70 | 0.973 | 39 N | | | |
| Silver (Ag) | MG/KG | 2 / 25 | 0.21 - 0.31 | 0.750 - 0.910 | 0.830 | 39 N | | | |
| Sodium (Na) | MG/KG | 24 / 25 | 45 | 11.9 - 438 | 198 | | | | |
| * Thallium (Tl) | MG/KG | 4 / 25 | 0.52 - 0.68 | 0.620 - 2.80 | 1.57 | 0.63 | 3 | | |
| Tin (Sn) | MG/KG | 21 / 25 | 2.3 - 11 | 1.90 - 44.7 | 9.79 | 4700 | | | |
| Toluene | UG/KG | 1 / 25 | 5.0 - 660 | 2.00 | | 160000 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: GDE**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | UG/KG | 1 / 25 | 5.0 - 660 | 3.00 | | 700000 N | | | |
| Vanadium (V) | MG/KG | 25 / 25 | | 2.50 - 60.1 | 17.3 | 55 N | 1 | | |
| Xylene (Total) | UG/KG | 2 / 25 | 5.0 - 660 | 1.00 - 2.00 | 1.50 | 160000 N | | | |
| Zinc (Zn) | MG/KG | 23 / 25 | 28 - 48 | 3.90 - 855 | 189 | 2300 N | | | |

**Zone E Unvalidated Data - Do Not Cite**
**Site: S21**
**Surface Soil**

| Parameter | Units | Frequency of Detection | Range of Nondetected Upper Bounds | Range of Detected Concentrations | Average Detected Conc. | Screening[S] Conc. | Num. Over Screen | Reference Conc. | Num. Over Ref. |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum (Al) | MG/KG | 2 / 2 | | 2100 - 5100 | 3600 | 7800 N | | | |
| Barium (Ba) | MG/KG | 2 / 2 | | 33.0 - 82.0 | 57.5 | 550 N | | | |
| Beryllium (Be) | MG/KG | 1 / 2 | 0.56 | 2.80 | | 0.15 C | 1 | | |
| Cadmium (Cd) | MG/KG | 1 / 2 | 0.56 | 1.80 | | 3.9 N | | | |
| Calcium (Ca) | MG/KG | 2 / 2 | | 6400 - 6800 | 6600 | | | | |
| Chromium (Cr) | MG/KG | 2 / 2 | | 30.0 - 70.0 | 50.0 | 39 | 1 | | |
| Cobalt (Co) | MG/KG | 2 / 2 | | 5.50 - 15.0 | 10.3 | 470 N | | | |
| Iron (Fe) | MG/KG | 2 / 2 | | 7900 - 27000 | 17500 | 2300 N | 2 | | |
| Magnesium (Mg) | MG/KG | 2 / 2 | | 1200 - 7100 | 4150 | | | | |
| Manganese (Mn) | MG/KG | 2 / 2 | | 62.0 - 240 | 151 | 39 N | 2 | | |
| Nickel (Ni) | MG/KG | 2 / 2 | | 81.0 - 85.0 | 83.0 | 160 N | | | |
| Potassium (K) | MG/KG | 2 / 2 | | 280 - 620 | 450 | | | | |
| Silver (Ag) | MG/KG | 1 / 2 | 1.1 | 2.40 | | 39 N | | | |
| Sodium (Na) | MG/KG | 2 / 2 | | 99.0 - 380 | 240 | | | | |
| Vanadium (V) | MG/KG | 2 / 2 | | 5.10 - 12.0 | 8.55 | 55 N | | | |

# EnSafe / Allen & Hoshall

a joint venture for professional services

*Program Management Office*
Shelby Oaks Plaza
5909 Shelby Oaks Dr.
Suite 201
Memphis, TN 38134
Phone (901) 383-9115
Fax (901) 383-1743

*EnSafe/Allen & Hoshall Branch Offices:*

**Charleston**
935 Houston Northcutt Blvd.
Suite 113
Mt. Pleasant, SC 29464
Phone (803) 884-0029
Fax (803) 856-0107

**Cincinnati**
400 TechneCenter Dr.
Suite 301
Milford, OH 45150
Phone (513) 248-8449
Fax 248-8447

**Pensaeola**
2114 Airport Blvd.
Suite 1150
Pensacola, FL 32504
Phone (904) 479-4595
Fax (904) 479-9120

**Norfolk**
803 Butler Farm Road
Suite 113
Hampton, VA 23666
Phone (804) 766-9556
Fax (804) 766-9558

**Raleigh**
5540 Centerview Drive
Suite 205
Raleigh, NC 27606
Phone (919) 851-1886
Fax (919) 851-4043

**Nashville**
11 Plus Park Blvd.
Suite 130
Nashville, TN 37217
Phone (615) 399-8800
Fax (615) 399-7467

**Dallas**
545 Butler Drive
Suite
Irving, TX 75038
Phone (214) 791-3222
Fax (214) 791-0405

February 28, 1996

Commander, Naval Base
Base Closure Office (Daryle Fontenot)
1690 Turnbull Ave.
Suite NH51
Charleston, SC 29405

Subject: Restoration Advisory Board Meeting Minutes (2/13/96)
CLEAN Contract# N62467-89-D-0318 CTO# 2900

Dear Mr. Fontenot:

Please find enclosed a copy of the February 13, 1996 Restoration Advisory Board Meeting Minutes with all applicable attachments. Also enclosed is a diskette version with the file saved in both WordPerfect 5.1 and 6.0.

If you have any questions regarding the minutes, feel free to call me at (919) 851-1886.

Sincerely,

EnSafe/Allen&Hoshall
By:

Diane Cutler

Diane Cutler

enclosures (1)

cc: Todd Haverkost
Contracts File

COMMANDER, NAVAL BASE CHARLESTON
RESTORATION ADVISORY BOARD (RAB)
Minutes of 13 February 1996

1. Call to Order

Admiral Watkins welcomed the RAB members and guests and thanked everyone for coming to the meeting. He commented that he finds himself learning more than he ever thought he would about the requirements and the procedures of transferring property to the community in a safe and responsible manner. He extended special recognition for the community members who devote their personal time to this effort. Admiral Watkins turned the meeting over to Daryle Fontenot, Navy co-chair of the RAB.

2. RAB Members Attending

| | |
|---|---|
| Captain Jim Augustin | Mr. Don Harbert |
| Mr. Oliver Addison | Mr. Virgil Johnston |
| Mr. Doyle Brittain | Mr. Ralph Laney |
| LCDR Nick Cimorrelli | Mr. Robert Mikell |
| Mr. James Conner | Mr. Louis Mintz |
| Mrs. Susan Floyd | Mr. Arthur Pinckney |
| Mr. Daryle Fontenot | Ms. Ann Ragan |
| Mr. Wilburn Gilliard | Ms. Jane Settle |
| | Mr. Bob Veronee |

3. Guests Attending

| | |
|---|---|
| RADM Edison L. Watkins | Commander Naval Base |
| Mr. Tony Hunt | SOUTHNAVFAC |
| Mr. Jim Beltz | SOUTHNAVFAC |
| Mr. Joe McCauley | SOUTHNAVFAC |
| J.V. Berotti | SOUTHNAVFAC |
| Ms. Pat Franklin | SOUTHNAVFAC |
| Mr. Tony Danesi | NAVFAC HQ |
| C. Maurer | NAVFAC HQ |
| G. Breland | NAVFAC HQ |
| Mr. Jim Moore | DOD Base Transition Coordinator |
| CAPT W.F. Nold | CNSY |
| Mr. Tom Gerken | CNSY |
| T.G. Willis | CNSY |
| J.B. Lawrence | CSNY |
| T.N. Dailey | CSNY |
| D.R. Morse | CSNY |
| Mr. William Belli | CSNY |
| Mr. Ted Simon | EPA |
| Mr. Joe Bowers | SCDHEC |
| Ms. Jeannie Olano | SCDHEC |
| Mr. Johnny Tapia | SCDHEC |
| Ms. Susan Dunn | Grassroots Coalition |
| Ms. Gussie Greene | CAC |

| | |
|---|---|
| Thomas B. Long, Sr. | CAC |
| Mrs. June M. Brittain | Concerned Citizen |
| Ms. Ginny Dearhart | Concerned Citizen |
| Mr. Richard S. Hawkins | Concerned Citizen |
| Ms. Ginny Gray | EnSafe/Allen&Hoshall |
| Ms. Diane Cutler | EnSafe/Allen&Hoshall |
| Mr. Mark Bowers | EnSafe/Allen&Hoshall |
| Mr. Dave Backus | EnSafe/Allen&Hoshall |
| Dr. Jim Speakman | EnSafe/Allen&Hoshall |
| Mr. Todd Haverkost | EnSafe/Allen&Hoshall |
| Mr. Bob Maddux | EnSafe/Allen&Hoshall |
| Mr. Britton Dotson | EnSafe/Allen&Hoshall |

4. Administrative Remarks and Comments on Minutes

Daryle Fontenot welcomed everyone to the meeting and thanked them for coming out. He asked that all RAB members stand up to be recognized by the audience. He also introduced special guests: Ted Simon, EPA; and Cliff Maurer, Mr. Breland, and Tony Danesi, from NAVFAC HQ in Washington, D.C. Mr. Fontenot asked for comments on last month's meeting minutes. Mr Lou Mintz stated that although he was not present at the last meeting, he heard that Mr. Hunt reported that there was a reduction in scheduled testing of approximately $4 million, and that statement was not in the minutes. Mr. Fontenot responded that he'll check into that after the meeting. There were no other comments on the minutes.

5. Subcommittee Reports

Mr. Fontenot, as head of the Community Relations Subcommittee, reported that the subcommittee has not been meeting during the months with daytime RAB meetings. He informed the subcommittee members that the next meeting will be on March 12 at 3:30 at the Base Closure Office at the Naval Base.

Ann Ragan reported that she was trying to get the reuse subcommittee together before this meeting. The designated representative from the RDA was unable to make it to the RAB meeting, but pulled some information together and is interested in any input the RAB members have. Mrs. Susan Floyd stated that it takes a lot of time for her to prepare and attend the RAB meetings, and to have to take extra time to make a special effort to talk to the RDA about what they're doing for the community concerns her. If a member of the RDA makes a commitment to be at the RAB meeting, then they should be there. Mr. Jim Moore pointed out that Mr. Virgil Johnston of the RDA regularly attends the RAB meetings. Admiral Watkins added that the RDA does not work for the Navy and that the Navy can't force the RDA to meet with the community on their terms. Susan Floyd reiterated that the RDA does not include the RAB in their decisions and activities.

**Mr. Arthur Pinckney reported that he met with Ralph Laney. He said the shipyard is working in the right direction by trying to keep people working while cleaning up. Mr. Pinckney's question is why can't we use current workers rather than hire subcontractors to do the work?**

**A discussion ensued between Mr. Pinckney, Mr. Johnston, and others in the audience about the role of the RDA vs. the assignment of the shipyard detachment personnel.**

**Admiral Watkins explained that in order for the Navy to move into the future, they need to transfer property into regional reuse. An RDA is established by the State that the Navy is supposed to transpose to. The Navy has programmed the end of all its Navy billets at this point, and no longer wants to support the overhead to administer, mange, and support all functions associated with a viable operation. The Navy's military and civilian support has been cut as of April 1, 1996. The Navy is currently in a transition period to transfer leadership to the RDA. The caretaker function left behind is not meant to manage anything but unoccupied buildings until the property can be transferred to the RDA. The Navy has now matured to the stage in this process where the RDA assumes responsibility for the operation of the base.**

**Mr. Pinckney asked why can't Navy workers instead of subcontractors manage the base? Admiral Watkins answered that the Navy doesn't have civilian billets to do that. The Navy does have an environmental detachment that can remain for up to 3 years to do the environmental remediation. This detachment however, can only do Navy work, and doesn't play a role in the management of the facility after closure.**

**Mr. Pinckney stated that he thought the immediate priority of the Navy is to retrain and maintain workers. The Admiral clarified that he can not retain anyone, that he has orders to close as of April 1, 1996. It is true, however, that they are trying to retrain everyone they can, and have spent $15 million on a training program for this purpose.**

**Virgil Johnston explained that the RDA only has about 6 to 8 inspectors that go out maybe once a month, and are not hired on a full-time basis. The RDA couldn't maintain a large group of workers.**

**There are approximately 160 billets for environmental remediation. Can this work force be used for work such as demolishing buildings rather than having the RDA hire subcontractors?**

**Daryle Fontenot stated that these issues would be better addressed between the shipyard detachment and the RDA, and continued by reviewing the three subcommittees previously being discussed: the Community Relations Subcommittee, the Reuse Subcommittee, and the Shipyard Detachment Subcommittee.**

**Ann Ragan suggested since the RDA is not present to represent their point that they send a letter to the RAB members explaining their position.**

The Admiral explained that the RDA is here to help the Navy. The RDA is a state entity that represents the community. Susan Floyd informed the Admiral that the Charleston RAB is a well informed group, and what they want is for decision-makers to come and participate in the RAB meetings, specifically the Admiral, the Mayor, and the RDA. Yet the RDA (with the exception of Jerri Johnston and Virgil Johnston, who are primarily mouthpieces for the RDA) have never attended. The Admiral stated that he has no authority over the RDA, and that he has a responsibility to support both groups. The best he can do is ask the RDA to be accommodating to the RAB's requests.

6. RDA Update

Virgil Johnston provided an update on the progress of the RDA. Currently there are 16 tenants and 250 structures totalling over 5000 square feet. Government tenants such as the Coast Guard don't help pay for road repairs, sewage, and the like. Approximately 85% of the property is covered, but not many leases have been issued. Three leases in the CIA area involve about 60 or 70 structures. The RDA is about where they planned to be at this time. They hoped to have about 2000 jobs in the area by April, and 7000 jobs after a 5 year period. Mr. Johnston added that he's been coming to these meetings since last April and he doesn't know of an instance where someone has asked him a question he hasn't provided an answer to, and he'd be happy to take any questions.

Mr. Pinckney asked what kinds of jobs at what salary are expected. Mr. Johnston said that exact information is not available, but he expects that many of the jobs will be in ship repair in the range of $13 to $17 per hour.

LCDR Nick Cimorrelli asked if asbestos concerns must be addressed before transferring shipyard property to another federal facility. The RDA can't answer that question, but Ann Ragan stated that it is a decision that can be made between the agencies.

7. Environmental Cleanup Progress Report

Tony Hunt presented a brief progress report. During the last several months, the Navy took another look at their costs. They looked at two things, utilizing funds more efficiently, and projected costs. By doing that, they found that funds were used more efficiently (through analytical cost savings, and fewer samples taken than estimated), and further cost savings could be made by utilizing screening methods in future zone work. Based on these findings, it is the Navy's best estimate that there is not a $4.5 million deficit, as previously thought, and that the money they have right now should be sufficient for activities scheduled this year.

As far as progress in January, a lot of progress was made in Zones C and I. Zones C and I Draft RFI reports were submitted to the regulators, and hopefully a visual presentation can be given in the near future regarding the results. The second quarter of groundwater sampling was completed in Zones C and I, and the Work Plan has been revised to add a couple of sites. One site was found late in the RFA process and will be sampled and reported as an addendum to the report. Susan Floyd asked for an elaboration of the

additional sites. One site was the Pesticide Shop or Golf Course. Initially, the location of stored chemicals was unknown, but was discovered later. This evaluation of new sites is a continual process that will continue through the investigation. The other site was a wash area. The Navy is interested in such areas because waste oils could potentially wash into the drain system.

Lou Mintz asked when Zones J, K and L will be on line. Mr. Hunt answered that Zone J and L Work Plans are still in review. Once they've been approved, field work can begin. Preparation of Zone K Work Plan began in January, and a best guess for beginning field work is this summer.

Projected activity for February includes beginning quarterly groundwater sampling in Zone E, and continuation of work on Interim Measures Work Plans.

James Conner asked what the total expenditures is so far for sampling and investigations, and how much has been spent for cleanup. Mr. Hunt responded that approximately $9 million has been spent on investigations, and $0.00 has been spent on cleanup. This, however, is according to plans.

Lou Mintz asked how much outstanding lab work is required in Zone H. Mr. Hunt responded that only groundwater monitoring is left and testing for two unexploded ordnance sites is outstanding.

Mr. Conner was under the impression that the Navy knew where the UXO sites were and had made a decision to leave them alone because they've been there for 50 years and didn't create any problems. Now the Navy is talking about removing them, why is this? Mr. Hunt explained that during the Navy's ownership of the base, the UXOs didn't present a problem because they were in an area that wasn't being used. Now, they have to try to locate them, and if that's not possible, implement institutional controls to address them. The UXOs could potentially cause a health and safety issue if construction were to take place in the vicinity. Doyle Brittain added that in the reuse plan they're talking about dredging around the piers and driving pilings in the water and on dry land in the vicinity of the UXOs. The Navy can't take the chance of one of the UXOs exploding during such activities.

Someone from the audience asked where the results of the testing can be found. Mr. Brittain announced that the Zone H, Zone C, and Zone I reports contain the results and are in the Information Repository at the Dorchester Road Regional Library, and that he strongly encourages everyone to visit the library, review the reports, and provide any comments.

8. <u>Zone H RCRA Facility Investigation Report Findings</u>

Daryle Fontenot introduced Dr. Speakman of EnSafe/Allen&Hoshall who will be presenting the findings of the Zone H RCRA Facility Investigation Report.

**Due to the length and technical detail of this presentation, only a brief transcription follows. A complete package of detailed handouts is provided as an attachment to the minutes.**

**Dr. Speakman announced that the results of the investigation can be found in the Zone H RCRA Facility Assessment Report, a six volume report that can be found in the Dorchester Road Regional Library, and encouraged everyone to visit the library and review the report.**

**Dr. Speakman proceeded to introduce the other speakers who will be helping him present the information: Britton Dotson, senior professional who managed and directed field work, and one of the major authors of the report; Todd Haverkost, Task Order Manager for Zone H who also oversees all the investigative work of the Naval Base; and Mark Bowers who led the risk assessment.**

**The results will be presented in the following order:**
**Background of Zone H**
**Site Specific Results**
**Risk Assessment**
**Recommendations by EnSafe/Allen&Hoshall**
**Where We Go From Here**

**The Zone H report was delivered in July 1995, then underwent a thorough review by the regulators. The report was revised based on comments, and submitted in final form in December 1995. Currently, the final document is being reviewed by the regulators who estimate completion by April 1, 1996.**

**There are four main types of chemicals that have been found at Zone H: 1) Metals, 2) Pesticides/Herbicides/PCBs, 3) Semivolatile Organic Compounds, and 4) Volatile Organic Compounds. During investigation, 25 metals, 28 Pesticides/Herbicides/PCBs, 70 Semivolatile Organic Compounds, and 40 Volatile Organic Compounds were tested. Only 8 of the 25 metals, 5 of the 28 Pesticides/PCBs, 5 of the 70 Semivolatile, and 7 of the 40 Volatile Organic Compounds were found to be problematic.**

**Six groupings were designated for the purpose of this presentation - these groupings will not be found in the report, the report will present data on an individual Solid Waste Management Unit (SWMU) and Area of Concern (AOC) basis. Groupings are as follow and incorporate all SWMUs and AOCs in Zone H.**

**Grouping 1 - Landfill**
**Grouping 2 - Petroleum Sites**
**Grouping 3 - Chemical Disposal Area**
**Grouping 4 - Submarine Training Facility**
**Grouping 5 - Unexploded Ordnance (UXO)**
**Grouping 6 - Sites Recommended for No Further Action**

**Grouping 1: Consists of SWMUs 9, 19, 20, 121, and AOCs 649, 650, and 651. During the site slide show, a photograph was presented showing what appeared to be black gravel, but is actually some type of boiler clink or slag-type material that is deposited around the base. The significance of this substance is that it is associated with Benzo(a)pyrene, one contaminant whose presence was prevalent throughout the investigation of Zone H. As an example of the contaminants found at Grouping 1, the Primary Contributors to Risk/Hazard for SWMU 9 are: SOIL - Arsenic, Benzo(a)pyrene equivalents, Beryllium, Copper, and PCBs, WATER - Aluminum, Benzidine, Chloroform, Hexachlorobenzene, Manganese, Thallium, and Vinyl Chloride.**

**Grouping 2: Consists of the sites that were found through investigation to have petroleum constituents of some type, and include SWMUs 13, 136, 138, 159, and 178, and AOCs 653, 655, 656, 659, 663, 665, and 667. As an example of the contaminants found at Grouping 2, the Primary Contributors to Risk/Hazard for AOC 663/SWMU 136 are: SOIL- Aluminum, Arsenic, Benzo(a)pyrene equivalents, PCBs, and 4'4'-DDE, WATER - 2,3,7,8-TCDD.**

**Grouping 3: Grouping 3 is the Chemical Disposal Area and consists of SWMUs 14 and 15 and AOCs 670 and 684. Samples were collected as one grouping due to the proximity of the sites. The Primary Contributors to Risk/Hazard for SWMU 14 are: SOIL - Arsenic, Benzo(a)pyrene equivalents, and Beryllium, WATER - Aluminum, BEHP, 2,3,7,8-TCDD equivalents, and Heptachlor epoxide.**

**Grouping 4: Grouping 4 is the Submarine Training Facility and consists of SWMU 17. Primary Contributors to Risk/Hazard are: SOIL - Benzo(a)pyrene Equivalents and PCBs, WATER - Benzidine, Chlorobenzene, 1,4-Dichlorobenzene, and 1,2,4-Trichlorobenzene.**

**Grouping 5: Consists of the two unexploded ordnance (UXO) areas, AOCs 503 and 661. AOC 503 was a marshy area in 1943 when an aircraft jettisoned two depth-charges on take-off or landing. These UXOs have never been recovered. These areas have not been sampled, and will not be sampled until the areas are cleared by the Navy's Explosives Ordnance Detachment.**

**Grouping 6: Grouping 6 consists of 3 of the 30 sites that are recommended by E/A&H for No Further Action; AOCs 654, 660, and 662. Although these are the only 3 sites recommended right now, other sites may "drop-out" later in the process.**

**Of all the Groundwater Monitoring Wells installed, two, (located in SWMUs 9 and 17), had the most significant contamination. The contaminants of concern include Arsenic, Benzidine, Chlorobenzene, Hexachlorobenzene, Vinyl Chloride, 1,4-Dichlorobenzene, and 1,2-4-Trichlorobenzene. Groundwater at these two locations is moving toward Shipyard Creek and the Cooper River respectively. Given the physical setup of Zone H and direction of water flow, migration of contamination is expected to move at a rate of 6 to 7 feet per year.**

**Lou Mintz asked if Lead was found at SWMU 14. Mr. Dotson answered that Lead was found in soil, but not in water, and that it was not a primary contributor to risk or hazard at that site in soil.**

**Mr. Mintz also asked how much the Zone H investigation cost. Mr. Haverkost answered that it cost approximately $2.7 million.**

**Ms. Jane Settle asked what was meant by the two monitoring wells in SWMUs 9 and 17 being "the most heavily contaminated," the number of contaminants found or the concentrations as they relate to risk. Dr. Speakman answered that they were classified as most heavily contaminated relative to risk. Todd Haverkost added that the main point they wanted to get across to the audience is that there isn't any groundwater contamination migrating off site from Zone H.**

**As a review of risk, there is no such thing as zero risk. There are four steps of Risk Assessment: Hazard Identification, Exposure Assessment, Toxicity Assessment, and Risk Characterization. After the Risk Assessment takes place, the next step in the process is Risk Management.**

**Risks are divided into two categories: 1) Carcinogenic Risk, and 2) Non-Carcinogenic Risk or Toxicity. Carcinogenic Risk is estimated as the probability of adding one more case of cancer in a certain population (e.g. 10,000 or 1,000,000). Toxicity risk is calculated by comparing it to a Hazard Index. A Hazard Index of less than one indicates that no toxic effect is likely. A Hazard Index greater than one indicates that a toxic effect is likely, typically in sensitive individuals.**

**A summary of groundwater and soil Chemicals of Concern (COCs) for each SWMU and AOC, and a table showing Risk and Hazard Projections on a site by site basis can be found near the end of the presentation handout and summarizes the results for Zone H.**

**Four ecological zones were reviewed for any environmental impact. Sub-zones H-1, H-2, and H-3 were terrestrial areas and sub-zone H-4 was an aquatic habitat.**

**The "Recommendations" handout reviews the E/A&H findings of Zone H. Either No Further Action, or Further Action is recommended. For those sites requiring further action, action may be necessary due to the regulatory requirement of remediation when Total Petroleum Hydrocarbons are found at >100 ppm, and/or when risk or hazard levels were exceeded according to the findings in the Baseline Risk Assessment.**

**The next steps in the process include the finalization of the regulatory review, a public comment period on the permit which allows the Navy to begin the Corrective Measures Study, and the permit revision which will specify which sites will require No Further Action, which sites will be included in the Corrective Measures Study, and which sites will be remediated under the State's Underground Storage Tank program.**

**Admiral Watkins asked for suggestions and recommendations on the presentation. The audience responded positively, that it covered the material at an appropriate level of detail.**

**Questions:**

**What happens to the permit when the base closes? The permit doesn't just go away, after the base closes, it will be held by the caretaker who will be SouthDiv. Admiral Watkins introduced Commander Darby who is in charge of the Caretaker function at SouthDiv.**

**Pat Franklin added that the permit revision is required at all bases as part of the investigative process, and isn't occurring just because the Base is closing.**

**When will actual cleanup activities begin? Mr. Hunt answered that Interim Measures may begin as early as the end of April, 1996. All of the Zone wide investigations do not have to be completed before cleanup can begin.**

**Dr. Speakman concluded with asking the audience to please provide any other comments on the presentation, because more presentations will be coming in as the reports are submitted. Draft Zones C and I reports are in, Zone B is scheduled for April, and Zone A is scheduled for June.**

**Captain Augustin asked for a general overview of how things look to give the audience perspective on the state of Zone H. Dr. Speakman stated that in his personal opinion, he felt good about the No Further Action Sites, and that at least two sites, (the landfill, and SWMU 17 where free product was found) will require substantial remediation. The majority of the remaining sites of the sites fall into the risk management area where relatively straight-forward action can hopefully be implemented that would, for example, cause a 1 in 10,000 risk to be reduced to a 1 in a million risk.**

**Susan Floyd added as a community representative she expects the sites to be cleaned up to the 1 in a million risk level. She would like to see it cleaned up good the first time.**

**Dr. Speakman added that they found lower levels of contamination in general than they were expecting to find. Joe Bowers from SCDHEC added that he's surprised (and pleased) that they haven't seen the degree of contamination that they were expecting to find. Compared to many other facilities SCDHEC is dealing with, they haven't encountered what he would consider really significant areas of contamination.**

**Mr. Ted Simon, Risk Assessor for EPA, added that to the extent that he has reviewed the data, he would also concur with Joe Bowers statement. He went into his review with the attitude that Charleston has been around so long that there must be significant contamination, but when reviewing the results of Zone H, he was pleasantly surprised to find that the levels are not that extreme. He reiterated Dr. Speakman's statement that creative risk management techniques such as extending an asphalt parking lot which would reduce workers' exposure may be considered.**

9. Remaining Questions and Comments

Mr. Fontenot thanked everyone for staying for the entire meeting and hoped that the presentation was helpful in informing everyone what has been found to date.

Mr. Fontenot, in an effort to keep the RAB members up to date with the players in the Charleston project, asked Mr. Joe Bowers of SCDHEC to introduce their newest player. Mr. Bowers introduced Johnny Tapia who is DHECs Hazardous Waste Permitting Engineer. Mr. Tapia will be attending upcoming RAB meetings.

Mr. Fontenot also extended special thanks to Mr. Ted Simon who came in from EPA in Atlanta.

10. Agenda for Next Meeting

The next meeting will be an evening meeting to be held on Tuesday March 12. An open-house session will be held from 6:00 p.m. to 7:00 p.m. and the meeting will start at 7:00 p.m. and run until approximately 9:00 p.m. The North Charleston City Council Chamber is available on Tuesday nights so the next meeting may be held in the same location - watch for the final location on the upcoming agenda.

An agenda item for next time will be RAB membership. As of April 1, 1996 the RAB will lose all their military members, and the group has to decide how and if they want to replace them.

Mr. Doyle Brittain stated that the Shipyard Detachment group would like to bring to the RAB some of the options for beginning cleanup of the base and to get the RAB's input. Mr. Daryle Fontenot said he would add that subject to next month's agenda.

Mr. Lou Mintz addressed the fact that a Finance Subcommittee was suggested at the last meeting. He would like to volunteer for that subcommittee.

11. Adjournment

The meeting was adjourned at 5:10 p.m.

Summary of Action Items

- Request RDA to submit position letter to RAB members.
- Susan Floyd stated that she would like to see cleanup required at residential standards.
- Lou Mintz volunteered to lead the Finance Subcommittee.

**Attachments to Minutes**
**(1) Tuesday February 13, 1996 RAB Meeting Agenda**
**(2) Charleston Naval Complex Tenant Summary**
**(3) RCRA Facility Investigation Progress Report for January 1996**
**(4) Zone H RCRA Facility Investigation Results**

**Minutes recorded by:**
**Diane Cutler, EnSafe/Allen&Hoshall**

**Minutes approved by:** _____ _____

| | |
|---|---|
| **Daryle Fontenot** | **Don Harbert** |
| **Co-Chairman** | **Co-Chairman** |

**Tuesday, February 13, 1996**

**Charleston Naval Base**

**RESTORATION ADVISORY BOARD MEETING AGENDA**

**2;30 PM** Location: North Charleston City Hall located @ 4900 LaCross Road at North Charleston. Meeting will be in the City Council Chambers.

**2:30 RAB MEETING**

A. Introduction of the RAB Members and Guests

B. Administrative Remarks, Comments on the minutes of last meeting

C. Subcommittee Reports

D. RDA update

E. Environmental. Cleanup Progress Report Cleanup Team

F. Discussion of Zone H RFI Report Findings

Data interpretation
Risk assessment

G. Remaining Questions and Comments from Visitors.

H Agenda for next meeting

Please mark for calendar. Our next meeting is Tuesday, March 12, 1996. Time and location to be determined.

# CHARLESTON NAVAL COMPLEX TENANT SUMMARY

| | CURRENT FACILITIES/EMPLOYMENT | | | | | ULTIMATE FACILITIES/EMPLOYMENT | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | DRY DOCKS | PIERS | BUILD-INGS | TOTAL SQ. FT. | EMPLOY-EES | DRY DOCKS | PIERS | BUILD-INGS | TOTAL SQ. FT. | EMPLOY-EES |
| **CURRENT LEASES/LICENSES** | | | | | | | | | | |
| BABCOCK & WILCOX | 0 | 0 | 2 | 175,992 | 10 | 0 | 0 | 2 | 175,992 | 225 |
| CHARLESTON MARINE MANUFACTURING | 1 | 1 | 4 | 137,472 | 250 | 3 | 7 | 90 | 1,504,130 | 2,404 |
| CHARLESTON SHIPBUILDING, INC. | 0 | 0 | 1 | 39,000 | 5 | 2 | 5 | 96 | 734,419 | 2,000 |
| CHARLESTON COUNTY PARK & RECREATION | 0 | 2 | 2 | 6,087 | 5 | 0 | 3 | 2 | 6,087 | 7 |
| NATIONAL CIVILIAN COMMUNITY CORPS | 0 | 0 | 6 | 161,328 | 75 | 0 | 0 | 6 | 161,328 | 75 |
| U.S. POSTAL SERVICE | 0 | 0 | 1 | 17,782 | 114 | 0 | 0 | 1 | 17,782 | 400 |
| SUBTOTAL | 1 | 3 | 16 | 537,661 | 459 | 5 | 15 | 197 | 2,599,738 | 5,111 |
| **UNDER NEGOTIATION** | | | | | | | | | | |
| ALLIED TECHNOLOGY | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 1 | 8,553 | 100 |
| BORDER PATROL | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 8 | 405,821 | 100 |
| DEPT OF HEALTH & ENV. CONTROL (DHEC) | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 1 | 16,173 | 54 |
| FOX ASSOCIATES | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 1 | 4,040 | 15 |
| M. ROSENBLATT | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 1 | 2,800 | 25 |
| SUBTOTAL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 428,834 | 194 |
| **FEDERAL OWNERS** | | | | | | | | | | |
| DEFENSE FINANCE & ACCOUNTING SERVICE | 0 | 0 | 3 | 257,909 | 473 | 0 | 0 | 1 | 229,293 | 750 |
| DEFENSE PRINTING | 0 | 0 | 1 | 26,520 | 37 | 0 | 0 | 0 | 0 | 0 |
| NISE EAST | 0 | 0 | 16 | 362,057 | 250 | 0 | 0 | 16 | 362,057 | 250 |
| NATIONAL OCEANIC & ATMOSPHERIC ADMIN. | 0 | 1 | 5 | 44,865 | 35 | 0 | 2 | 5 | 44,865 | 200 |
| STATE DEPARTMENT | 0 | 0 | 5 | 197,750 | 55 | 0 | 0 | 5 | 197,750 | 400 |
| U.S. COAST GUARD | N/A | N/A | N/A | N/A | N/A | 0 | 1 | 2 | 65,128 | 402 |
| SUBTOTAL | 0 | 1 | 30 | 889,101 | 850 | 0 | 3 | 29 | 899,093 | 2,002 |
| **GRAND TOTAL** | 1 | 4 | 46 | 1,426,762 | 1,309 | 5 | 18 | 237 | 3,927,665 | 7,307 |

**Naval Base Charleston**
**RCRA Facility Investigation (RFI)**
**PROGRESS REPORT FOR JANUARY 1995**

INVESTIGATIVE ZONES

A. Warehousing and scrap metal yard
B. Golf course and residential
C. Office space and warehouse (NH-45, Navbase HQ)
D. Parking lot, warehouses
E. Shipyard
F. Recreational areas and public works shops
G. Fuel farm and transfer facility
H. Southern end of the base excluding waterfront
I. Southern end of the base including waterfront and dredge material area
J. Ecological study area (waterbodies and certain areas on land)
K. Non-contiguous areas (Naval Station South Annex and tip of Clouter Island)
L. Sewer systems and railroad system

FUNDING

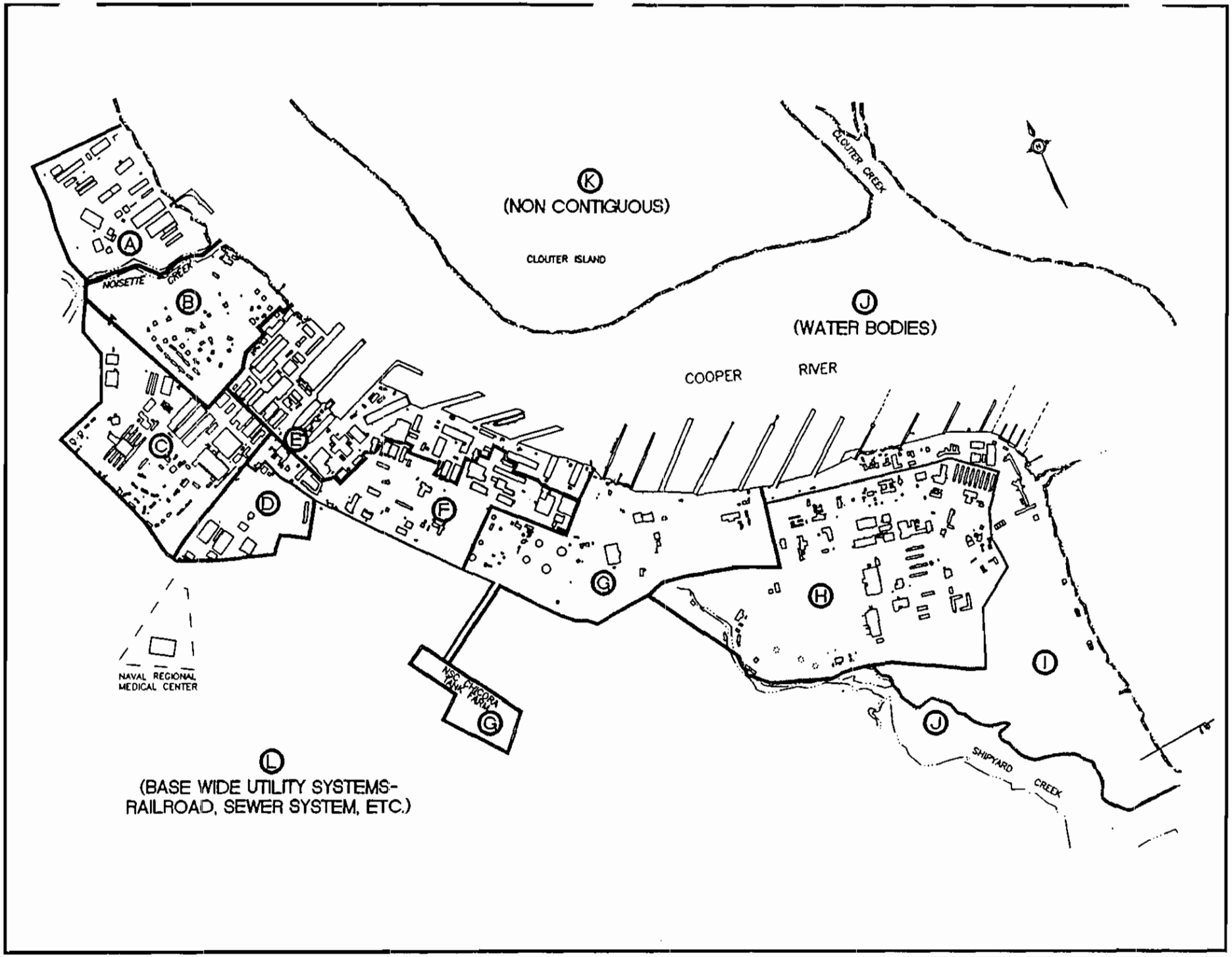
- Funding status
  Fully funded through completion of the Corrective Measures Study:
  Zones A, B, C, E, H, I
  The remaining zones are funded for work plans, funds for investigation through Corrective Measures Study is available however it is not yet negotiated and awarded.

PROGRESS FOR JANUARY

- Zones C & I RFI reports were submitted on 26 January to EPA and SCDHEC for review and comment.
- Second quarter of groundwater sampling in Zones C & I completed.
- A revision to Zones C and I RFI Work Plans was submitted to include two additional sites. These sites will be investigated and submitted as an addendum to the RFI report.
- Field work continued at Zone E. Soil sampling is close to completion, groundwater sampling will begin in February.
- Preparation of Zone K Work Plan began.

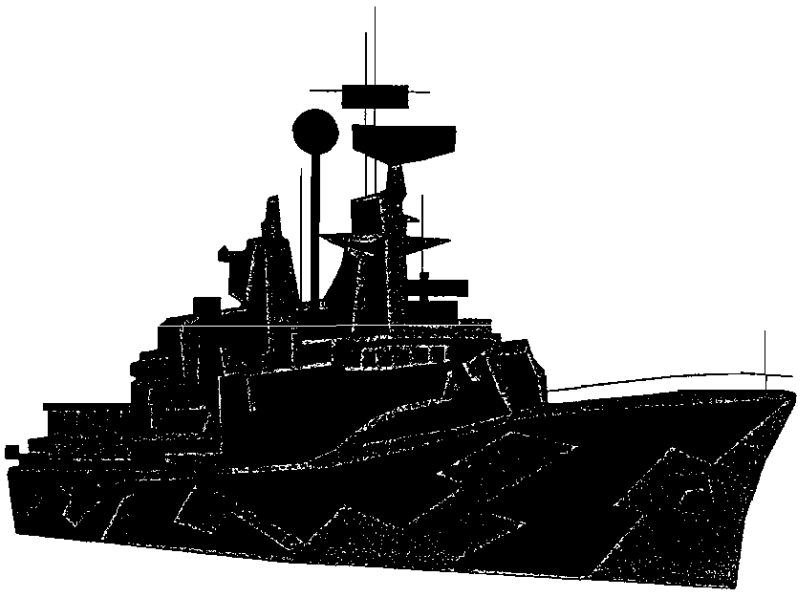
PROJECTED ACTIVITY FOR FEBRUARY

- Begin quarterly groundwater sampling in Zone E.
- Continue work on Interim Measure Work Plans.


K
(NON CONTIGUOUS)
CLOUTER ISLAND
CLOUTER CREEK
J
(WATER BODIES)
COOPER RIVER
A
B
C
D
E
F
G
H
I
J
NOISETTE CREEK
NAVAL REGIONAL MEDICAL CENTER
NSC PINCKNEY PARK
G
SHIPYARD CREEK
L
(BASE WIDE UTILITY SYSTEMS-
RAILROAD, SEWER SYSTEM, ETC.)

# Zone H
# RCRA Facility Investigation Results

## Naval Base Charleston



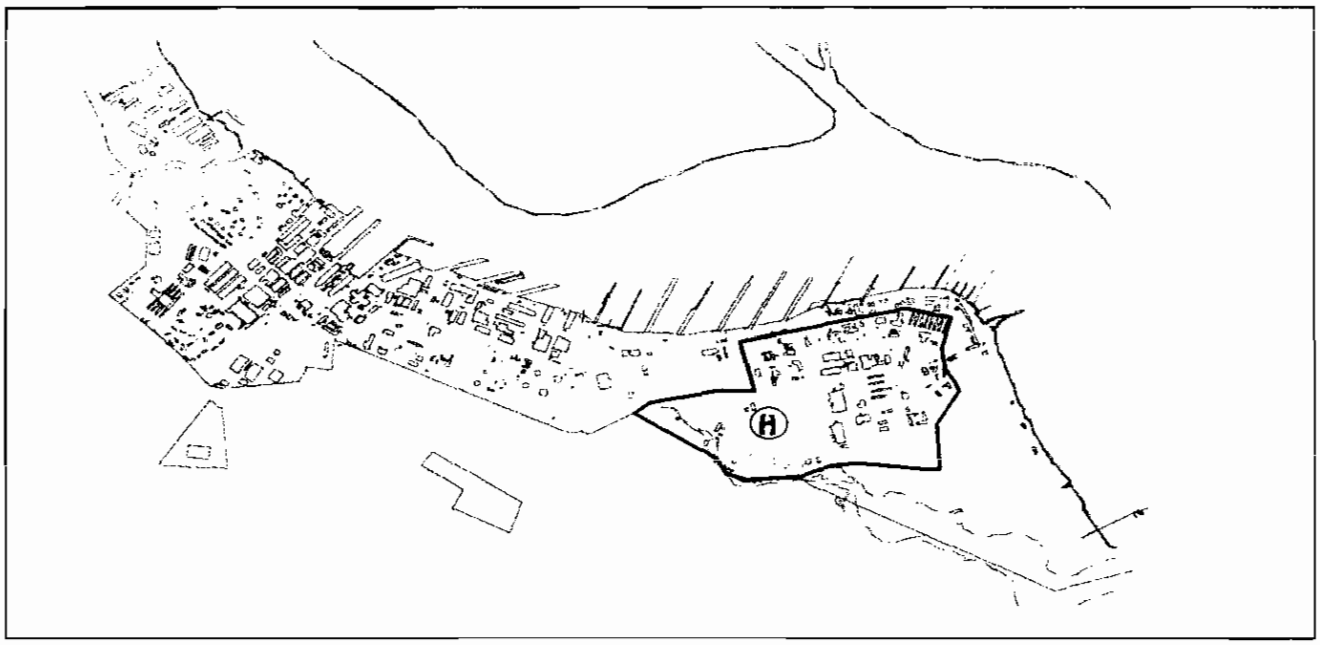
Presented by: EnSafe/Allen&Hoshall

February 13, 1996

# ACRONYMS

| | |
|---|---|
| AOC | Area of Concern |
| BaP | Benzo(a)pyrene equivalents |
| BRA | Baseline Risk Assessment |
| CMS | Corrective Measures Study |
| COC | Chemical of Concern |
| COPC | Chemical of Potential Concern |
| DHEC | South Carolina Department of Health and Environmental Control |
| EOD | Explosive Ordnance Disposal |
| EPA | U. S. Environmental Protection Agency |
| HI | Hazard Index |
| HQ | Hazard Quotient |
| ILCR | Incremental lifetime excess cancer risk |
| NFA | No Further Action |
| NNPA | N-nitroso-di-n-propylamine |
| PCB | Polychlorinated Biphenyl |
| RCRA | Resource Conservation and Recovery Act |
| RFA | RCRA Facility Assessment |
| RFI | RCRA Facility Investigation |
| SVOC | Semivolatile Organic Compound |
| SWMU | Solid Waste Management Unit |
| TPH | Total Petroleum Hydrocarbons |
| UST | Underground Storage Tank |
| UXO | Unexploded Ordnance |
| VOC | Volatile Organic Compound |

# Zone H Overview




## Location

- Zone H is in the southern portion of the peninsula formed by Shipyard Creek and the Cooper River.

## Reuse

- Identified for transfer to the State Department, Naval Support Activities, training areas, and administrative areas.

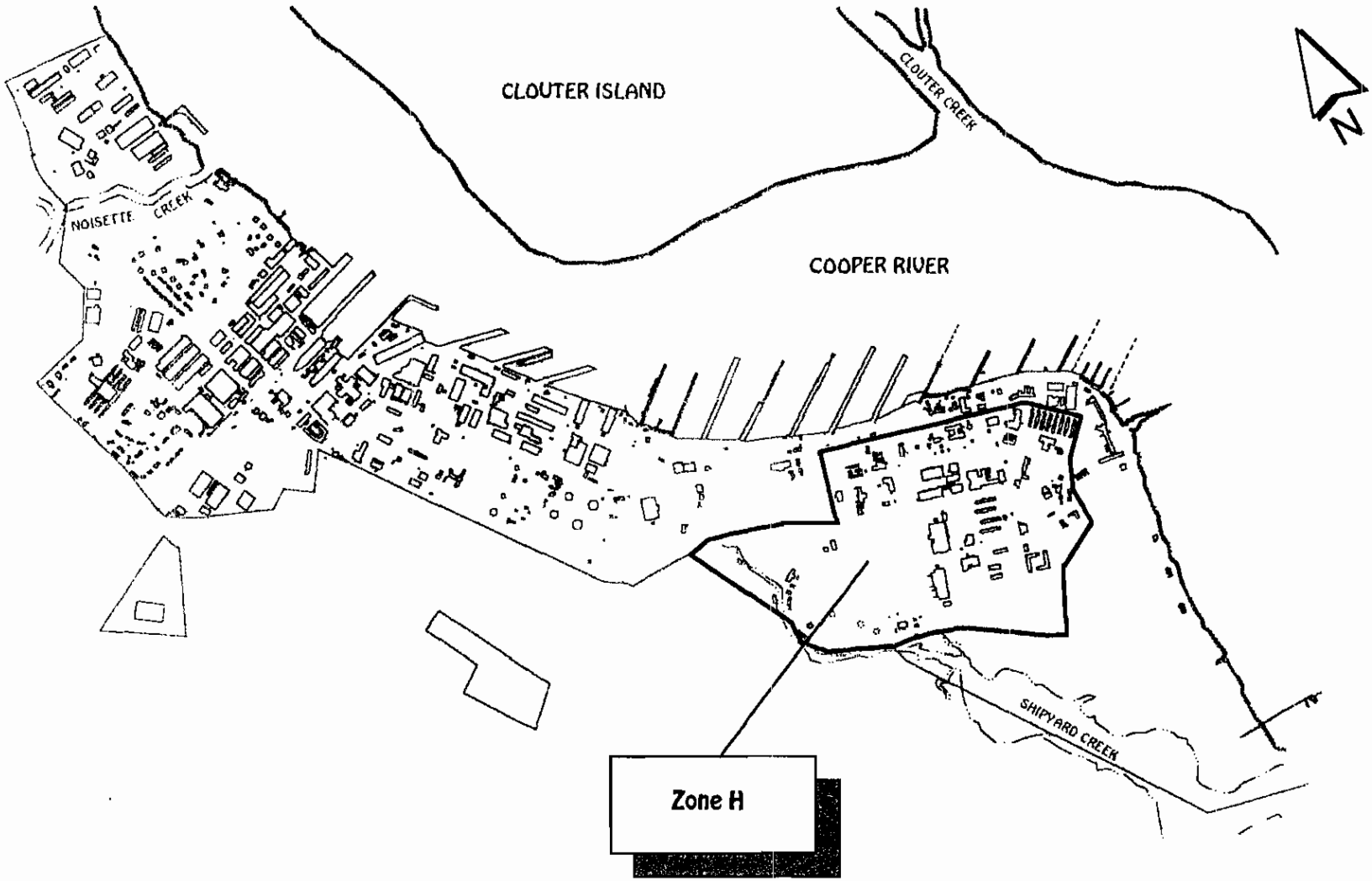
## Purpose of Investigation

- To evaluate the nature and extent of hazardous wastes and to identify, develop and implement appropriate corrective measures to protect human health and the environment.

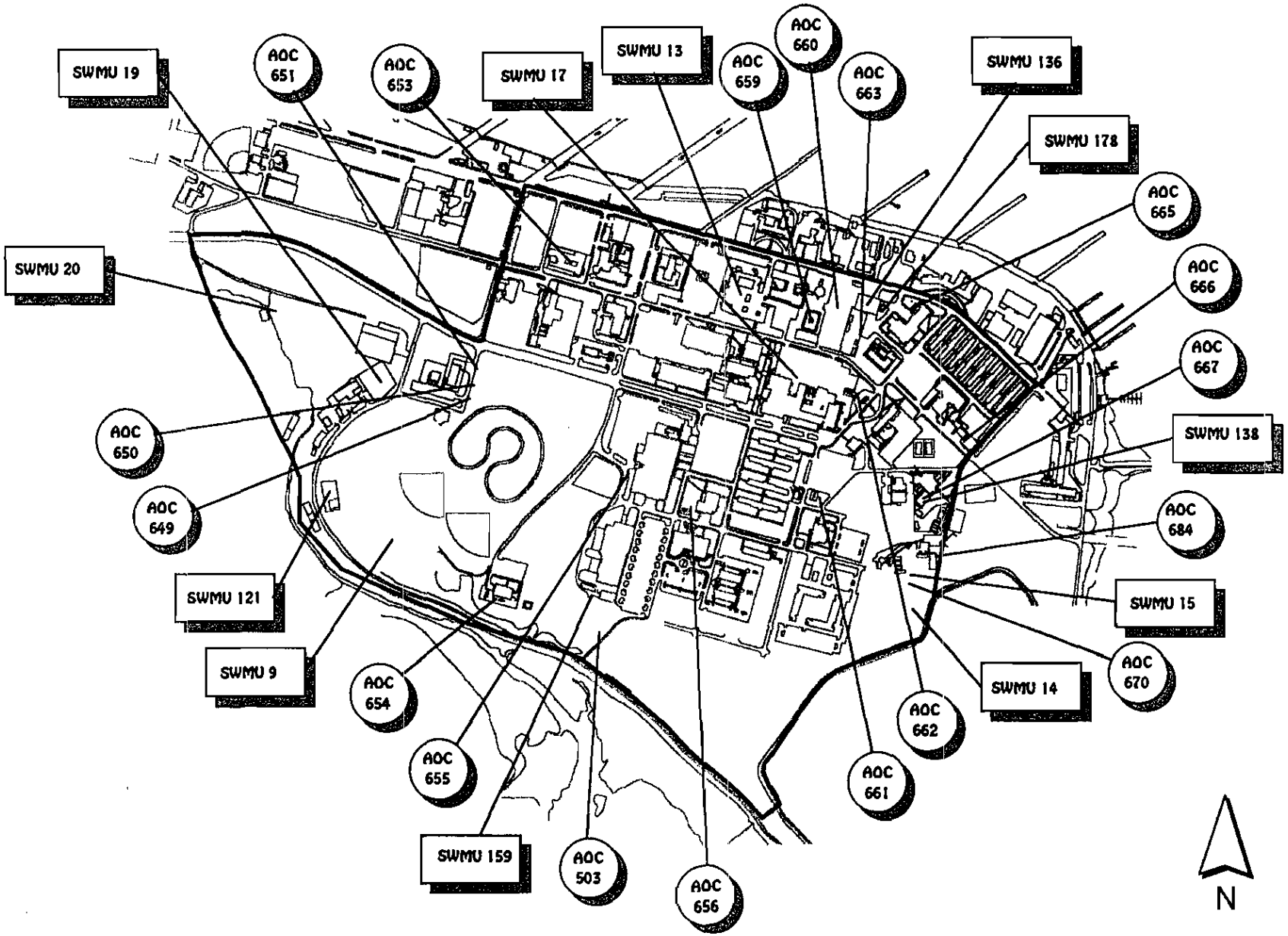
## Sampling Approach

- 12 Solid Waste Management Units
- 18 Areas Of Concern
- 714 soil samples, 119 water samples

# Charleston Naval Shipyard



# Zone H AOCs/SWMUs



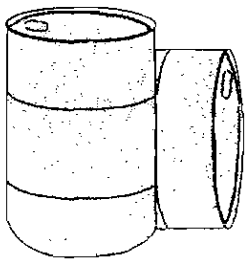
# Common Contaminant Categories

## Metals

Metals are naturally occuring elements that are generally flexible and good conductors of electricity. These properties, along with the relative abundance of metals, make them valuable materials in industrial and manufacturing processes. Household items that commonly contain metals include paint and enamel, batteries, coins, and electrical components.

## Pesticides, Herbicides, & PCBs

Pesticides are chemicals used to eliminate insects and other pests. Herbicides are chemicals used to kill unwanted plants or weeds. PCBs, or Polychlorinated Biphenyls, are industrial compounds that are used as insulating and heat exchange fluids in electrical transformers, and are found in hydraulic fluids used in electrical components and systems.



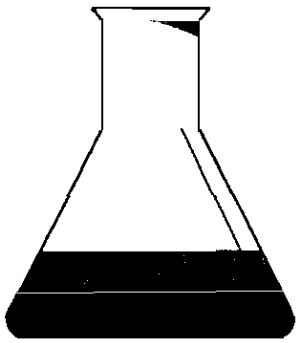
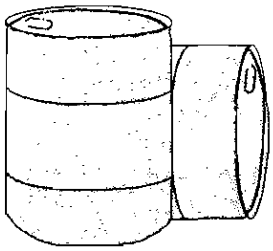
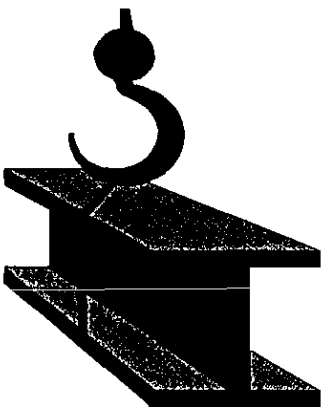
## Semivolatile Organic Compounds

Semivolatile Organic Compounds, also called SVOCs, are common components of asphalt, coal tar, and pitch. Some SVOCs are components of diesel, jet fuel, waste oil, and hydraulic oil. A commonly used household SVOC is naphthalene, which is the main ingredient in many furniture refinishing products including paints, stains, finishes and varnish thinner.

## Volatile Organic Compounds

Volatile Organic Compounds, also called VOCs, are commonly used chemicals. Many VOCs are solvents, which are liquid compounds used to dissolve other substances. Ordinary household solvents include paint thinner and mineral spirits. Other household products that contain VOCs include hair spray, nail polish remover, air fresheners, and oven cleaners.

# Zone H Chemicals of Concern (COCs)

| | Contaminant | Category |
|---|---|---|
|  | 1,2,4-Trichlorobenzene (1,2,4-TCB) | VOC |
| | 1,4-Dichlorobenzene (1,4-DCB) | VOC |
| | Chlorobenzene | VOC |
| | Chloroform | VOC |
| | Chloromethane | VOC |
| | Hexachlorobenzene | VOC |
| | Vinyl chloride | VOC |
| | BEHP | SVOC |
| | Benzidine | SVOC |
| | Benzo(a)pyrene equivalents (BaP) | SVOC |
| | Dioxins/Furans (2,3,7,8-TCDD equivalents) | SVOC |
| | N-nitroso-di-n-propylamine (NNPA) | SVOC |
|  | 4,4'-DDE | Pesticide |
| | Chlordane | Pesticide |
| | Dieldrin | Pesticide |
| | Heptachlor Epoxide | Pesticide |
| | PCBs (Aroclor-1248, -1254, -1260) | PCB |
|  | Aluminum | Metal |
| | Arsenic | Metal |
| | Beryllium | Metal |
| | Copper | Metal |
| | Manganese | Metal |
| | Mercury | Metal |
| | Thallium | Metal |
| | Vanadium | Metal |

Note: This table includes only COCs that are primary contributors to Risk/Hazard.

# Groupings of Sites

Grouping 1 - Landfill

Grouping 2 - Petroleum Sites

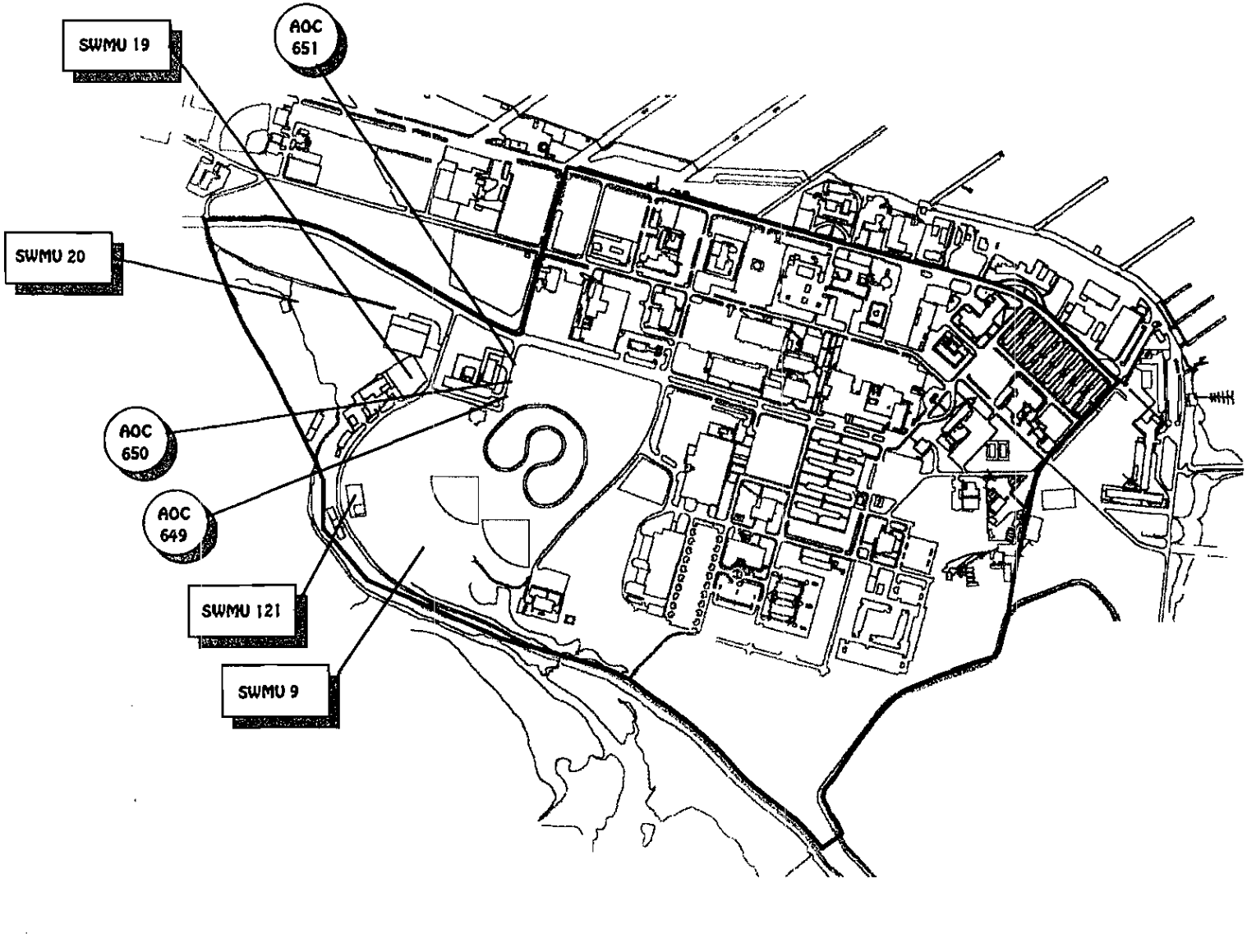
Grouping 3 - Chemical Disposal Area

Grouping 4 - Submarine Training Facility

Grouping 5 - Unexploded Ordnance (UXO)

Grouping 6 - Sites Recommended for No Further Action

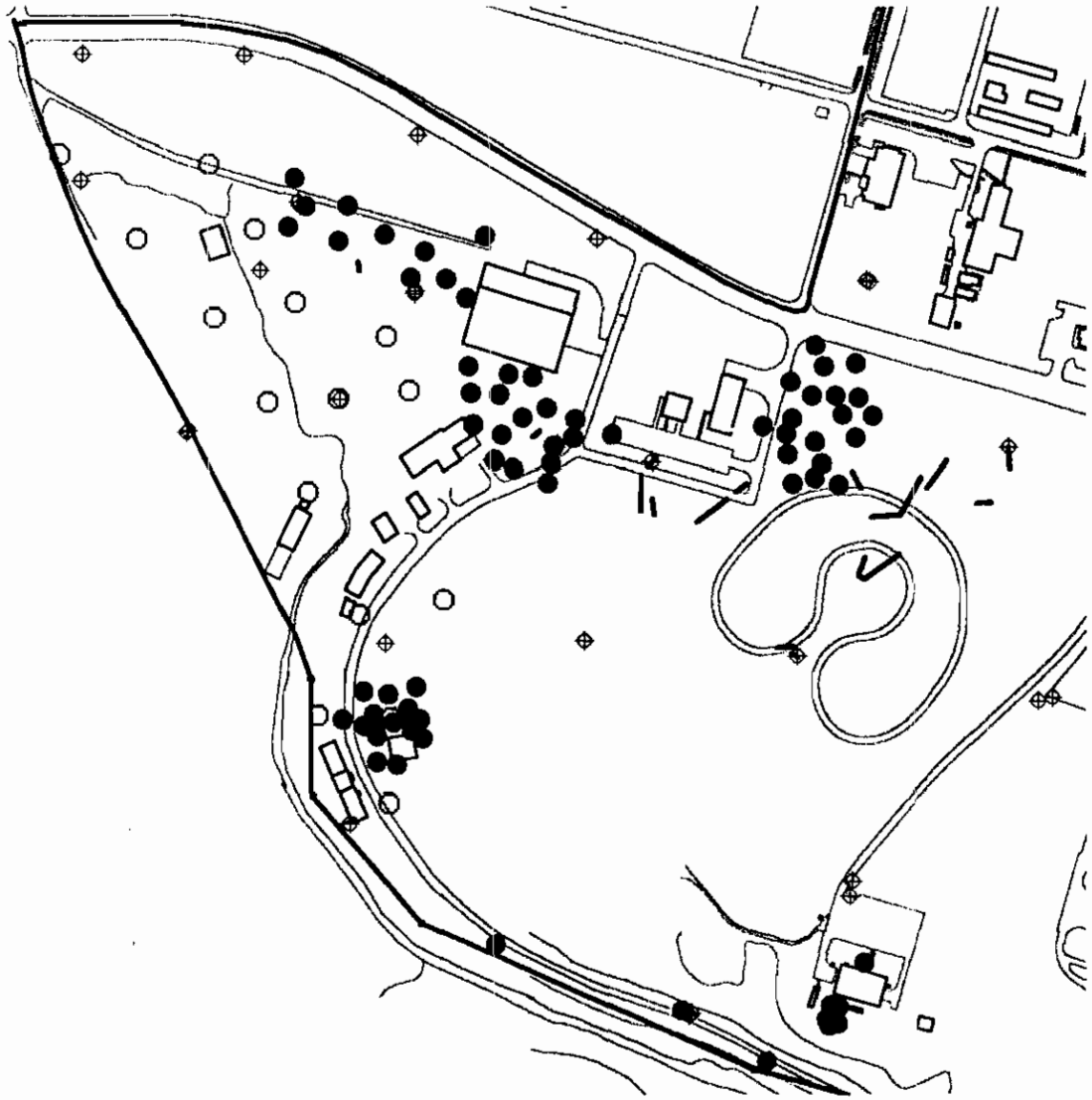
# Grouping 1 - Landfill



# Grouping 1 - Landfill

| Site # | Site Description | Samples Collected |
|---|---|---|
| SWMU 9 | Closed Landfill | Soil (11)<br>Sediment (15) |
| SWMU 19 | Solid Waste Transfer Station | Soil (20) |
| SWMU 20 | Waste Disposal Area | Soil (12) |
| SWMU 121 | Satellite Accumulation Area | Soil (18) |
| AOC 649 | Storage Area | Soil (20) |
| AOC 650 | Storage Area | |
| AOC 651 | Storage Area | |
| **Total water samples collected** | | Groundwater (29)<br>Surface Water (4) |

# Grouping 1 - SWMU 9



**Primary Contributors to Risk/Hazard**

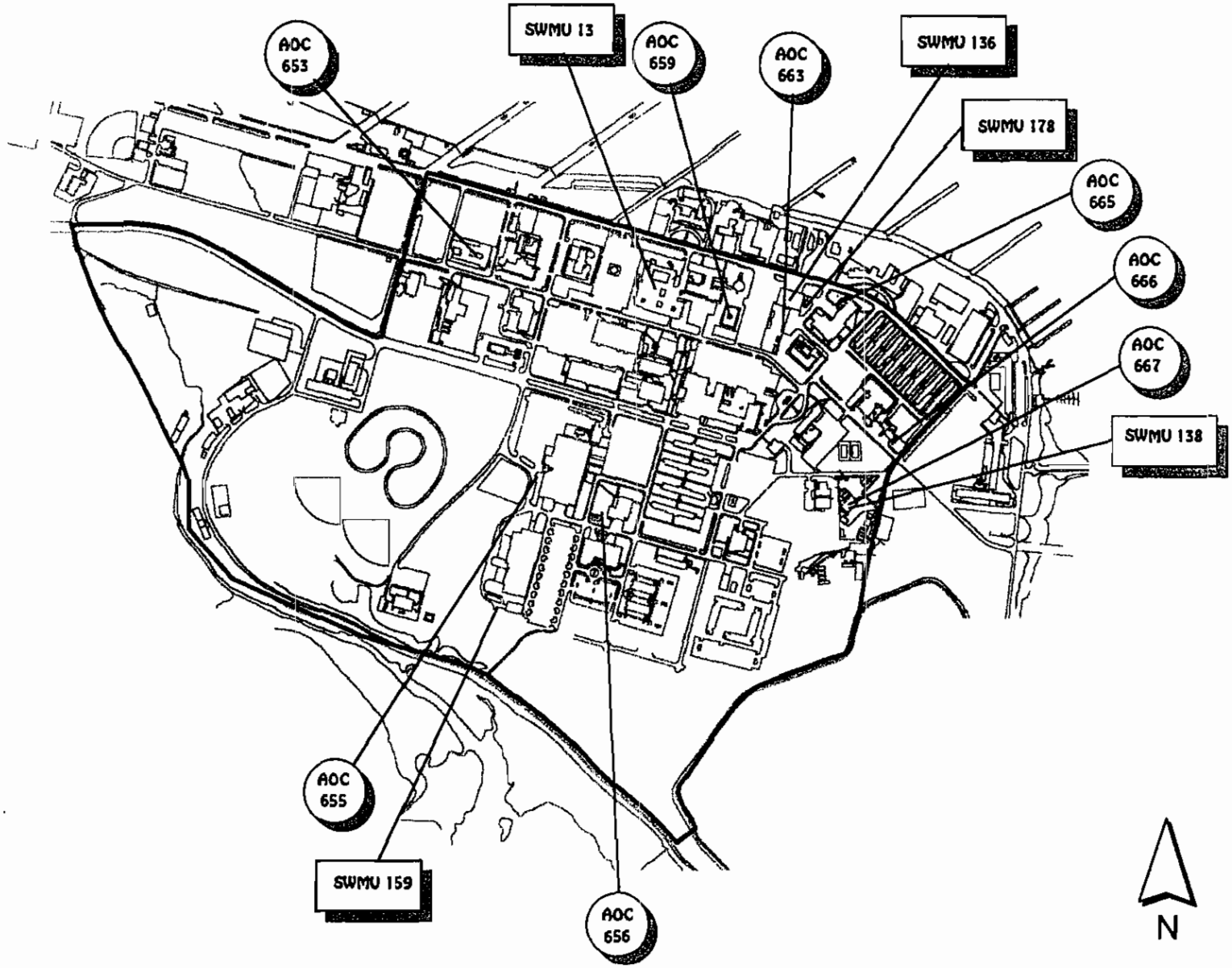
**Soil:**
- Arsenic
- Benzo(a)pyrene Equivalents
- Beryllium
- Copper
- Polychlorinated Biphenols (PCBs)

**Groundwater:**
- Aluminum
- Benzidine
- Chloroform
- Hexachlorobenzene
- Manganese
- Thallium
- Vinyl chloride

- Soil Boring
- Monitoring Well
- Temporary Monitoring Well
- Trench

N

# Grouping 2 - Petroleum Sites



# Grouping 2 - Petroleum Sites

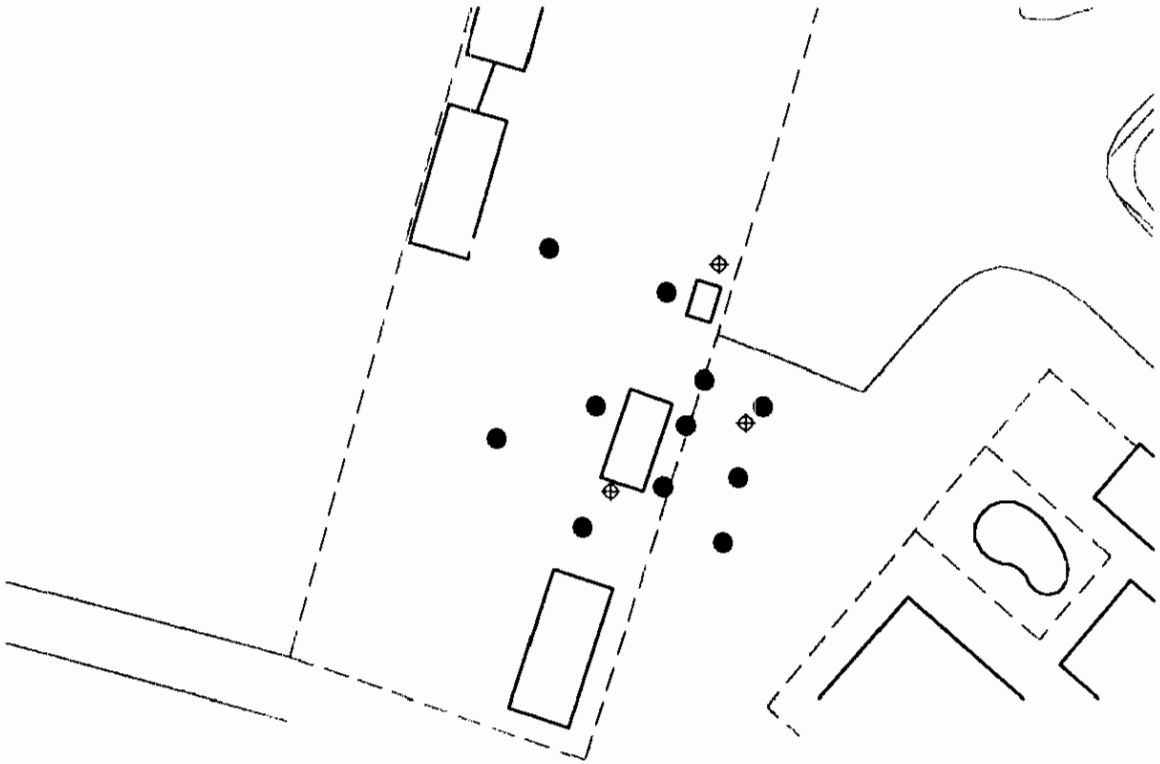
| Site # | Site Description | Samples Collected |
|---|---|---|
| SWMU 13 | Current Fire Fighter Training Area | Soil (49) Groundwater (9) |
| SWMU 136 | Bldg. NS-53 - Satellite Accumulation Area 19 | Soil (14) Groundwater (3) |
| AOC 663 | Gas/Diesel Pumping Station - Bldg. 851 | |
| SWMU 138 | Satellite Accumulation Area - Bldg. 1776 | Soil (14) Groundwater (2) |
| AOC 667 | Vehicle Maintenance Area - Bldg. 1776 | |
| SWMU 159 | Satellite Accumulation Area - Bldg. 665 | Soil (19) Sediment (2) Surface Water (1) |
| SWMU 178 | Site of Apparent Transformer Fire | Soil (12) Groundwater (2) |
| AOC 653 | Hobby Shop - Bldg. 1508 | Soil (14) Groundwater (2) |
| AOC 655 | Oil Spill Area - Bldg. 656 | Soil (21) Groundwater (3) |
| AOC 656 | Petroleum Spill between Bldgs. 602 and NS-71 | Soil (18) Groundwater (3) |
| AOC 659 | Diesel Storage - Bldg. 14 | Soil (8) |
| AOC 665 | Pyrotechnic Storage - Bldg. 159 | Soil (8) |
| AOC 666 | Fuel Storage - Bldg. NS 45 | Soil (13) Groundwater (2) |

# Grouping 2 - AOC 663/SWMU 136

**Primary Contributors to Risk/Hazard**

**Soil:**
- Aluminum
- Arsenic
- Benzo(a)pyrene Equivalents
- Polychlorinated Byphenols (PCBs)
- 4,4'-DDE

**Shallow Groundwater:**
- 2,3,7,8-TCDD Equivalents



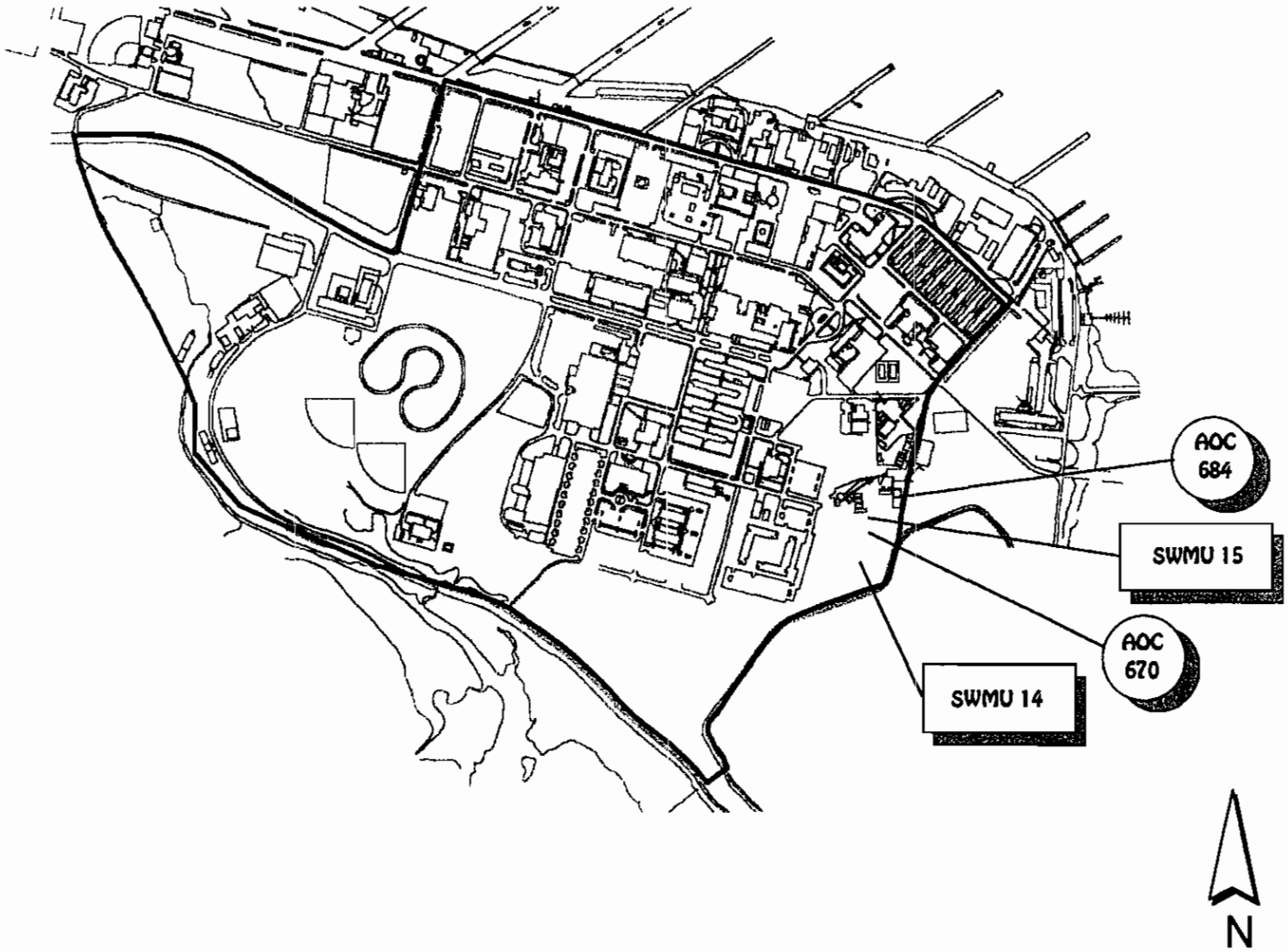
● Soil Boring

⊕ Monitoring Well

N

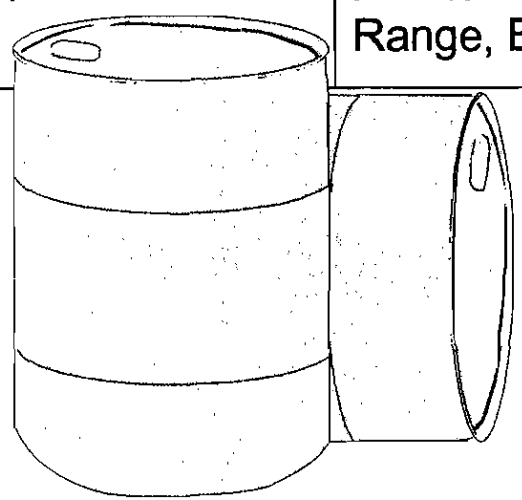
*Zone H Results - 2/13/96*

# Grouping 3 - Chemical Disposal Area



# Grouping 3 - Chemical Disposal Area

| Site # | Site Description | Samples Collected |
|---|---|---|
| SWMU 14 | Chemical Disposal Area | Soil (175)<br>Sediment (4)<br>Groundwater (10)<br>Surface water (1) |
| SWMU 15 | Incinerator | |
| AOC 670 | Former Skeet Range, South of Bldg. 1897 | |
| AOC 684 | Former Outdoor Pistol Range, Bldg. 1888 | |



# Grouping 3 - SWMU 14

**Primary Contributors to Risk/Hazard**

**Soil:**

- Arsenic
- Benzo(a)pyrene Equivalents
- Beryllium

**Groundwater:**

- Aluminum
- BEHP
- 2,3,7,8-TCDD Equivalents
- Heptachlor epoxide

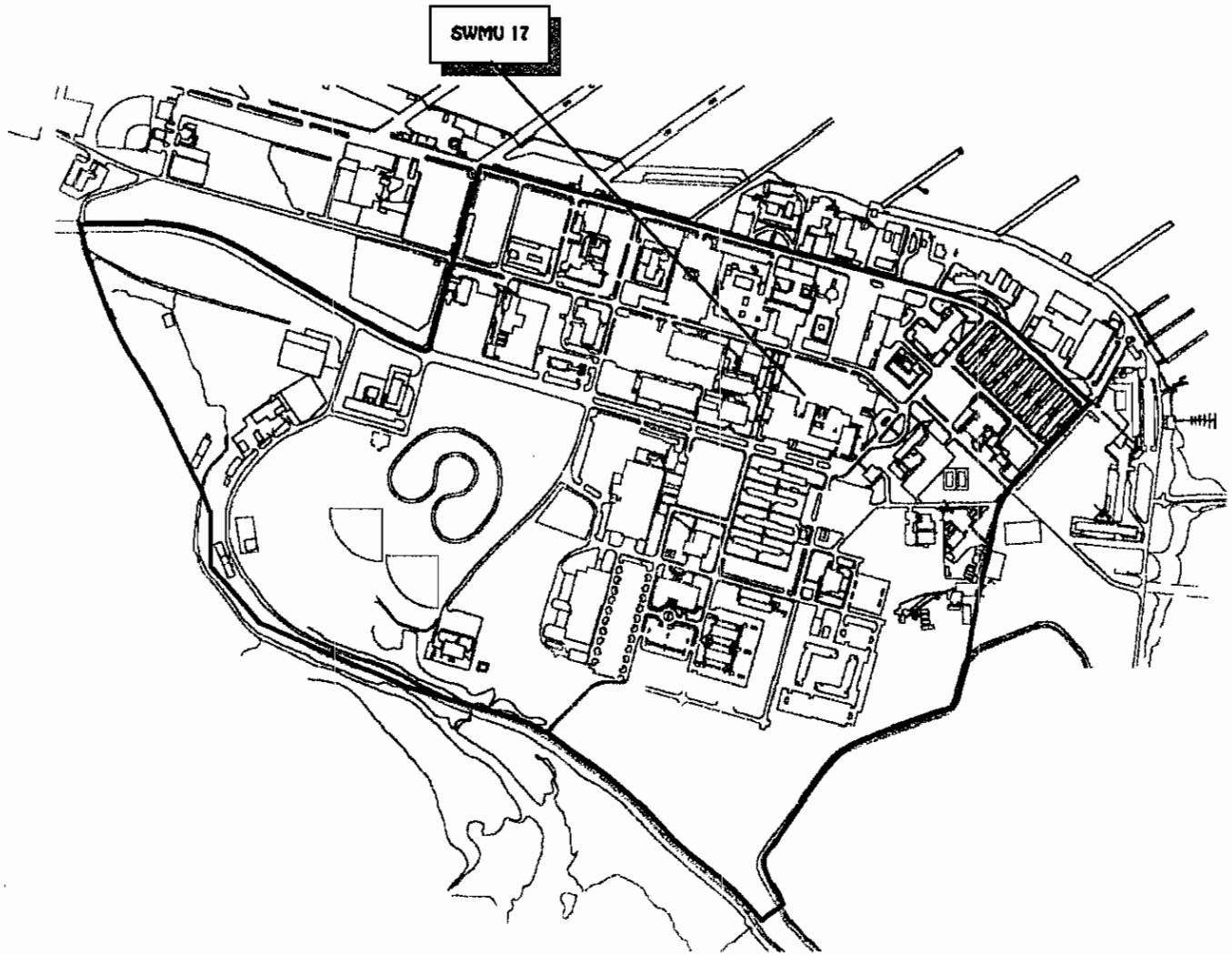
Soil Boring

Monitoring Well

N

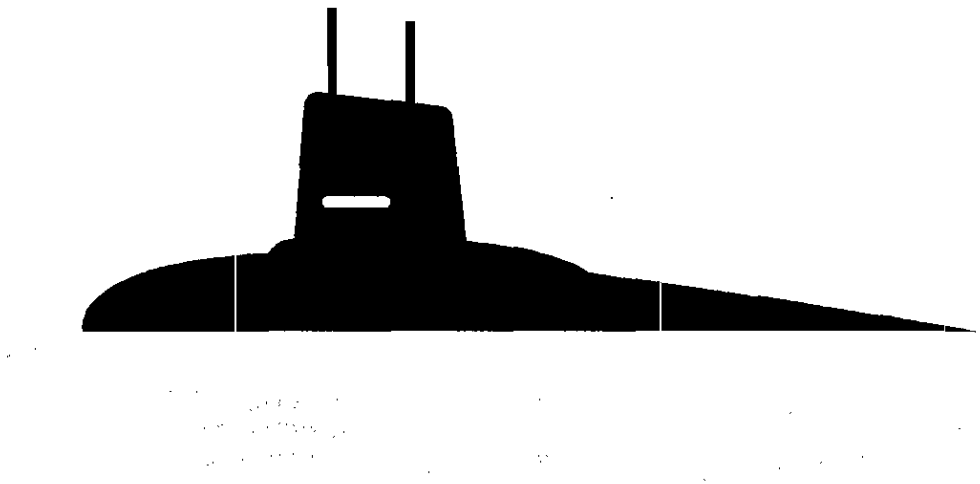
*Zone H Results - 2/13/96*

# Grouping 4 - Submarine Training Facility



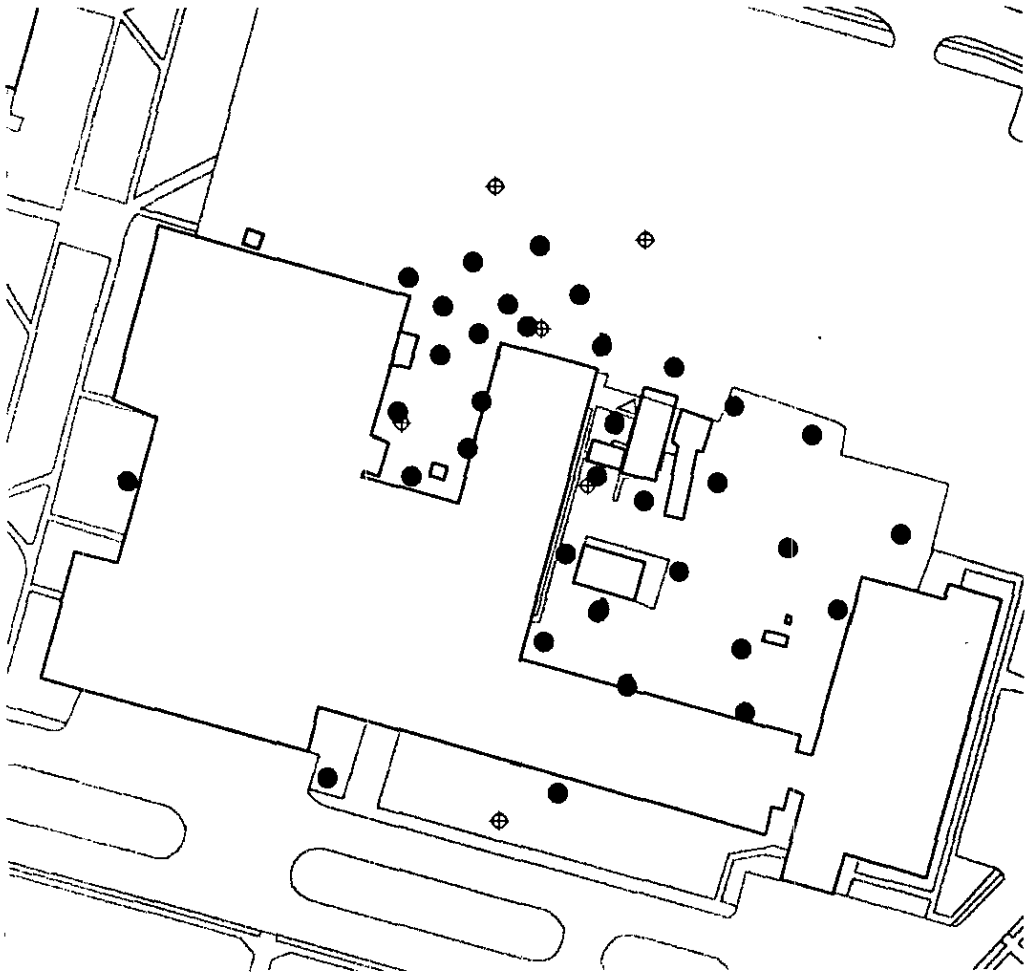

N

# Grouping 4 - Submarine Training Facility



| Site # | Site Description | Samples Collected |
|---|---|---|
| SWMU 17 | Oil Spill Area | Soil (65)<br>Groundwater (6) |

# Grouping 4 - SWMU 17



**Primary Contributors to Risk/Hazard**

**Soil:**

Benzo(a)pyrene Equivalents
Polychlorinated Biphenols (PCBs)

**Shallow Groundwater:**

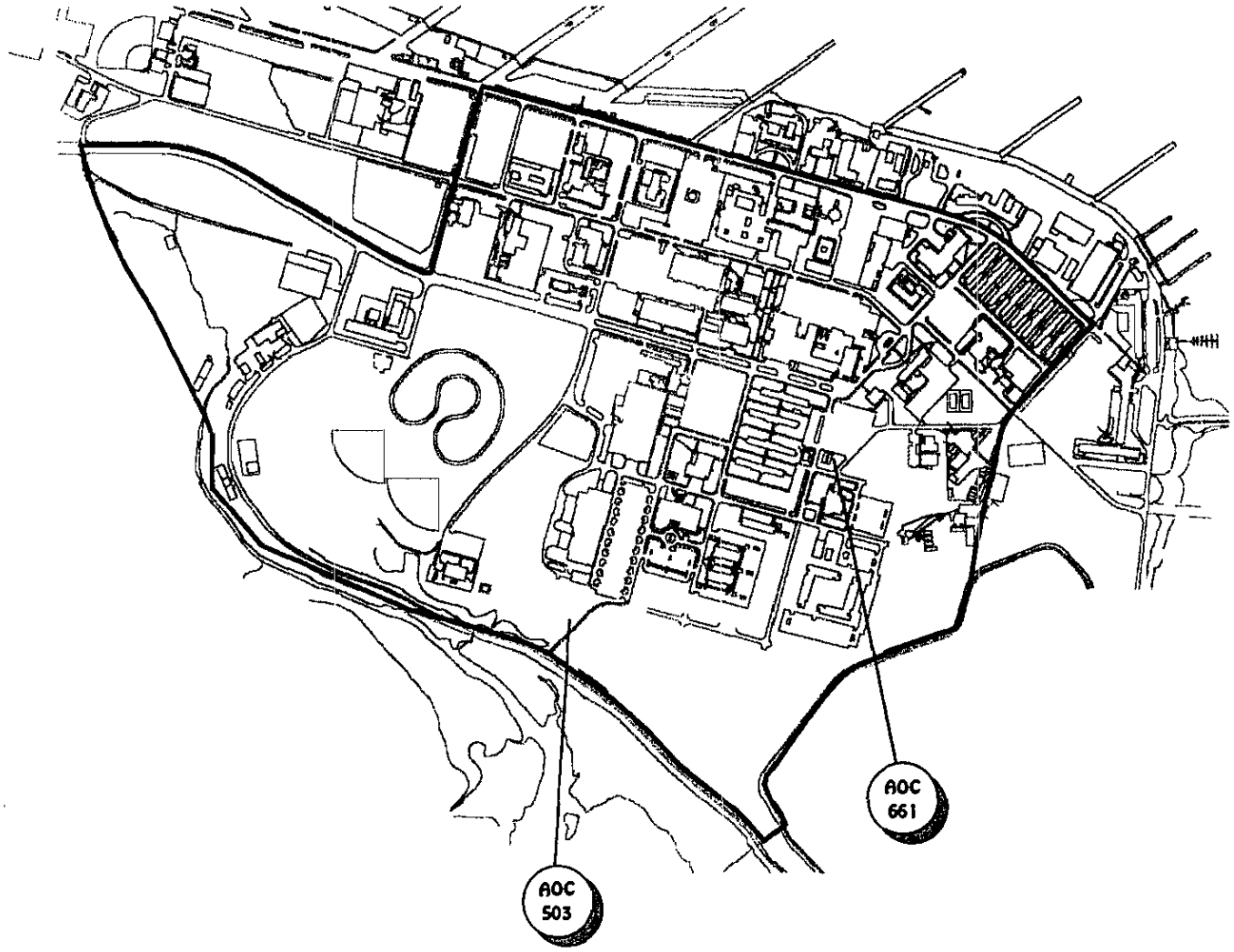
Benzidine
Chlorobenzene
1,4-Dichlorobenzene
1,2,4-Trichlorobenzene

● Soil Boring

⊕ Monitoring Well

N

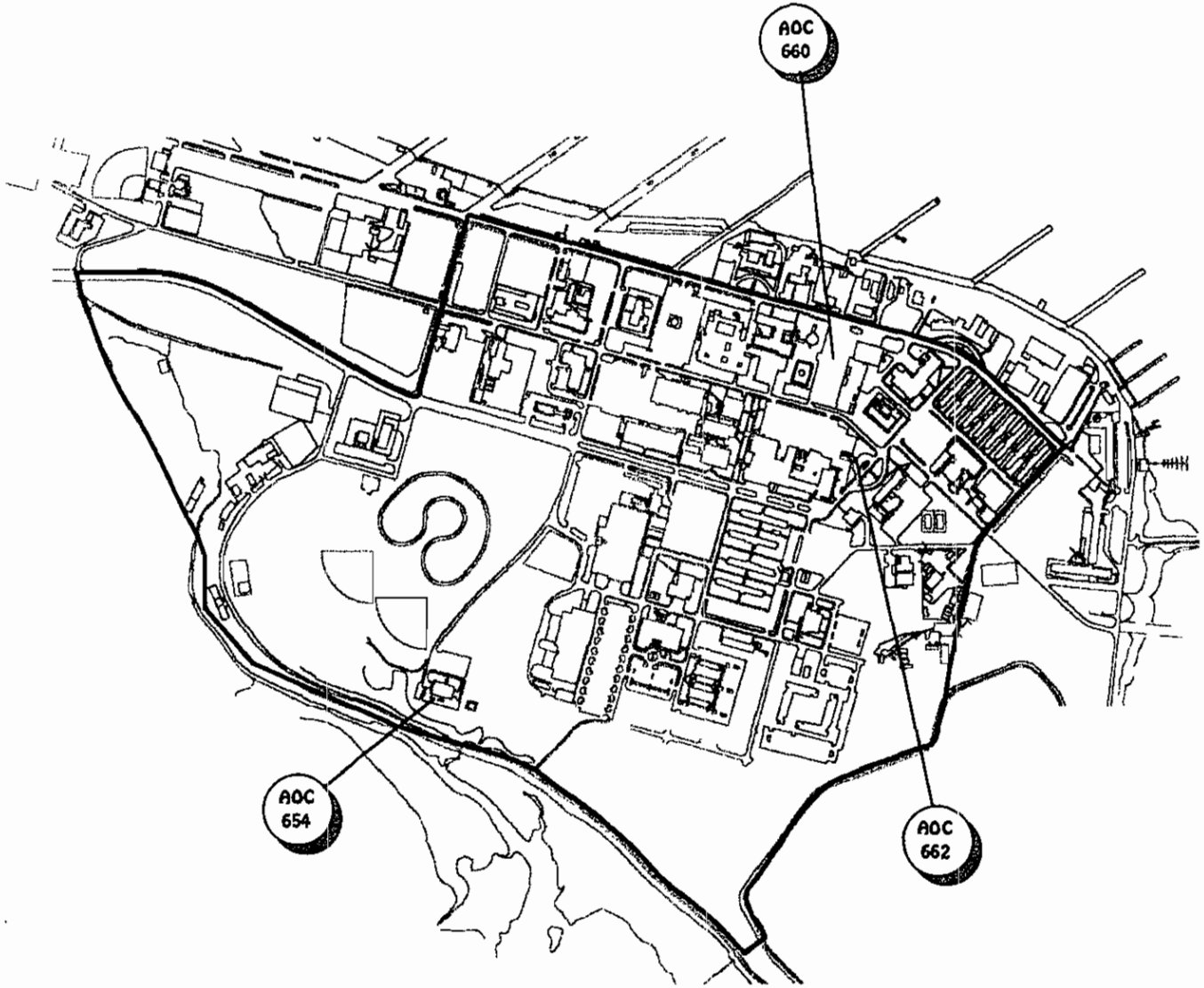
# Grouping 5 - Unexploded Ordnance (UXO)



# Grouping 5 - Unexploded Ordnance (UXO)

| Site # | Site Description | Samples Collected |
|---|---|---|
| AOC 503 | UXO Site South of Bldg. 665 | * None |
| AOC 661 | Explosives Storage | * None |
| *Awaiting clearance by Navy Explosives Ordnance Disposal (EOD) | | |

# Grouping 6 - Sites Recommended for No Further Action

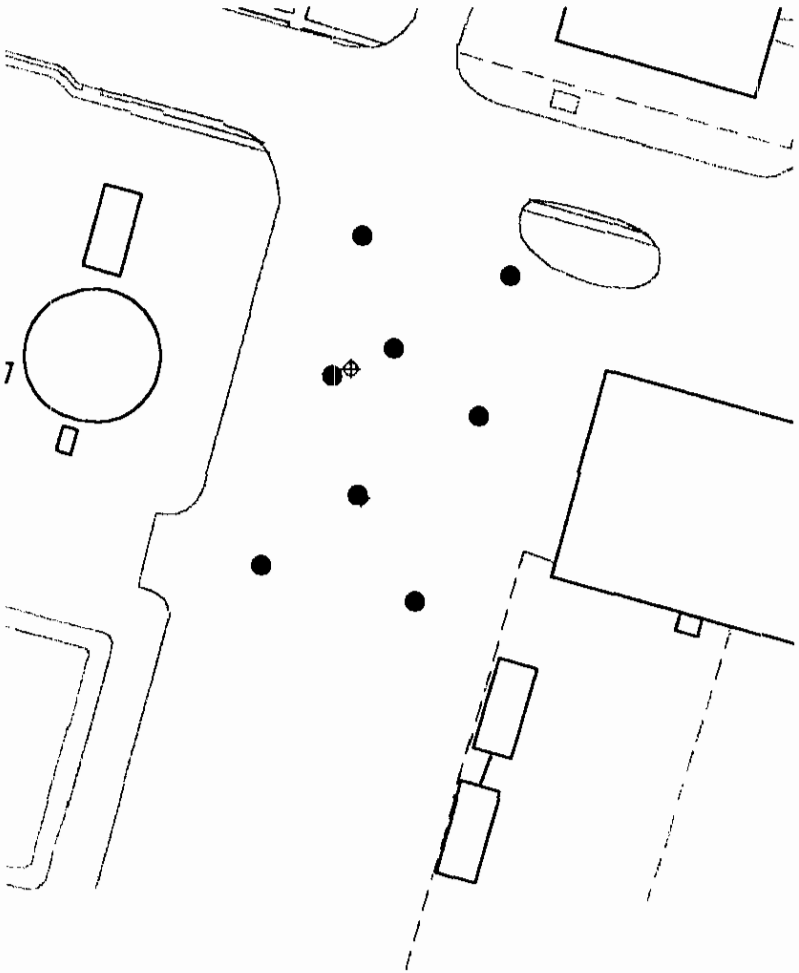



N

# Grouping 6 - Sites Recommended for No Further Action

| Site # | Site Description | Samples Collected |
|---|---|---|
| AOC 654 | Septic Tank and Drain Field | Soil (11) |
| AOC 660 | Mosquito Control | Soil (10)<br>Groundwater (2) |
| AOC 662 | Former Gasoline Station | Soil (8)<br>Groundwater (2) |

# Grouping 6 - AOC 660



**Primary Contributors to Risk/Hazard**

**Soil:**
None

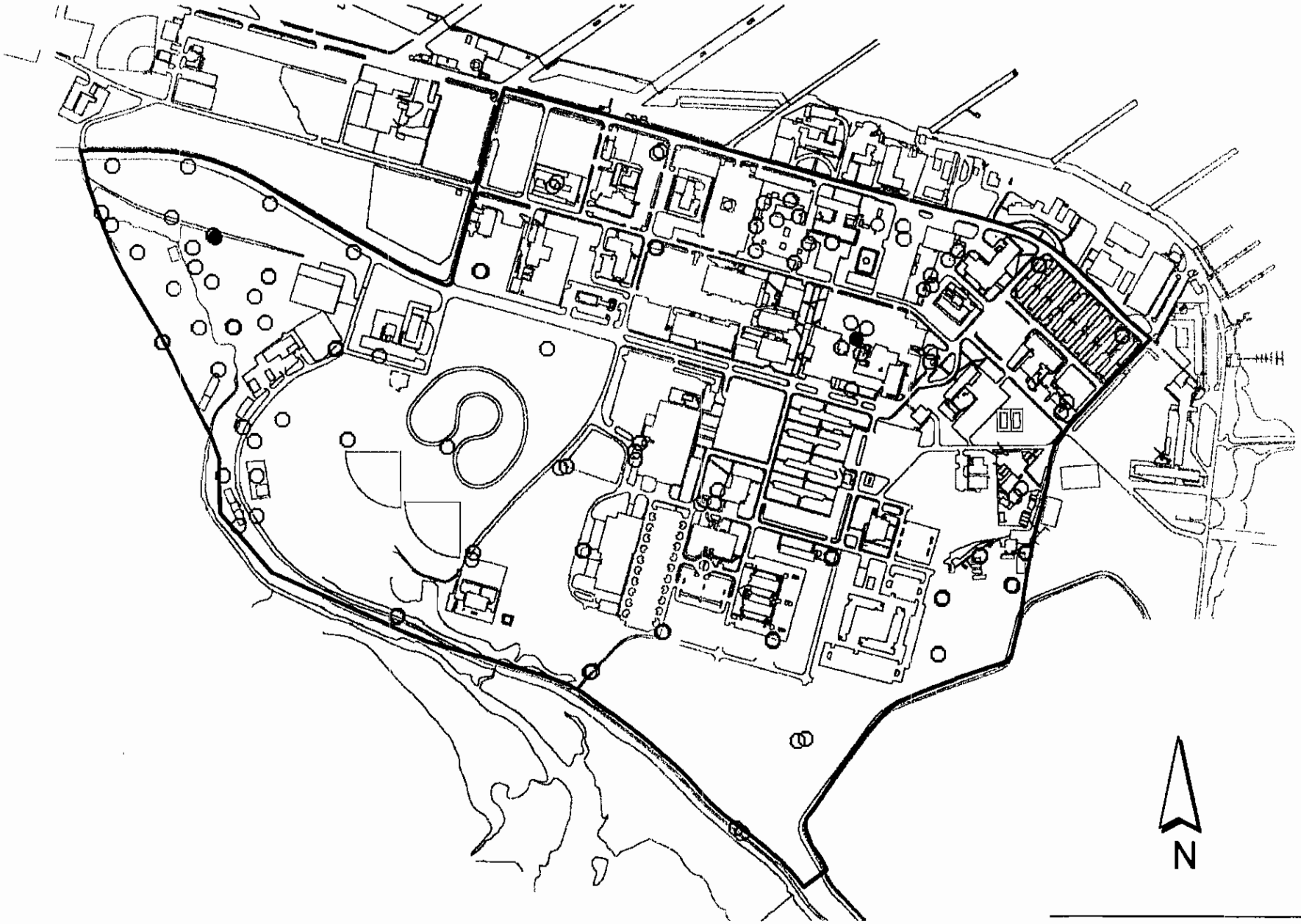
**Shallow Groundwater:**
None

Soil Boring

Monitoring Well

N

# Groundwater Monitoring Network

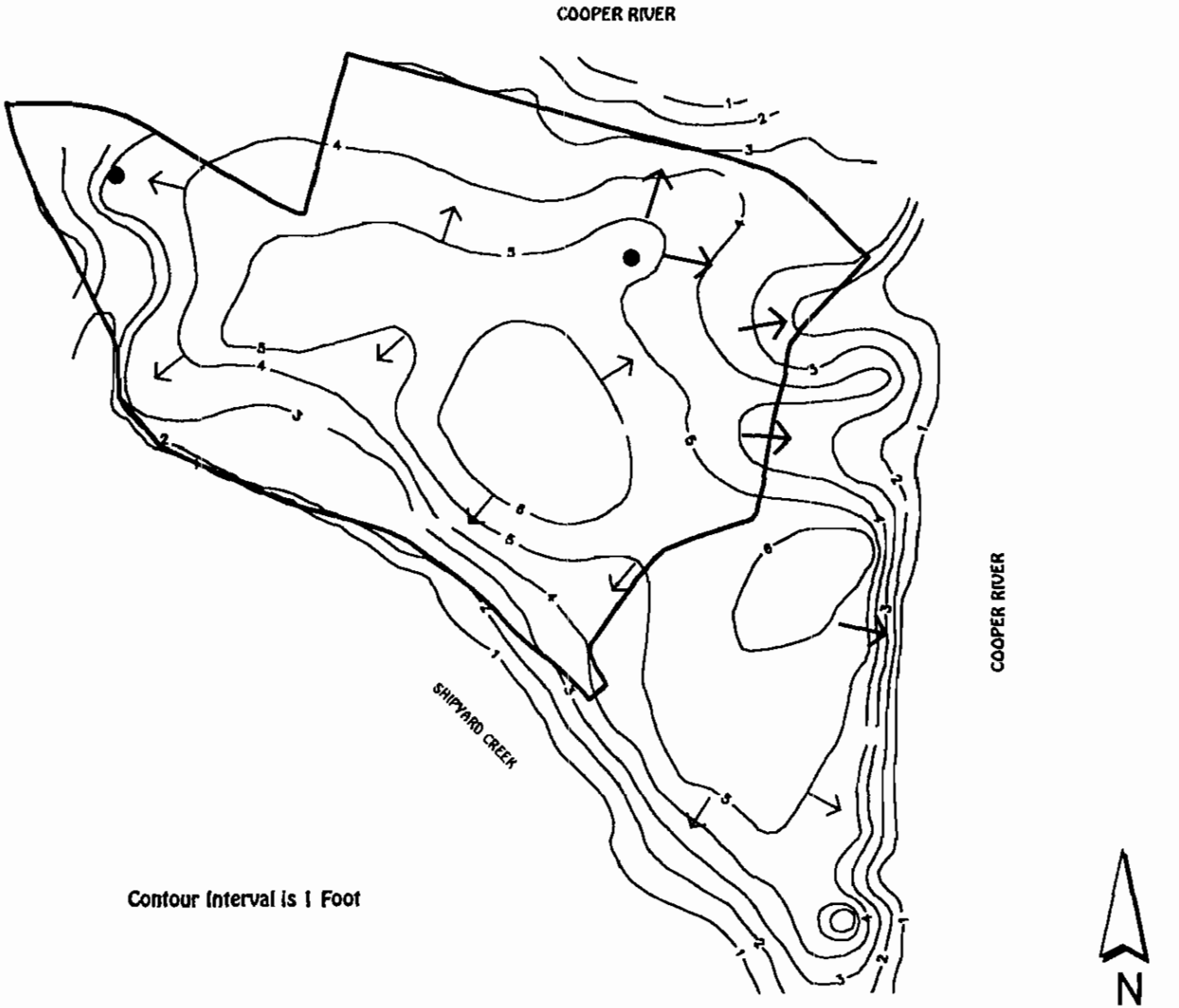



*Zone H Results - 2/13/96*

# Groundwater - COCs

| Area of Significant Impact | Site Description | COCs Driving Risk |
|---|---|---|
| SWMU 9 | Closed Landfill | Arsenic<br>Benzidine<br>Hexachlorobenzene<br>Vinyl Chloride |
| SWMU 17 | Submarine Training Facility (Site of Oil Spill) | Benzidine<br>Chlorobenzene<br>1,4-Dichlorobenzene<br>1,2,4-Trichlorobenzene |

# Zone H Groundwater Flow



# Review of Risk

## There is no such thing as ZERO risk.

**STEP 1** . . . . . Hazard Identification

Collect samples. Analyze for type and concentration of contaminants.

**STEP 2** . . . . . Exposure Assessment

Will people come into contact with the hazard? And if so, who? how? how often? and why?

**STEP 3** . . . . . Toxicity Assessment

What is harmful about the chemical? Is it carcinogenic or non-carcinogenic?

**STEP 4** . . . . . Risk Characterization

Determine if potential exposures are great enough to cause human health problems.

**Question 1** . . . . Should cleanup be undertaken?

**Question 2** . . . . What should cleanup levels be?

**Question 3** . . . . What cleanup methods should, or can be used?

# Review of Risk (cont'd)

## Carcinogenic Risk

- Potential to cause cancer.
- Risk estimated as probability of getting cancer from exposure.
  - ✓ 1 in 10,000 risk = 10(-4) or 1E-4
  - ✓ 1 in a million (1,000,000) = 10(-6) or 1E-6

## Non-carcinogenic Risk (Toxicity)

- Health effects other than cancer.
- Risk is compared to a calculated value called a hazard index or hazard quotient.
  - ✓ $\frac{\text{Intake}}{\text{Reference Dose}}$ = Hazard Quotient (HQ)
  - ✓ Sum of Hazard Quotients = Hazard Index (HI)

# Review of Risk (cont'd)

## Carcinogenic Risk

- ✓ < 10(-6) EPA/DHEC generally doesn't require action.
- ✓ >10(-4) EPA/DHEC generally requires action.
- ✓ Risk Management: EPA/DHEC must consider many factors that may influence risk such as:
  - ▲ Who will be affected and how?
  - ▲ Future site use.
  - ▲ Existing features (e.g., buildings).
  - ▲ Probability of exposure.

## Non-carcinogenic Risk (Toxicity)

- ✓ A hazard index < 1 indicates that no toxic effect is likely.
- ✓ A hazard index >1 indicates that a toxic effect is likely, typically in sensitive individuals.
- ✓ Example of a Conservative Assumption:

| | | | |
|---|---|---|---|
| Chemical 1: | HQ = 0.7 | - | lungs |
| Chemical 2: | HQ = 0.2 | - | kidney |
| Chemical 3: | HQ = 0.2 | - | mucus membrane |
| | HI = 1.1 | | |

(Although no organ specific HQ is > 1, assume an overall toxic effect is possible.)

**Summary of Groundwater COCs**
**Naval Base Charleston Zone H**
**Charleston, South Carolina**

| Chemical | SWMU 9 GROUP | SWMU 14 GROUP | SWMU 13 | SWMU 17 | AOC 663/ SWMU 136 | AOC 667/ SWMU 138 | SWMU 178 | AOC 653 | AOC 655 | AOC 656 | AOC 660 | AOC 662 | AOC 666 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organic Compounds** | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | | | | 1,2 | | | | | | | | | |
| 1,2-Dichlorobenzene | | | | 1,2 | | | | | | | | | |
| 1,2-Dichloroethane | 1,2 | | | | | | | | | | | | |
| 1,2-Dichloroethene (total) | | | | | | | | | | | | | |
| 1,3-Dichlorobenzene | | | | 1,2 | | | | | | | | | |
| 1,4-Dichlorobenzene | 1,2 | | | 1,2 | | | | | | | | | |
| Benzene | 1,2 | | | | 2 | | | | | | | | |
| Bis(2-Chloroethyl)ether | 1 | | | | | | | | | | | | |
| Carbon disulfide | 1 | | | | | | | | | | | | |
| Chlorobenzene | 1,2 | | | 1,2 | | | | | | | | | |
| Chloroform | 1 | 1 | | | | | | | | | | | |
| Chloromethane | | | | | | | | | | | | | 1 |
| Ethylbenzene | | | | | | | | | | | | | |
| Hexachlorobenzene | 2 | | | | | | | | | | | | |
| Hexachlorobutadiene | 2 | | | | | | | | | | | | |
| Hexachlorocyclopentadiene | 1 | | | | | | | | | | | | |
| Hexachloroethane | 2 | | | | | | | | | | | | |
| Methylene chloride | 2 | | | | | | | | | | | | |
| Trichloroethene | | | | | | | | | | | | | |
| Vanadium | | | | | | | | | | | | | |
| Vinyl chloride | 1,2 | | | | | | | | | | | | 1 |
| **Semivolatile Organic Compounds** | | | | | | | | | | | | | |
| 2[illegible]ethylphenol | 1,2 | | | | | | | | | | | | |
| 2[illegible]lphenol | | | | | | | | | | | | | |
| 4-Methylphenol | 1,2 | | | | | | | | | | | | |
| Azobenzene | 1 | | | | | | | | | | | | |
| BEHP | | 1 | | | | | | | | | | | |
| Benzidine | 1 | | | 1 | | | | | | | | | |
| Pentachlorophenol | 1 | | | | | | | | | | | | |
| **Chlorinated Pesticides** | | | | | | | | | | | | | |
| Chlordane | | | | | | | | | 1,2 | | | | |
| Heptachlor epoxide | | 1 | | | | | | | | | | | |
| **Dioxins/Furans** | | | | | | | | | | | | | |
| 2,3,7,8-TCDD equivalents | 1 | 1 | | | 1 | | | | | 1 | | | |
| **Metals** | | | | | | | | | | | | | |
| Aluminum | | 1,2 | | | | | | | | | | | |
| Antimony | 1 | | | | | | | | | | | | |
| Arsenic | 2 | | | | | | | 2 | 1,2 | | | | |
| Barium | 1,2 | | | | | | | | | | | | |
| Beryllium | 2 | | 2 | | | | | | | | | | |
| Cadmium | 1,2 | 2 | | | | | | | | | | | |
| Chromium (+III) | | | | 2 | | | | | | | | | |
| Copper | | | | | | | | | | | | | |
| Lead | 1 | | | | | | | | | | | | |
| Manganese | 1,2 | | | | | | | | | | | | |
| Thallium | 1 | 1 | | | | | | | | | | | |
| Vanadium | | 1,2 | | | | | | | | | | | |

N

[illegible]icates the COC was detected in first quarter samples.
2 indicates the COC was detected in second quarter samples.

**Su y of Surface Soil COCs**
**Nav base Charleston Zone H**
**Charleston, South Carolina**

| Chemical | SWMU 9 GROUP | | | | | | SWMU 14 GROUP | | | | | | AOC 663/ | AOC 667/ | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SWMU 19 | SWMU 20 | SWMU 121 | AOC 649 | AOC 650 | AOC 654 | SWMU 14 | SWMU 15 | AOC 670 | AOC 684 | SWMU 13 | SWMU 17 | SWMU 136 | SWMU 138 | SWMU 159 | SWMU 178 | AOC 653 | AOC 655 | AOC 656 | AOC 659 | AOC 660 | AOC 662 | AOC 665 | AOC 666 |
| **Volatile Organic Compounds** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1-Dichloroethene (soil to air) | X | | | | | | | | | | | | | | | | | | | | | | | |
| 1,2,3-Trichloropropane (soil to air) | | | | | | | X | | | | | | | | | | | | | | | | | |
| **Semivolatile Organic Compounds** | | | | | | | | | | | | | | | | | | | | | | | | |
| Benzo(a)pyrene Equiv. | X | X | X | X | X | | X | X | X | X | | X | X | X | X | X | | X | X | | | | X | X |
| N-Nitroso-di-n-propylamine | | | | | | | | | | | | | | | | | | | | | | | | X |
| **Polychlorinated Biphenyls** | | | | | | | | | | | | | | | | | | | | | | | | |
| Aroclor-1248 | | | X | | | | | | | | | | | | | | | | | | | | | |
| Aroclor-1254 | X | | X | | X | | | | | | | | X | | | | | X | | | | | | |
| Aroclor-1260 | X | | X | | | | | | | | | X | | | | | | X | | | | | | X |
| **Chlorinated Pesticides** | | | | | | | | | | | | | | | | | | | | | | | | |
| 4,4'-DDE | | | | | | | | | | | | | X | | | | | | | | | | | |
| Dieldrin | | | | | | | | | | | | | | | | | | X | | | | | | |
| **Metals** | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | | | | | | | X | | X | | | | X | | | | | | | | | | | |
| Antimony | X | | X | | | | | | X | X | | | | | | | | | | | | | | |
| Arsenic | X | | X | | | | X | X | X | X | | | X | | | | | | | | | | | X |
| Beryllium | X | | X | | | | X | | | X | | | | | | | | | | | | | | |
| Cadmium | | | | | | | | | | | | | X | | | | | | | | | | | |
| Chromium | | | X | | | | X | | | | | | | | | | | | | | | | | |
| Copper | X | | X | | X | | | | | | | | | | | | | | | | | | | |
| Lead | X | | X | | | | X | | X | | | | | | | | | | | | | | | |
| Manganese | | | X | | | | | | | | | | X | | | | | | X | | | | | |
| Mercury | | | X | X | | | | | | | | | | | | | | | | | | | | |
| Nickel | X | | X | | | | | | | | | | | | | | | | | | | | | |
| Thallium | | | X | | | | | | X | X | | | | | | | | | | | | | | |
| Vanadium | | | X | | | | X | | | | | | X | | | | | | | | | | | X |
| Zinc | X | | X | | | | | | | | | | | | | | | | | | | | | |
| **General Petroleum Products** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Petroleum HC | Y | | Y | Y | Y | | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | | | Y | Y |

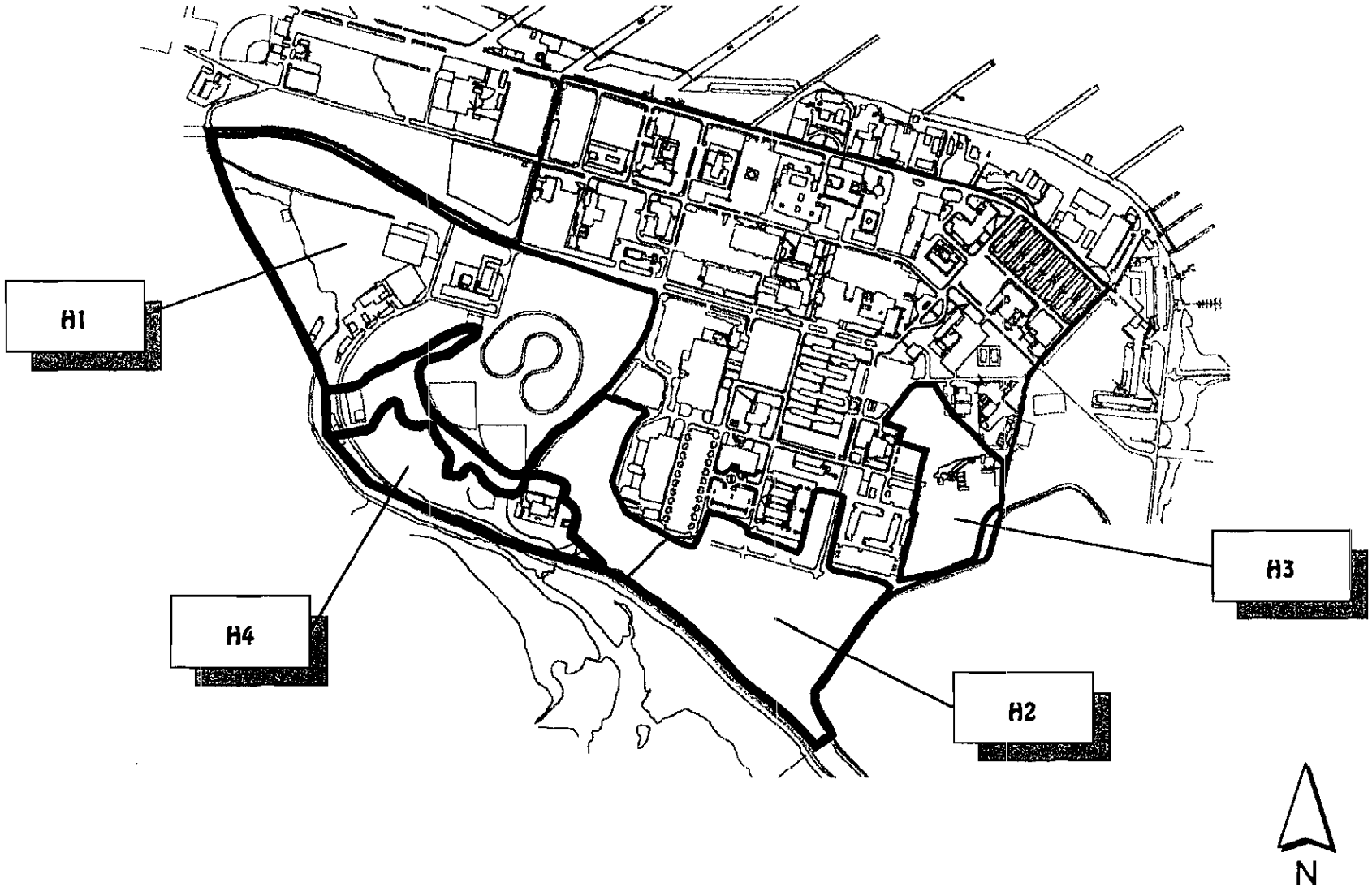
NOTES:
X indicates the chemical was identified as a COC in surface soil.
Y indicates petroleum hydrocarbons were detected in soil at concentrations exceeding 100 mg/kg.

**Summary of Risk and Hazard Projections**
**Naval Base Charleston Zone H**
**Charleston, South Carolina**

| Site | Matrix | ILCR < 1E-6 | ILCR 1E-6/1E-4 | ILCR >1E-4 | Hazard Index < 1 | Hazard Index > 1 | TPH | Primary Contributors to Risk/Hazard |
|---|---|---|---|---|---|---|---|---|
| **SWMU 9 GROUP** | | | | | | | | |
| SWMU 19 | Soil | | R,W | | W | R | YES | PCBs, Arsenic, BaP, Copper |
| SWMU 20 | Soil | | R,W | | R,W | | | BaP |
| SWMU 121 | Soil | | W | R | W | R | YES | PCBs, Arsenic, BaP, Beryllium, Copper |
| AOC 649 | Soil | W | R | | R,W | | YES | BaP |
| AOC 650 | Soil | | R,W | | R,W | | YES | BaP, PCBs |
| AOC 654 | Soil | R,W | | | R,W | | | None |
| SWMU 9 | Shallow Groundwater | | R,W | | | R,W | | Benzidine, Arsenic, Vinyl chloride, Hexachlorobenzene |
| SWMU 9 | Deep Groundwater | | R,W | | | R,W | | Thallium(1), Manganese, Chloroform(1) |
| **SWMU 14 GROUP** | | | | | | | | |
| SWMU 14 | Soil | | R,W | | W | R | YES | Arsenic, BaP, Beryllium |
| SWMU 15 | Soil | | W | R | W | R | | Arsenic, BaP |
| AOC 670 | Soil | | R,W | | W | R | YES | Arsenic, BaP |
| AOC 684 | Soil | | R,W | | R,W | | YES | Arsenic, BaP, Beryllium |
| SWMU 14 | Shallow Groundwater | | R,W | | W | R | | BEHP, TCDD, Aluminum |
| SWMU 14 | Deep Groundwater | | W | R | | R,W | | Heptachlor epoxide, TCDD, BEHP |
| SWMU 13 | Soil | W | R | | R,W | | YES | BaP |
| | Shallow Groundwater | | R,W | | R,W | | | Beryllium |
| SWMU 17 | Soil | | W | R | R,W | | YES | PCBs, BaP |
| | Shallow Groundwater | | | R,W | | R,W | | Benzidine, Chlorobenzene, 1,4-DCB, 1,2,4-TCB |
| SWMU 159 | Soil | R,W | | | R,W | | YES | None |
| | Sediment | R,W | | | R,W | | | None |
| SWMU 178 | Soil | W | R | | R,W | | YES | BaP |
| | Shallow Groundwater | R,W | | | R,W | | | None |
| AOC 653 | Soil | | R,W | | R,W | | YES | BaP |
| | Shallow Groundwater | | | R,W | | R,W | | Arsenic |
| AOC 655 | Soil | | R,W | | R,W | | YES | PCBs, BaP, Dieldrin |
| | Shallow Groundwater | | | R,W | | R,W | | Arsenic, Chlordane |
| AOC 656 | Soil | W | R | | R,W | | YES | BaP |
| | Shallow Groundwater | | R,W | | R,W | | | TCDD |
| AOC 659 | Soil | R,W | | | R,W | | YES | None |
| AOC 660 | Soil | R,W | | | R,W | | | None |
| | Shallow Groundwater | R,W | | | R,W | | | None |
| AOC 662 | Soil | R,W | | | R,W | | | None |
| | Shallow Groundwater | R,W | | | R,W | | | None |
| AOC 663/SWMU 136 | Soil | | W | R | W | R | YES | Arsenic, BaP, PCBs, 4,4'-DDE, Aluminum |
| | Shallow Groundwater | | W | R | | R,W | | TCDD |
| AOC 665 | Soil | W | R | | | | YES | BaP |
| AOC 666 | Soil | | W | R | W | R | YES | Arsenic, BaP, PCBs, Mercury, Vanadium, NNPA |
| | Shallow Groundwater | | R,W | | R,W | | | Vinyl chloride, Chloromethane |
| AOC 667/SWMU 138 | Soil | R,W | | | R,W | | YES | BaP |
| | Shallow Groundwater | R,W | | | R,W | | | None |

NOTES:
R indicates the resident projections fell within the corresponding risk/hazard range.
W indicates the site worker projections fell within the corresponding risk/hazard range.
(1) indicates that the chemical was detected exclusively in first quarter groundwater samples.

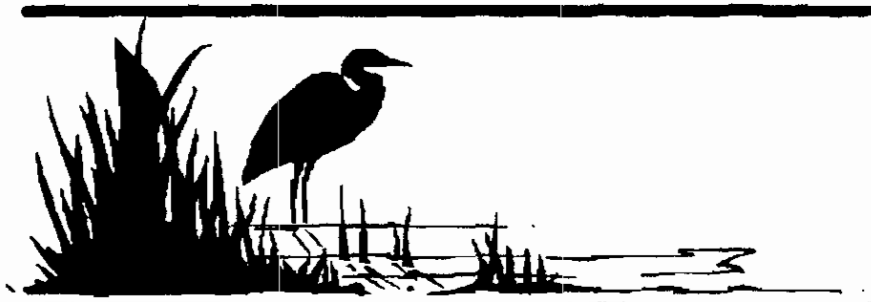
# Ecological Impact Areas



# Ecological Impacts

| Ecological Zone | Description | Sites Contributing to Impact |
|---|---|---|
| H-1 | Terrestrial<br>Grass fields with low shrub cover | SWMUs 9, 19, 20<br>AOCs 649, 650, 651 |
| H-2 | Terrestrial<br>Densely forested | SWMU 121 |
| H-3 | Terrestrial<br>Grass fields bordered by shrubs | SWMUs 14, 15<br>AOCs 670, 684 |
| H-4 | Aquatic<br>Marshy area north of Least Tern Lane | SWMUs 9, 20 |

# Ecological Impacts (cont'd)



| Species | Impacted SubZones | Chemicals Contributing to Impact |
|---|---|---|
| Terrestrial Wildlife (Rabbit/Robin) | H-2 | Metals |
| Aquatic Wildlife | H-4 | Metals/Organics (Sediment) |
| Invertebrates | H-1<br>H-2<br>H-3 | Organics<br>Metals<br>Lead/Organics |
| Vegetation (Seedlings) | H-2 | Lead/Zinc |

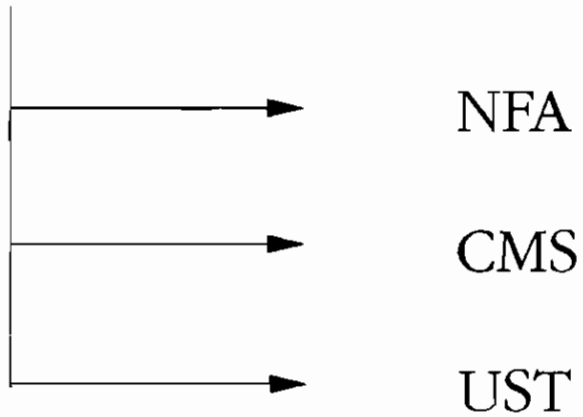
# Recommendations

| Site # | Site Description | NFA | Further Action | |
|---|---|---|---|---|
| | | | TPH | BRA |
| SWMU 9 | Closed Landfill | | | ✓ |
| SWMU 13 | Current Fire Fighter Training Area | | ✓ | ✓ |
| SWMU 14 | Chemical Disposal Area | | ✓ | ✓ |
| SWMU 17 | Oil Spill Area | | ✓ | ✓ |
| SWMU 19 | Solid Waste Transfer Station | | ✓ | ✓ |
| SWMU 20 | Waste Disposal Area | | | ✓ |
| SWMU 121 | Satellite Accumulation Area | | ✓ | ✓ |
| SWMU 136 | Satellite Accumulation Area | | ✓ | ✓ |
| SWMU 138 | Satellite Accumulation Area | | ✓ | |
| SWMU 159 | Satellite Accumulation Area | | ✓ | ✓ |
| SWMU 178 | Apparent Transformer Fire Site | | ✓ | ✓ |
| AOC 649 | Storage Area | | ✓ | ✓ |
| AOC 650 | Storage Area | | ✓ | ✓ |
| AOC 651 | Storage Area | | ✓ | ✓ |
| AOC 653 | Hobby Shop | | ✓ | ✓ |
| AOC 654 | Septic Tank and Drain Field | ✓ | | |
| AOC 655 | Oil Spill Area | | ✓ | ✓ |
| AOC 656 | Petroleum Spill | | ✓ | ✓ |
| AOC 659 | Diesel Storage | | ✓ | |
| AOC 660 | Mosquito Control | ✓ | | |
| AOC 662 | Former Gasoline Station | ✓ | | |
| AOC 663 | Gas/Diesel Pumping Station | | ✓ | ✓ |
| AOC 665 | Pyrotechnic Storage | | ✓ | ✓ |
| AOC 666 | Fuel Storage | | ✓ | ✓ |
| AOC 667 | Vehicle Maintenance Area | | ✓ | |
| AOC 503 | Unexploded Ordnance Site | To be addressed by Navy's EOD | | |
| AOC 661 | Explosives Storage | | | |

► SWMU 14 includes SWMU 15 and AOCs 670 and 684

# Next Steps

- Regulatory Review
- Public Comment
- Permit Revision



DEPARTMENT OF THE NAVY
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
PO. BOX 190010
2155 EAGLE DRIVE
NORTH CHARLESTON, S.C. 29419-9010

5090/11
Code 1877
3 May 1996

Mr. G. Randall Thompson
Director, Division of Hazardous and Infectious Waste Management
Bureau of Solid and Hazardous Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201

Re: SUBMITTAL OF THE RCRA FACILITY INVESTIGATION PROGRESS REPORT FOR APRIL 1996

Dear Mr. Thompson,

The purpose of this letter is to submit the Monthly RCRA Facility Investigation (RFI) Progress Report for Naval Base Charleston. This report is submitted voluntarily to provide an update on the progress of the RFI to members of the NAVBASE BRAC Cleanup Team (BCT) which includes representatives of the Navy, the Environmental Protection Agency and the South Carolina Department of Health and Environmental Control.

Enclosure (1) is the Monthly Report which contains the activity for the month of April, 1996. If you should have any questions, please contact Joe V. Camp Jr. or me at (803) 743-9985 and (803) 820-5525 respectively.

Sincerely,

Matthew A. Hunt

MATTHEW A. HUNT
Remedial Project Manager
Naval Base Charleston

Encl:
(1) Monthly RFI Progress Report - April 1996

Copy to (w/encl):
SCDHEC (Bowers)
USEPA (Brittain)
SOUTHNAVFACENGCOM (Hunt)
CSO Naval Base Charleston (Camp, Fontenot)

**NAVBASE CHARLESTON**
**RFI STATUS REPORT**
**PERIOD: SUMMARY OF**
**01 April 1996 To 30 April 1996**

## I. INTRODUCTION

The following status report has been prepared to satisfy condition II.E.3.a of the Part B Permit Renewal dated 5 December 1994 for Naval Base Charleston (NAVBASE). The requirements of this condition are in effect since the total elapsed time to complete the RCRA Facility Investigation (RFI) is projected to be greater than 180 calendar days from the approval date of the *Final Comprehensive RFI Work Plan* as indicated in the Corrective Action Management Plan (CAMP).

In lieu of submitting quarterly reports, NAVBASE is voluntarily submitting monthly reports to provide an update on the progress of the RFI to members of the NAVBASE BRAC Cleanup Team (BCT) in a more timely manner. The content of the monthly reports includes information intended to satisfy condition II.E.3.a of the Part B Permit. Consequently, this report only addresses activities which occurred during the month of April 1996.

## II. PORTION OF THE RFI COMPLETED

- Revision 01 of the *Final Comprehensive RFI Work Plan* along with a response to comments was resubmitted to the regulatory agencies on 12 April 1996 for approval.

- The second quarter of groundwater sampling in Zones A and B was initiated on 22 April 1996 and completed on 26 April 1996.

- Groundwater sampling continued in Zone E. To date approximately 80% of the 174 monitoring wells have been sampled. Attachment A contains a summary of all samples collected to date and a brief synopsis of the soil results.

- The fourth quarter of groundwater sampling in Zone H was finished on 17 April 1996. This sampling event completes the final round of groundwater sampling to be completed under the scope of the *Final Zone H RFI Work Plan*.

- The *Draft Zone K RFI Work Plan* was submitted to the regulatory agencies on 1 April 1996 for review and comment.

## III. SUMMARIES OF FINDINGS

As stated above, Attachment A contains a brief summary of soil sample results. This summary will serve as the basis for the 60% progress meeting for the Zone E RFI field work is currently scheduled for 28 May 1996. In preparation for the meeting, all analytical data received to date

is being compiled along with maps illustrating contaminant distributions. At the time this report was written, the mapping effort was incomplete since the surveying has yet to be completed. Attachment B is a summary of the groundwater analytical data received to date for Zone H including the third quarter data which is not included in the RFI due to the fact it was received after the report was submitted.

## IV. DEVIATIONS FROM APPROVED WORK PLANS THIS REPORTING PERIOD

There were no known deviations from the approved RFI Work Plans for this reporting period.

## V. SUMMARY OF CONTACTS WITH LOCAL COMMUNITY PUBLIC INTEREST GROUPS OR STATE GOVERNMENT

As indicated in the January 1995 Quarterly Status Report, the Navy has established a Restoration Advisory Board (RAB) to involve the public in the decisions regarding the investigation and remediation of contaminated sites at Naval Base Charleston. The meetings are held monthly and are open to the public. The minutes of the March 1995 meeting are provided as Attachment C. The minutes of the April 1995 meeting were not available for submittal with this report.

## VI. SUMMARY OF PROBLEMS OR POTENTIAL PROBLEMS AND ACTION TAKEN TO RECTIFY PROBLEMS

Completion of the field work in Zone A has been delayed as the Navy awaits approval of the proposed revisions to the *Final Comprehensive RFI Work Plan*. The proposed revisions include direct push technology methods the Navy wishes to utilize as a cost effective means of delineating groundwater contamination identified in Zone A. As a result, delivery of the *Draft Zone A RFI Report* is also being delayed. Revision 02 of the *Corrective Action Management Plan* will be updated to reflect the anticipated impacts to the Zone A schedule.

## VII. KEY PROJECT PERSONNEL

The status report for March 1996 reflected numerous changes in key Navy personnel for the NAVBASE Charleston RFI resulting from the closure of Charleston Naval Shipyard. No additional changes occurred during the current reporting period.

## VIII. PROJECTED WORK FOR THE NEXT REPORTING PERIOD

**Document Preparation and Data Evaluation:**

- The Navy anticipates receipt of comments from SCDHEC and EPA pertaining to the proposed revisions to the *Final Comprehensive RFI Work Plan*. Upon receipt of the comments, the plan will be revised and submitted for approval.

- Data evaluation for Zones A and E will continue.

**Field Activities:**

- The groundwater screening effort in Zone A is anticipated to be completed. Additionally, the second quarter of groundwater sampling for the permanent monitoring wells will likely begin.

- The third quarter of groundwater sampling in Zone C is scheduled to begin.

- The initial round of groundwater sampling in Zone E should be completed. A second round of soil sampling appears to be necessary at some of the Zone E sites.

- The fourth quarter of groundwater sampling in Zone H will be completed.

- The third quarter of groundwater sampling in Zone I is scheduled to begin.

A quarterly groundwater sampling scheduled for all zones at which the RFI Work Plan has been approved is included as Attachment D.

## IX. COPIES OF DAILY REPORTS, INSPECTION REPORTS, LABORATORY DATA

Daily activities are recorded in accordance with the Data Management Plan included as Section 14 of the Final Comprehensive Sampling and Analysis Plan. Photocopies of these daily records have not been included with this status report; however, this information is available for review upon request.

Per agreement with SCDHEC and EPA, hard copies of the analytical data are not being submitted. A copy of the data is maintained at the EnSafe/Allen & Hoshall office in Charleston and is available for review.

**ATTACHMENT A**

| Zone E — Site Specific Completion List | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Samples Collected | | | | | | |
| Site Name | Soil | Sediment | Wipe | Air | Concrete/ Asphalt Core | Surface Water | Groundwater |
| AOC 525 - Bldg 223 | 8 | N/A | N/A | N/A | N/A | N/A | 1 |
| AOC 526 - Bldg 212 | 16 | N/A | N/A | N/A | N/A | N/A | 3 |
| AOC 528 - Bldg 1453 | 8 | N/A | N/A | N/A | N/A | N/A | 1 |
| AOC 530 - Bldg 35 | 13 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 531 - Bldg 459 | 6 | N/A | 4 | N/A | N/A | N/A | N/A |
| AOC 538 - Bldg 6 | 15 | N/A | 16 | 10 | N/A | N/A | 2 |
| AOC 539 - Bldg 6 | 6 | 1 | 6 | 5 | N/A | N/A | 2 |
| AOC 540 - Bldg 226 | 2 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 541 - Bldg 226 | 1 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 542 - Bldg 226 | 12 | N/A | N/A | N/A | N/A | N/A | 4 |
| AOC 543 - Bldg 226 | 8 | N/A | N/A | N/A | N/A | N/A | 1 |
| AOC 544 - Bldg 221 | 8 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 546 - Bldg 221 | N/A | 1 | N/A | N/A | N/A | N/A | N/A |
| AOC 548 - Bldg 5 | 8 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 549 - Bldg 5 | 19 | N/A | N/A | N/A | N/A | N/A | 3 |
| AOC 550 - Bldg 1111 | 10 | N/A | N/A | N/A | N/A | N/A | 1 |
| AOC 551 - Bldg 1119 | 12 | N/A | N/A | N/A | N/A | N/A | 2 |
| AOC 552 - Bldg 1119 | 6 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 554 - Bldg 5 | 4 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 555 - Bldg 29 | N/A | 2 | N/A | N/A | N/A | N/A | N/A |
| AOC 556 - Dry Docks | N/A | 9 | N/A | N/A | N/A | 23 | N/A |
| AOC 558 - Bldg 77 | N/A | N/A | 4 | N/A | 4 | N/A | N/A |
| AOC 559 - Bldg 32 | 43 | N/A | 9 | N/A | N/A | N/A | 0 |
| AOC 560 - Bldg 32 | 4 | N/A | N/A | N/A | N/A | N/A | N/A |

**Zone E — Site Specific Completion List**

| Site Name | Samples Collected | | | | | | |
|---|---|---|---|---|---|---|---|
| | Soil | Sediment | Wipe | Air | Concrete/ Asphalt Core | Surface Water | Groundwater |
| AOC 561 - Bldg 32 | 8 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 562 - Bldg 84 | 8 | N/A | 4 | N/A | N/A | N/A | N/A |
| AOC 563 - Bldg 37 | 18 | N/A | N/A | N/A | N/A | N/A | 4 |
| AOC 564 - Bldg 80 | 6 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 566 - Bldg 194 | 10 | N/A | N/A | N/A | N/A | N/A | 2 |
| AOC 567 - Bldg 75 | 7 | N/A | 4 | N/A | N/A | N/A | N/A |
| AOC 569 - Bldg 25 | 10 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 570 - Bldg 25 | 28 | N/A | N/A | N/A | N/A | N/A | 0 |
| AOC 571 - Bldg 177 | N/A | N/A | N/A | N/A | 3 | N/A | N/A |
| AOC 572 - Bldg 177 | 16 | 1 | N/A | N/A | N/A | N/A | 3 |
| AOC 573 - Bldg 177 | 10 | 2 | N/A | N/A | N/A | N/A | 2 |
| AOC 574 - Bldg 9 | 10 | N/A | N/A | N/A | N/A | N/A | 4 |
| AOC 576 - Bldg 80 | 10 | N/A | N/A | N/A | N/A | N/A | 3 |
| AOC 579 - Bldg 1035 | 8 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 580 - Bldg 10 | 12 | N/A | N/A | N/A | N/A | N/A | 3 |
| AOC 583 - Bldg 236 | 14 | N/A | N/A | N/A | N/A | N/A | 4 |
| AOC 586 - Bldg 1014 | 8 | N/A | N/A | N/A | N/A | N/A | 1 |
| AOC 590 - Bldg 79 | 10 | 1 | N/A | N/A | N/A | N/A | 2 |
| AOC 592 - Bldg 1225 | 8 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 596 - Bldg 101 | 22 | N/A | N/A | N/A | N/A | N/A | 6 |
| AOC 597 - Bldg 91 | 8 | N/A | 3 | N/A | 1 | N/A | N/A |
| AOC 598 - Pier J | 8 | 1 | N/A | N/A | N/A | N/A | 1 |
| AOC 599 - Bldg 39 | 8 | 1 | N/A | N/A | N/A | N/A | 1 |
| AOC 602 - Bldg 95 | 8 | N/A | 4 | N/A | N/A | N/A | N/A |

| Zone E — Site Specific Completion List | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Samples Collected | | | | | | |
| Site Name | Soil | Sediment | Wipe | Air | Concrete/ Asphalt Core | Surface Water | Groundwater |
| AOC 603 - DD3 | 8 | N/A | N/A | N/A | N/A | N/A | N/A |
| AOC 604 - Bldg 96 | 8 | N/A | 4 | N/A | N/A | N/A | N/A |
| AOC 605 - 1278 | 18 | N/A | N/A | N/A | N/A | N/A | 3 |
| SWMU 5 - Pad 1278 | 6 | N/A | N/A | N/A | N/A | N/A | N/A |
| SWMU 18 - 1278 | 8 | N/A | N/A | N/A | N/A | N/A | 2 |
| SWMU 21 - Bldg 1275 | N/A | N/A | N/A | N/A | N/A | N/A | 3* |
| SWMU 22 - Bldg 5 | 4 | N/A | N/A | N/A | N/A | N/A | N/A |
| SWMU 23 - Bldg 226 | 6 | N/A | N/A | N/A | N/A | N/A | 2 |
| SWMU 25 - Bldg 44 | 19 | 1 | N/A | N/A | N/A | N/A | 4* |
| SWMU 53 - Bldg 212 | 4 | N/A | N/A | N/A | N/A | N/A | 1 |
| SWMU 54 - Bldg 1275 | 75 | 4 | N/A | N/A | N/A | N/A | 3 |
| SWMU 63 - Bldg 226 | 6 | N/A | N/A | N/A | N/A | N/A | 2 |
| SWMU 65 - Bldg 221 | 11 | N/A | N/A | N/A | N/A | N/A | 7 |
| SWMU 67 - Bldg 3 | 14 | N/A | 8 | Random | N/A | N/A | 2 |
| SWMU 70 - Bldg 5 | 8 | N/A | N/A | N/A | N/A | N/A | 3 |
| SWMU 81 - Bldg 1245 | N/A | 2 | N/A | N/A | 3 | N/A | N/A |
| SWMU 83 - Bldg 9 | 16 | N/A | 16 | Random | N/A | N/A | 2 |
| SWMU 84 - Bldg 9 | 12 | N/A | N/A | N/A | N/A | N/A | 2 |
| SWMU 87 - Bldg 80 | 2 | N/A | N/A | N/A | N/A | N/A | N/A |
| SWMU 97 - Bldg 236 | 6 | N/A | N/A | N/A | N/A | N/A | 1 |
| SWMU 100 - Bldg 218 | 6 | N/A | N/A | N/A | N/A | N/A | 1 |
| SWMU 102 - Bldg 79 | 57 | N/A | N/A | N/A | N/A | N/A | 1 |
| SWMU 106 - DD3 | 6 | N/A | N/A | N/A | N/A | N/A | 2 |
| SWMU 145 - Bldg 13A | 24 | N/A | N/A | N/A | N/A | N/A | 4 |

| Zone E — Site Specific Completion List | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Samples Collected | | | | | | |
| **Site Name** | **Soil** | **Sediment** | **Wipe** | **Air** | **Concrete/ Asphalt Core** | **Surface Water** | **Groundwater** |
| SWMU 170 - DD1 | 25 | 4 | N/A | N/A | 15 | N/A | N/A |
| SWMU 171 - DD2 | 37 | 2 | N/A | N/A | 17 | N/A | N/A |
| SWMU 172 - Bldg 80 | 12 | 1 | N/A | N/A | N/A | N/A | 3 |
| SWMU 173 - Bldg 1297 | 4 | 3 | N/A | N/A | N/A | N/A | N/A |
| Supplemental Samples | 49 | N/A | N/A | N/A | N/A | N/A | 44 |
| TOTAL | 915 | 36 | 82 | 15 | 43 | 23 | 148 |

**Notes:**

N/A — Indicates no samples were proposed for that particular matrix.

* — Includes existing monitoring wells from previous investigations.

**NAVBASE CHARLESTON RFI**
**ZONE E SITE SUMMARY**

## 1) SWMU 5, SWMU 18, AOC 605

SWMU 5 — Former Battery Electrolyte Treatment Area, Pad 1278 (Solvents, Lead/Acid Batteries) This site was used to neutralize submarine battery acid and consisted of a platform and two underground storage tanks. Constituents exceeding RBCs include: Arsenic in 3/3 soil borings; Lead in 2/3 soil borings.

SWMU 18 — PCB Spill Area, Public Works Resource Recovery Facility Storage Area (Pyranol Insulating Fluid) This site consists of a 20 foot x 20 foot area in which a transformer broke and discharged Pyranol insulating fluid (approximately 75 gallons in 1987). Constituents exceeding RBCs include: Arsenic in 4/5 soil borings; Lead in 3/5 soil borings; Benzo(a)pyrene in 1/5 soil borings.

AOC 605 — Waste Paint Storage Area, Pad 1278 (Acids, Paints, Solvents, Petroleum Hydrocarbons, Lead) This site consists of a 40 foot x 250 foot concrete pad used to store materials such as paints, used oils, solvents, and chemicals. Constituents exceeding RBCs include: Arsenic in 10/11 soil borings; Beryllium in 2/11 soil borings; Lead in 4/11 soil borings; Benzo(a)pyrene in 2/11 soil borings; Dibenz(a,h)anthracene in 1/11 soil borings.

## 2) SWMU 21, SWMU 54

SWMU 21 — Old Paint Storage Area, Pad 1275 (Paint Waste) This site consists of a 20 foot x 80 foot concrete pad formerly used for the storage of containerized paint waste. All samples were given a SWMU 54 ID.

SWMU 54 — Former Abrasive Blasting Area, Area around Pad 1275 (Paint Waste, Solvents, Abrasive Blast Media) This area was used for abrasive blasting and painting of ship components. Constituents exceeding RBCs include: Antimony in 1/40 soil borings; Arsenic in 26/40 soil borings and 3/4 sediment samples; Beryllium in 12/40 soil borings and 1/4 sediment samples; Lead in 25/40 soil borings Iron in 2/40 soil borings; Manganese in 1/40 soil borings; Mercury in 1/40 soil borings; Benzo(a)anthracene in 1/40 soil borings; Benzo(a)pyrene in 4/40 soil borings and 1/4 sediment samples; Benzo(b)fluoranthene in 1/40 soil borings; Benzo(k)fluoranthene in 1/40 soil borings; Dibenz(a,h)anthracene in 2/40 soil borings; Indeno(1,2,3-cd)pyrene in 1/40 soil borings.

## 3) SWMU 22, SWMU 25, AOC 554

SWMU 22 — Old Plating Shop Wastewater Treatment System, Building 5 (Chromic Acid, Cadmium, Copper, Chromium, Lead, Nickel, Silver). This consists of a 5 foot x 5 foot x 8 foot concrete collection sump used to collect acidic wastewater, cyanide and alkaline wastewater and

a clarifier, four mixing tanks, chemical feed equipment and associated piping. Constituents exceeding RBCs include: Arsenic in 1/2 soil borings.

SWMU 25 — Old Plating Operation, Building 44 (Silver, Cadmium, Chromium, Nickel, Mercury, Lead, Cyanide, Barium) This site consisted of an electroplating operation which contained approximately 40 metal tanks that contained solutions used in the plating process until operations ceased in 1983. Constituents exceeding RBCs include: Arsenic in 1/11 soil borings; Cadmium in 1/11 soil borings.

AOC 554 — Paint Shop, Former Building 1003 (Waste Paint, Paint Thinner, Solvents, Heavy Metals) This site was the location of a former paint shop in operation from approximately 1909 to 1940. Constituents exceeding RBCs include Arsenic in 2/2 soil borings.

**4) SWMU 23, SWMU 63, AOC 540, AOC 541, AOC 542, AOC 453**

SWMU 23 — New Plating Shop Wastewater Treatment System, Building 226 (Sulfuric Acid, Sodium Metabisulfite, Sodium Hydroxide, Potassium Hydroxide, Chromium, Cadmium) This site consists of rinse water pumps, holding tanks, transfer pumps, a clarifier, a neutralization tank, and a plate and frame filter press which handles chrome effluent, acid/alkali effluent and cadmium effluent. Constituents exceeding RBCs include: Arsenic in 1/3 soil borings; Benzo(a)pyrene in 1/3 soil borings.

SWMU 63 — Battery Charging Station, Former Building 73 ( Acids, Metals) This site is the location of a former battery charging area (1941-1970) which is now covered by Building 226, a plating facility. Constituents exceeding RBCs include: Arsenic in 3/3 soil borings.

AOC 540 — Plating Plant, Building 226 (Acids, Metals, Hydraulic Fluid, Petroleum Hydrocarbons) This site consists of a pump and valve test area, a plating area, and a hydraulic repair area including a wet scrubber, 120 plating dip tanks, a sludge pit, an oil/water separator, a 300-gallon fuel oil tank, and a waste treatment facility. Constituents exceeding RBCs include: Arsenic in 1/1 soil boring.

AOC 541 — Oil Storage Shop, Former Building 38 (Petroleum Hydrocarbons). This site was an oil storage area (1909-1939) currently located in the asphalt parking lot between Buildings 6 and 226. Constituents exceeding RBCs include: Arsenic in 1/1 soil boring.

AOC 542 — Paint Shop and Oxy-Acetylene Plant, Former Building 22 (Acids, Metals, Paints, Solvents, Acetylene Gas, Abrasive Grit) This site was used for the manufacture of oxy-acetylene (1922-1942) and then for chemical and abrasive paint stripping (1943-1976) and is currently located in the asphalt parking lot between Buildings 6 and 226. Constituents exceeding RBCs include: Arsenic in 3/7 soil borings; Benzo(a)pyrene in 1/7 soil borings.

AOC 543 — Storage Facility, Former Building 1026 (Petroleum Hydrocarbons) This site was used as a storehouse (until 1970) and is currently covered by Building 226. Constituents exceeding RBCs include: Arsenic in 2/4 soil borings.

**5) SWMU 53, AOC 526**

SWMU 53 — Former Satellite Accumulation Area, Building 212 (Acids, Metals, Paints, Solvents, Petroleum Hydrocarbons) This site contained an SAA unit used to store hazardous waste in 55-gallon drums on an asphalt surface. Constituents exceeding RBCs include: Arsenic in 2/2 soil borings; Benzo(a)pyrene in 1/2 soil borings; Dibenz(a,h)anthracene in 1/2 soil borings.

AOC 526 — Paint Area, Building 212 (Metals, Solvents, Paints - containing organotin and tributylin) This site was formerly used for spray painting ship components (1974-1993) using two types of metal-based paints. Constituents exceeding RBCs include: Arsenic in 6/9 soil borings; Benzo(a)pyrene in 1/9 soil borings.

**6) SWMU 65, AOC 544, AOC 546**

SWMU 65 — Lead Storage, Building 221 (Lead) This site was used for storing lead blankets and shielding materials and as a staging area for scrap lead awaiting disposal. Constituents exceeding RBCs include: Arsenic in 3/6 soil borings.

AOC 544 — Former Pickling Plant, Building 221 (Acids, Metals, Solvents, Petroleum Hydrocarbons) This site consisted of an open-air facility using a series of chemical baths and water rinses in the pickling process, discharging pickling bath solutions into the Cooper River via the storm drainage system, which was discontinued in 1984. Constituents exceeding RBCs include: Arsenic in 1/4 soil borings; Aldrin in 1/4 soil borings; Dieldrin in 1/4 soil borings.

AOC 546 — Galvanizing/Pickling Shop, Former Building 1025 (Acids, Solvents) This site consisted of a galvanizing/pickling shop that operated at the current location of Building 3 (until 1942) and in the area southwest of Building 74 (until 1967) which are currently covered by pavement and structures. Constituents exceeding RBCs include Arsenic, Copper, Lead, Iron, Benzo(a)anthracene, Benzo(a)pyrene, and Dibenz(a,h)anthracene in 1/1 sediment sample.

**7) SWMU 67**

SWMU 67 — Mercury Gauge Room, Building 3 (Mercury) This site consists of a mercury gauge room (2nd floor), a former mercury gauge room (1st floor), and a mercury storage area (1st floor) used to conduct calibration and leak tests on mercury gauges. No sample points have exceeded RBCs.

## 8) SWMU 70, AOC 548, 549

SWMU 70 — Dip Tank Area, Building 5 (Acids, Metals, Solvents) This site is the former location of a dip tank used to treat wood with fire retardant until 1981. Constituents exceeding RBCs include: Arsenic in 1/4 soil borings.

AOC 548 — Hydraulic Elevator, Building 5 (Hydraulic Fluid, Petroleum Hydrocarbons) This site consists of an electric hydraulic elevator in a shaft that is paved on the bottom with approximately 8 inches of concrete and a container that captures hydraulic fluid leaks and returns it to the main reservoir. Constituents exceeding RBCs include: Arsenic in 1/4 soil borings.

AOC 549 — Former Scrap Yard, Buildings 3 and 5 (Metals, Petroleum Hydrocarbons) This site consists of a former scrap yard north of Building 5 (1920s and 1930s) which is currently paved with concrete and asphalt. Constituents exceeding RBCs include: Arsenic in 7/10 soil borings; Copper in 1/10 soil borings; Lead in 2/10 soil borings; Benzo(a)pyrene in 1/10 soil borings; Dibenz(a,h)anthracene in 1/10 soil borings.

## 9) SWMU 81

SWMU 81 — <90 Day Accumulation Area, Building 1245 (Lead, Metals, Paints, Solvents) This site was used to store hazardous waste (until 1994), had a wooden floor with no spill containment and is currently an open area covered by concrete and asphalt. Constituents exceeding RBCs include: Arsenic in 2/2 sediment samples.

## 10) SWMU 83, SWMU 84, AOC 574

SWMU 83 — Former Foundry, Building 9 (Lead, Paints, Solvents, Friable Asbestos, Dielectric Fluid, Petroleum Hydrocarbons) This site was used to cast metal parts, primarily copper alloy parts, and contained equipment which appeared to be contaminated with PCBs and lead. Constituents exceeding RBCs include: Arsenic in 5/8 soil borings; Benzo(a)pyrene in 2/8 soil borings.

SWMU 84 — Former Lead Storage Area, Building 9 (Lead) This site consists of an area outside of Building 9 used to store lead blankets and shielding. Constituents exceeding RBCs include: Arsenic in 4/6 soil borings; Lead in 1/6 soil borings; Benzo(a)anthracene in 1/6 soil borings; Benzo(a)pyrene in 4/6 soil borings; Benzo(b)fluoranthene in 1/6 soil borings; Dibenz(a,h)anthracene in 2/6 soil borings.

AOC 574 — Fuel Tank, Building 9 (Petroleum Hydrocarbons) This site consists of a 3,700-gallon fuel oil AST, no longer in use, in an unpaved area with no secondary containment. Constituents exceeding RBCs include: Arsenic in 5/5 soil borings; Benzo(a)anthracene in 1/5 soil

borings; Benzo(a)pyrene in 3/5 soil borings; Benzo(b)fluoranthene in 1/5 soil borings; Dibenz(a,h)anthracene in 1/5 soil borings; Indeno(1,2,3-cd)pyrene in 1/5 soil borings.

**11) SWMU 87, SWMU 172, AOC 564**

SWMU 87 — <90 Day Accumulation Area, Building 80 (Paint, Mercury, Anti-Freeze, Petroleum Hydrocarbons) This site was used to store hazardous waste (until 1994) in 55-gallon drums and plastic bags and has an asphalt foundation. Constituents exceeding RBCs include: Arsenic in 1/1 soil boring.

SWMU 172 — Steam Cleaning Operations, Building 80 (Petroleum Hydrocarbons) This site consisted of an area for steam cleaning various types of equipment, including engines and generators, with a concrete-paved area which drains into a storm drain. Constituents exceeding RBCs include: Arsenic in 6/6 soil borings; Beryllium in 1/6 soil borings.

AOC 564 — Oil/water Separator, Building 80 (Petroleum Hydrocarbons) This site consists of a 300-gallon oil/water separator used for wastewater from machine and parts cleaning in Building 80. Constituents exceeding RBCs include: Arsenic in 1/3 soil borings.

**12) SWMU 97**

SWMU 97 — <90 Day Accumulation Area, Building 236 (Freon, Metals, Solvents, Petroleum Hydrocarbons) This site consisted of a 20 foot x 20 foot steel shed on asphalt pavement, used to store hazardous waste in 55-gallon drums. Constituents exceeding RBCs include: Arsenic in 2/3 soil borings.

**13) SWMU 100**

SWMU 100 — Satellite Accumulation Area, Building 218 (Metals, Paints, Epoxies, Solvents, Used Blast Grit, Petroleum Hydrocarbons) This site was used to store hazardous waste in 55-gallon drums on an asphalt-paved area. Constituents exceeding RBCs include: Arsenic in 3/3 soil borings; Beryllium in 1/3 soil borings.

**14) SWMU 102**

SWMU 102 — Mercury Spill, Building 79 (Metals, Mercury, Petroleum Hydrocrbons) This site is in the central portion of the building where mercury was reported to have spilled and seeped under the concrete floor in 1969. No sample points have exceeded RBCs.

**15) SWMU 106, AOC 603**

SWMU 106 — Blast Area, Drydock 3 (Metals, Paints, Solvents, Blasting Material) This site consists of an area where blasting operations were conducted using steel grit and sodium bicarbonate. Constituents exceeding RBCs include: Arsenic in 3/3 soil borings; Beryllium in 2/3 soil borings; Manganese in 1/3 soil borings.

AOC 603 — Burning Dump, Drydock 3 (Petroleum Hydrocarbons, Products of Incomplete Combustion) This site consists of an area near the present location of Drydock 3 where a burning dump was operated from the late 1920s through the 1930s. Constituents exceeding RBCs include: Arsenic in 4/4 soil borings.

**16) SWMU 145**

SWMU 145 — Mercury Spill, Building 13A (Mercury) This site consists of a reported mercury spill beneath Building 13A. No data as been evaluated at this time.

**17) SWMU 170, SWMU 171**

SWMU 170 — PCB Removal Operations, Drydock 1 Area (PCBs) This site consists of an area where missile launching tubes removed from submarines are dismantled for the removal of PCB-containing components (1980s-1990s). No sample points have exceeded RBCs.

SWMU 171 — PCB Removal Operations, Drydock 2 Area (PCBs) This site consists of an area where missile launching tubes removed from submarines are dismantled for the removal of PCB-containing components (1980s-1990s). No sample points have exceeded RBCs. TEFs will be calculated for Dioxins.

**18) SWMU 173**

SWMU 173 — Lead Storage Areas, Building 1297 (Metals, Hazardous Materials) This site consists of 10 separate storage areas inside the building used for storing lead ingots and hazardous materials. Constituents exceeding RBCs include: Arsenic in 2/2 soil borings and 3/3 sediment samples; Iron in 1/3 sediment samples; Lead in 3/3 sediment samples.

**19) AOC 525**

AOC 525 — Paint Booth, Building 223 (Paints, Solvents) This site consists of a paint booth inside the building, used to part miscellaneous parts. Constituents exceeding RBCs include: Arsenic in 3/4 soil borings.

## 20) AOC 528

AOC 528 — Steam Cleaning Shop, Building 59 (Caustic, Petroleum Hydrocarbons, Kerosene) This site consists of a steam cleaning shop used to clean boiler parts, using kerosene, trisodiumphosphate, caustic, and detergents to remove Cosmoline grease from the parts. No sample points have exceeded RBCs.

## 21) AOC 530

AOC 530 — Paint and Oil Storage, Building 35 (Alcohols, Paints, Solvents, Petroleum Hydrocarbons, Heavy Metals) This site was used for storage of paint, oil, and waste generated from the printing operations for Naval Publications (ferric chloride acid etching bath, lithographic developing solution, and photographic developing solution. Constituents exceeding RBCs include: Arsenic in 4/8 soil borings; Lead in 4/8 soil borings; Benzo(a)anthracene in 3/8 soil borings; Benzo(a)pyrene in 5/8 soil borings; Dibenz(a,h)anthracene in 4/8 soil borings; Indeno(1,2,3-cd)pyrene in 3/8 soil borings.

## 22) AOC 531

AOC 531 — Substation and Storage, Building 459 (Batteries, Dielectric Fluid, Petroleum Hydrocarbons) This site was used for storage and an enclosure for a substation, with two sections and a 20,000-gallon fuel oil UST. Constituents exceeding RBCs include: Arsenic in 1/3 soil borings; Benzo(a)pyrene in 2/3 soil borings; Dibenz(a,h)anthracene in 1/3 soil borings.

## 23) AOC 538, AOC 539

AOC 538 — Forge Shop, Building 6 (Waste Oils and Paints, Heavy Metals, Ceramic Refractory Materials, Galvanizing Flux, Coal and Charcoal Coke) This site consisted of various metal-working processes with numerous quench oil tanks and oil-fired furnaces. Constituents exceeding RBCs include: Arsenic in 2/8 soil borings.

AOC 539 — Propeller Shop, Building 6 (Zyglo Penetrant [99% 1,1,1-trichloroethane], Metals) This site used the Zyglo process until it was replaced by a red dye process in 1979. Constituents exceeding RBCs include: Arsenic, Copper, Manganese, Nickel, Dieldrin, and Benzo(a)pyrene in 1/1 sediment sample.

**24) AOC 550**

AOC 550 — Boiler House, Former Building 1111 (Petroleum Hydrocarbons, Heavy Metals) This site consisted of a transportable boiler house used in two separate locations. Constituents exceeding RBCs include: Arsenic in 2/6 soil borings.

**25) AOC 551, AOC 552**

AOC 551 — Boiler House, Building 1119 (Petroleum Hydrocarbons, Heavy Metals) This AOC has undergone renovations since being used as a boiler house before 1942. Constituents exceeding RBCs include: Arsenic in 4/6 soil borings; Lead in 1/6 soil borings.

AOC 552 — Former Galvanizing Shop, Former Building 1030 (Inorganic Acids, Heavy Metals, Zinc) This site was used as a galvanizing shop and tooling shop and is currently paved with asphalt, traversed by a pair of nuclear-grade railroad tracks. Constituents exceeding RBCs include: Arsenic in 1/3 soil borings.

**26) AOC 555**

AOC 555 — Latrine and Substation, Former Building 29 (Organic Waste, Heavy Metals, PCBs) This facility was used as a latrine and substation from 1922 to 1967 with its contents diverted directly into the Cooper River. Constituents exceeding RBCs include: Arsenic in 2/2 sediment samples.

**27) AOC 556**

AOC 556 — Drydock Discharges, Drydocks 1, 2, 3, 4 & 5 (PCBs, Lead, Acids, Freon, Metals, Paints, Mercury, Caustics, Solvents, Antifreeze, Raw Sewage, Hydraulic Fluid, Cleaning Compounds, Petroleum Hydrocarbons, Abrasive Blasting Grit. These sites consists of drains along each drydock which discharge into the Cooper River upon completion of ship overhauling, refueling, defueling, welding, painting, mechanical work, and industrial work. Constituents exceeding RBCs include: Arsenic in 9/9 sediment samples, Benzo(a)pyrene in 6/9 sediment samples; Dibenz(a,h)anthracene in 2/9 sediment samples.

**28) AOC 558**

AOC 558 — Substation, Building 77 (Heavy Metals, Ethylene Glycol, Monoethanolamine Mercury, Perchloroethylene, TCE, Petroleum Hydrocarbons, PCBs) This site consists of transformers, switches, and other electrical equipment housed within a substation which have

the last PCB-containing equipment removed in 1991. Concrete core data has not been evaluated at this time.

## 29) AOC 559, AOC 560, AOC 561

AOC 559 — Central Power Station, Building 32 (Solvents, Heavy Metals, Lube Oil, Morpholene, PCBs, Acids/Caustics, Oils/Oily Wastes, Trisodiumphosphate) This site is a three-story brick and concrete structure which has historically burned coal, fuel oil, and diesel fuel. Constituents exceeding RBCs include: Arsenic in 21/22 soil borings; Beryllium in 1/22 soil borings; Lead in 1/22 soil borings; Benzo(a)anthracene in 1/22 soil borings; Benzo(a)pyrene in 6/22 soil borings; Benzo(b)fluoranthene in 1/22 soil borings; Dibenz(a,h)anthracene in 3/22 soil borings; Indeno(1,2,3-cd)pyrene in 1/22 soil borings; N-Nitrosomethylethylamine in 1/22 soil borings.

AOC 560 — Disinfector, Former Building 34 (Iron-Reducing Agent, Chlorine, VOCs) This site is believed to have been used to treat water prior to use in the power plant, or treated steam with a rust inhibitor after it was generated. Constituents exceeding RBCs include: Arsenic in 2/2 soil borings.

AOC 561 — Substation, Building 451B (Dielectric Fluid) This site is a substation used as one of the principal feeds for electrical power to the shipyard and the CIA. Constituents exceeding RBCs include: Arsenic in 3/4 soil borings; Aroclor 1260 (PCB) in 1/4 soil borings.

## 30) AOC 562

AOC 562 — Substation, Building 84 (Dielectric Fluid) This site consists of a single-story structure with several metal-enclosed transformers adjacent to the building. No sample points have exceeded RBCs.

## 31) AOC 563

AOC 563 — Locomotive House, Former Building 37 (Lubricants, Heavy Metals, Dielectric Fluid, Petroleum Hydrocarbons, Chlorinated Solvents and Degreasers, Coal/Coal Byproducts) This site was believed to have maintained locomotive engines involving the use of petroleum-based lubricants and was located in the current location of Building 177. Constituents exceeding RBCs include: Arsenic in 8/9 soil borings.

## 32) AOC 566

AOC 566 — Paint Shop Storage, Building 194 (Metals, Paint, Solvents, Blasting Media) This site has been used to store unused blast grit and paints, with paint mixed outside the building at one time. Constituents exceeding RBCs include: Arsenic in 1/5 soil borings; Benzo(a)pyrene in 1/5 soil borings; Benzo(a)anthracene in 1/5 soil borings; Dibenzo(a,h)anthracene in 1/5 soil borings.

## 33) AOC 567

AOC 567 — Substation, Building 75 (PCBs, Lead, Acids) This site consists of a single-story structure with several metal-enclosed transformers adjacent to the building. Constituents exceeding RBCs include: Arsenic in 4/4 soil borings.

## 34) AOC 569, AOC 570, AOC 578

AOC 569 — Former Gas Station and Oil Storehouse, Former Building 1279 (Petroleum Hydrocarbons, Heavy Metals) This site consisted of 3 USTs which were removed in 1992, with soil excavation and sampling conducted during the removal. Constituents exceeding RBCs include: Arsenic in 2/5 soil borings.

AOC 570 — Former Coal Storage Area, Area from Building 30 to Sixth Avenue and Carolina Avenue to Hobson Avenue (Coal, Coal By-products) This site was a coal storage area from 1919 until 1941. Constituents exceeding RBCs include: Arsenic in 12/15 soil borings; Benzo(a)pyrene in 3/15 soil borings; Dibenzo(a,h)anthracene in 1/15 soil borings.

AOC 578 — Transportation Shop and Garage, Building 25 (Acids, Paints, Solvents, Anti-freeze, Petroleum Hydrocarbons) This site was originally used as an automobile garage and is currently a transportation and appliance maintenance shop. Data has not been evaluated for this site at this time.

## 35) AOC 571

AOC 571 — Paint Booth, Building 177 (Paints, Solvents, Metals) This site is on the third floor of the building used for painting miscellaneous parts. Data for this site has not been evaluated at this time.

**36) AOC 572**

AOC 572 — Motor Area, Building 177 (Solvents, Petroleum Hydrocarbons, Heavy Metals) This site is a former motor cleaning area south of Building 177 used at one time for steam cleaning electrical motors and equipment. Constituents exceeding RBCs include: Arsenic in 5/8 soil borings and in 1/1 sediment samples; Copper in 1/8 soil borings; Iron in 1/8 soil borings; Benzo(a)pyrene in 1/8 soil borings.

**37) AOC 573**

AOC 573 — Anodizing Process, Building 177 (Acids, Hexavalent Chromium, Metals, Petroleum Hydrocarbons) This site included an anodizing process with a 2,000-gallon irradiate (chromic acid solution) dipping tank and a spray area with a 110-gallon sump. Constituents exceeding RBCs include: Arsenic in 3/5 soil borings and 2/2 sediment samples; Benzo(a)pyrene in 1/5 soil borings; Dibenzo(a,h)anthracene in 1/5 soil borings.

**38) AOC 576**

AOC 576 — Oil and Paint Storehouse/Print Office, Former Building 1012 (Inks, Paints, Metals, Solvents, Petroleum Hydrocarbons) This site was used for storing oil and paint from 1909 until 1930 at the location currently occupied by Building 80. Constituents exceeding RBCs include: Arsenic in 4/5 soil borings.

**39) AOC 579**

AOC 579 — Former Paint Shop, Building 1035 (Paints, Solvents) This site was used for storing paint from 1955 until 1977. Constituents exceeding RBCs include: Arsenic in 3/4 soil borings.

**40) AOC 580**

AOC 580 — Former Pattern and Electric Shop, Building 10 (Solvents, Degreasers) This site was used as a pattern and electric shop until 1955. Constituents exceeding RBCs include: Arsenic in 6/6 soil borings; Lead in 2/6 soil borings.

**41) AOC 583**

AOC 583 — Northeast Corner of Building 236 (Freon, Paints, Solvents, Petroleum Hydrocarbons) This site consists of a freon recycling system with 3 USTs, five petroleum USTs, and an area in which 200 gallons of paint stripper were discharged to a storm drain.

Constituents exceeding RBCs include: Arsenic in 6/7 soil borings; Benzo(a)pyrene in 1/7 soil borings; Dibenzo(a,h)anthracene in 1/7 soil borings.

**42) AOC 586**

AOC 586 — Temporary Powerhouse, Former Building 1014 (Acids, Solvents, Dielectric Fluids, Petroleum Hydrocarbons, Lead/Acid Batteries, Coal By-products) This site was a temporary powerhouse used for industrial salvage until being demolished in 1957 and is now bisected by a railroad spur. Constituents exceeding RBCs include: Arsenic in 4/4 soil borings; Aroclor 1260 (PCB) in 1/4 soil borings.

**43) AOC 590**

AOC 590 — Alley between Buildings 1760 and 79 (Acetone, Petroleum Hydrocarbons) This site is an area in which releases of acetone and cutting oil were reported, and is currently paved with asphalt. Constituents exceeding RBCs include: Arsenic in 5/5 soil borings; Beryllium in 1/5 soil borings; Manganese in 1/5 soil borings; Benzo(a)pyrene in 2/5 soil borings; Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenz(a,h)anthracene in 1/1 sediment sample.

**44) AOC 592**

AOC 592 — Asbestos-Shredding Shelter, Former Building 1225 (Asbestos) This site was used for shredding asbestos until it was removed in 1955 and is now paved and bisected by a railroad spur. No data has been evaluated for this site at this time.

**45) AOC 596**

AOC 596 — Former Torpedo Storage, Building 101 (Solvents, Degreasers, Explosives, Propellants, Petroleum Hydrocarbons) This site was used for storing torpedos until 1943 and for various purposes including a machine shop, a storehouse, and for storing radioactive-contaminated materials. Constituents exceeding RBCs include: Arsenic in 9/12 soil borings; Benzo(a)anthracene in 1/12 soil borings; Benzo(a)pyrene in 1/12 soil borings; Benzo(b)fluoranthene in 1/12 soil borings; Dibenz(a,h)anthracene in 1/12 soil borings, Indeno(1,2,3-cd)pyrene in 1/12 soil borings.

**46) AOC 597**

AOC 597 — Substation, Building 91 (Dielectric Fluid, Lead/Acid Batteries) This site consists of a single-story structure with several metal-enclosed transformers adjacent to the building and

two transformers mounted within the building. Constituents exceeding RBCs include: Arsenic in 3/4 soil borings.

### 47) AOC 598, AOC 599

AOC 598 — Sonar Dome Area, End of Pier J (Paints, Solvents, Adhesives, Blasting Grit) This site was used to clean and repaint sonar domes and to remove adhesives. Constituents exceeding RBCs include: Arsenic in 4/4 soil borings and in 1/1 sediment sample; Benzo(a)pyrene in 1/4 soil borings; Benzo(a)anthracene in 1/4 soil borings; Dibenz(a,h)anthracene in 1/4 soil borings.

AOC 599 — Pump House, Pier J (Petroleum Hydrocarbons) This site was formerly used as a transfer station for diesel fuel. Constituents exceeding RBCs include: Arsenic in 5/5 soil borings and in 1/1 sediment sample; Copper in 1/1 sediment sample.

### 48) AOC 602

AOC 602 — Substation and Storage, Building 95 (Dielectric Fluid) This site housed PCB-containing transformers until 1989. No sample points have exceeded RBCs.

### 49) AOC 604

AOC 604 — Substation and Storage, Building 96 (Dielectric Fluid) This site once housed PCB-containing transformers and now has two permanent and one temporary transformer next to the building. No sample points have exceeded RBCs.

**Supplemental Sample Locations** (Shallow Grid Wells)

Constituents exceeding RBCs include: Arsenic in 18/25 soil borings from shallow grid well locations; Beryllium in 2/25 soil borings; Benzo(a)pyrene in 3/25 soil borings; Dibenz(a,h)anthracene in 1/25 soil borings.

**ATTACHMENT B**

**Table 1.1**
**SWMUs 9, 19, 20, and 121; and AOCs 649, 650, 651, and 654**
**Organic Compounds in Shallow Groundwater (μg/L)**

**Round 1: 21 Samples Collected, 4 Samples Duplicated**
**Round 2: 17 Samples Collected, 3 Samples Duplicated**
**Round 3: 21 Samples Collected, 3 Samples Duplicated**

| Compound Name | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Max. Contam. Level |
|---|---|---|---|---|---|
| **Volatile Organic Compounds (Collected in Rounds 1, 2, and 3)** | | | | | |
| Acetone | 1 | 2 | 11.7-44.6 | 370 | Not Listed |
| | 2 | 2 | 22-230 | | |
| | 3 | 3 | 19-27 | | |
| Benzene | 1 | 11 | 1.8-180 | 0.35 | 5 |
| | 2 | 6 | 2.6-85 | | |
| | 3 | 7 | 3.7-220 | | |
| 2-Butanone (MEK) | 1 | 1 | 10.6 | 190 | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |
| Carbon disulfide | 1 | 2 | 21.1-80.5 | 2.1 | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 2 | 4.0-66 | | |
| Chlorobenzene | 1 | 9 | 9-1,300 | 3.9 | 100 |
| | 2 | 6 | 2.1-520 | | |
| | 3 | 7 | 8.0-1,200 | | |
| Chloroethane | 1 | 1 | 7 | 860 | Not Listed |
| | 2 | 1 | 6 | | |
| | 3 | 0 | -- | | |
| 1,2-Dichloroethane | 1 | 1 | 59 | 0.12 | 5 |
| | 2 | 1 | 58 | | |
| | 3 | 1 | 36 | | |
| 1,2-Dichloroethene (total) | 1 | 1 | 86 | 5.5 | 70 |
| | 2 | 1 | 160 | | |
| | 3 | 1 | 100.5 | | |
| Ethylbenzene | 1 | 4 | 3.2-150 | 130 | 700 |
| | 2 | 3 | 20.5-77.5 | | |
| | 3 | 2 | 30.5-130 | | |
| 4-Methyl-2-Pentanone (MIBK) | 1 | 1 | 2.8 | 290 | Not Listed |
| | 2 | 1 | 10 | | |
| | 3 | 0 | -- | | |
| Methylene chloride | 1 | 0 | -- | 4.1 | 5 |
| | 2 | 1 | 130 | | |
| | 3 | 1 | 68 | | |

**Table 1.1**
**SWMUs 9, 19, 20, and 121; and AOCs 649, 650, 651, and 654**
**Organic Compounds in Shallow Groundwater (μg/L)**

**Round 1: 21 Samples Collected, 4 Samples Duplicated**
**Round 2: 17 Samples Collected, 3 Samples Duplicated**
**Round 3: 21 Samples Collected, 3 Samples Duplicated**

| Compound Name | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Max. Contam. Level |
|---|---|---|---|---|---|
| Toluene | 1 | 3 | 1.5-37 | 75 | 1,000 |
| | 2 | 2 | 7.0-27 | | |
| | 3 | 2 | 3-10 | | |
| Trichloroethene | 1 | 0 | -- | 1.6 | 5 |
| | 2 | 1 | 9 | | |
| | 3 | 1 | 12 | | |
| Trichlorofluoromethane | 1 | 0 | -- | 130 | Not Listed |
| | 2 | 1 | 52 | | |
| | 3 | 1 | 27 | | |
| Vinyl chloride | 1 | 1 | 720 | 0.019 | 2 |
| | 2 | 1 | 415 | | |
| | 3 | 1 | 420 | | |
| Xylene (Total) | 1 | 6 | 3-600 | 1,200 | 10,000 |
| | 2 | 4 | 8-470 | | |
| | 3 | 3 | 11-320 | | |
| **Semivolatile Organic Compounds (Collected in Rounds 1, 2, and 3)** | | | | | |
| Acenaphthene | 1 | 7 | 2.9-20 | 220 | Not Listed |
| | 2 | 3 | 3.4-16 | | |
| | 3 | 6 | 2.7-16 | | |
| Azobenzene | 1 | 1 | 2.6 | 0.61 | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 0 | 0 | | |
| Benzidine | 1 | 1 | 54 | 0.00029 | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |
| Benzoic acid | 1 | 5 | 21-69 | 15,000 | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |
| Butylbenzylphthalate | 1 | 0 | -- | 730 | 100 |
| | 2 | 1 | 2.9 | | |
| | 3 | 0 | -- | | |
| 4-Chloro-3-methylphenol | 1 | 2 | 2.8-3.1 | Not Listed | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |

**Table 1.1**
**SWMUs 9, 19, 20, and 121; and AOCs 649, 650, 651, and 654**
**Organic Compounds in Shallow Groundwater (μg/L)**

**Round 1: 21 Samples Collected, 4 Samples Duplicated**
**Round 2: 17 Samples Collected, 3 Samples Duplicated**
**Round 3: 21 Samples Collected, 3 Samples Duplicated**

| Compound Name | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Max. Contam. Level |
|---|---|---|---|---|---|
| bis(2-Chloroethyl)ether | 1 | 1 | 140 | 0.0092 | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 1 | 100 | | |
| 2-Chlorophenol | 1 | 1 | 5.6 | 18 | Not Listed |
| | 2 | 1 | 8.6 | | |
| | 3 | 1 | 7.2 | | |
| Di-n-butylphthalate | 1 | 2 | 2.7-3.4 | 370 | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |
| Dibenzofuran | 1 | 4 | 1.2-7.5 | 15 | Not Listed |
| | 2 | 1 | 4.7 | | |
| | 3 | 1 | 5 | | |
| 1,2-Dichlorobenzene | 1 | 1 | 4.9 | 27 | 600 |
| | 2 | 1 | 3.55 | | |
| | 3 | 1 | 5.3 | | |
| 1,4-Dichlorobenzene | 1 | 4 | 3.1-7.5 | 0.44 | 75 |
| | 2 | 2 | 5.6-9.05 | | |
| | 3 | 3 | 3.4-8.1 | | |
| Diethylphthalate | 1 | 1 | 3.05 | 2,900 | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |
| 2,4-Dimethylphenol | 1 | 4 | 6.63-1,700 | 73 | Not Listed |
| | 2 | 3 | 16-405 | | |
| | 3 | 4 | 2.2-1,350 | | |
| Diphenylamine | 1 | 1 | 9.6 | 91.0 | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |
| bis(2-Ethylhexyl)phthalate (BEHP) | 1 | 2 | 2.4-5.2 | 4.8 | 6 |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |
| Fluoranthene | 1 | 2 | 2.7-3.9 | 150 | Not Listed |
| | 2 | 1 | 2.5 | | |
| | 3 | 1 | 3.8 | | |
| Fluorene | 1 | 5 | 2.3-7.5 | 150 | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |

**Table 1.1**
**SWMUs 9, 19, 20, and 121; and AOCs 649, 650, 651, and 654**
**Organic Compounds in Shallow Groundwater (μg/L)**

**Round 1: 21 Samples Collected, 4 Samples Duplicated**
**Round 2: 17 Samples Collected, 3 Samples Duplicated**
**Round 3: 21 Samples Collected, 3 Samples Duplicated**

| Compound Name | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Max. Contam. Level |
|---|---|---|---|---|---|
| Hexachlorobenzene | 1 | 0 | -- | 0.0066 | 1 |
| | 2 | 1 | 74 | | |
| | 3 | 0 | -- | | |
| Hexachlorobutadiene | 1 | 0 | -- | 0.12 | Not Listed |
| | 2 | 1 | 2.8 | | |
| | 3 | 0 | -- | | |
| Hexachlorocyclopentadiene | 1 | 1 | 11.0 | 0.015 | 50 |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |
| Hexachloroethane | 1 | 0 | -- | 0.61 | Not Listed |
| | 2 | 1 | 2.7 | | |
| | 3 | 0 | -- | | |
| 2-Methylnaphthalene | 1 | 5 | 2.2-7.7 | 150 | Not Listed |
| | 2 | 2 | 3.05-5.0 | | |
| | 3 | 2 | 3.4-4.7 | | |
| 2-Methylphenol (o-cresol) | 1 | 3 | 3.9-270 | 180 | Not Listed |
| | 2 | 3 | 3.3-42 | | |
| | 3 | 3 | 3.2-435 | | |
| 4-Methylphenol (p-cresol) | 1 | 4 | 2.1-4,400 | 18 | Not Listed |
| | 2 | 1 | 820 | | |
| | 3 | 3 | 3-3100 | | |
| N-nitrosodiphenylamine | 1 | 1 | 3.4 | 14.0 | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 1 | 6.4 | | |
| Naphthalene | 1 | 7 | 2.2-9.9 | 150 | Not Listed |
| | 2 | 3 | 2.5-5.8 | | |
| | 3 | 4 | 2.7-7.9 | | |
| Pentachlorophenol | 1 | 3 | 11-24 | 0.6 | 1 |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |
| Phenanthrene | 1 | 5 | 2.6-9.8 | 150 | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 1 | 3.0 | | |
| Phenol | 1 | 3 | 6.7-51.8 | 2,200 | Not Listed |
| | 2 | 2 | 4.9-6.3 | | |
| | 3 | 4 | 4.3-145 | | |

**Table 1.1**
**SWMUs 9, 19, 20, and 121; and AOCs 649, 650, 651, and 654**
**Organic Compounds in Shallow Groundwater (μg/L)**

**Round 1: 21 Samples Collected, 4 Samples Duplicated**
**Round 2: 17 Samples Collected, 3 Samples Duplicated**
**Round 3: 21 Samples Collected, 3 Samples Duplicated**

| Compound Name | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Max. Contam. Level |
|---|---|---|---|---|---|
| **Pesticides (Collected in Rounds 1, 2, and 3)** | | | | | |
| 4,4'-DDD | 1 | 0 | -- | 0.28 | Not Listed |
| | 2 | 1 | 0.1 | | |
| | 3 | 0 | -- | | |
| 4,4'-DDE | 1 | 0 | -- | 0.2 | Not Listed |
| | 2 | 1 | 0.03 | | |
| | 3 | 0 | -- | | |
| 4,4'-DDT | 1 | 1 | 0.06 | 0.2 | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |
| Endosulfan I | 1 | 0 | -- | 22 | Not Listed |
| | 2 | 1 | 0.07 | | |
| | 3 | 0 | -- | | |
| **Herbicides (Collected in Rounds 1 and 3)** | | | | | |
| 2,4,5-T | 1 | 1 | 0.56 | 37.0 | 50 |
| | 2 | -- | No Analysis | | |
| | 3 | 0 | -- | | |
| **Total Petroleum Hydrocarbons (Collected in Rounds 1 and 3)** | | | | | |
| TPH | 1 | 0 | -- | | |
| | 2 | -- | No Analysis | | |
| | 3 | 1 | 1,600 | | |
| **Polychlorinated Biphenyls (Collected in Round 1 Only)** | | | | | |
| No PCBs detected. | | | | | |
| **Organophosphate Pesticides (Collected in Round 1 Only)** | | | | | |
| No organophosphates detected. | | | | | |
| **Dioxin (Collected in Rounds 1 and 2)** | | | | | |
| Total TEQs | 1 | 3 | 0.196-2.502 pg/L | 0.5 pg/L | 30 pg/L |
| | 2 | -- | No Analysis | | |
| | 3 | 3 | 0.050-1.082 pg/L | | |

**Table 1.2**
**SWMUs 9, 19, 20, and 121; and AOCs 649, 650, 651, and 654**
**Organic Compounds in Deep Groundwater (μg/L)**

**Round 1: 8 Samples Collected, 0 Samples Duplicated**
**Round 2: 8 Samples Collected, 0 Samples Duplicated**
**Round 3: 8 Samples Collected, 0 Samples Duplicated**

| Compound Name | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Max. Contam. Level |
|---|---|---|---|---|---|
| **Volatile Organic Compounds (Collected in Rounds 1, 2, and 3)** | | | | | |
| Chlorobenzene | 1 | 0 | -- | 3.9 | 100 |
| | 2 | 0 | -- | | |
| | 3 | 1 | 10 | | |
| Chloroform | 1 | 1 | 2.4 | 0.15 | 100 |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |
| Acetone | 1 | 1 | 25 | 370 | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |
| Carbon disulfide | 1 | 1 | 61 | 2.1 | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 1 | 370 | | |
| **Semivolatile Organic Compounds (Collected in Rounds 1, 2, and 3)** | | | | | |
| Benzoic acid | 1 | 1 | 2.3 | 15,000 | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |
| bis(2-Ethylhexyl)phthalate | 1 | 0 | -- | 4.8 | |
| | 2 | 0 | -- | | |
| | 3 | 1 | 25 | | |
| Di-n-butylphthalate | 1 | 1 | 3.0 | 370 | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |
| **Pesticides (Collected in Round 1)** | | | | | |
| No pesticides detected. | | | | | |
| **Polychlorinated Biphenyls (Collected in Round 1)** | | | | | |
| No PCBs detected. | | | | | |

mg/L= milligrams per liter

**Table 1.3**
**SWMUs 9, 19, 20, and 121; and AOCs 649, 650, 651, and 654**
**Inorganic Chemicals in Shallow Groundwater (μg/L)**

**Round 1: 21 Samples Collected, 4 Samples Duplicated**
**Round 2: 17 Samples Collected, 3 Samples Duplicated**
**Round 3: 21 Samples Collected, 3 Samples Duplicated**

| Chemical Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Upper Tolerance Limit of Background[b] | Max. Contam. Level |
|---|---|---|---|---|---|---|
| Aluminum[d] | 1 | 4 | 162-1,050 | 3,700 | Not | Not Listed |
| | 2 | 3 | 440-1,020 | | Valid | |
| | 3 | 4 | 208-484 | | | |
| Antimony[d] | 1 | 1 | 18.8 | 1.5 | Not | 6 |
| | 2 | 0 | -- | | Valid | |
| | 3 | 0 | -- | | | |
| Arsenic | 1 | 8 | 1.3-11.5 | 0.038 | 27.99 | 50 |
| | 2 | 9 | 3.8-75 | | | |
| | 3 | 8 | 1.6-56 | | | |
| Barium | 1 | 16 | 43.6-1,200 | 260 | 323 | 2,000 |
| | 2 | 10 | 178.5-1,410 | | | |
| | 3 | 17 | 46.3-1,200 | | | |
| Beryllium[d] | 1 | 0 | -- | 0.016 | Not | 4 |
| | 2 | 1 | 1.4 | | Valid | |
| | 3 | 0 | -- | | | |
| Cadmium[d] | 1 | 1 | 1.4 | 1.8 | Not | 5 |
| | 2 | 4 | 1.3-1.8 | | Valid | |
| | 3 | 5 | 1.6-2.1 | | | |
| Calcium[c] | 1 | 21 | 17,900-473,000 | Not | Nutrient | Not Listed |
| | 2 | 17 | 15,500-428,000 | Listed | | |
| | 3 | 21 | 16,000-372,000 | | | |
| Chromium[d] | 1 | 3 | 4.5-1,460 | 18[g] | Not | 100 |
| | 2 | 0 | -- | | Valid | |
| | 3 | 4 | 5-11.6 | | | |
| Cobalt[d] | 1 | 3 | 2.4-2.8 | 220 | Not | Not Listed |
| | 2 | 1 | 2.6 | | Valid | |
| | 3 | 0 | -- | | | |
| Copper[d] | 1 | 2 | 6.4-190 | 140 | Not | 1,300[f] |
| | 2 | 2 | 7.2-154 | | Valid | |
| | 3 | 3 | 6.6-474 | | | |
| Iron | 1 | 19 | 743-57,300 | Not | 45,760 | Not Listed |
| | 2 | 17 | 172-71,900 | Listed | | |
| | 3 | 20 | 442-49,100 | | | |
| Lead | 1 | 9 | 2.4-52.6 | 15[f] | 4.697 | 15[f] |
| | 2 | 8 | 1.9-33.5 | | | |
| | 3 | 6 | 1.3-27.9 | | | |

**Table 1.3**
**SWMUs 9, 19, 20, and 121; and AOCs 649, 650, 651, and 654**
**Inorganic Chemicals in Shallow Groundwater (μg/L)**

**Round 1: 21 Samples Collected, 4 Samples Duplicated**
**Round 2: 17 Samples Collected, 3 Samples Duplicated**
**Round 3: 21 Samples Collected, 3 Samples Duplicated**

| Chemical Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Upper Tolerance Limit of Background[b] | Max. Contam. Level |
|---|---|---|---|---|---|---|
| Magnesium | 1 | 21 | 3,910-446,000 | Not Listed | 3,866,000 | Not Listed |
| | 2 | 17 | 5,280-655,000 | | | |
| | 3 | 20 | 2,790-416,000 | | | |
| Manganese | 1 | 21 | 15.3-1,700 | 18 | 3,391 | Not Listed |
| | 2 | 17 | 13.6-1,990 | | | |
| | 3 | 18 | 95.4-1,670 | | | |
| Mercury[(d)] | 1 | 1 | 0.55 | 1.1 | Not Valid | 2 |
| | 2 | 1 | 0.21 | | | |
| | 3 | 1 | 0.17 | | | |
| Potassium[(c)] | 1 | 21 | 3,400-130,000 | Not Listed | Nutrient | Not Listed |
| | 2 | 16 | 15,200-146,000 | | | |
| | 3 | 21 | 3,430-152,000 | | | |
| Selenium | 1 | 6 | 0.9-2.1 | 18 | 3.154 | 50 |
| | 2 | 1 | 2.8 | | | |
| | 3 | 0 | -- | | | |
| Silver[(d)] | 1 | 1 | 4.4 | 18 | Not Valid | Not Listed |
| | 2 | 0 | -- | | | |
| | 3 | 1 | 2.2 | | | |
| Sodium[(c)] | 1 | 21 | 5,740-4,000,000 | Not Listed | Nutrient | Not Listed |
| | 2 | 17 | 24,400-5,460,000 | | | |
| | 3 | 20 | 106,000-3,955,000 | | | |

**Table 1.3**
**SWMUs 9, 19, 20, and 121; and AOCs 649, 650, 651, and 654**
**Inorganic Chemicals in Shallow Groundwater (μg/L)**

**Round 1: 21 Samples Collected, 4 Samples Duplicated**
**Round 2: 17 Samples Collected, 3 Samples Duplicated**
**Round 3: 21 Samples Collected, 3 Samples Duplicated**

| Chemical Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Upper Tolerance Limit of Background[b] | Max. Contam. Level |
|---|---|---|---|---|---|---|
| Thallium | 1 | 5 | 1-6.4 | 0.29[c] | 7.660 | 2 |
| | 2 | 0 | -- | | | |
| | 3 | 2 | 16-16.8 | | | |
| Vanadium[d] | 1 | 9 | 3.3-101 | 26 | Not Valid | Not Listed |
| | 2 | 1 | 67.9 | | | |
| | 3 | 10 | 3.6-354 | | | |
| Zinc[d] | 1 | 2 | 19.6-19.8 | 1,100 | Not Valid | Not Listed |
| | 2 | 0 | -- | | | |
| | 3 | 6 | 6-243 | | | |
| Hexavalent Chromium[d] | 1 | 0 | Not Detected | | | |
| | 2 | -- | No Analysis | | | |
| | 3 | -- | No Analysis | | | |
| Cyanide[d] | 1 | 0 | Not Detected | | | |
| | 2 | -- | No Analysis | | | |
| | 3 | -- | No Analysis | | | |

*Note:*

(a) Only elements with detections are listed. Hexavalent chromium and cyanide were separate analyses.
(b) See Appendix G for limit UTL determinations.
(c) Element considered to be a nutrient; therefore, UTL was not determined.
(d) High percentage of nondetects in background samples prevented determination of UTL.
(e) Thallium carbonate used as surrogate.
(f) Based on treatment technique action level.
(g) If trivalent chromium, RBSL=3,700 μg/L.

**Table 1.4**
**SWMUs 9, 19, 20, and 121; and AOCs 649, 650, 651, and 654**
**Inorganic Chemicals in Deep Groundwater (μg/L)**

**Round 1: 8 Samples Collected, 0 Samples Duplicated**
**Round 2: 8 Samples Collected, 0 Samples Duplicated**
**Round 3: 8 Samples Collected, 0 Samples Duplicated**

| Chemical Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Upper Tolerance Limit of Background[b] | Max. Contam. Level |
|---|---|---|---|---|---|---|
| Aluminum | 1 | 3 | 182-1,580 | 3,800 | 723 | Not Listed |
| | 2 | 0 | -- | | | |
| | 3 | 1 | 222 | | | |
| Arsenic | 1 | 4 | 2.3-4.8 | 0.038 | 14.98 | 50 |
| | 2 | 1 | 4.1 | | | |
| | 3 | 3 | 1.6-74.8 | | | |
| Barium | 1 | 5 | 59.6-176 | 260 | 236.9 | 2,000 |
| | 2 | 0 | -- | | | |
| | 3 | 5 | 28.9-95.7 | | | |
| Cadmium[d] | 1 | 1 | 2.2 | 1.8 | Not Valid | 5 |
| | 2 | 3 | 2.6-3.2 | | | |
| | 3 | 8 | 1.8-4.8 | | | |
| Calcium[c] | 1 | 8 | 92,200-344,000 | Not Listed | Nutrient | Not Listed |
| | 2 | 8 | 116,000-453,000 | | | |
| | 3 | 8 | 94,100-291,000 | | | |
| Chromium[d] | 1 | 1 | 18.1 | 18[g] | Not Valid | 100 |
| | 2 | 0 | -- | | | |
| | 3 | 0 | -- | | | |
| Cobalt | 1 | 2 | 2.4-3.0 | 220 | 3.165 | Not Listed |
| | 2 | 0 | -- | | | |
| | 3 | 0 | -- | | | |
| Iron | 1 | 8 | 1,010-8,590 | Not Listed | 8,787 | Not Listed |
| | 2 | 7 | 780-13,600 | | | |
| | 3 | 7 | 774-24,720 | | | |
| Lead | 1 | 4 | 2.2-6.9 | 15[f] | 4.263 | 15[f] |
| | 2 | 0 | -- | | | |
| | 3 | 0 | -- | | | |
| Magnesium | 1 | 8 | 559,000-820,000 | Not Listed | 1,114,000 | Not Listed |
| | 2 | 8 | 710,000-873,000 | | | |
| | 3 | 8 | 380,500-886,000 | | | |
| Manganese | 1 | 8 | 26.6-805 | 18 | 776.2 | Not Listed |
| | 2 | 8 | 16.6-1,270 | | | |
| | 3 | 7 | 171-1,158 | | | |
| Potassium[c] | 1 | 8 | 153,000-195,000 | Not Listed | Nutrient | Not Listed |
| | 2 | 8 | 205,000-241,000 | | | |
| | 3 | 8 | 117,550-239,000 | | | |

**Table 1.4**
**SWMUs 9, 19, 20, and 121; and AOCs 649, 650, 651, and 654**
**Inorganic Chemicals in Deep Groundwater (μg/L)**

**Round 1: 8 Samples Collected, 0 Samples Duplicated**
**Round 2: 8 Samples Collected, 0 Samples Duplicated**
**Round 3: 8 Samples Collected, 0 Samples Duplicated**

| Chemical Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Upper Tolerance Limit of Background[b] | Max. Contam. Level |
|---|---|---|---|---|---|---|
| Selenium | 1 | 1 | 1.0 | 18 | 2.103 | 50 |
| | 2 | 0 | -- | | | |
| | 3 | 0 | -- | | | |
| Sodium[c] | 1 | 8 | 4,370,000-6,380,000 | Not Listed | Nutrient | Not Listed |
| | 2 | 8 | 5,730,000-7,550,000 | | | |
| | 3 | 8 | 2,635,000-6,970,000 | | | |
| Thallium[d] | 1 | 1 | 160 | 0.29[e] | Not Valid | 2 |
| | 2 | 0 | -- | | | |
| | 3 | 3 | 17.2-55.6 | | | |
| Vanadium | 1 | 4 | 4.5-12.2 | 26 | 9.29 | Not Listed |
| | 2 | 0 | -- | | | |
| | 3 | 4 | 4.6-6.5 | | | |
| Cyanide[d] | 1 | 1 | 0.05 | 73 | Not Valid | 200 |
| | 2 | -- | No Analysis | | | |
| | 3 | -- | No Analysis | | | |

*Note:*

(a) Only elements with detections are listed. Cyanide was a separate analysis.
(b) See Appendix G for limit UTL determinations.
(c) Element considered to be a nutrient; therefore, UTL was not determined.
(d) High percentage of nondetects in background samples prevented determination of UTL.
(e) Thallium carbonate used as surrogate.
(f) Based on treatment technique action level.
(g) If trivalent chromium, RBSL=3,700 μg/L.

**Table 2.1**
**SWMU 13**
**Organic Compounds in Groundwater (μg/L)**

**Round 1: 9 Samples Collected, 0 Samples Duplicated**
**Round 2: 9 Samples Collected, 1 Sample Duplicated**
**Round 3: 9 Samples Collected, 1 Sample Duplicated**

| Compound Name | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Max. Contam. Level |
|---|---|---|---|---|---|
| **Volatile Organic Compounds (Collected in Round 1 Only)** | | | | | |
| No VOCs detected. | | | | | |
| **Semivolatile Organic Compounds (Collected in Rounds 1, 2, and 3)** | | | | | |
| Acenaphthene | 1 | 1 | 2.4 | 220 | Not Listed |
| | 2 | 1 | 2.5 | | |
| | 3 | 0 | -- | | |
| Butylbenzylphthalate | 1 | 1 | 2.3 | 730 | 100 |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |
| Fluorene | 1 | 0 | -- | 150 | Not Listed |
| | 2 | 1 | 3.8 | | |
| | 3 | 0 | -- | | |
| 2-Methylnaphthalene | 1 | 0 | -- | 150[a] | Not Listed |
| | 2 | 1 | 3.0 | | |
| | 3 | 0 | -- | | |
| Phenanthrene | 1 | 1 | 3.6 | 150[b] | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |
| **Pesticides (Collected in Rounds 1, 2, and 3)** | | | | | |
| 4,4'-DDT | 1 | 1 | 0.1 | 0.2 | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |
| **Polychlorinated Biphenyls (Collected in Round 1 Only)** | | | | | |
| No PCBs detected. | | | | | |
| **Total Petroleum Hydrocarbons (Collected in Round 1 Only)** | | | | | |
| No TPH detected. | | | | | |

*Note:*
[a] Naphthalene used as surrogate.
[b] Fluoranthene used as surrogate.

**Table 2.2**
**SWMU 13**
**Inorganic Chemicals in Groundwater (μg/L)**

**Round 1: 9 Samples Collected, 0 Samples Duplicated**
**Round 2: 9 Samples Collected, 1 Sample Duplicated**
**Round 3: 9 Samples Collected, 1 Sample Duplicated**

| Chemical Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Upper Tolerance Limit of Background[b] | Max. Contam. Level |
|---|---|---|---|---|---|---|
| Aluminum[(d)] | 1 | 1 | 755 | 3,700 | Not Valid | Not Listed |
| | 2 | 2 | 22.1-166 | | | |
| | 3 | 5 | 11.5-912 | | | |
| Arsenic | 1 | 1 | 12.1 | 0.038 | 27.99 | 50 |
| | 2 | 3 | 4.1-7.4 | | | |
| | 3 | 6 | 2.0-9.9 | | | |
| Barium | 1 | 0 | -- | 260 | 323 | 2,000 |
| | 2 | 8 | 1.1-20.4 | | | |
| | 3 | 9 | 2.7-34.2 | | | |
| Beryllium[(d)] | 1 | 0 | -- | 0.016 | Not Valid | 4 |
| | 2 | 1 | 0.21 | | | |
| | 3 | 2 | 0.32-0.32 | | | |
| Cadmium | 1 | 0 | -- | 1.8 | | |
| | 2 | 0 | -- | | | |
| | 3 | 4 | 1.7-2.3 | | | |
| Calcium[(c)] | 1 | 9 | 79,300-148,000 | Not Listed | Nutrient | Not Listed |
| | 2 | 9 | 41,200-136,000 | | | |
| | 3 | 9 | 59,600-148,000 | | | |
| Chromium | 1 | 0 | -- | 18 | | |
| | 2 | 0 | -- | | | |
| | 3 | 1 | 4.4 | | | |
| Cobalt[(d)] | 1 | 0 | -- | 220 | Not Valid | Not Listed |
| | 2 | 1 | 3.6 | | | |
| | 3 | 0 | -- | | | |
| Copper | 1 | 0 | -- | 140 | | |
| | 2 | 0 | -- | | | |
| | 3 | 1 | 4.2-16.7 | | | |
| Iron | 1 | 8 | 188-4,120 | Not Listed | 45,760 | Not Listed |
| | 2 | 9 | 95-5,780 | | | |
| | 3 | 9 | 70-3,410 | | | |
| Magnesium | 1 | 9 | 3,680-78,700 | Not Listed | 3,866,000 | Not Listed |
| | 2 | 9 | 5,590-66,700 | | | |
| | 3 | 9 | 1,600-62,100 | | | |
| Manganese | 1 | 9 | 12-925 | 18 | 3,391 | Not Listed |
| | 2 | 9 | 51.3-862 | | | |
| | 3 | 9 | 7.1-763.5 | | | |

**Table 2.2**
**SWMU 13**
**Inorganic Chemicals in Groundwater (μg/L)**

**Round 1: 9 Samples Collected, 0 Samples Duplicated**
**Round 2: 9 Samples Collected, 1 Sample Duplicated**
**Round 3: 9 Samples Collected, 1 Sample Duplicated**

| Chemical Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Upper Tolerance Limit of Background[b] | Max. Contam. Level |
|---|---|---|---|---|---|---|
| Nickel | 1 | 0 | -- | 73 | Not Valid | 100 |
| | 2 | 0 | -- | | | |
| | 3 | 1 | 27.6 | | | |
| Potassium[c] | 1 | 9 | 2,940-59,800 | Not Listed | Nutrient | Not Listed |
| | 2 | 9 | 7,570-63,500 | | | |
| | 3 | 9 | 2,540-69,000 | | | |
| Selenium | 1 | 0 | -- | 18 | 3.154 | 50 |
| | 2 | 2 | 3.5-5.4 | | | |
| | 3 | 0 | -- | | | |
| Sodium[c] | 1 | 9 | 5,140-318,000 | Not Listed | Nutrient | Not Listed |
| | 2 | 9 | 14,300-370,000 | | | |
| | 3 | 9 | 1,030-301,000 | | | |
| Vanadium[d] | 1 | 1 | 13.6 | 26 | Not Valid | Not Listed |
| | 2 | 0 | -- | | | |
| | 3 | 9 | 3.6-13.0 | | | |
| Zinc[d] | 1 | 0 | -- | 1,100 | Not Valid | Not Listed |
| | 2 | 1 | 20.4 | | | |
| | 3 | 3 | 20.4-62.5 | | | |
| Cyanide | 1 | -- | Not Detected | | | |
| | 2 | -- | No Analysis | | | |
| | 3 | -- | No Analysis | | | |

*Note:*

(a) Only elements with detections are listed. Cyanide was a separate analysis.

(b) See Appendix G for upper tolerance limit (UTL) determinations.

(c) Element considered to be a nutrient; therefore, UTL was not determined.

(d) High percentage of nondetects in background samples prevented determination of UTL.

**Table 3.1**
**SWMUs 14 and 15, and AOCs 670 and 684**
**Organic Compounds in Shallow Groundwater (μg/L)**

**Round 1: 5 Samples Collected, 0 Samples Duplicated**
**Round 2: 5 Samples Collected, 0 Samples Duplicated**
**Round 3: 5 Samples Collected, 1 Sample Duplicated**

| Compound Name | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Max. Contam. Level |
|---|---|---|---|---|---|
| **Volatile Organic Compounds (Collected in Rounds 1, 2, and 3)** | | | | | |
| Carbon Disulfide | 1 | 0 | -- | 2.1 | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 1 | 13 | | |
| **Semivolatile Organic Compounds (Collected in Round 1 and Round 3)** | | | | | |
| bis(2-Ethylhexyl)phthalate | 1 | 5 | 1.8-11.8 | 4.8 | 6 |
| | 2 | -- | No Analysis | | |
| | 3 | 0 | -- | | |
| Butylbenzylphthalate | 1 | 0 | -- | 730 | 100 |
| | 2 | -- | No Analysis | | |
| | 3 | 1 | 3.2 | | |
| 4-Methylphenol (p-Cresol) | 1 | 0 | -- | 18 | Not Listed |
| | 2 | -- | No Analysis | | |
| | 3 | 1 | 6.6 | | |
| **Pesticides (Collected in Round 1 Only)** | | | | | |
| No pesticides detected. | | | | | |
| **Polychlorinated Biphenyls (Collected in Round 1 Only)** | | | | | |
| No PCBs detected. | | | | | |
| **Herbicides (Collected in Rounds 1, 2, and 3)** | | | | | |
| DCAA | 1 | 0 | -- | Not Listed | Not Listed |
| | 2 | 5 | 82-103 | | |
| | 3 | 0 | -- | | |
| **Organophosphate Pesticides (Collected in Round 1 Only)** | | | | | |
| No organophosphate pesticides detected. | | | | | |
| **Dioxin (Collected in Round 1 and Round 3)** | | | | | |
| Total TEQs | 1 | 5 | 0.214-10.211 pg/L | 0.5 pg/L | 30 pg/L |
| | 2 | -- | No Analysis | | |
| | 3 | 2 | 0.044-0.091 | | |

**Table 3.2**
**SWMUs 14, and 15, and AOCs 670 and 684**
**Organic Compounds in Deep Groundwater (μg/L)**

**Round 1: 5 Samples Collected, 1 Sample Duplicated**
**Round 2: 5 Samples Collected, 1 Sample Duplicated**
**Round 3: 5 Samples Collected, 0 Samples Duplicated**

| Compound Name | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Max. Contam. Level |
|---|---|---|---|---|---|
| **Volatile Organic Compounds (Collected in Rounds 1, 2, and 3)** | | | | | |
| Carbon disulfide | 1 | 4 | 1.2-3.5 | 2.1 | Not Listed |
| | 2 | 0 | – | | |
| | 3 | 5 | 21-300 | | |
| Chloroform | 1 | 1 | 2.0 | 0.15 | 100 |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |
| **Semivolatile Organic Compounds (Collected in Round 1 and Round 3)** | | | | | |
| bis(2-Ethylhexyl)phthalate (BEHP) | 1 | 2 | 1.7-7.5 | 4.8 | 6 |
| | 2 | -- | No Analysis | | |
| | 3 | 1 | 740 | | |
| **Pesticides (Collected in Rounds 1, 2, and 3)** | | | | | |
| Heptachlor epoxide | 1 | 1 | 3.24 | 0.0012 | 0.2 |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |
| Isodrin | 1 | 2 | 8.0-11.3 | Not Listed | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |
| **Polychlorinated Biphenyls (Collected in Round 1 Only)** | | | | | |
| No PCBs detected. | | | | | |
| **Herbicides (Collected in Rounds 1, 2, and 3)** | | | | | |
| 2,4-D (1 Sample Collected) (5 Samples Collected) | 1 | 1 | 2.4 | 6.1 | 70 |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |
| 2,4,5-T | 1 | 1 | 0.27 | 37 | 50 |
| | 2 | 1 | 1.5 | | |
| | 3 | 0 | -- | | |
| 2,4,5-TP (Silvex) | 1 | 1 | 0.72 | 29 | 50 |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |
| DCAA | 1 | -- | No Analysis | Not Listed | Not Listed |
| | 2 | 5 | 84-117 | | |
| | 3 | 0 | -- | | |

**Table 3.2**
**SWMUs 14, and 15, and AOCs 670 and 684**
**Organic Compounds in Deep Groundwater (μg/L)**

**Round 1: 5 Samples Collected, 1 Sample Duplicated**
**Round 2: 5 Samples Collected, 1 Sample Duplicated**
**Round 3: 5 Samples Collected, 0 Samples Duplicated**

| Compound Name | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Max. Contam. Level |
|---|---|---|---|---|---|
| **Organophosphate Pesticides (Collected in Round 1 Only)** | | | | | |
| Parathion | 1 | 1 | 1.0 | 22 | Not Listed |
| | 2 | -- | No Analysis | | |
| | 3 | -- | -- | | |
| **Dioxin (Collected in Round 1 and Round 3)** | | | | | |
| Total TEQ | 1 | 5 | 0.122-2.152 pg/L | 0.5 pg/L | 30 pg/L |
| | 2 | -- | No Analysis | | |
| | 3 | 1 | 0.987 pg/L | | |

**Table 3.3**
**SWMUs 14 and 15, and AOCs 670 and 684**
**Inorganic Chemicals in Shallow Groundwater (μg/L)**

**Round 1: 5 Samples Collected, 0 Samples Duplicated**
**Round 2: 5 Samples Collected, 0 Samples Duplicated**
**Round 3: 5 Samples Collected, 1 Sample Duplicated**

| Chemical Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Upper Tolerance Limit of Background[b] | Max. Contam. Level |
|---|---|---|---|---|---|---|
| Aluminum[(d)] | 1 | -- | No Analysis | 3,700 | Not Valid | Not Listed |
| | 2 | 3 | 462-15,500 | | | |
| | 3 | 4 | 23.7-865 | | | |
| Arsenic | 1 | 5 | 1.0-7.6 | 0.038 | 27.99 | 50 |
| | 2 | 0 | -- | | | |
| | 3 | 4 | 3.5-8.5 | | | |
| Barium | 1 | 2 | 84.3-166 | 260 | 323 | 2,000 |
| | 2 | 3 | 44.2-58.4 | | | |
| | 3 | 4 | 35.4-98.2 | | | |
| Calcium[(e)] | 1 | -- | No Analysis | Not Listed | Nutrient | Not Listed |
| | 2 | 5 | 74,600-252,000 | | | |
| | 3 | 5 | 102,000-320,000 | | | |
| Chromium[(d)] | 1 | 0 | -- | 18[(f)] | Not Valid | 100 |
| | 2 | 1 | 44.4 | | | |
| | 3 | 0 | -- | | | |
| Iron | 1 | -- | No Analysis | Not Listed | 45,760 | Not Listed |
| | 2 | 5 | 2,130-38,400 | | | |
| | 3 | 5 | 4,620-19,500 | | | |
| Lead | 1 | 5 | 1.3-5.0 | 15[(c)] | 4.697 | 15[(c)] |
| | 2 | 1 | 19.7 | | | |
| | 3 | 1 | 2.2 | | | |
| Magnesium | 1 | -- | No Analysis | Not Listed | 3,866,000 | Not Listed |
| | 2 | 5 | 119,000-190,000 | | | |
| | 3 | 5 | 85,900-190,000 | | | |
| Manganese | 1 | -- | No Analysis | 18 | 3,391 | Not Listed |
| | 2 | 5 | 77.2-2,350 | | | |
| | 3 | 5 | 92.9-2,680 | | | |
| Mercury | 1 | 0 | -- | 1.1 | Not Valid | 2 |
| | 2 | 0 | -- | | | |
| | 3 | 1 | 0.15 | | | |
| Potassium[(e)] | 1 | -- | No Analysis | Not Listed | Nutrient | Not Listed |
| | 2 | 5 | 38,000-66,000 | | | |
| | 3 | 5 | 34,300-82,300 | | | |
| Selenium | 1 | 3 | 1.2-1.6 | 18 | 3.154 | 50 |
| | 2 | 0 | -- | | | |
| | 3 | 0 | -- | | | |

**Table 3.3**
**SWMUs 14 and 15, and AOCs 670 and 684**
**Inorganic Chemicals in Shallow Groundwater (μg/L)**

**Round 1: 5 Samples Collected, 0 Samples Duplicated**
**Round 2: 5 Samples Collected, 0 Samples Duplicated**
**Round 3: 5 Samples Collected, 1 Sample Duplicated**

| Chemical Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Upper Tolerance Limit of Background[b] | Max. Contam. Level |
|---|---|---|---|---|---|---|
| Sodium[(e)] | 1 | -- | No Analysis | Not Listed | Nutrient | Not Listed |
| | 2 | 5 | 596,000-1,270,000 | | | |
| | 3 | 5 | 445,000-1,230,000 | | | |
| Vanadium[(d)] | 1 | 0 | -- | 26 | Not Valid | Not Listed |
| | 2 | 1 | 65.2 | | | |
| | 3 | 2 | 5-5.7 | | | |
| Zinc[(d)] | 1 | 0 | -- | 1,100 | Not Valid | Not Listed |
| | 2 | 1 | 82.8 | | | |
| | 3 | 0 | -- | | | |
| Hexavalent Chromium | 1 | | Not Detected | | | |
| | 2 | | No Analysis | | | |
| | 3 | | No Analysis | | | |
| Cyanide | 1 | | Not Detected | | | |
| | 2 | | No Analysis | | | |
| | 3 | | No Analysis | | | |

*Notes:*

(a) Only elements with detections are listed. Hexavalent chromium and cyanide were separate analyses.
(b) See Appendix G for UTL determinations.
(c) Based on treatment technique action level.
(d) High percentage of nondetects prevented determination of UTL.
(e) Element considered to be a nutrient; therefore, UTL was not determined.
(f) If trivalent chromium, RBSL=3,700 μg/L.

**Table 3.4**
**SWMUs 14 and 15, and AOCs 670 and 684**
**Inorganic Chemicals in Deep Groundwater (μg/L)**

**Round 1: 5 Samples Collected, 1 Sample Duplicated**
**Round 2: 5 Samples Collected, 1 Sample Duplicated**
**Round 3: 5 Samples Collected, 0 Samples Duplicated**

| Chemical Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Upper Tolerance Limit of Background[b] | Max. Contam. Level |
|---|---|---|---|---|---|---|
| Arsenic | 1 | 5 | 1.2-10.2 | 0.038 | 14.98 | 50 |
| | 2 | 1 | 5.5 | | | |
| | 3 | 0 | -- | | | |
| Barium | 1 | 4 | 89.1-268 | 260 | 236.9 | 323 |
| | 2 | 5 | 62.1-246 | | | |
| | 3 | 5 | 70.8-256 | | | |
| Cadmium[d] | 1 | 1 | 2.9 | 1.8 | Not Valid | 5 |
| | 2 | 3 | 1.8-2.9 | | | |
| | 3 | 5 | 3.6-7.9 | | | |
| Calcium[f] | 1 | -- | No Analysis | Not Listed | Nutrient | Not Listed |
| | 2 | 5 | 169,000-221,000 | | | |
| | 3 | 5 | 177,000-225,000 | | | |
| Iron | 1 | -- | No Analysis | Not Listed | 8,787 | Not Listed |
| | 2 | 2 | 191-408 | | | |
| | 3 | 1 | 68.1 | | | |
| Lead | 1 | 3 | 1.3-8.3 | 15[c] | 4.263 | 15[c] |
| | 2 | 0 | -- | | | |
| | 3 | 0 | -- | | | |
| Magnesium | 1 | -- | No Analysis | Not Listed | 1,114,000 | Not Listed |
| | 2 | 5 | 869,000-1,195,000 | | | |
| | 3 | 5 | 934,000-1,740,000 | | | |
| Manganese | 1 | -- | No Analysis | 18 | 776.2 | Not Listed |
| | 2 | 5 | 10.15-109 | | | |
| | 3 | 5 | 15.8-71 | | | |
| Potassium[f] | 1 | -- | No Analysis | Not Listed | Nutrient | Not Listed |
| | 2 | 5 | 222,000-284,000 | | | |
| | 3 | 5 | 280,000-340,000 | | | |
| Selenium | 1 | 4 | 1.1-1.7 | 18 | 2.103 | 50 |
| | 2 | 0 | -- | | | |
| | 3 | 0 | -- | | | |
| Sodium[f] | 1 | -- | No Analysis | Not Listed | Nutrient | Not Listed |
| | 2 | 5 | -8,025,000 | | | |
| | 3 | 5 | 7,310,000-8,930,000 | | | |
| Thallium[d] | 1 | 2 | 1.2-1.2 | 0.29[e] | Not Valid | 2 |
| | 2 | 0 | -- | | | |
| | 3 | 5 | 15.9-28.8 | | | |

**Table 3.4**
**SWMUs 14 and 15, and AOCs 670 and 684**
**Inorganic Chemicals in Deep Groundwater (μg/L)**

**Round 1: 5 Samples Collected, 1 Sample Duplicated**
**Round 2: 5 Samples Collected, 1 Sample Duplicated**
**Round 3: 5 Samples Collected, 0 Samples Duplicated**

| Chemical Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Upper Tolerance Limit of Background[b] | Max. Contam. Level |
|---|---|---|---|---|---|---|
| Vanadium | 1 | 0 | -- | 26 | Not Valid | Not Listed |
| | 2 | 0 | -- | | | |
| | 3 | 5 | 4.6-10.4 | | | |
| Zinc | 1 | 0 | -- | 1100 | Not Valid | Not Listed |
| | 2 | 0 | -- | | | |
| | 3 | 1 | 30.7 | | | |
| Hexavalent Chromium | 1 | | | Not Detected | | |
| | 2 | | | No Analysis | | |
| | 3 | | | No Analysis | | |
| Cyanide | 1 | | | Not Detected | | |
| | 2 | | | No Analysis | | |
| | 3 | | | No Analysis | | |

*Notes:*

(a) Only elements with detections are listed. Hexavalent chromium and cyanide were separate analyses.
(b) See Appendix G for UTL determinations.
(c) Based on treatment technique action level.
(d) High percentage of nondetects in background samples prevented determination of UTL.
(e) Thallium carbonate used as surrogate.
(f) Element considered to be a nutrient; therefore, UTL was not determined.

**Table 4.1**
**SWMU 17**
**Organic Compounds in Groundwater (μg/L)**

**Round 1: 6 Samples Collected, 1 Sample Duplicated**
**Round 2: 4 Samples Collected, 1 Sample Duplicated**
**Round 3: 6 Samples Collected, 0 Samples Duplicated**

| Compound Name | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Max. Contam. Level |
|---|---|---|---|---|---|
| **Volatile Organic Compounds (Collected in Rounds 1, 2, and 3)** | | | | | |
| Acetone | 1 | 1 | 17.9 | 370 | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 3 | 180-750 | | |
| Chlorobenzene | 1 | 1 | 2.8 | 3.9 | 100 |
| | 2 | 2 | 3.9-4,750 | | |
| | 3 | 2 | 5-3,900 | | |
| Methylene Chloride | 1 | 0 | -- | | |
| | 2 | 0 | -- | | |
| | 3 | 2 | 16-240 | | |
| Toluene | 1 | 0 | -- | | |
| | 2 | 0 | -- | | |
| | 3 | 2 | 26 | | |
| 1,2,4-Trichlorobenzene | 1 | 0 | -- | | |
| | 2 | 0 | -- | | |
| | 3 | 1 | 1,400 | | |
| **Semivolatile Organic Compounds (Collected in Rounds 1, 2, and 3)** | | | | | |
| bis(2-Ethylhexyl)phthalate | 1 | 0 | -- | | |
| | 2 | 0 | -- | | |
| | 3 | 1 | 140 | | |
| 1,2-Dichlorobenzene | 1 | 1 | 110 | 27 | 600 |
| | 2 | 1 | 54.5 | | |
| | 3 | 1 | 140 | | |
| 1,3-Dichlorobenzene | 1 | 1 | 750 | 54 | 600 |
| | 2 | 1 | 550 | | |
| | 3 | 1 | 800 | | |
| 1,4-Dichlorobenzene | 1 | 1 | 1,100 | 0.44 | 75 |
| | 2 | 1 | 830 | | |
| | 3 | 1 | 1,300 | | |
| 1,2,4-Trichlorobenzene | 1 | 1 | 1,000 | 19 | 70 |
| | 2 | 1 | 520 | | |
| | 3 | 0 | -- | | |
| 2,4,5-Trichlorophenol | 1 | 0 | -- | 370 | Not Listed |
| | 2 | 1 | 19 | | |
| | 3 | 0 | -- | | |

**Table 4.1**
**SWMU 17**
**Organic Compounds in Groundwater (μg/L)**

**Round 1: 6 Samples Collected, 1 Sample Duplicated**
**Round 2: 4 Samples Collected, 1 Sample Duplicated**
**Round 3: 6 Samples Collected, 0 Samples Duplicated**

| Compound Name | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Max. Contam. Level |
|---|---|---|---|---|---|
| Naphthalene | 1 | 1 | 6.1 | 150 | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |
| Di-n-butylphthalate | 1 | 2 | 2.8-3.2 | 370 | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |
| Di-n-octylphthalate | 1 | 0 | -- | | |
| | 2 | 0 | -- | | |
| | 3 | 1 | 3.4 | | |
| Benzidine | 1 | 1 | 56 | 0.00029 | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |
| 2-Methylnaphthalene | 1 | 1 | 4.0 | 150[a] | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |
| **Pesticides (Collected in Rounds 1 and 3)** | | | | | |
| No Pesticides Detected | | | | | |
| **Polychlorinated Biphenyls (Collected in Rounds 1 and 3)** | | | | | |
| Aroclor1260 | 1 | 0 | -- | | |
| | 2 | -- | No Analysis | | |
| | 3 | 1 | 520 | | |
| **Petroleum Hydrocarbons (Collected in Rounds 1 and 3)** | | | | | |
| Total Petroleum Hydrocarbons | 1 | 0 | -- | | |
| | 2 | – | No Analysis | | |
| | 3 | 2 | 2,000-6,900 | | |
| **Herbicides (Collected in Round 1 Only)** | | | | | |
| No herbicides detected. | | | | | |
| **Organophosphate Pesticides (Collected in Round 1 Only)** | | | | | |
| No organophosphate pesticides detected. | | | | | |
| **Dioxin (Collected in Round 1 Only)** | | | | | |
| No dioxin detected. | | | | | |

*Note:*
[a] Naphthalene used as surrogate.

**Table 4.2**
**SWMU 17**
**Inorganic Chemicals in Groundwater (μg/L)**

**Round 1: 6 Samples Collected, 1 Sample Duplicated**
**Round 2: 4 Samples Collected, 1 Sample Duplicated**
**Round 3: 6 Samples Collected, 0 Samples Duplicated**

| Chemical Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Upper Tolerance Limit of Background[b] | Max. Contam. Level |
|---|---|---|---|---|---|---|
| Aluminum[(c)] | 1 | 3 | 35.8-522 | 3,800 | Not Valid | Not Listed |
| | 2 | 1 | 33.7 | | | |
| | 3 | 2 | 27.4-72.2 | | | |
| Arsenic | 1 | 0 | -- | 0.037 | 27.99 | 50 |
| | 2 | 2 | 3.2-4.9 | | | |
| | 3 | 5 | 2-6.1 | | | |
| Barium | 1 | 3 | 6.4-15.3 | 260 | 323 | 2,000 |
| | 2 | 4 | 2.9-19.1 | | | |
| | 3 | 6 | 7.7-58.7 | | | |
| Beryllium | 1 | 0 | -- | 0.016 | | |
| | 2 | 0 | -- | | | |
| | 3 | 1 | 0.32 | | | |
| Cadmium | 1 | 0 | -- | Not Listed | | |
| | 2 | 0 | -- | | | |
| | 3 | 1 | 1.9 | | | |
| Calcium[(d)] | 1 | 6 | 81,700-179,000 | Not Listed | Nutrient | Not Listed |
| | 2 | | | | | |
| | 3 | 6 | 54,300-216,000 | | | |
| Chromium[(c)] | 1 | 0 | -- | 18[(e)] | Not Valid | 100 |
| | 2 | 1 | 40 | | | |
| | 3 | 1 | 4.6 | | | |
| Cobalt[(c)] | 1 | 0 | -- | 220 | Not Valid | Not Listed |
| | 2 | 1 | 2.7 | | | |
| | 3 | 1 | 1.8 | | | |
| Copper[(c)] | 1 | 1 | 3.0 | 140 | Not Valid | Not Listed |
| | 2 | 0 | -- | | | |
| | 3 | 1 | 5.1 | | | |
| Iron | 1 | 6 | 987-7,320 | Not Listed | 45,760 | Not Listed |
| | 2 | 4 | 1,475-3,860 | | | |
| | 3 | 6 | 1,460-3,560 | | | |
| Magnesium | 1 | 6 | 10,100-156,000 | Not Listed | 3,866,000 | Not Listed |
| | 2 | 4 | 13,500-45,700 | | | |
| | 3 | 6 | 9,760-146,000 | | | |
| Manganese | 1 | 6 | 73.3-630 | 18 | 3,391 | Not Listed |
| | 2 | 4 | 86.2-896 | | | |
| | 3 | 6 | 65.5-636 | | | |

**Table 4.2**
**SWMU 17**
**Inorganic Chemicals in Groundwater (μg/L)**

**Round 1: 6 Samples Collected, 1 Sample Duplicated**
**Round 2: 4 Samples Collected, 1 Sample Duplicated**
**Round 3: 6 Samples Collected, 0 Samples Duplicated**

| Chemical Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Upper Tolerance Limit of Background[b] | Max. Contam. Level |
|---|---|---|---|---|---|---|
| Potassium[d] | 1 | 6 | 8,490-63,800 | Not Listed | Nutrient | Not Listed |
| | 2 | 4 | 9,690-17,200 | | | |
| | 3 | 6 | 9,190-77,300 | | | |
| Selenium | 1 | 0 | -- | 18 | 3.154 | 50 |
| | 2 | 2 | 3.2-3.9 | | | |
| | 3 | 0 | -- | | | |
| Sodium[d] | 1 | 6 | 10,900-1,340,000 | Not Listed | Nutrient | Not Listed |
| | 2 | 4 | 23,200-292,000 | | | |
| | 3 | 6 | 10,500-1,440,000 | | | |
| Vanadium[c] | 1 | 0 | -- | 26 | Not Valid | Not Listed |
| | 2 | 1 | 3.4 | | | |
| | 3 | 3 | 3.5-7.0 | | | |
| Zinc[c] | 1 | 0 | -- | 1100 | Not Valid | Not Listed |
| | 2 | 1 | 25 | | | |
| | 3 | 1 | 4 | | | |
| Cyanide | 1 | | | Not Detected | | |
| | 2 | | | No Analysis | | |
| | 3 | | | No Analysis | | |
| Hexavalent Chromium | 1 | | | Not Detected (1 Sample Duplicated) | | |
| | 2 | | | No Analysis | | |
| | 3 | | | No Analysis | | |

*Note:*

(a) Only compounds with detections are listed. Cyanide and hexavalent chromium were separate analyses.
(b) See Appendix G for upper tolerance limit (UTL) determinations.
(c) High percentage of nondetects in background samples prevented determination of UTL.
(d) Element considered to be a nutrient; therefore, UTL was not determined.
(e) If trivalent chromium, RBSL=3,700 μg/L.

**Table 5.1**
**SWMU 178**
**Organic Compounds in Groundwater (µg/L)**

**Round 1: 2 Samples Collected, 0 Samples Duplicated**
**Round 2: 2 Samples Collected, 2 Samples Duplicated**
**Round 3: 2 Samples Collected, 0 Samples Duplicated**

| Compound Name | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Max. Contam. Level |
|---|---|---|---|---|---|
| **Volatile Organic Compounds (Collected in Round 1 Only)** | | | | | |
| No VOCs detected. | | | | | |
| **Semivolatile Organic Compounds (Collected in Rounds 1, 2, and 3)** | | | | | |
| bis(2-Ethylhexyl)phthalate | 1 | 0 | -- | 4.8 | 6 |
| | 2 | 1 | 530 | | |
| | 3 | 1 | 290 | | |
| **Pesticides (Collected in Round 1 Only)** | | | | | |
| No pesticides detected | | | | | |
| **Polychlorinated Biphenyls (Collected in Round 1 Only)** | | | | | |
| No PCBs detected. | | | | | |
| **Total Petroleum Hydrocarbons (Collected in Round 1Only)** | | | | | |
| No TPH detected. | | | | | |

**Table 5.2**
**SWMU 178**
**Inorganic Chemicals in Groundwater (μg/L)**

**Round 1: 2 Samples Collected, 0 Samples Duplicated**
**Round 2: 2 Samples Collected, 2 Samples Duplicated**
**Round 3: 2 Samples Collected, 0 Samples Duplicated**

| Chemical Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Upper Tolerance Limit of Background[b] | Max. Contam. Level |
|---|---|---|---|---|---|---|
| Aluminum[c] | 1 | 1 | 15.5 | 3700 | Not Valid | Not Listed |
| | 2 | 1 | 140.35 | | | |
| | 3 | 1 | 679 | | | |
| Arsenic | 1 | 0 | -- | 0.038 | 27.99 | 50 |
| | 2 | 1 | 4.9 | | | |
| | 3 | 2 | 4.0-5.2 | | | |
| Barium | 1 | 1 | 2.8 | 260 | 323 | 2000 |
| | 2 | 1 | 4.70 | | | |
| | 3 | 0 | -- | | | |
| Calcium[d] | 1 | 2 | 37,100-267,000 | Not Listed | Nutrient | Not Listed |
| | 2 | 2 | 33,450-68,000 | | | |
| | 3 | 2 | 33,000-72,800 | | | |
| Chromium[c] | 1 | 0 | -- | 18[e] | Not Valid | 100 |
| | 2 | 1 | 2.7 | | | |
| | 3 | 0 | -- | | | |
| Iron | 1 | 2 | 301-365 | Not Listed | 45,760 | Not Listed |
| | 2 | 2 | 352-989 | | | |
| | 3 | 2 | 624-1,720 | | | |
| Magnesium | 1 | 2 | 31,400-65,700 | Not Listed | 3,866,000 | Not Listed |
| | 2 | 2 | 30,750-108,000 | | | |
| | 3 | 2 | 27,700-87,500 | | | |
| Manganese | 1 | 2 | 13.1-158 | 18 | 3,391 | Not Listed |
| | 2 | 2 | 12.60-19.75 | | | |
| | 3 | 0 | -- | | | |
| Nickel[c] | 1 | 0 | -- | 73 | Not Valid | 100 |
| | 2 | 1 | 6.9 | | | |
| | 3 | 0 | -- | | | |
| Potassium[d] | 1 | 2 | 20,700-33,800 | Not Listed | Nutrient | Not Listed |
| | 2 | 2 | 18,950-64,550 | | | |
| | 3 | 2 | 20,400-56,300 | | | |
| Sodium[d] | 1 | 2 | 113,000-259,000 | Not Listed | Nutrient | Not Listed |
| | 2 | 2 | 110,500-841,500 | | | |
| | 3 | 2 | 94,000-657,000 | | | |
| Vanadium[c] | 1 | 0 | -- | 26 | Not Valid | Not Listed |
| | 2 | 1 | 4.5 | | | |
| | 3 | 0 | -- | | | |

**Table 5.2**
**SWMU 178**
**Inorganic Chemicals in Groundwater (μg/L)**

**Round 1: 2 Samples Collected, 0 Samples Duplicated**
**Round 2: 2 Samples Collected, 2 Samples Duplicated**
**Round 3: 2 Samples Collected, 0 Samples Duplicated**

| Chemical Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Upper Tolerance Limit of Background[b] | Max. Contam. Level |
|---|---|---|---|---|---|---|
| Cyanide[c] | 1 | 0 | Not Detected | | | |
| | 2 | -- | No Analysis | | | |
| | 3 | -- | No Analysis | | | |

*Notes:*

(a) Only elements with detections are listed. Cyanide was a separate analysis.
(b) See Appendix G for upper tolerance limit (UTL) determinations.
(c) High percentage of nondetects in background samples prevented determination of UTL.
(d) Element considered to be a nutrient; therefore, UTL was not determined.
(e) If trivalent chromium, RBSL= 3700 μg/L.

**Table 6.1**
**AOC 653**
**Organic Compounds in Groundwater (μg/L)**

**Round 1: 2 Samples Collected, 0 Samples Duplicated**
**Round 2: 2 Samples Collected, 1 Sample Duplicated**
**Round 3: 2 Samples Collected, 0 Sample Duplicated**

| Compound Name | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Max. Contam. Level |
|---|---|---|---|---|---|
| **Volatile Organic Compounds (Collected in Round 1 Only)** | | | | | |
| No VOCs detected. | | | | | |
| **Semivolatile Organic Compounds (Collected in Rounds 1, 2, and 3)** | | | | | |
| No SVOCs detected. | | | | | |
| **Pesticides (Collected in Rounds 1 and 2)** | | | | | |
| 4,4'-DDT | 1 | 1 | 0.06 | 0.2 | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |
| **Polychlorinated Biphenyls (Collected in Round 1 Only)** | | | | | |
| No PCBs detected. | | | | | |
| **Total Petroleum Hydrocarbons (Collected in Round 1 Only)** | | | | | |
| No TPH detected. | | | | | |

**Table 6.2**
**AOC 653**
**Inorganic Elements in Groundwater (μg/L)**

**Round 1: 2 Samples Collected, 0 Samples Duplicated**
**Round 2: 2 Samples Collected, 1 Sample Duplicated**
**Round 3: 2 Samples Collected, 0 Samples Duplicated**

| Compound Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Upper Tolerance Limit of Background[b] | Max. Contam. Level |
|---|---|---|---|---|---|---|
| Aluminum [c] | 1 | 0 | -- | 3,700 | Not Valid | Not Listed |
| | 2 | 2 | 189-248 | | | |
| | 3 | 0 | -- | | | |
| Arsenic | 1 | 0 | -- | 0.038 | 27.99 | 50 |
| | 2 | 1 | 36.55 | | | |
| | 3 | 2 | 23.4-54.1 | | | |
| Calcium[d] | 1 | 2 | 44,300-108,000 | Not Listed | Nutrient | Not Listed |
| | 2 | 2 | 56,700-94,200 | | | |
| | 3 | 2 | 57,300-100,000 | | | |
| Iron | 1 | 2 | 6,230-9,280 | Not Listed | 45,760 | Not Listed |
| | 2 | 2 | 9,510-10,550 | | | |
| | 3 | 2 | 8,120-11,500 | | | |
| Magnesium | 1 | 2 | 59,900-86,200 | Not Listed | 3,866,000 | Not Listed |
| | 2 | 2 | 60,600-66,850 | | | |
| | 3 | 2 | 48,900-64,300 | | | |
| Manganese | 1 | 2 | 90.6-672 | 18 | 3,391 | Not Listed |
| | 2 | 2 | 128-680 | | | |
| | 3 | 2 | 109-719 | | | |
| Potassium[d] | 1 | 2 | 52,300-58,200 | Not Listed | Nutrient | Not Listed |
| | 2 | 2 | 37,850-44,300 | | | |
| | 3 | 2 | 42,000-45,600 | | | |
| Selenium | 1 | 2 | 0.9-1.2 | 18 | 3.154 | 50 |
| | 2 | 0 | -- | | | |
| | 3 | 0 | -- | | | |
| Sodium[d] | 1 | 2 | 598,000-707,000 | Not Listed | Nutrient | Not Listed |
| | 2 | 2 | 476,500-539,000 | | | |
| | 3 | 2 | 370,000-501,000 | | | |
| Thallium | 1 | 1 | 1.2 | 0.29[e] | 7.660 | 2 |
| | 2 | 0 | -- | | | |
| | 3 | 0 | -- | | | |
| Vanadium[c] | 1 | 1 | 4.6 | 26 | Not Valid | Not Listed |
| | 2 | 0 | -- | | | |
| | 3 | 0 | -- | | | |

**Table 6.2**
**AOC 653**
**Inorganic Elements in Groundwater (μg/L)**

**Round 1: 2 Samples Collected, 0 Samples Duplicated**
**Round 2: 2 Samples Collected, 1 Sample Duplicated**
**Round 3: 2 Samples Collected, 0 Samples Duplicated**

| Compound Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Upper Tolerance Limit of Background[b] | Max. Contam. Level |
|---|---|---|---|---|---|---|
| Cyanide[(c)] | 1 | -- | Not Detected | | | |
| | 2 | -- | No Analysis | | | |
| | 3 | -- | No Analysis | | | |

*Note:*

(a) Only elements with detections are listed. Cyanide was a separate analysis.
(b) See Appendix G for upper tolerance limit (UTL) determinations.
(c) High percentage of nondetects in background samples prevented determination of UTL.
(d) Element considered to be a nutrient; therefore, UTL was not determined.
(e) Thallium carbonate used as surrogate.

**Table 7.1**
**AOC 655**
**Organic Compounds in Groundwater (μg/L)**

**Round 1: 3 Samples Collected, 0 Samples Duplicated**
**Round 2: 3 Samples Collected, 1 Sample Duplicated**
**Round 3: 3 Samples Collected, 1 Sample Duplicated**

| Compound Name | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Maximum Contaminant Level |
|---|---|---|---|---|---|
| **Volatile Organic Compounds (Collected in Round 1 Only)** | | | | | |
| No VOCs detected. | | | | | |
| **Semivolatile Organic Compounds (Collected in Rounds 1, 2, and 3)** | | | | | |
| No SVOCs detected. | | | | | |
| **Pesticides (Collected in Rounds 1, 2, and 3)** | | | | | |
| alpha-Chlordane | 1 | 1 | 0.04 | 0.052 | 2 |
| | 2 | 1 | 0.03 | (alpha+gamma) | (alpha+gamma) |
| | 3 | 1 | 0.08 | | |
| gamma-Chlordane | 1 | 1 | 0.06 | 0.052 | 2 |
| | 2 | 1 | 0.04 | (alpha+gamma) | (alpha+gamma) |
| | 3 | 1 | 0.10 | | |
| **Polychlorinated Biphenyls (Collected in Round 1 Only)** | | | | | |
| No PCBs detected. | | | | | |
| **Total Petroleum Hydrocarbons (Collected in Round 1 Only)** | | | | | |
| No TPH detected. | | | | | |

**Table 7.2**
**AOC 655**
**Inorganic Chemicals in Groundwater (μg/L)**

**Round 1: 3 Samples Collected, 0 Samples Duplicated**
**Round 2: 3 Samples Collected, 1 Sample Duplicated**
**Round 3: 3 Samples Collected, 1 Sample Duplicated**

| Chemical Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Upper Tolerance Limit of Background[b] | Max. Contam. Level |
|---|---|---|---|---|---|---|
| Aluminum[c] | 1 | 2 | 1,040-1,750 | 3,700 | Not Valid | Not Listed |
| | 2 | 3 | 26.60-2,210 | | | |
| | 3 | 2 | 22.4-743 | | | |
| Arsenic | 1 | 2 | 22.9-42.3 | 0.038 | 27.99 | 50 |
| | 2 | 2 | 10.6-27.9 | | | |
| | 3 | 3 | 6.8-41.3 | | | |
| Barium | 1 | 3 | 54.7-255 | 260 | 323 | 2,000 |
| | 2 | 3 | 46.5-211 | | | |
| | 3 | 2 | 40.4-255 | | | |
| Calcium[c] | 1 | 3 | 153,000-196,000 | Not Listed | Nutrient | Not Listed |
| | 2 | 3 | 161,500-271,000 | | | |
| | 3 | 3 | 66,600-126,000 | | | |
| Chromium[d] | 1 | 0 | -- | 18[e] | Not Valid | 100 |
| | 2 | 2 | 3.5-4.0 | | | |
| | 3 | 0 | -- | | | |
| Iron | 1 | 3 | 17,600-45,400 | Not Listed | 45,760 | Not Listed |
| | 2 | 3 | 16,750-39,300 | | | |
| | 3 | 3 | 875-31,550 | | | |
| Magnesium | 1 | 3 | 175,000-541,000 | Not Listed | 3,866,000 | Not Listed |
| | 2 | 3 | 122,000-649,000 | | | |
| | 3 | 3 | 106,000-190,000 | | | |
| Manganese | 1 | 3 | 298-578 | 18 | 3,391 | Not Listed |
| | 2 | 3 | 346-689 | | | |
| | 3 | 3 | 197-320.5 | | | |
| Potassium[c] | 1 | 3 | 52,200-161,000 | Not Listed | Nutrient | Not Listed |
| | 2 | 3 | 16,900-90,350 | | | |
| | 3 | 3 | 40,100-67,000 | | | |
| Sodium[c] | 1 | 3 | 1,780,000-3,940,000 | Not Listed | Nutrient | Not Listed |
| | 2 | 3 | 1,240,000-4,570,000 | | | |
| | 3 | 3 | 1,090,000-2,000,000 | | | |
| Vanadium[d] | 1 | 1 | 10.1 | 26 | Not Valid | Not Listed |
| | 2 | 3 | 4.0-10.1 | | | |
| | 3 | 2 | 5.2-5.8 | | | |
| Zinc | 1 | 0 | -- | 1,100 | Not Valid | Not Listed |
| | 2 | 1 | 7.7 | | | |
| | 3 | 1 | 18.1 | | | |

**Table 7.2**
**AOC 655**
**Inorganic Chemicals in Groundwater (μg/L)**

**Round 1: 3 Samples Collected, 0 Samples Duplicated**
**Round 2: 3 Samples Collected, 1 Sample Duplicated**
**Round 3: 3 Samples Collected, 1 Sample Duplicated**

| Chemical Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Upper Tolerance Limit of Background[b] | Max. Contam. Level |
|---|---|---|---|---|---|---|
| Cyanide[(d)] | 1 | -- | Not Detected | | | |
| | 2 | -- | No Analysis | | | |
| | 3 | -- | No Analysis | | | |

*Notes:*

(a) Only elements with detections are listed. Cyanide was a separate analysis.
(b) See Appendix G for upper tolerance limit (UTL) determinations.
(c) Element considered to be a nutrient; therefore, UTL was not determined.
(d) High percentage of nondetects in background samples prevented determination of UTL.
(e) If trivalent chromium, RBSL = 3700 μg/L.
(f) Based on treatment technique action level.

**Table 8.1**
**AOC 656**
**Organic Elements in Groundwater (μg/L)**

**Round 1: 3 Samples Collected, 0 Samples Duplicated**
**Round 2: 3 Samples Collected, 1 Sample Duplicated**
**Round 3: 3 Samples Collected, 0 Samples Duplicated**

| Compound Name | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Max. Contam. Level |
|---|---|---|---|---|---|
| **Volatile Organic Compounds (Collected in Rounds 1, 2, and 3)** | | | | | |
| Acetone | 1 | 0 | -- | 370 | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 2 | 35-130 | | |
| **Semivolatile Organic Compounds (Collected in Round 1 Only)** | | | | | |
| No SVOCs detected. | | | | | |
| **Pesticides (Collected in Round 1 Only)** | | | | | |
| No pesticides detected. | | | | | |
| **Polychlorinated Biphenyls (Collected in Round 1 Only)** | | | | | |
| No PCBs detected. | | | | | |
| **Total Petroleum Hydrocarbons (Collected in Round 1 Only)** | | | | | |
| No TPH detected. | | | | | |
| **Herbicides (Collected in Round 1 Only)** | | | | | |
| No herbicides detected. | | | | | |
| **Organophosphate Pesticides (Collected in Rouud 1 Only)** | | | | | |
| No organophosphate pesticides detected. | | | | | |
| **Dioxins (Collected in Round 1 and Round 3)** | | | | | |
| Total TEQs | 1 | 1 | 1.747 pg/L | 0.5 pg/L | 30 pg/L |
| | 2 | -- | No Analysis | | |
| | 3 | 1 | 0.040 pg/L | | |

**Table 8.2**
**AOC 656**
**Inorganic Chemicals in Groundwater (μg/L)**

**Round 1: 3 Samples Collected, 0 Samples Duplicated**
**Round 2: 3 Samples Collected, 1 Sample Duplicated**
**Round 3: 3 Samples Collected, 0 Samples Duplicated**

| Chemical Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Upper Tolerance Limit of Background[b] | Max. Contam. Level |
|---|---|---|---|---|---|---|
| Aluminum[d] | 1 | 1 | 672 | 3,700 | Not Valid | Not Listed |
| | 2 | 2 | 33.9-206 | | | |
| | 3 | 2 | 45.9-653 | | | |
| Arsenic | 1 | 1 | 18 | 0.038 | 27.99 | 50 |
| | 2 | 1 | 3.1 | | | |
| | 3 | 2 | 4.5-10.7 | | | |
| Barium | 1 | 2 | 8.4-55.4 | 260 | 323.0 | 2,000 |
| | 2 | 3 | 9.3-83 | | | |
| | 3 | 3 | 18.4-85.1 | | | |
| Cadmium | 1 | 0 | 0 | 1.8 | Not Valid | 5 |
| | 2 | 0 | 0 | | | |
| | 3 | 1 | 2.9 | | | |
| Calcium[c] | 1 | 3 | 75,700-257,000 | Not Listed | Nutrient | Not Listed |
| | 2 | 3 | 68,550-298,000 | | | |
| | 3 | 3 | 81,600-261,000 | | | |
| Chromium[d] | 1 | 0 | – | 18[e] | Not Valid | 100 |
| | 2 | 1 | 2.0 | | | |
| | 3 | 1 | 4.5 | | | |
| Iron | 1 | 3 | 3,650-17,900 | Not Listed | 45,760 | Not Listed |
| | 2 | 3 | 4,360-23,100 | | | |
| | 3 | 3 | 4,290-20,900 | | | |
| Magnesium | 1 | 3 | 58,100-717,000 | Not Listed | 3,866,000 | Not Listed |
| | 2 | 3 | 538,000-894,000 | | | |
| | 3 | 3 | 55,900-851,000 | | | |
| Manganese | 1 | 3 | 153-454 | 18 | 3,391 | Not Listed |
| | 2 | 3 | 127.5-835.0 | | | |
| | 3 | 3 | 156-659 | | | |
| Nickel[d] | 1 | 0 | -- | 73 | Not Valid | 100 |
| | 2 | 1 | 27.5 | | | |
| | 3 | 0 | -- | | | |
| Potassium[c] | 1 | 3 | 35,700-172,000 | Not Listed | Nutrient | Not Listed |
| | 2 | 3 | 31,250-222,000 | | | |
| | 3 | 3 | 39,200-231,000 | | | |
| Sodium[c] | 1 | 3 | 479,000-5,330,000 | Not Listed | Nutrient | Not Listed |
| | 2 | 3 | 418,500-6,230,000 | | | |
| | 3 | 3 | 341,000-6,050,000 | | | |
| Thallium | 1 | 0 | -- | 0.029[g] | 7.660 | 2 |
| | 2 | 1 | 4.1 | | | |
| | 3 | 1 | 23.2 | | | |

**Table 8.2**
**AOC 656**
**Inorganic Chemicals in Groundwater (μg/L)**

**Round 1: 3 Samples Collected, 0 Samples Duplicated**
**Round 2: 3 Samples Collected, 1 Sample Duplicated**
**Round 3: 3 Samples Collected, 0 Samples Duplicated**

| Chemical Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Upper Tolerance Limit of Background[b] | Max. Contam. Level |
|---|---|---|---|---|---|---|
| Vanadium[(d)] | 1 | 1 | 4.6 | 26 | Not Valid | Not Listed |
| | 2 | 3 | 2.7-11.6 | | | |
| | 3 | 2 | 3.5-11.8 | | | |
| Zinc[(d)] | 1 | 0 | -- | 1,100 | Not Valid | Not Listed |
| | 2 | 1 | 18.5 | | | |
| | 3 | 1 | 5.3 | | | |
| Cyanide[(d)] | 1 | 0 | Not Detected | | | |
| | 2 | -- | No Analysis | | | |
| | 3 | -- | No Analysis | | | |
| Hexavalent Chromium[(d)] | 1 | 0 | Not Detected | | | |
| | 2 | -- | No Analysis | | | |
| | 3 | -- | No Analysis | | | |

*Notes:*

(a) Only elements with detections are listed. Cyanide and hexavalent chromium were separate analyses.
(b) See Appendix G for upper tolerance limit (UTL) determinations.
(c) Element considered to be a nutrient; therefore, UTL was not determined.
(d) High percentage of nondetects in background samples prevented determination of UTL.
(e) If trivalent chromium, RBSL = 3700 μg/L.
(f) Based on treatment technique action level.
(g) Thallium carbonate used as surrogate.

**Table 9.1**
**AOC 660**
**Organic Compounds in Groundwater (μg/L)**

**Round 1: 2 Samples Collected, 0 Samples Duplicated**
**Round 2: 2 Samples Collected, 1 Sample Duplicated**
**Round 3: 2 Samples Collected, 0 Samples Duplicated**

| Compound Name | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Max. Contam. Level |
|---|---|---|---|---|---|
| **Volatile Organic Compounds (Collected in Round 1 Only)** | | | | | |
| No VOCs detected. | | | | | |
| **Semivolatile Organic Compounds (Collected in Round 1 Only)** | | | | | |
| No SVOCs detected. | | | | | |
| **Pesticides (Collected in Rounds 1, 2, and 3)** | | | | | |
| No pesticides detected | | | | | |
| **Polychlorinated Biphenyls (Collected in Round 1 Only)** | | | | | |
| No PCBs detected. | | | | | |
| **Total Petroleum Hydrocarbons (Collected in Round 1 Only)** | | | | | |
| No TPH detected. | | | | | |

**Table 9.2**
**AOC 660**
**Inorganic Chemicals in Groundwater (μg/L)**

**Round 1: 2 Samples Collected, 0 Samples Duplicated**
**Round 2: 2 Samples Collected, 1 Sample Duplicated**
**Round 3: 2 Samples Collected, 0 Samples Duplicated**

| Chemical Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Upper Tolerance Limit of Background[b] | Max. Contam. Level |
|---|---|---|---|---|---|---|
| Aluminum[(c)] | 1 | 2 | 18.3-25.8 | 3,700 | Not Valid | Not Listed |
| | 2 | 1 | 1,940 | | | |
| | 3 | 0 | -- | | | |
| Arsenic | 1 | 0 | -- | 0.038 | 27.99 | 50 |
| | 2 | 1 | 12.8 | | | |
| | 3 | 2 | 3.6-5.8 | | | |
| Barium | 1 | 2 | 1.9-8.3 | 260 | 323 | 2,000 |
| | 2 | 2 | 4.70-17.9 | | | |
| | 3 | 0 | -- | | | |
| Calcium[(d)] | 1 | 2 | 60,900-122,000 | Not Listed | Nutrient | Not Listed |
| | 2 | 2 | 55,700-133,000 | | | |
| | 3 | 2 | 55,400-119,000 | | | |
| Chromium[(c)] | 1 | 0 | -- | 18[(e)] | Not Valid | 100 |
| | 2 | 1 | 2.75 | | | |
| | 3 | 0 | -- | | | |
| Iron | 1 | 2 | 625-1,800 | Not Listed | 45,760 | Not Listed |
| | 2 | 2 | 556-5,695 | | | |
| | 3 | 2 | 615-2,090 | | | |
| Magnesium | 1 | 2 | 23,900-31,300 | Not Listed | 3,866,000 | Not Listed |
| | 2 | 2 | 23,800-28,600 | | | |
| | 3 | 2 | 23,600-32,200 | | | |
| Manganese | 1 | 2 | 49.6-73.6 | 18 | 3,391 | Not Listed |
| | 2 | 2 | 62.1-108.5 | | | |
| | 3 | 2 | 53.6-78.3 | | | |
| Potassium[(d)] | 1 | 2 | 21,200-22,600 | Not Listed | Nutrient | Not Listed |
| | 2 | 2 | 18,250-19,300 | | | |
| | 3 | 2 | 21,300-21,800 | | | |
| Silver[(c)] | 1 | 1 | 3.5 | 18 | Not Valid | Not Listed |
| | 2 | 0 | -- | | | |
| | 3 | 0 | -- | | | |
| Sodium[(d)] | 1 | 2 | 51,300-91,500 | Not Listed | Nutrient | Not Listed |
| | 2 | 2 | 44,950-66,500 | | | |
| | 3 | 2 | 85,000-120,000 | | | |
| Vanadium[(c)] | 1 | 0 | -- | 26 | Not Valid | Not Listed |
| | 2 | 2 | 2.6-7.6 | | | |
| | 3 | 0 | -- | | | |
| Zinc[(c)] | 1 | 0 | -- | 1,100 | Not Valid | Not Listed |
| | 2 | 1 | 8.6 | | | |
| | 3 | 0 | -- | | | |

**Table 9.2**
**AOC 660**
**Inorganic Chemicals in Groundwater (μg/L)**

**Round 1: 2 Samples Collected, 0 Samples Duplicated**
**Round 2: 2 Samples Collected, 1 Sample Duplicated**
**Round 3: 2 Samples Collected, 0 Samples Duplicated**

| Chemical Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Upper Tolerance Limit of Background[b] | Max. Contam. Level |
|---|---|---|---|---|---|---|
| Cyanide[(c)] | 1 | 0 | Not Detected | | | |
| | 2 | -- | No Analysis | | | |
| | 3 | -- | No Analysis | | | |

*Note:*

(a) Only elements with detections are listed. Cyanide was a separate analysis.
(b) See Appendix G for UTL determinations.
(c) High percentage of nondetects in background samples prevented determination of UTL.
(d) Element considered to be a nutrient; therefore, UTL was not determined.
(e) If trivalent chromium, RBSL = 3700 μg/L.
(f) Based on treatment technique action level.

**Table 10.1**
**AOC 662**
**Organic Compounds in Groundwater (μg/L)**

**Round 1: 2 Samples Collected, 0 Samples Duplicated**
**Round 2: 2 Samples Collected, 0 Samples Duplicated**
**Round 3: 2 Samples Collected, 0 Samples Duplicated**

| Compound Name | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Max. Contam. Level |
|---|---|---|---|---|---|
| **Volatile Organic Compounds (Collected in Rounds 1, 2, and 3)** | | | | | |
| No VOCs detected. | | | | | |
| **Semivolatile Organic Compounds (Collected in Rounds 1, 2, and 3)** | | | | | |
| No SVOCs detected. | | | | | |
| **Pesticides (Collected in Round 1 Only)** | | | | | |
| No pesticides detected. | | | | | |
| **Polychlorinated Biphenyls (Collected in Round 1 Only)** | | | | | |
| No PCBs detected. | | | | | |
| **Total Petroleum Hydrocarbons (Collected in Round 1 Only)** | | | | | |
| No TPH detected. | | | | | |

**Table 10.2**
**AOC 662**
**Inorganic Elements in Groundwater (μg/L)**

**Round 1: 2 Samples Collected, 0 Samples Duplicated**
**Round 2: 2 Samples Collected, 0 Samples Duplicated**
**Round 3: 2 Samples Collected, 0 Samples Duplicated**

| Compound Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Upper Tolerance Limit of Background[b] | Max. Contam. Level |
|---|---|---|---|---|---|---|
| Barium | 1 | 2 | 7.1-29.6 | 260 | 323 | 2,000 |
| | 2 | 2 | 10.7-24.7 | | | |
| | 3 | 0 | -- | | | |
| Calcium[c] | 1 | 2 | 137,000-160,000 | Not Listed | Nutrient | Not Listed |
| | 2 | 2 | 110,000-123,000 | | | |
| | 3 | 2 | 115,000-152,000 | | | |
| Iron | 1 | 2 | 798-2,770 | Not Listed | 45,760 | Not Listed |
| | 2 | 2 | 1,560-1,980 | | | |
| | 3 | 2 | 2,010-2,530 | | | |
| Lead | 1 | 1 | 1.1 | 15[e] | 4.697 | 15[e] |
| | 2 | 0 | -- | | | |
| | 3 | 0 | -- | | | |
| Magnesium | 1 | 2 | 45,600-66,600 | Not Listed | 3,866,000 | Not Listed |
| | 2 | 2 | 36,100-94,000 | | | |
| | 3 | 2 | 28,800-36,000 | | | |
| Manganese | 1 | 2 | 402-434 | 18 | 3,391 | Not Listed |
| | 2 | 2 | 379-629 | | | |
| | 3 | 2 | 353-408 | | | |
| Potassium[c] | 1 | 2 | 21,800-30,700 | Not Listed | Nutrient | Not Listed |
| | 2 | 2 | 17,300-41,100 | | | |
| | 3 | 2 | 15,300-15,900 | | | |
| Sodium[c] | 1 | 2 | 301,000-374,000 | Not Listed | Nutrient | Not Listed |
| | 2 | 2 | 237,000-686,000 | | | |
| | 3 | 2 | 116,000-179,000 | | | |
| Vanadium [d] | 1 | 0 | -- | 26 | Not Valid | Not Listed |
| | 2 | 1 | 3.2 | | | |
| | 3 | 0 | -- | | | |
| Cyanide[d] | 1 | 0 | Not Detected | | | |
| | 2 | -- | No Analysis | | | |
| | 3 | -- | No Analysis | | | |

*Note:*

(a) Only elements with detections are listed. Cyanide was a separate analysis.
(b) See Appendix G for upper tolerance limit (UTL) determinations.
(c) Element considered to be a nutrient; therefore, UTL was not determined.
(d) High percentage of nondetects in background samples prevented determination of UTL.
(e) Based on treatment technique action level.

**Table 11.1**
**AOC 663 and SWMU 136**
**Organic Compounds in Groundwater (μg/L)**

**Round 1: 3 Samples Collected, 1 Sample Duplicated**
**Round 2: 3 Samples Collected, 1 Sample Duplicated**
**Round 3: 3 Samples Collected, 0 Samples Duplicated**

| Compound Name | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Max. Contam. Level |
|---|---|---|---|---|---|
| **Volatile Organic Compounds (Collected in Round 1, 2, and 3)** | | | | | |
| Acetone | 1 | 0 | -- | 370 | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 1 | 25 | | |
| Benzene | 1 | 0 | -- | 0.346 | 5 |
| | 2 | 1 | 160 | | |
| | 3 | 1 | 13 | | |
| Carbon Disulfide | 1 | 0 | -- | 2.1 | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 1 | 3.2 | | |
| Ethylbenzene | 1 | 0 | -- | 130 | 700 |
| | 2 | 1 | 19 | | |
| | 3 | 0 | -- | | |
| Toluene | 1 | 0 | -- | 75 | 1,000 |
| | 2 | 1 | 37 | | |
| | 3 | 0 | -- | | |
| Xylene (Total) | 1 | 0 | -- | 1,200 | 10,000 |
| | 2 | 1 | 26 | | |
| | 3 | 0 | -- | | |
| **Semivolatile Organic Compounds (Collected in Rounds 1, 2, and 3)** | | | | | |
| bis(2-Ethylhexyl)phthalate | 1 | 0 | -- | 4.8 | 6 |
| | 2 | 0 | -- | | |
| | 3 | 1 | 180 | | |
| Phenol | 1 | 0 | -- | 2,200 | Not Listed |
| | 2 | 1 | 7.2 | | |
| | 3 | 0 | -- | | |
| **Pesticides (Collected in Round 1 Only)** | | | | | |
| No pesticides detected | | | | | |
| **Polychlorinated Biphenyls (Collected in Round 1 Only)** | | | | | |
| No PCBs detected. | | | | | |
| **Total Petroleum Hydrocarbons (Collected in Round 1 Only)** | | | | | |
| No TPH detected. | | | | | |
| **Herbicides (Collected in Rounds 1, 2, and 3)** | | | | | |
| 2,4-DB | 1 | 1 | 1.6 | 29 | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |

**Table 11.1**
**AOC 663 and SWMU 136**
**Organic Compounds in Groundwater (μg/L)**

**Round 1: 3 Samples Collected, 1 Sample Duplicated**
**Round 2: 3 Samples Collected, 1 Sample Duplicated**
**Round 3: 3 Samples Collected, 0 Samples Duplicated**

| Compound Name | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Max. Contam. Level |
|---|---|---|---|---|---|
| **Organophosphate Pesticides (Collected in Round 1 Only)** | | | | | |
| No organophosphates detected. | | | | | |
| **Dioxins (Collected in Round 1 and 3)** | | | | | |
| Total TEQs | 1 | 1 | 1.329 pg/L | 0.5 pg/L | 30 pg/L |
| | 2 | -- | No Analysis | | |
| | 3 | 0 | -- | | |

**Table 11.2**
**AOC 663 and SWMU 136**
**Inorganic Chemicals in Groundwater (μg/L)**

**Round 1: 3 Samples Collected, 1 Sample Duplicated**
**Round 2: 3 Samples Collected, 1 Sample Duplicated**
**Round 3: 3 Samples Collected, 0 Samples Duplicated**

| Chemical Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Upper Tolerance Limit of Background[b] | Max. Contam. Level |
|---|---|---|---|---|---|---|
| Aluminum[(c)] | 1 | 1 | 984 | 3,700 | Not Valid | Not Listed |
| | 2 | 2 | 17.9-1,700 | | | |
| | 3 | 1 | 2,610 | | | |
| Arsenic | 1 | 1 | 7.1 | 0.038 | 27.99 | 50 |
| | 2 | 1 | 12.2 | | | |
| | 3 | 3 | 6.2-9.0 | | | |
| Barium | 1 | 2 | 4.3-21.5 | 260 | 323 | 2,000 |
| | 2 | 3 | 2.5-19.3 | | | |
| | 3 | 2 | 10.7-26.5 | | | |
| Calcium[(d)] | 1 | 3 | 51,700-131,000 | Not Listed | Nutrient | Not Listed |
| | 2 | 3 | 42,800-109,000 | | | |
| | 3 | 3 | 53,200-180,000 | | | |
| Iron | 1 | 3 | 1,530-8,500 | Not Listed | 45,760 | Not Listed |
| | 2 | 3 | 2,970-7,130 | | | |
| | 3 | 3 | 1,470-10,500 | | | |
| Magnesium | 1 | 3 | 9,270-63,100 | Not Listed | 3,866,000 | Not Listed |
| | 2 | 3 | 11,400-61,550 | | | |
| | 3 | 3 | 8,990-52,500 | | | |
| Manganese | 1 | 3 | 29.2-548 | 18 | 3,391 | Not Listed |
| | 2 | 3 | 41.5-539 | | | |
| | 3 | 3 | 45.8-722 | | | |
| Potassium[(d)] | 1 | 3 | 11,600-41,400 | Not Listed | Nutrient | Not Listed |
| | 2 | 3 | 11,700-37,750 | | | |
| | 3 | 3 | 11,900-40,300 | | | |
| Sodium[(d)] | 1 | 3 | 83,100-577,000 | Not Listed | Nutrient | Not Listed |
| | 2 | 3 | 131,000-517,000 | | | |
| | 3 | 3 | 69,800-549,000 | | | |
| Vanadium[(c)] | 1 | 0 | -- | 26 | Not Valid | Not Listed |
| | 2 | 1 | 7 | | | |
| | 3 | 1 | 10.9 | | | |
| Zinc[(c)] | 1 | 0 | -- | 1,100 | Not Valid | Not Listed |
| | 2 | 1 | 10.6 | | | |
| | 3 | 1 | 4.4 | | | |
| Cyanide[(c)] | 1 | 0 | Not Detected | | | |
| | 2 | -- | No Analysis | | | |
| | 3 | -- | No Analysis | | | |

**Table 11.2**
**AOC 663 and SWMU 136**
**Inorganic Chemicals in Groundwater (μg/L)**

**Round 1: 3 Samples Collected, 1 Sample Duplicated**
**Round 2: 3 Samples Collected, 1 Sample Duplicated**
**Round 3: 3 Samples Collected, 0 Samples Duplicated**

| Chemical Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Upper Tolerance Limit of Background[b] | Max. Contam. Level |
|---|---|---|---|---|---|---|
| Hexavalent | 1 | 0 | Not Detected | | | |
| Chromium[c] | 2 | -- | No Analysis | | | |
| | 3 | -- | No Analysis | | | |

*Note:*

(a) Only elements with detections are listed. Hexavalent chromium and cyanide were separate analyses.
(b) See Appendix G for UTL determinations.
(c) High percentage of nondetects in background samples prevented determination of UTL.
(d) Element considered to be a nutrient; therefore, UTL was not determined.
(e) Based on treatment technique action level.

**Table 12.1**
**AOC 666**
**Organic Compounds in Groundwater (μg/L)**

**Round 1: 2 Samples Collected, 0 Samples Duplicated**
**Round 2: 2 Samples Collected, 1 Sample Duplicated**
**Round 3: 2 Samples Collected, 0 Samples Duplicated**

| Compound Name | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Max. Contam. Level |
|---|---|---|---|---|---|
| **Volatile Organic Compounds (Collected in Rounds 1, 2, and 3)** | | | | | |
| Chloromethane | 1 | 1 | 6 | | Not Listed |
| | 2 | 0 | -- | 1.4 | |
| | 3 | 0 | -- | | |
| Vinyl chloride | 1 | 1 | 2.1 | | |
| | 2 | 0 | -- | 0.019 | 2 |
| | 3 | 0 | -- | | |
| **Semivolatile Organic Compounds (Collected in Rounds 1, 2, and 3)** | | | | | |
| Acenaphthene | 1 | 1 | 14 | | Not Listed |
| | 2 | 1 | 8.85 | 220 | |
| | 3 | 1 | 13.0 | | |
| **Pesticides (Collected in Round 1 Only)** | | | | | |
| No pesticides detected. | | | | | |
| **Polychlorinated Biphenyls (Collected in Round 1 Only)** | | | | | |
| No PCBs detected. | | | | | |
| **Total Petroleum Hydrocarbons (Collected in Round 1 Only)** | | | | | |
| No TPH detected. | | | | | |

**Table 12.2**
**AOC 666**
**Inorganic Chemicals in Groundwater (μg/L)**

**Round 1: 2 Samples Collected, 0 Samples Duplicated**
**Round 2: 2 Samples Collected, 1 Sample Duplicated**
**Round 3: 2 Samples Collected, 0 Samples Duplicated**

| Chemical Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Upper Tolerance Limit of Background[b] | Max. Contam. Level |
|---|---|---|---|---|---|---|
| Barium | 1 | 1 | 53.6 | | | |
| | 2 | 2 | 4.2-40.1 | 260 | 323 | 2000 |
| | 3 | 0 | -- | | | |
| Calcium[c] | 1 | 2 | 87,900-111,000 | | | |
| | 2 | 2 | 67,100-83,200 | Not Listed | Nutrient | Not Listed |
| | 3 | 2 | 53,900-69,200 | | | |
| Iron | 1 | 2 | 259-1,600 | | | |
| | 2 | 2 | 122.35-1,100 | Not Listed | 45,760 | Not Listed |
| | 3 | 2 | 232-1,540 | | | |
| Magnesium | 1 | 2 | 33,700-95,700 | | | |
| | 2 | 2 | 33,650-91,900 | Not Listed | 3,866,000 | Not Listed |
| | 3 | 2 | 17,700-76,000 | | | |
| Manganese | 1 | 2 | 43.4-102 | | | |
| | 2 | 2 | 30.3-78.4 | 18 | 3,391 | Not Listed |
| | 3 | 1 | 63.1 | | | |
| Nickel[d] | 1 | 0 | -- | | | |
| | 2 | 1 | 21.8 | 73 | Not Valid | 100 |
| | 3 | 0 | -- | | | |
| Potassium[c] | 1 | 2 | 17,600-47,500 | | | |
| | 2 | 2 | 15,550-42,800 | Not Listed | Nutrient | Not Listed |
| | 3 | 2 | 12,200-44,800 | | | |
| Sodium[c] | 1 | 2 | 88,900-1,010,000 | | | |
| | 2 | 2 | 87,400-1,120,000 | Not Listed | Nutrient | Not Listed |
| | 3 | 2 | 56,900-927,000 | | | |
| Vanadium[d] | 1 | 2 | 4.5-6.7 | | | |
| | 2 | 2 | 4.5-8.4 | 26 | Not Valid | Not Listed |
| | 3 | 0 | -- | | | |
| Zinc[d] | 1 | 0 | -- | | | |
| | 2 | 1 | 9.6 | 1,100 | Not Valid | Not Listed |
| | 3 | 0 | -- | | | |
| Cyanide[d] | 1 | | Not Detected | | | |
| | 2 | | No Analysis | | | |
| | 3 | | No Analysis | | | |

*Note:*

(a) Only elements with detections are listed. Cyanide was a separate analysis.

(b) See Appendix G for UTLterminations.

(c) Element considered to be a nutrient; therefore, UTL was not determined.

(d) High percentage of nondetects in background samples prevented determination of UTL.

**Table 13.1**
**AOC 667 and SWMU 138**
**Organic Compounds in Groundwater (μg/L)**

**Round 1: 2 Samples Collected, 0 Samples Duplicated**
**Round 2: 2 Samples Collected, 1 Sample Duplicated**
**Round 3: 2 Samples Collected, 1 Sample Duplicated**

| Compound Name | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Max. Contam. Level |
|---|---|---|---|---|---|
| **Volatile Organic Compounds (Collected in Rounds 1, 2, and 3)** | | | | | |
| Chloroethane | 1 | 1 | 150 | 860 | Not Listed |
| | 2 | 1 | 74 | | |
| | 3 | 1 | 650 | | |
| 1,1-Dichloroethane | 1 | 2 | 3.4-17 | 81 | Not Listed |
| | 2 | 1 | 9 | | |
| | 3 | 2 | 3-18 | | |
| Carbon Disulfide | 1 | 0 | -- | 2.1 | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 1 | 79 | | |
| **Semivolatile Organic Compounds (Collected in Round 1 Only)** | | | | | |
| No SVOCs detected. | | | | | |
| **Pesticides (Collected in Round 1 Only)** | | | | | |
| No pesticides detected. | | | | | |
| **Polychlorinated Biphenyls (Collected in Round 1 Only)** | | | | | |
| No PCBs detected. | | | | | |
| **Total Petroleum Hydrocarbons (Collected in Round 1 Only)** | | | | | |
| No TPH detected. | | | | | |

**Table 13.2**
**AOC 667 and SWMU 138**
**Inorganic Elements in Groundwater (μg/L)**

**Round 1: 2 Samples Collected, 0 Samples Duplicated**
**Round 2: 2 Samples Collected, 0 Samples Duplicated**
**Round 3: 2 Samples Collected, 1 Samples Duplicated**

| Compound Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Upper Tolerance Limit of Background[b] | Max. Contam. Level |
|---|---|---|---|---|---|---|
| Barium | 1 | 2 | 12.9-61.4 | 260 | 323 | 2,000 |
| | 2 | 2 | 18.2-47.9 | | | |
| | 3 | 0 | -- | | | |
| Calcium[c] | 1 | 2 | 113,000-154,000 | Not Listed | Nutrient | Not Listed |
| | 2 | 2 | 81,900-114,000 | | | |
| | 3 | 2 | 85,200-130,000 | | | |
| Iron | 1 | 2 | 86.2-361 | Not Listed | 45,760 | Not Listed |
| | 2 | 2 | 38.6-853 | | | |
| | 3 | 2 | 89.9-943 | | | |
| Magnesium | 1 | 2 | 90,600-144,000 | Not Listed | 3,866,000 | Not Listed |
| | 2 | 2 | 121,000-232,000 | | | |
| | 3 | 2 | 50,650-108,000 | | | |
| Manganese | 1 | 2 | 36.7-58.2 | 18 | 3,391 | Not Listed |
| | 2 | 2 | 60.9-155 | | | |
| | 3 | 2 | 17.4-73.4 | | | |
| Potassium[c] | 1 | 2 | 41,600-66,100 | Not Listed | Nutrient | Not Listed |
| | 2 | 2 | 50,600-91,800 | | | |
| | 3 | 2 | 25,850-56,700 | | | |
| Sodium[c] | 1 | 2 | 584,000-1,500,000 | Not Listed | Nutrient | Not Listed |
| | 2 | 2 | 1,220,000-2,580,000 | | | |
| | 3 | 2 | 234,500-1,180,000 | | | |
| Vanadium[d] | 1 | 0 | -- | 26 | Not Valid | Not Listed |
| | 2 | 2 | 3.4-5.3 | | | |
| | 3 | 0 | -- | | | |
| Cyanide[d] | 1 | 0 | -- | | | |
| | 2 | -- | No Analysis | | | |
| | 3 | -- | No Analysis | | | |

*Note:*

(a) Only elements with detections are listed. Cyanide was a separate analysis.
(b) See Appendix G for upper tolerance limit (UTL) determinations.
(c) Element considered to be a nutrient; therefore UTL was not determined.
(d) High percentage of nondetects in background samples prevented UTL determination.

**Table 14.1**
**Grid (GDH) Locations**
**Organic Compounds in Shallow Groundwater (μg/L)**

**Round 1: 11 Samples Collected, 3 Samples Duplicated**
**Round 2: 11 Samples Collected, 1 Sample Duplicated**
**Round 3: 11 Samples Collected, 3 Samples Duplicated**

| Compound Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Max. Contam. Level |
|---|---|---|---|---|---|
| **Volatile Organic Compounds** | | | | | |
| Acetone | 1 | 1 | 23 | 370 | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |
| Carbon disulfide | 1 | 1 | 7 | 2.1 | Not Listed |
| | 2 | 1 | 84 | | |
| | 3 | 0 | -- | | |
| Methylene Chloride | 1 | 0 | -- | | |
| | 2 | 0 | -- | | |
| | 3 | 1 | 12 | | |
| Toluene | 1 | 1 | 1.3 | 75 | 1000 |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |
| **Semivolatile Organic Compounds** | | | | | |
| Acenaphthene | 1 | 1 | 3.8 | 220 | Not Listed |
| | 2 | 1 | 3.6 | | |
| | 3 | 1 | 11 | | |
| Butylbenzylphthalate | 1 | 0 | -- | | |
| | 2 | 0 | -- | | |
| | 3 | 1 | 2.7 | | |
| Naphthalene | 1 | 1 | 2.6 | 150 | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |
| **Herbicides** | | | | | |
| DCAA | 1 | -- | No Analysis | Not Listed | Not Listed |
| | 2 | 1 | 86 | | |
| | 3 | -- | No Analysis | | |
| **Pesticides** | | | | | |
| No pesticides detected. | | | | | |

**Table 14.1**
**Grid (GDH) Locations**
**Organic Compounds in Shallow Groundwater (μg/L)**

**Round 1: 11 Samples Collected, 3 Samples Duplicated**
**Round 2: 11 Samples Collected, 1 Sample Duplicated**
**Round 3: 11 Samples Collected, 3 Samples Duplicated**

| Compound Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Max. Contam. Level |
|---|---|---|---|---|---|
| **Polychlorinated Biphenyls** | | | | | |
| No PCBs detected. | | | | | |
| **Organophosphate Pesticides** | | | | | |
| No organophosphate pesticides detected. | | | | | |
| **Total Petroleum Hydrocarbons** | | | | | |
| No TPH detected. | | | | | |
| **Dioxin** | | | | | |
| No dioxins detected. | | | | | |

*Note:*
[a] Only compounds with detections are listed.

**Table 14.2**
**Grid (GDH) Locations**
**Organic Compounds in Deep Groundwater (μg/L)**

**Round 1: 11 Samples Collected, 1 Sample Duplicated**
**Round 2: 11 Samples Collected, 2 Samples Duplicated**
**Round 3: 11 Samples Collected, 0 Samples Duplicated**

| Compound Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Levels | Max. Contam. Levels |
|---|---|---|---|---|---|
| **Volatile Organic Compounds** | | | | | |
| Acetone | 1 | 0 | -- | 370 | Not Listed |
| | 2 | 1 | 32 | | |
| | 3 | 0 | -- | | |
| Benzene | 1 | 1 | 2.8 | 0.346 | 5 |
| | 2 | 1 | 4.45 | | |
| | 3 | 1 | 5.0 | | |
| Methylene chloride | 1 | 2 | 5-6 | 4.1 | 5 |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |
| Toluene | 1 | 0 | -- | 75 | 1,000 |
| | 2 | 1 | 4.2 | | |
| | 3 | 1 | 4.6 | | |
| **Semivolatile Organic Compounds** | | | | | |
| Di-n-butylphthalate | 1 | 1 | 2.6 | 370 | Not Listed |
| | 2 | 2 | 2.4-2.7 | | |
| | 3 | 0 | -- | | |
| Di-n-octylphthalate | 1 | 0 | -- | 73 | Not Listed |
| | 2 | 1 | 5 | | |
| | 3 | 0 | -- | | |
| 2,4-Dimethylphenol | 1 | 1 | 15 | 73 | Not Listed |
| | 2 | 1 | 15 | | |
| | 3 | 1 | 15 | | |
| BEHP | 1 | 1 | 3.9 | 4.8 | 6 |
| | 2 | 1 | 230 | | |
| | 3 | 0 | -- | | |
| 2-Methylphenol (o-cresol) | 1 | 1 | 20 | 180 | Not Listed |
| | 2 | 1 | 8.4 | | |
| | 3 | 1 | 9.3 | | |
| Naphthalene | 1 | 1 | 17 | 150 | Not Listed |
| | 2 | 1 | 24 | | |
| | 3 | 1 | 26 | | |

**Table 14.2**
**Grid (GDH) Locations**
**Organic Compounds in Deep Groundwater (μg/L)**

**Round 1: 11 Samples Collected, 1 Sample Duplicated**
**Round 2: 11 Samples Collected, 2 Samples Duplicated**
**Round 3: 11 Samples Collected, 0 Samples Duplicated**

| Compound Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Levels | Max. Contam. Levels |
|---|---|---|---|---|---|
| **Pesticides** | | | | | |
| 4,4-DDT | 1 | 1 | 0.06 | 0.2 | Not Listed |
| | 2 | 0 | -- | | |
| | 3 | 0 | -- | | |
| **Herbicides** | | | | | |
| No herbicides detected. | | | | | |
| **Total Petroleum Hydrocarbons** | | | | | |
| No TPH detected. | | | | | |

*Note:*
[a] Only compounds with detections are listed.

**Table 14.3**
**Grid (GDH) Locations**
**Inorganic Chemicals in Shallow Groundwater (μg/L)**

**Round 1: 11 Samples Collected, 3 Samples Duplicated**
**Round 2: 11 Samples Collected, 1 Sample Duplicated**
**Round 3: 11 Samples Collected, 3 Samples Duplicated**

| Chemical Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Upper Tolerance Limit of Background[b] | Max. Contam. Level |
|---|---|---|---|---|---|---|
| Aluminum[c] | 1 | 1 | 125 | 3,700 | Not Valid | Not Listed |
| | 2 | 2 | 162.2-491 | | | |
| | 3 | 1 | 477 | | | |
| Arsenic | 1 | 7 | 0.8-13.9 | 0.038 | 27.99 | 50 |
| | 2 | 2 | 7.3-24.8 | | | |
| | 3 | 10 | 1.6-43 | | | |
| Barium | 1 | 6 | 2.9-54.5 | 260 | 323 | 2,000 |
| | 2 | 4 | 5.2-59.4 | | | |
| | 3 | 0 | -- | | | |
| Cadmium | 1 | 0 | -- | | | |
| | 2 | 0 | -- | | | |
| | 3 | 1 | 4.6 | | | |
| Calcium[d] | 1 | 11 | 55,500-720,000 | Not Listed | Nutrient | Not Listed |
| | 2 | 10 | 59,000-659,000 | | | |
| | 3 | 11 | 8,510-561,000 | | | |
| Cobalt[c] | 1 | 1 | 2.4 | 220 | Not Valid | Not Listed |
| | 2 | 0 | -- | | | |
| | 3 | 0 | -- | | | |
| Iron | 1 | 9 | 490-28,000 | Not Listed | 45,760 | Not Listed |
| | 2 | 11 | 432.5-28,700 | | | |
| | 3 | 10 | 521-26,000 | | | |
| Lead | 1 | 6 | 1.1-3.2 | 15[e] | 4.7 | 15[e] |
| | 2 | 0 | -- | | | |
| | 3 | 2 | 1.3-1.9 | | | |
| Magnesium | 1 | 11 | 10,000-1,090,000 | Not Listed | 3,866,000 | Not Listed |
| | 2 | 11 | 12,950-978,000 | | | |
| | 3 | 11 | 17,850-863,000 | | | |
| Manganese | 1 | 10 | 19.2-4,570 | 18 | 3,391 | Not Listed |
| | 2 | 11 | 16.6-3,190 | | | |
| | 3 | 9 | 147-3,250 | | | |
| Nickel[c] | 1 | 1 | 20.7 | 73 | Not Valid | 100 |
| | 2 | 0 | -- | | | |
| | 3 | 1 | 24.6 | | | |

**Table 14.3**
**Grid (GDH) Locations**
**Inorganic Chemicals in Shallow Groundwater (μg/L)**

**Round 1: 11 Samples Collected, 3 Samples Duplicated**
**Round 2: 11 Samples Collected, 1 Sample Duplicated**
**Round 3: 11 Samples Collected, 3 Samples Duplicated**

| Chemical Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Upper Tolerance Limit of Background[b] | Max. Contam. Level |
|---|---|---|---|---|---|---|
| Potassium[d] | 1 | 11 | 5,010-297,000 | Not Listed | Nutrient | Not Listed |
| | 2 | 11 | 5,905-239,000 | | | |
| | 3 | 11 | 10,550-249,000 | | | |
| Selenium | 1 | 5 | 1.1-1.8 | 18 | 3.15 | 50 |
| | 2 | 1 | 5.0 | | | |
| | 3 | 1 | 1.5 | | | |
| Sodium[d] | 1 | 11 | 18,700-8,590,000 | Not Listed | Nutrient | Not Listed |
| | 2 | 10 | 26,800-7,330,000 | | | |
| | 3 | 11 | 31,600-6,500,000 | | | |
| Thallium | 1 | 3 | 1.9-105 | 0.29[f] | 7.66 | 2 |
| | 2 | 0 | -- | | | |
| | 3 | 0 | -- | | | |
| Vanadium[c] | 1 | 1 | 7.6 | 26 | Not Valid | Not Listed |
| | 2 | 0 | -- | | | |
| | 3 | 2 | 4.8-7.7 | | | |
| Zinc[c] | 1 | 0 | -- | 1,100 | Not Valid | Not Listed |
| | 2 | 1 | 6.6 | | | |
| | 3 | 1 | 123 | | | |
| Hexavalent Chromium | 1 | 0 | -- | | | |
| | 2 | -- | No Analysis | | | |
| | 3 | -- | No Analysis | | | |
| Cyanide | 1 | 1 | 10 | 73 | | |
| | 2 | -- | No Analysis | | | |
| | 3 | 0 | -- | | | |
| | | -- | | | | |

*Note:*
[a] Only elements with detections are listed. Hexavalent chromium and cyanide are separate analyses.
[b] See Appendix G for UTL determinations.
[c] High percentage of nondetects prevented determination of UTL.
[d] Element considered to be a nutrient; therefore, UTL was not determined.
[e] Based on treatment technique action level.
[f] Thallium carbonate used as surrogate.

**Table 14.4**
**Grid (GDH) Locations**
**Inorganic Chemicals in Deep Groundwater (μg/L)**

**Round 1: 11 Samples Collected, 1 Sample Duplicated**
**Round 2: 11 Samples Collected, 2 Samples Duplicated**
**Round 3: 11 Samples Collected, 0 Samples Duplicated**

| Chemical Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Upper Tolerance Limit of Background[b] | Max. Contam. Level |
|---|---|---|---|---|---|---|
| Aluminum | 1 | 3 | 16.1-207 | 3,700 | 723 | Not Listed |
| | 2 | 1 | 745 | | | |
| | 3 | 4 | 372-3,330 | | | |
| Antimony[c] | 1 | 0 | -- | 1.5 | Not Valid | 6 |
| | 2 | 2 | 11.5-11.5 | | | |
| | 3 | 0 | -- | | | |
| Arsenic | 1 | 3 | 2.2-8.2 | 0.038 | 14.98 | 50 |
| | 2 | 0 | -- | | | |
| | 3 | 8 | 1.6-3.4 | | | |
| Barium | 1 | 5 | 30.1-95.7 | 260 | 236.9 | 2,000 |
| | 2 | 7 | 40.8-871 | | | |
| | 3 | 0 | -- | | | |
| Cadmium[c] | 1 | 1 | 2.6 | 1.8 | Not Valid | 5 |
| | 2 | 4 | 1.5-2.4 | | | |
| | 3 | 11 | 3.4-6.2 | | | |
| Calcium[d] | 1 | 11 | 92,900-213,000 | Not Listed | Nutrient | Not Listed |
| | 2 | 11 | 7,650-228,000 | | | |
| | 3 | 11 | 89,100-223,000 | | | |
| Chromium[c] | 1 | 1 | 7.4 | 18 | Not Valid | 100 |
| | 2 | 2 | 2.7-4.1 | | | |
| | 3 | 0 | -- | | | |
| Cobalt | 1 | 2 | 2.6-3.0 | 220 | 3.17 | Not Listed |
| | 2 | 0 | -- | | | |
| | 3 | 0 | -- | | | |
| Iron | 1 | 9 | 528-6,470 | Not Listed | 8,787 | Not Listed |
| | 2 | 9 | 356-6,280 | | | |
| | 3 | 9 | 421-7,180 | | | |
| Lead | 1 | 4 | 2.4-3.0 | 15[e] | 4.26 | 15[e] |
| | 2 | 1 | 1.9 | | | |
| | 3 | 3 | 1.2-5.9 | | | |
| Magnesium | 1 | 11 | 629,000-943,000 | Not Listed | 1,114,000 | Not Listed |
| | 2 | 11 | 1,290-1,130,000 | | | |
| | 3 | 11 | 196,000-1,150,000 | | | |

**Table 14.4**
**Grid (GDH) Locations**
**Inorganic Chemicals in Deep Groundwater (μg/L)**

**Round 1: 11 Samples Collected, 1 Sample Duplicated**
**Round 2: 11 Samples Collected, 2 Samples Duplicated**
**Round 3: 11 Samples Collected, 0 Samples Duplicated**

| Chemical Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Upper Tolerance Limit of Background[b] | Max. Contam. Level |
|---|---|---|---|---|---|---|
| Manganese | 1 | 10 | 12.2-555 | 18 | 776.2 | Not Listed |
| | 2 | 11 | 3.2-821 | | | |
| | 3 | 9 | 153-760 | | | |
| Mercury[c] | 1 | 1 | 0.1 | 1.1 | Not Valid | 2 |
| | 2 | 0 | -- | | | |
| | 3 | 2 | 0.11-0.17 | | | |
| Nickel[c] | 1 | 1 | 12.8 | 73 | Not Valid | 100 |
| | 2 | 0 | -- | | | |
| | 3 | 0 | -- | | | |
| Potassium[d] | 1 | 11 | 143,000-236,000 | Not Listed | Nutrient | Not Listed |
| | 2 | 11 | 9,050-260,000 | | | |
| | 3 | 11 | 189,000-301,000 | | | |
| Selenium | 1 | 4 | 0.9-1.4 | 18 | 2.1 | 50 |
| | 2 | 0 | -- | | | |
| | 3 | 1 | 1.0 | | | |
| Sodium[d] | 1 | 11 | 5,040,000-6,810,000 | Not Listed | Nutrient | Not Listed |
| | 2 | 11 | 1,360,000-7,640,000 | | | |
| | 3 | 11 | 394,000-8,930,000 | | | |
| Thallium[c] | 1 | 1 | 5.6 | 0.29[f] | Not Valid | 2 |
| | 2 | 0 | -- | | | |
| | 3 | 0 | -- | | | |
| Vanadium | 1 | 3 | 3.7-6.8 | 26 | 9.29 | Not Listed |
| | 2 | 5 | 4.1-9.0 | | | |
| | 3 | 11 | 4.5-5.2 | | | |
| Zinc[c] | 1 | 1 | 61.9 | 1,100 | Not Valid | Not Listed |
| | 2 | 1 | 1,180 | | | |
| | 3 | 3 | 62.6-254 | | | |
| Hexavalent Chromium | 1 | 0 | Not Detected | | | |
| | 2 | -- | No Analysis | | | |
| | 3 | -- | No Analysis | | | |

**Table 14.4**
**Grid (GDH) Locations**
**Inorganic Chemicals in Deep Groundwater (μg/L)**

**Round 1: 11 Samples Collected, 1 Sample Duplicated**
**Round 2: 11 Samples Collected, 2 Samples Duplicated**
**Round 3: 11 Samples Collected, 0 Samples Duplicated**

| Chemical Name[a] | Sampling Round | Number of Detections | Range of Concentrations for Detections | Risk-Based Screening Level | Upper Tolerance Limit of Background[b] | Max. Contam. Level |
|---|---|---|---|---|---|---|
| Cyanide | 1 | 0 | -- | | | |
| | 2 | -- | No Analysis | | | |
| | 3 | -- | No Analysis | | | |

*Note:*
[a] Only elements with detections are listed. Hexavalent chromium and cyanide are separate analyses.
[b] See Appendix G for UTL determinations.
[c] High percentage of nondetects prevented determination of UTL.
[d] Element considered to be a nutrient; therefore, UTL was not determined.
[e] Based on treatment technique AL.
[f] Thallium carbonate used as surrogate.

**ATTACHMENT C**

Tuesday, April 9, 1996

# Charleston Naval Base

RESTORATION ADVISORY BOARD MEETING AGENDA

5:30 P. M. ***Location*** : *Patriot's Point Naval Museum on the USS Yorktown in Mt. Pleasant.*

RAB Members, BRAC Cleanup Team, and interested citizens informally talk about what's going on from 5:30 p.m. to 6:30 p.m.

**6:30 P.M. RAB MEETING**

A. Introduction of the RAB Members and Guests

B. Administrative Remarks, comments on the minutes of the last meeting

C. Subcommittee Reports

| | |
|---|---|
| Community Relations | Finance |
| Shipyard Detachment | Reuse |

D. RDA Update

E. Environmental Cleanup Progress Report — Cleanup Team

Status of the Environmental programs
Interim measures

F. RAB Membership

Report from RAB Membership Subcommittee

G. Feed back on the Business Opportunity Open House

H. Information on Business Expo Booth for RAB

I. Remaining Questions and Comments from Visitors

J. Agenda for next meeting

***Please mark for calendar. Our next meeting is Tuesday, May 14, 1996. Time and location to be determined.**

COMMANDER, NAVAL BASE CHARLESTON
RESTORATION ADVISORY BOARD (RAB)
Minutes of 12 March 1996

1. Introduction of the RAB Members and Guests

Mr. Daryle Fontenot welcomed everyone to the RAB meeting. This will be the last time the RAB will be meeting while the base is still officially open. Mr. Fontenot gave special recognition to the members of the RAB who have volunteered their time since the RAB's beginning. Captain Augustin introduced Mr. Ray Anderson from the North Charleston City Council.

2. RAB Members Attending

Captain Jim Augustin
Mr. Steve Best
Mr. Doyle Brittain
LCDR Nick Cimorrelli
Bobby Dearhart
Mrs. Susan Floyd
Mr. Daryle Fontenot
Mr. Wilburn Gilliard
Mr. Virgil Johnston
Mr. Ralph Laney
Mr. Louis Mintz
Ms. Wannetta Mallette-Pratt
Mr. Joe Bowers for Ann Ragan

3. Guests Attending

| | |
|---|---|
| Mr. Brian Stockmaster | NAVFAC, SouthDiv |
| Mr. Jim Beltz | NAVFAC, SouthDiv |
| Ms. Pat Franklin | NAVFAC, SouthDiv |
| Ms. Kim Reavis | NAVFAC, SouthDiv |
| Hayes Patterson | NAVFAC, SouthDiv |
| Mr. Jim Moore | OSD |
| CAPT W.F. Nold | CNSY |
| A.T. Gerken | CNSY |
| Jerry Brownlee | CNSY |
| J.N.K. Tunstall | CNSY |
| Ms. Beverly S. Washington | CEERD (CNSY) |
| Mr. Steve Curfman | CEERD |
| Mr. Johnny Tapia | SCDHEC |
| D.S. DeHaven | DOE |
| Jeri Johnson | RDA |
| H.B. Golightly | CAC |
| Ms. Ledlie Bell | League of Women Voters |
| Mrs. June M. Brittain | Concerned Citizen |
| J.T. Amey | |
| Ms. Diane Cutler | EnSafe/Allen&Hoshall |
| Mr. Keith Johns | EnSafe/Allen&Hoshall |
| Mr. Peter McPheters | EnSafe/Allen&Hoshall |
| Mr. Dave Backus | EnSafe/Allen&Hoshall |
| Mr. Todd Haverkost | EnSafe/Allen&Hoshall |

4. Administrative Remarks and Comments on Minutes

No comments or corrections were made on last month's meeting minutes

5. Subcommittee Reports

Mr. Fontenot reported that the Community Relations Subcommittee met prior to the RAB meeting. Members of that Subcommittee include Mr. Fontenot, Mr. Lou Mintz, Mrs. Susan Floyd, Ms. Wannetta Mallette-Pratt, Mr. Arthur Pinckney. In addition, the group receives support from EnSafe/Allen&Hoshall's Community Relations Specialists Diane Cutler and Keith Johns. The subcommittee came up with a proposal to alternate the location of RAB meetings to increase overall community participation. Locations would alternate between North Charleston and East Cooper, West Ashley, and Summerville with every other meeting to be held in North Charleston. In addition, increased advertising is proposed in the specific location of each meeting. The next meeting is proposed for the East Cooper area. Mr. Fontenot asked for input from RAB members.

Mr. Bobby Dearhart asked if the West Ashley and Summerville areas will generate any interest. Mrs. Floyd responded that since those areas are affected, they would benefit by having the RAB come to them. Mr. Dearhart stressed that advertising is essential to get people to the meetings in the new locations.

Mr. Mintz added that this proposal is just a test, if it doesn't improve attendance or increase public interest, the meetings can return to being scheduled regularly in North Charleston. On the other hand, if they are successful, additional locations can be added.

Lt. Commander Nick Cimorrelli added that talk radio stations may be a good avenue for advertising. Captain Augustin recommended that neighborhood associations may be able to sponsor the meetings and act as another good source of advertising.

The general consensus was to adopt the subcommittees proposal. The next meeting will be held in the East Cooper area.

The FOSL fact sheet was reviewed for a final time by the subcommittee. A copy of this fact sheet will be included with the mailing of the March meeting minutes. Comments will be accepted at the April RAB meeting, with distribution to take place shortly after that.

Other fact sheets that the subcommittee will be working on in future meetings include: Zone H Results, RAB Speaker Bureau, Most Commonly Asked Questions, the New RAB, and Property Transfer.

Contaminant Posters are also in the process of being created.

Another item being worked on is a brochure that announces and advertises the Information Repository. Currently a draft brochure has been created, which will be finalized shortly. The Information Repository is located at the Dorchester Road Branch of the Charleston

County Library. No decision has been made regarding if and where additional repository locations will be established.

The Shipyard Detachment Subcommittee is being headed up by Mr. Arthur Pinckney who is absent due to illness today, so there will not be a subcommittee report.

The Finance Subcommittee is being led by Lou Mintz. A report is not available yet, but information is being gathered.

The Reuse Subcommittee has not been started yet.

6. RDA Update

Mr. Virgil Johnston introduced Ms. Jeri Johnson, Director of Operations and Property Management. Next month, Mr. Jack Sprott, Executive Director of the Redevelopment Authority (RDA) will provide the update.

Ms. Johnson reviewed the tenant summary spreadsheet which is the latest information on where the RDA is in the leasing process. The RDA is executing leases, amendments to leases, or licenses on a weekly basis and are talking to prospective tenants on almost a daily basis. Interest has been expressed on almost every facility on base. From a leasing standpoint, things look great. However, utilities are in poor condition. The RDA has finished an assessment study of the condition of the utilities and the cost for upgrades which is about $32 million. They are also working with the State and attempting to use the enterprise Zone Act to generate some funds that would go to the RDA. The Enterprise Zone Act was developed to encourage job creation in hard hit communities and were set up for private industry. The RDA asked if they can apply the Enterprise Zone Act to Federal Facilities on base and get those funds returned to the RDA for infrastructure improvements such as water and sewer distribution and storm water systems.

Although the base is closing on the first of April, the Navy is not going away as for as its responsibilities to take care of the non-leased property. The Navy has worked out an arrangement for the RDA to maintain such caretaker functions as grass cutting and security functions. The RDA is currently arranging for fire protection by the city of North Charleston. DHEC has the latest lease to occupy the top floor of Bldg. 400. The spreadsheet handout (attached) is self-explanatory and provides all the latest activity.

Mr. Dearhart asked if there will be a fee for the North Charleston fire department. There will eventually be a fee in lieu of taxes. The Navy will pay for the first two years of fire protection, but after that time, a fee will be implemented.

Mr. Mintz added that some of the businesses are subleasing, and will make the statistics look more positive. This information may not be clear by looking at the spreadsheet. Ms. Johnson concurred and added that, for instance, Charleston Shipbuilders is leasing a major section of the waterfront.

Mr. Fontenot made an announcement that there is a Business Expo scheduled for April 26th and 27th at the Charleston Coliseum. It would be a good opportunity for the RAB to get some exposure if they were to sponsor a booth. Fact sheets and information on the Information Repository could be distributed. The RAB would need to start making plans if they wanted to do this, and personal commitments would have to be made to man the booth. Mr. Jim Beltz, Public Affairs Officer of NAVFAC Southern Division volunteered to look into a Southern Division sponsored booth.

7. Environmental Cleanup Progress Report

*Status of Environmental Programs*
Mr. Fontenot reported that the Navy is still in the process of generating a report that addresses all the environmental programs.

*Monthly Progress Report*
Mr. Brian Stockmaster presented the RCRA Facility Investigation progress report. There has been no change in funding status since the last report. Progress for February includes: Zone B RFI report was submitted; conducted a 90% status review on Zone A RFI field investigation - additional sampling was determined necessary; Zone K Work Plan was initiated; and Zone H fourth quarter groundwater sampling was conducted.

Most of the activity during February took place in Zone E which is the industrialized area of the shipyard. Soil sampling is complete, all groundwater monitoring wells have been installed. Groundwater sampling begins this week and is expected to be complete by the end of April. The Navy is currently evaluating the soil data to determine if further sampling is needed. Analytical results from soil samples have shown no surprises, in fact, much less contamination is present than expected. Currently, the Navy is ahead of schedule and plans to have field work completed by mid-summer.

Activity projected for March includes: initiation of quarterly groundwater sampling in Zone E; continuation of work on Zone K RFI Work Plan; continue work on Interim Measures Work Plans; second phase of groundwater and soil sampling in Zone A; second quarter groundwater sampling in Zones A and B; and third quarter groundwater sampling in Zones C and I.

Mr. Mintz asked about the status of Zone J. Sampling has not begun for Zone J. The Navy is currently waiting on approval of the final Work Plan. Mr. Mintz also asked why Zone J is less important than the other Zones. Mr. Stockmaster explained that it was decided a long time ago that Zone J was one of the lower priorities of the 12 Zones, and that's why it's taking so long to get to it. Mr. Joe Bowers, DHEC, stated that although it's not at the top of the stack, it is in line at DHEC ready to be reviewed. Mr. Stockmaster agreed to include the status of Zone J in the subsequent progress reports.

*Interim Measures*
Mr. Stockmaster presented a visual presentation on Interim Measures. An interim measure is a mechanism to address site clean up early in the RCRA process to remove source

contaminants and prevent further migration or threat to the environment. The presentation provided an initial list of candidate interim measure sites for consideration. Attached to the minutes are the handouts that provide details on the description of each site, action recommended, and objective of the interim measure. Listed below are the sites and the Zones in which they are located.

| | |
|---|---|
| AOC 574 | Zone E |
| AOC 690 | Zone I |
| AOC 656 | Zone H |
| AOCs 693 & 694 | Zone K |
| AOC 653 | Zone H |
| SWMU 159 | Zone H |
| SWMU 44 | Zone C |
| SWMU 54 | Zone E |

Mr. Mintz asked what will be done with the oil impacted soil. Mr. Stockmaster answered that it will be disposed of properly in a landfill, if appropriate, and if not, it will be taken to a treatment facility. Mr. Mintz offered that asphalt companies may take the material. Mr. Stockmaster agreed but added that often these companies are only interested in large quantities, not the quantities that the Navy will be providing. Mr. Stockmaster reminded the audience that the Navy has not yet decided what to do with the material, that these are just recommendations for which the Navy is open to suggestions. Mr. Mintz replied that he doesn't want the material to go to a landfill.

During the discussion about AOC 653, the former auto hobby shop, Lt. Commander Cimorrelli asked Jeri Johnson if anyone was interested in leasing this building. Ms. Johnson replied that there is not. Mr. Mintz suggested that someone might be interested in the building because of the hydraulic lifts, but Mr. Stockmaster clarified that the lifts are in poor condition and would need to be overhauled.

Lt. Commander Cimorrelli asked if this is a complete list of all Interim Measure sites. No, it's just the list of highest priority sites. As the investigations continue, more sites will probably be added. In some cases, the Interim Measure may conclude all cleanup.

Is the money available to do the Interim Measures? The shipyard detachment is available to do the work and there is $7.5 million allocated.

Mrs. Pat Franklin asked about when work is expected to begin. Mr. Stockmaster replied that he expects work to begin shortly after the base officially closes, sometime in early April.

*Corrective Action Management Plan*

Mr. Fontenot added that the Corrective Action Management Plan (CAMP) is being revised and should be in to the regulators for review within the next couple of weeks. The CAMP is the schedule for the RCRA Facility Investigation.

*Shipyard Radiological Issues*

Mr. Tommy Gerken announced that this will be the final update on radiological decommissioning at the shipyard. They have been preparing Historical Radiological Assessments (HRA) which report on the historical use and presence of radiological material at the shipyard. These studies took a tremendous amount of research including interviews and record searches. Finally, the HRA is complete, and copies for the RAB members are available. A copy will also be placed in the Information Repository at the Dorchester Road Regional Branch of the Charleston County Library.

Only a small amount (several microcuries) of radioactive material was found in various areas. The total amount was the amount that might be found in a couple of smoke detectors. All the areas where radioactive material was found have been remediated and have been released for unrestricted use. Surveys have been confirmed by extensive checks by DHEC and EPA. Only the DRMO site has not been assessed because it is still in operation. Final reports will be issued that document all the collected data. These reports will also be included in the Information Repository. The property is being turned over to Naval Facilities Engineering Command - Southern Division. If there are questions about radiological decommissioning after the base is closed, questions should be forwarded to them.

To provide an idea of the extent of the review, over 8 million square feet of ground and floor space were surveyed, and over 80,000 solid samples were collected and analyzed.

Mr. Doyle Brittain emphasized that the completion of the HRA is an important milestone in the cleanup of Naval Base Charleston. He repeated what Tommy Gerken reported, that the base is free of radioactive material. Mr. Brittain also added that he found the nuclear program at the Base to be well run, clean, and very commendable, and that he has complete confidence in everything they have produced. Mr. Brittain stated that the EPA feels comfortable in saying that Naval Base Charleston is free of radiological contamination.

Mr. Fontenot made one last announcement for the progress report, that Mr. Bobby Dearhart will be heading up the Cleanup Detachment.

8. RAB Membership

Mr. Fontenot reported that as of April 1, when the Base officially closes, the RAB will be losing five of its members: Captain Augustin, Ralph Laney, Lt. Commander Nick Cimorelli, Mr. Bob Veronee, and Mr. Bobby Dearhart. Some of these members have expressed interest in staying on after closure. Currently, there are 22 members, 5 of which will go away on April 1. Other changes are in the works as well. Captain Augustin may be replaced by Commander Daiby, Ms. Wannettta Mallette-Pratt expressed interest in serving as a community member rather than a City of North Charleston representative, (she is looking into handing off her current official position to Councilwoman Greene so she can become a community representative), and additional community membership may be considered.

Captain Augustin explained that when the RAB was being established, a selection committee was chosen to help select individuals. Applications were filled out by community members. Primary and secondary applicants were chosen, and 25 members overall were selected. Since that time, three original members have resigned. RAB members now should provide input on the size of the RAB, membership, etc... Mr. Fontenot read out the names of the current RAB members.

| Community Members | All Other Members |
|---|---|
| Don Harbert | Robert Mikell - SC Coastal Council |
| Van Robinson | Wannetta Pratt - City of N. Charleston |
| Wilburn Gilliard | Diane Duncan - U.S. Dept. of Interior |
| James Conner | Daryle Fontenot - Navy Southern Division |
| Arthur Pinckney | Bobby Dearhart - Shipyard |
| Lou Mintz | Doyle Brittain - EPA |
| Susan Floyd | Jane Settle - SC Dept. of Nat. Resources |
| Steve Best | Virgil Johnston - RDA |
| Oliver Addison | Ann Ragan - DHEC |
| | Bob Veronee - FISC |
| | Lt. Commander Cimorrelli- Naval Station |
| | Ralph Laney - Shipyard |
| | Captain Augustin - Base Closure Officer |

Mr. Dearhart brought up the topic of attendance. Some members have not attended the meetings very regularly. This should be considered when deciding on the new makeup of the RAB. It doesn't do the board any good if members show up once every six months.

Mr. Mintz recommended that a committee be established to decide on RAB membership. He also suggested that when asking for applications for community members, that an ad be placed in the newspaper so everyone has an opportunity to respond.

Captain Augustin pointed out that the DoD guidance for establishing RABs states that a wide diversity in membership is the goal. This guideline was used to select the original Charleston RAB members, and this goal should be maintained.

Mrs. Floyd reiterated the importance of attendance. It was a major issue at the onset of the RAB, and should once again be addressed for community members as well as local and government representatives.

Mr. Brittain added that the purpose of the RAB is to advise the Admiral, however, the process is a public participation process. Mr. Brittain supports Mr. Mintz's recommendation that a committee be formed to decide on future RAB membership, and this committee should include the Navy, the community, EPA, and the State. Mr. Brittain volunteered to serve on this committee. He also suggested once RAB membership is established, that members get involved with subcommittees as suggested by Ann Reagan.

Ms. Pratt pointed out that in addition to bringing new members on board, a mechanism for bringing these members up to speed is essential.

Mr. Fontenot moved to establish a committee for determining RAB membership which will comprise Mr. Fontenot - Navy, Doyle Brittain - EPA, Ann Ragan - DHEC, Lou Mintz - community , Arthur Pinckney - community, Don Harbert - community, and possibly Wannetta Pratt. The group is tentatively scheduled to meet at Tuesday, 3/19/96 at 3:00 at the Base Closure Office.

9. Small Business Outreach for the Community

A Business Opportunity Open House is being sponsored by EnSafe/Allen & Hoshall and Bechtel Environmental, Inc. to encourage small and minority-owned businesses to explore environmental subcontracting opportunities for Navy projects in Charleston. The Open House will be held on April 2, 1996 from 4:00 p.m. to 8:00 p.m. at the North Charleston City Hall in room 515. If anyone has any questions, direct them to Kim Reavis of Southern Division.

10. Remaining Questions and Comments

Mrs. Floyd asked who the Public Affairs Officer contact is now. Mr. Jim Beltz at Southern Division, (803) 820-5771.

Captain Augustin thanked Mr. Jim Moore for serving on the RAB and announced that Mr. Moore has committed to continue attending RAB meeting through Septemher 1996. He also thanked Captain William Nold for his support in attending the RAB meetings.

Ms. Ledlie Bell made a number of ohservations and recommendation. She stated that now that there will not be an active Navy public relations staff, someone will have to be responsible for dealing with public misconceptions. She also suggested that a good location for one of the rotating RAB meetings would be the Dorchester Road Regional Library. That way, people could come to the meeting and actually see the Information Repository. It may also be a good media hook. Libraries would also be a good way to distribute fact sheets at no cost to the program. Other ideas on how to make the RAB more visible include inviting students from the Public Administration program at the College of Charleston to the RAB meetings, and to include the Naval Base Charleston's cleanup progress at the upcoming closing ceremonies.

Mr. Ray Anderson offered an observation that the process of leasing property is moving too slowly, that the property needs to get to the community as quickly as possible, even if this means writing letters or stepping on political toes.

Captain Nold agreed that the cleanup of the base is moving slowly, but stated that funding and bureaucracy sometime get in the way of progress. The Navy also wants the property to be transferred as quickly as possible so the community can benefit. The Captain said that he has enjoyed coming to the RAB meetings, and wished the community good luck.

Mr. Beltz added that while one part of the Navy is leaving town, namely (Naval Base), Naval Facilities Engineering Command, Southern Division, will be remaining in town and will be the Navy presence for the community as long as property is owned by the Navy. Captain Tyler asked Mr. Beltz to express to the RAB his optimism and encouragement.

The RAB expressed their thanks and appreciation with a hearty round of applause, for the time and energy Captain Augustin has put forth in his commitment to the RAB.

Captain Augustin thanked everyone for the show of support. He went on to say that he has always been pleased with how open the group is with their opinions and suggestions. He added that he is eager to see how the group progresses with the upcoming membership changes. Captain Augustin said that he'll come back in his new position at Southern Division.

11. Agenda for Next Meeting

RAB Membership
Business Expo (The RAB is two years old this month!)
Results of Outreach

12. Adjournment

The meeting was adjourned at 8:50 p.m.

Summary of Action Items

- RAB moved to hold meetings at new locations beginning with East Cooper.
- Research what's needed for booth at Business Expo on April 26th and 27th.
- Add Zone J to monthly Progress Report.
- Lou Mintz stated that he does not want soil from Interim Measures disposed in landfills.
- Committee established to evaluate RAB membership.
- Public Affairs contact is Mr. Jim Beltz at NAVFAC, SouthDiv (803) 820-5771.

Attachments to Minutes
(1) Tuesday March 12, 1996 RAB Meeting Agenda
(2) RCRA Facility Investigation — Progress Report for March 1996
(3) Zone E Summary
(4) Interim Measure
(5) Charleston Naval Complex Tenant Summary

Minutes recorded by: Diane Cutler, EnSafe/Allen&Hoshall

Minutes approved by: _____ _____

Daryle Fontenot
Co-Chairman

Don Harbert
Co-Chairman

Tuesday, March 12, 1996

Charleston Naval Base

RESTORATION ADVISORY BOARD MEETING AGENDA

6:00 P.M. Location: North Charleston City Hall located @ 4900 LaCross Road at North Charleston. Meeting will be in the City Council Chambers.

RAB Members, BRAC Cleanup Team, and interested citizens informally talk about what's going on from 6 p.m. to 7 p.m.

7:00 P.M. RAB MEETING

A. Introduction of the RAB Members and Guests

B. Administrative Remarks, comments on the minutes of the last meeting

C. Subcommittee Reports

| | |
|---|---|
| Community Relations | Finance |
| Shipyard Detachment | Reuse |

D. RDA Update

E. Environmental Cleanup Progress Report — Cleanup Team

Status of the Environmental programs
Interim measures
Corrective Action Management Plan (CAMP)

F. RAB Membership

Discussion on how to replace military RAB members leaving due to closure.
Discussion on how to replace community RAB members.

G. Small Business Outreach for the Community — EnSafe

H. Remaining Questions and Comments from Visitors

I. Agenda for next meeting.

Please mark for calendar. Our next meeting is Tuesday, April 9, 1996. Time and location to be determined.

**Naval Base Charleston**
**RCRA Facility Investigation (RFI)**
**PROGRESS REPORT FOR MARCH 1996**

INVESTIGATIVE ZONES

A. Warehousing and scrap metal yard
B. Golf course and residential
C. Office space and warehouse (NH-45, Navbase HQ)
D. Parking lot, warehouses
E. Shipyard
F. Recreational areas and public works shops
G. Fuel farm and transfer facility
H. Southern end of the base excluding waterfront
I. Southern end of the base including waterfront and dredge material area
J. Ecological study area (waterbodies and certain areas on land)
K. Non-contiguous areas (Naval Station South Annex and tip of Clouter Island)
L. Sewer systems and railroad system

FUNDING

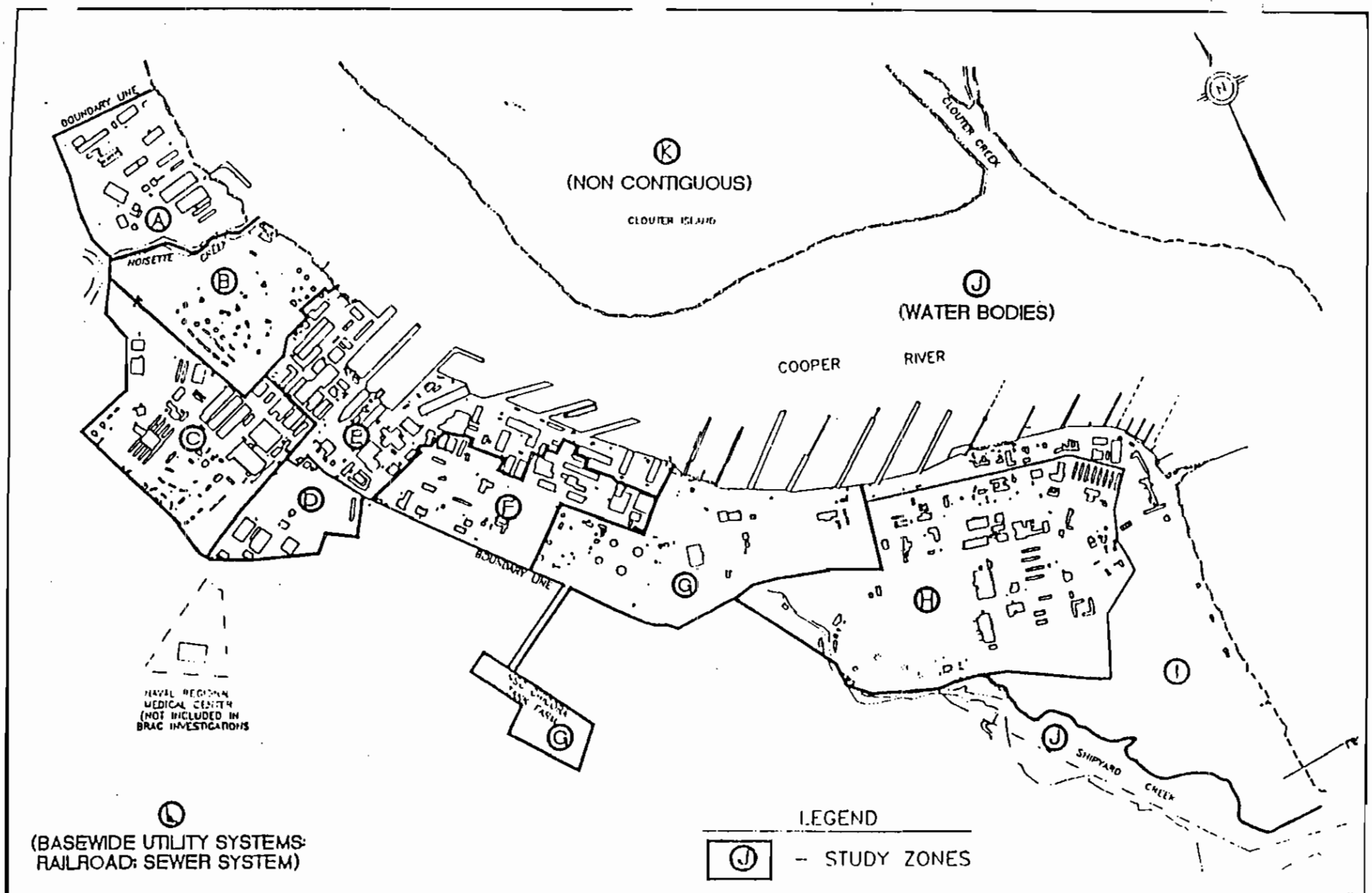
- Fully funded through completion of the Corrective Measures Study:
  Zones A, B, C, E, H, I
  The remaining zones are funded for work plans, funds for investigation through Corrective Measures Study is available however it is not yet negotiated and awarded.

PROGRESS FOR FEBRUARY

- Zones B RFI REPORT was submitted.
- Conducted a 90 % status review on Zone A RFI field investigation. Additional sampling was determined necessary.
- Preparation of Zone K Work Plan.
- In process of fourth quarter (final) ground water sampling in Zone H.

PROJECTED ACTIVITY FOR MARCH

- Begin quarterly groundwater sampling in Zone E
- Continue work on Zone K RFI Work Plan Report.
- Continue work on Interim Measure Work Plans.
- Second phase of groundwater and soil sampling in Zone A.
- Second quarter groundwater sampling in Zones A and B.
- Third quarter groundwater sampling in Zones C and I.




NAVAL BASE CHARLESTON
CHARLESTON, S.C.

FIGURE 1-2
BASE WIDE
ZONE BOUNDARIES

DWG DATE: 01/13/95 | DWG NAME: 29ZONE1

# ZONE E SUMMARY

- Soil sampling is complete.

- All groundwater monitoring wells have been installed.

- Groundwater sampling begins this week — expected to complete end of april.

- We are currently evaluating the soil data to determine if further sampling is needed.

- Analytical results from soil samples have shown no surprises, to the contrary much less contamination is present than expected.

- We are currently running ahead of schedule and plan to have field work completed by mid-summer.

# *Interim Measure*

A mechanism to address site clean up early in the RCRA process to remove source contaminates and prevent further migration or threat to the environment

# *Interim Measure*

This presentation presents an initial list of candidate interim measure sites for consideration. Please provide comments concerning the proposed sites and actions to Mr. Brian Stockmaster @ (803) 820-7481 or Mr. Tony Hunt @ (803) 820-5525.

# *AOC 574*
# *Interim Measure*

- **Description:** Site consists of two above ground fuel tanks with evidence of past releases
- **Action:** Removal of tanks and petroleum impacted soils
- **Objective:** Removal of source media and prevent further migration of source contaminate

# *AOC 690*
# *Interim Measure*

- **Description:** Road scattered with construction debris along southern end of Naval Base
- **Action:** Removal of scattered debris
- **Objective:** Correction of past disposal practices and removal of potential sources

# *AOC 656*
# *Interim Measure*

- **Description:** Site of a past fuel oil release
- **Action:** Removal of petroleum impacted soils
- **Objective**: Removal of source media and prevent further migration of source contaminate

# *AOC 693 & 694 Interim Measure*

- **Description:** Fuse and primer house (#693) and surrounding area (#694) consisting of a former ammunition depot
- **Action:** Removal of debris and identification and removal of white powder substance
- **Objective:** Removal of source media and prevent future migration of source contaminate

# *SWMU 44*
# *Interim Measure*

- **Description:** Coal storage yard covered with coal/soil mixture, approximately 4 acres in area
- **Action:** Removal of coal product and coal/soil mixture
- **Objective:** Eliminate source media of acidic runoff and percolation of water from coal

# *AOC 653*
# *Interim Measure*

- **Description:** Former auto hobby shop containing three hydraulic lifts with evidence of past leak
- **Action:** Removal of three lifts and soils contaminated with hydraulic fluid
- **Objective:** Removal of source media and prevent further migration of source contaminate

# *SWMU 159*
# *Interim Measure*

- **Description:** Former storage area for recycling of various equipment and products
- **Action:** Removal of soil contaminated with indeterminate lubricating oil
- **Objective:** Removal of source media and prevent further migration of source contaminate

# *SWMU 54*
# *Interim Measure*

- Description: former abrasive blasting area contaminated with spent blast grit
- Action: Removal of spent abrasive blast grit
- Objective: Removal of source media and prevent further migration of source contaminate

CH LESTON NAVAL COMPLEX TEN SUMMARY DATA F 3/12/96

| | CURRENT FACILITIES/EM YMENT | | | | | | ULTIMATE FACILITIES/EMP ENT | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DRY DOCKS | PIERS | OTHER NON-BLDGS | BUILD-INGS | BUILDING SQ. FT. | EMPLOY-EES | DRY DOCKS | PIERS | OTHER NON-BLDGS | BUILD-INGS | BUILDING SQ. FT. | EMPLOY-EES |
| **CURRENT LEASES/LICENSES** | | | | | | | | | | | | |
| BABCOCK & WILCOX | 0 | 0 | 0 | 2 | 175,992 | 10 | 0 | 0 | 0 | 3 | 208,930 | 225 |
| CHARLESTON COUNTY PRC | 0 | 2 | 0 | 2 | 6,087 | 5 | 0 | 3 | 2 | 7 | 12,483 | [illegible] |
| CHARLESTON GRIP & ELECTRIC | 0 | 0 | 0 | 1 | 12,480 | 12 | 0 | 0 | 0 | 1 | 12,480 | 25 |
| CHARLESTON MARINE MANUF. CORP | 3 | 2 | 3 | 31 | 575,943 | 250 | 3 | 5 | 8 | 83 | 1,192,991 | 2,404 |
| CHARLESTON SHIPBUILDING, INC. | 0 | 0 | 0 | 4 | 56,002 | 10 | 2 | 6 | 14 | 79 | 561,198 | 2,000 |
| RDA STAFF/CARETAKER CONTRACTORS | 0 | 0 | 0 | 1 | 17,736 | 17 | 0 | 0 | 0 | 1 | 8,205 | 17 |
| U.S. POSTAL SERVICE | 0 | 0 | 0 | 1 | 17,782 | 114 | 0 | 0 | 0 | 1 | 17,782 | 400 |
| SUBTOTAL | 3 | 4 | 3 | 42 | 862,022 | 418 | 5 | 14 | 24 | 175 | 2,014,069 | 5,078 |
| **UNDER NEGOTIATION** | | | | | | | | | | | | |
| ALLIED TECHNOLOGY | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 0 | 1 | 8,553 | 100 |
| COMMISSIONER OF PUBLIC WORKS | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 0 | 8 | 108,879 | 200 |
| DEPT OF HEALTH & ENV. CONTROL | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 0 | 1 | 16,182 | 54 |
| FOX ASSOCIATES | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 0 | 1 | 4,040 | 15 |
| MCKINNEY ACT TASK FORCE (8 AGENCIES) | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 0 | 21 | 188,078 | 200 |
| M. ROSENBLATT | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 0 | 1 | 2,880 | 25 |
| NORTH CHARLESTON | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 1 | 11 | 43 | 175,286 | 34 |
| SC EMPLOYMENT SECURITY COMMISSION | 0 | 0 | 0 | 1 | 41,196 | 56 | 0 | 0 | 0 | 0 | 0 | 0 |
| SUBTOTAL | 0 | 0 | 0 | 1 | 41,196 | 56 | 0 | 1 | 11 | 76 | 503,898 | 628 |
| **FEDERAL ACTIVITIES** | | | | | | | | | | | | |
| BORDER PATROL | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 6 | 13 | 415,289 | 100 |
| CARETAKER SITE OFFICE/COMNAVBASE | 0 | 0 | 0 | 2 | 35,472 | 21 | 0 | 0 | 0 | 2 | 35,472 | 21 |
| DEFENSE FINANCE & ACCOUNTING | 0 | 0 | 1 | 7 | 402,218 | 473 | 0 | 0 | 1 | 5 | 235,286 | 750 |
| DEF INFO PROCESSING CENTER (B/198A) | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 6 |
| DEFENSE PRINTING | 0 | 0 | 0 | 1 | 26,520 | 37 | 0 | 0 | 0 | 1 | 26,520 | 37 |
| ENVIRONMENTAL DETACHMENT | 0 | 0 | 0 | 8 | 327,539 | 160 | 0 | 0 | 0 | 0 | 0 | 0 |
| MAGNETIC SILENCING FACILITY (PIER Y) | 0 | 1 | 2 | 5 | 6,396 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| MARINE RESERVE (NAVSTA ANNEX) | 0 | 0 | 0 | 6 | 25,056 | 54 | 0 | 0 | 0 | 6 | 25,056 | 54 |
| NATL CIVILIAN COMMUNITY CORPS | 0 | 0 | 0 | 10 | 138,507 | 75 | 0 | 0 | 0 | 10 | 138,507 | 75 |
| NATL OCEANIC & ATMOSPHERIC ADMIN | 0 | 1 | 0 | 7 | 47,592 | 35 | 0 | 2 | 0 | 10 | 48,545 | 200 |
| NISE EAST | 0 | 0 | 0 | 16 | 363,369 | 250 | 0 | 0 | 0 | 16 | 363,369 | 250 |
| STATE DEPARTMENT | 0 | 0 | 2 | 5 | 197,750 | 55 | 0 | 0 | 2 | 5 | 197,750 | 400 |
| U.S. COAST GUARD | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 1 | 2 | 10 | 76,142 | 402 |
| SUBTOTAL | 0 | 2 | 5 | 67 | 1,570,419 | 1,171 | 0 | 3 | 11 | 78 | 1,561,936 | 2,295 |
| **GRAND TOTAL** | 3 | 6 | 8 | 110 | 2,473,637 | 1,645 | 5 | 18 | 46 | 329 | 4,079,903 | 8,001 |

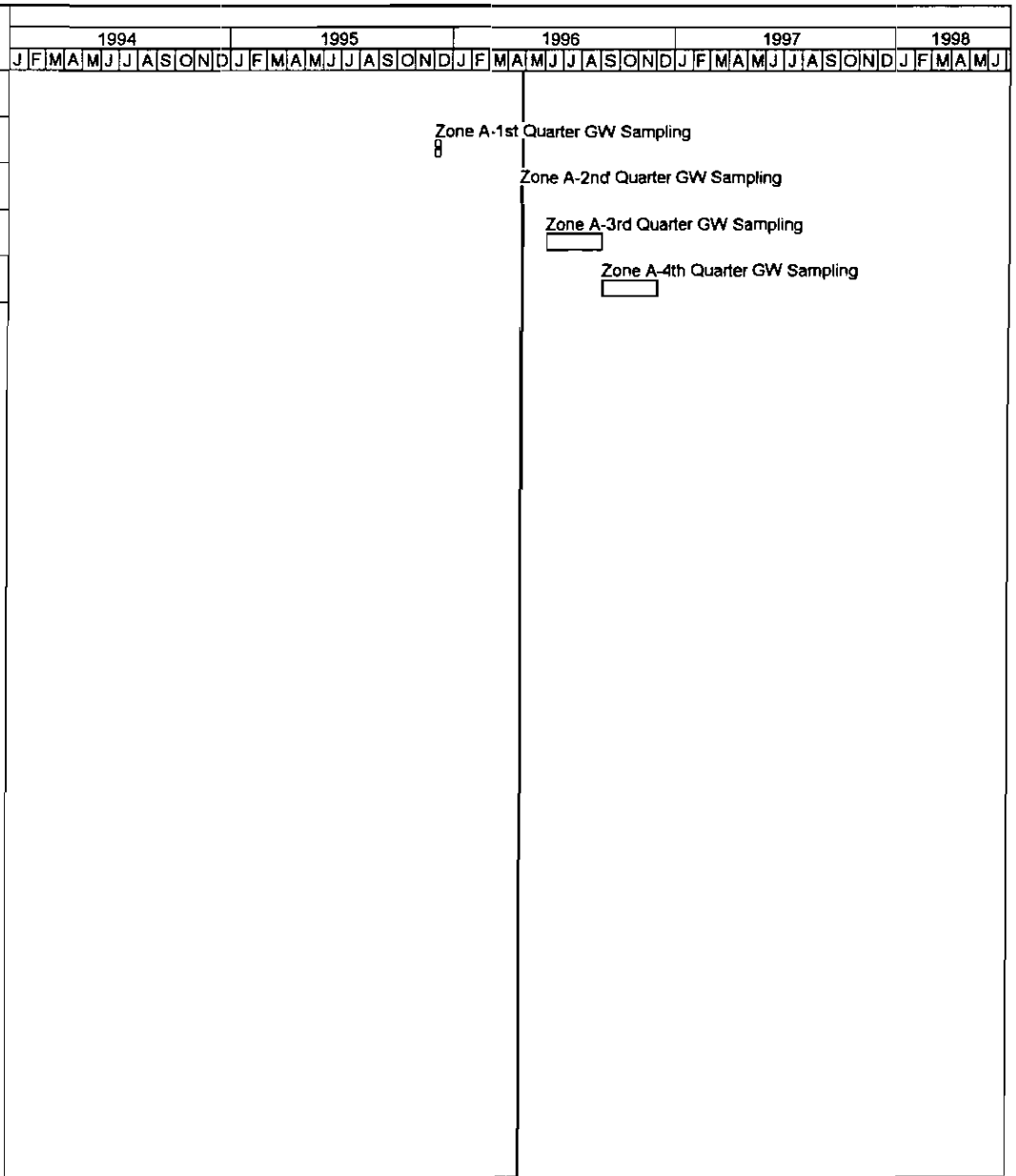
# NAVBASE CHARLESTON
# QUARTERLY GROUNDWATER SAMPLING SCHEDULE

1 May 1996

The following schedule only applies to the zones for which the RFI field work is actually underway in accordance with an approved RFI Work Plan. The number of wells per zone to be sampled for each is as follows:

| | |
|---|---|
| Zone A: | 26 |
| Zone B: | 6 |
| Zone C: | 30 |
| Zone E: | 175 |
| Zone H: | 97 |
| Zone I: | 55 |

| Scheduled Start | Scheduled Finish | Actual Start | Actual Finish | ORIG DUR | PCT |
|---|---|---|---|---|---|
| Zone Code A RFI Report | | | | | |
| 4DEC95 | 4MAR96 | 4DEC95 | 11DEC95 | 90 | 100 |
| 4MAR96 | 4JUN96 | 22APR96 | 26APR96 | 92 | 100 |
| 4JUN96 | 4SEP96 | | | 92 | 0 |
| 4SEP96 | 4DEC96 | | | 90 | 0 |




Plot Date 30APR96
Data Date 26APR96
Project Start 1JAN94
Project Finish 8MAY98

(c) Primavera Systems, Inc.

Activity Bar/Early Dates
Critical Activity
Progress Bar
Milestone/Flag Activity

GWS1

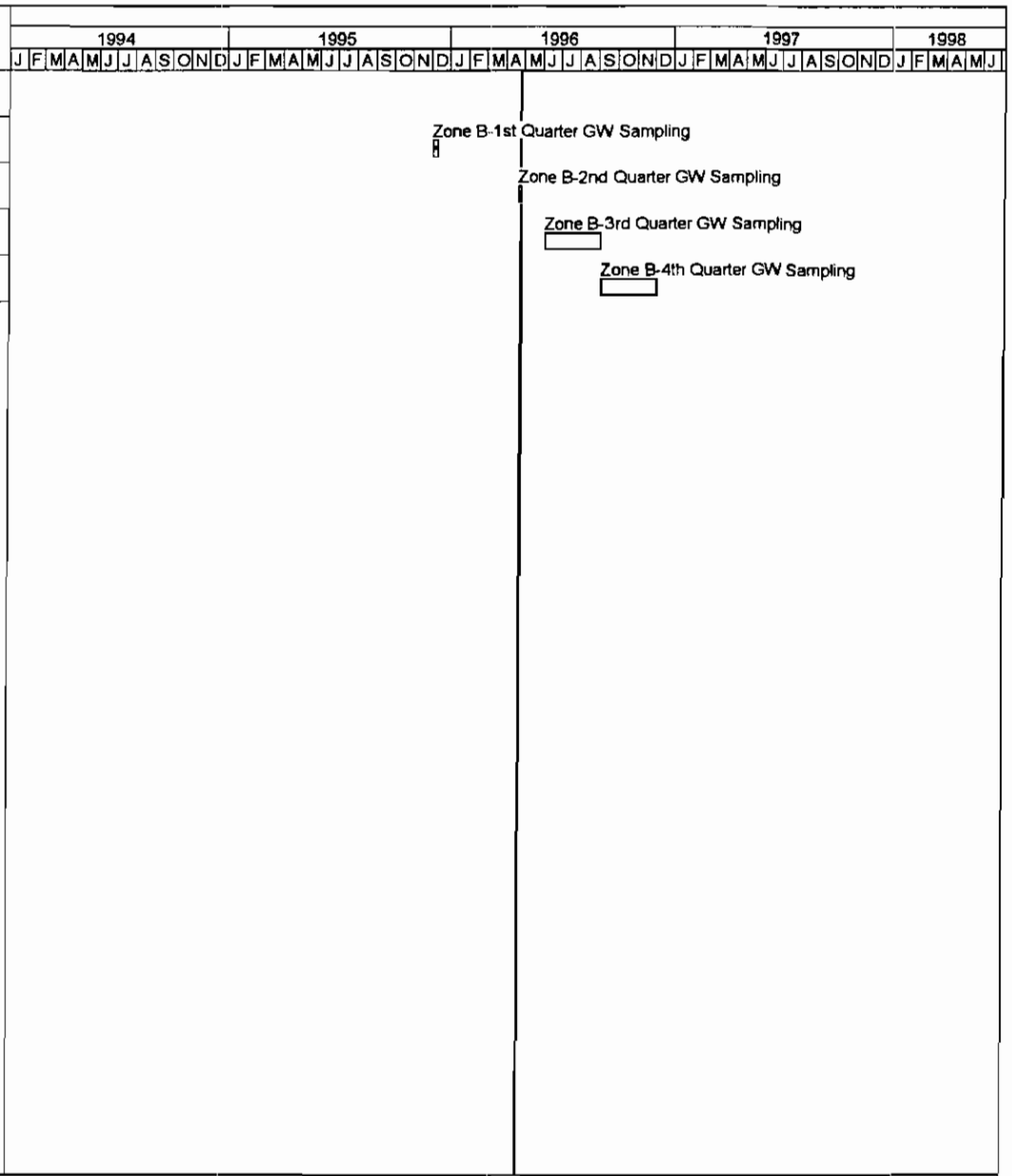
Sheet 3 of 8

Naval Base Charleston
Quarterly Groundwater Sampling Sch.

NAVY CLEAN N62467-89-D-0318

| Date | Revision | Checked | Approved |
|---|---|---|---|
| | | | |

| Scheduled Start | Scheduled Finish | Actual Start | Actual Finish | ORIG DUR | PCT |
|---|---|---|---|---|---|
| Zone Code B RFI Report | | | | | |
| 4DEC95 | 4MAR96 | 4DEC95 | 11DEC95 | 90 | 100 |
| 4MAR96 | 4JUN96 | 22APR96 | 26APR96 | 92 | 100 |
| 4JUN96 | 4SEP96 | | | 92 | 0 |
| 4SEP96 | 4DEC96 | | | 90 | 0 |




Plot Date 30APR96
Data Date 26APR96
Project Start 1JAN94
Project Finish 8MAY98

Activity Bar/Early Dates
Critical Activity
Progress Bar
Milestone/Flag Activity

(c) Primavera Systems, Inc.

GWS1

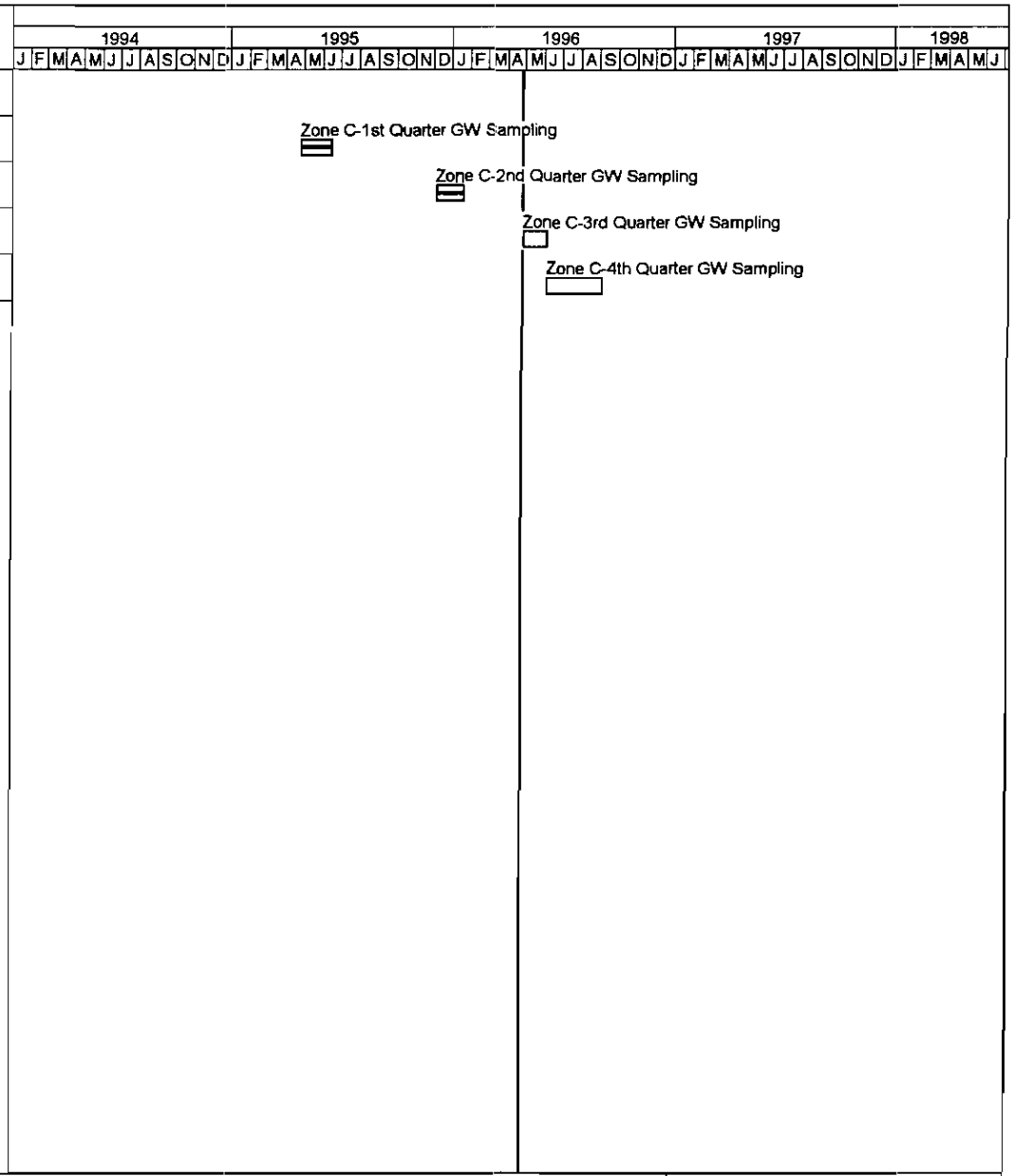
Sheet 4 of 8

Naval Base Charleston
Quarterly Groundwater Sampling Sch.

NAVY CLEAN N62467-89-D-0318

| Date | Revision | Checked | Approved |
|---|---|---|---|
| | | | |

| Scheduled Start | Scheduled Finish | Actual Start | Actual Finish | ORIG DUR | PCT |
|---|---|---|---|---|---|
| Zone Code C RFI Report | | | | | |
| 25APR95 | 25JUL95 | 25APR95 | 15JUN95 | 90 | 100 |
| 25JUL95 | 25OCT95 | 4DEC95 | 19JAN96 | 110 | 100 |
| 4MAR96 | 4JUN96 | | | 39 | 0 |
| 4JUN96 | 4SEP96 | | | 92 | 0 |




Plot Date 30APR96
Data Date 26APR96
Project Start 1JAN94
Project Finish 8MAY98

(c) Primavera Systems, Inc.

Activity Bar/Early Dates
Critical Activity
Progress Bar
Milestone/Flag Activity

GW51

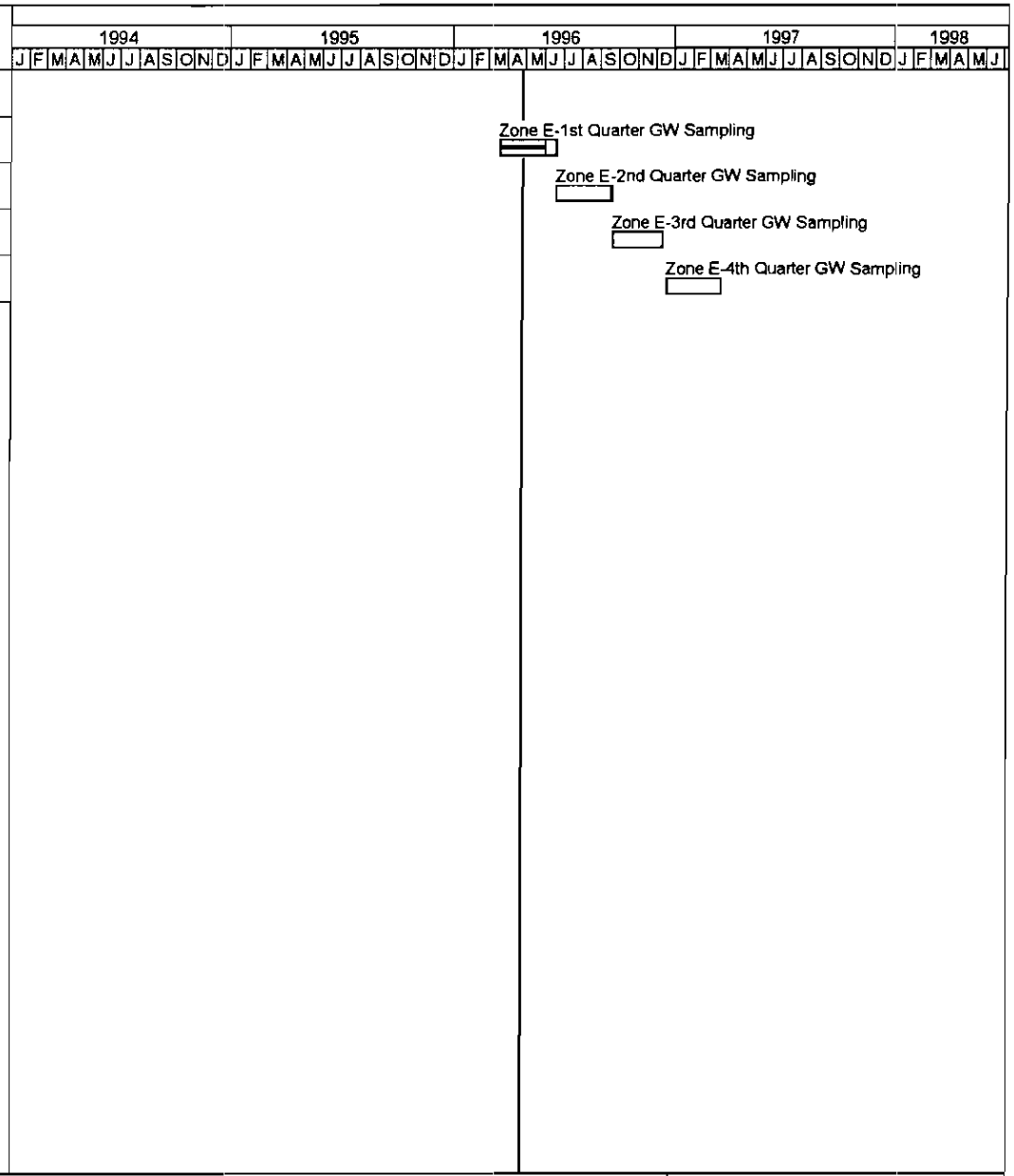
Sheet 5 of 8

Naval Base Charleston
Quarterly Groundwater Sampling Sch.

NAVY CLEAN N62467-89-D-0318

| Date | Revision | Checked | Approved |
|---|---|---|---|
| | | | |

| Scheduled Start | Scheduled Finish | Actual Start | Actual Finish | ORIG DUR | PCT |
|---|---|---|---|---|---|
| Zone Code E RFI Report | | | | | |
| 19MAR96 | 19JUN96 | 19MAR96 | | 92 | 80 |
| 19JUN96 | 19SEP96 | | | 92 | 0 |
| 19SEP96 | 19DEC96 | | | 83 | 0 |
| 19DEC96 | 19MAR97 | | | 89 | 0 |




Plot Date 30APR96
Data Date 26APR96
Project Start 1JAN94
Project Finish 8MAY98

(c) Primavera Systems, Inc.

Activity Bar/Early Dates
Critical Activity
Progress Bar
Milestone/Flag Activity

GWS1

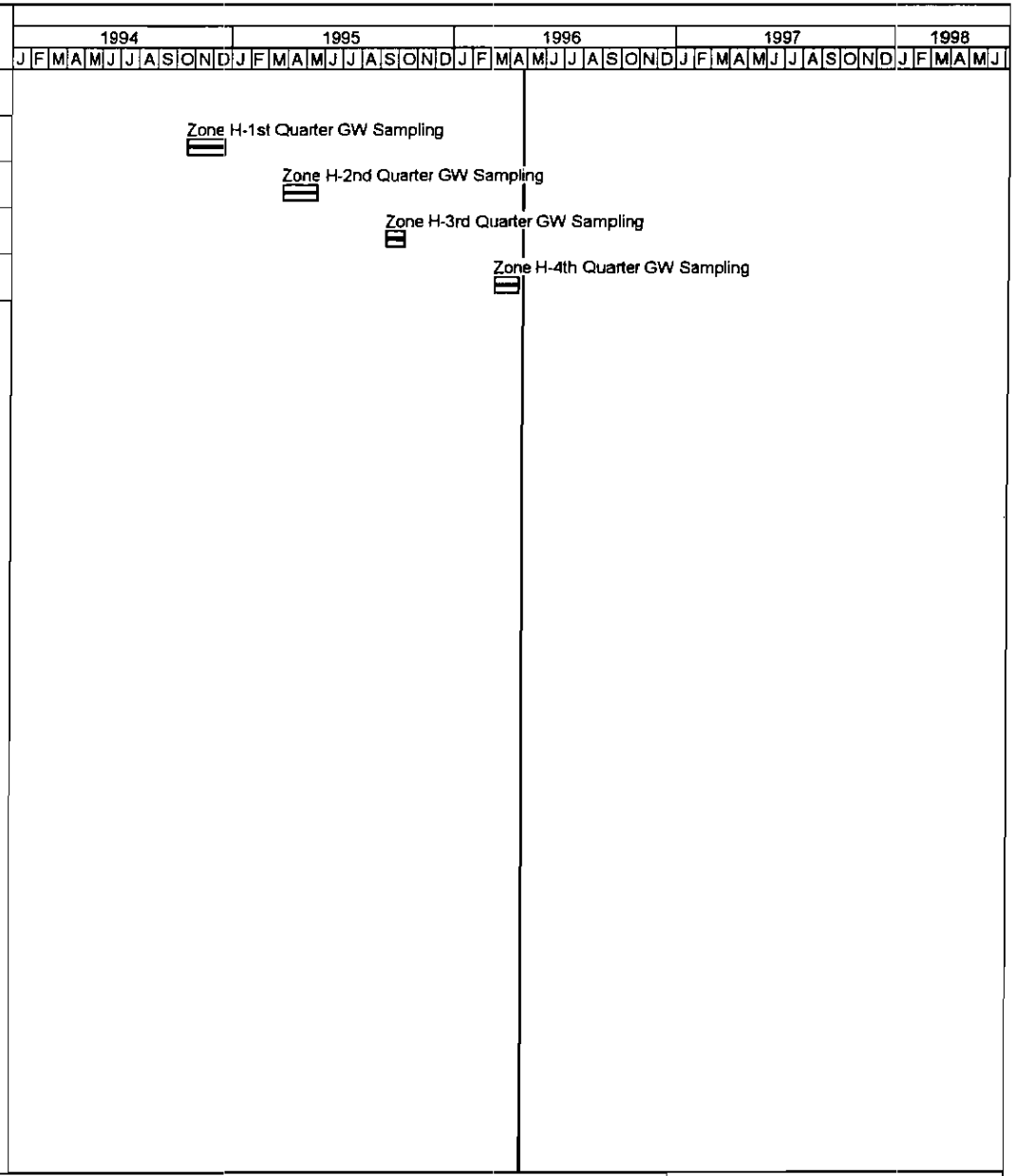
Sheet 6 of 8

Naval Base Charleston
Quarterly Groundwater Sampling Sch.

NAVY CLEAN N62467-89-D-0318

| Date | Revision | Checked | Approved |
|---|---|---|---|
| | | | |

| Scheduled Start | Scheduled Finish | Actual Start | Actual Finish | ORIG DUR | PCT |
|---|---|---|---|---|---|
| Zone Code H RFI Report | | | | | |
| 19OCT94 | 19JAN95 | 19OCT94 | 19DEC94 | 89 | 100 |
| 19JAN95 | 19APR95 | 24MAR95 | 22MAY95 | 0 | 100 |
| 19APR95 | 19JUL95 | 11SEP95 | 12OCT95 | 90 | 100 |
| 19JUL95 | 19OCT95 | 8MAR96 | 17APR96 | 92 | 100 |




Plot Date 30APR96
Data Date 26APR96
Project Start 1JAN94
Project Finish 8MAY96

(c) Primavera Systems, Inc.

Activity Bar/Early Dates
Critical Activity
Progress Bar
Milestone/Flag Activity

GWS1

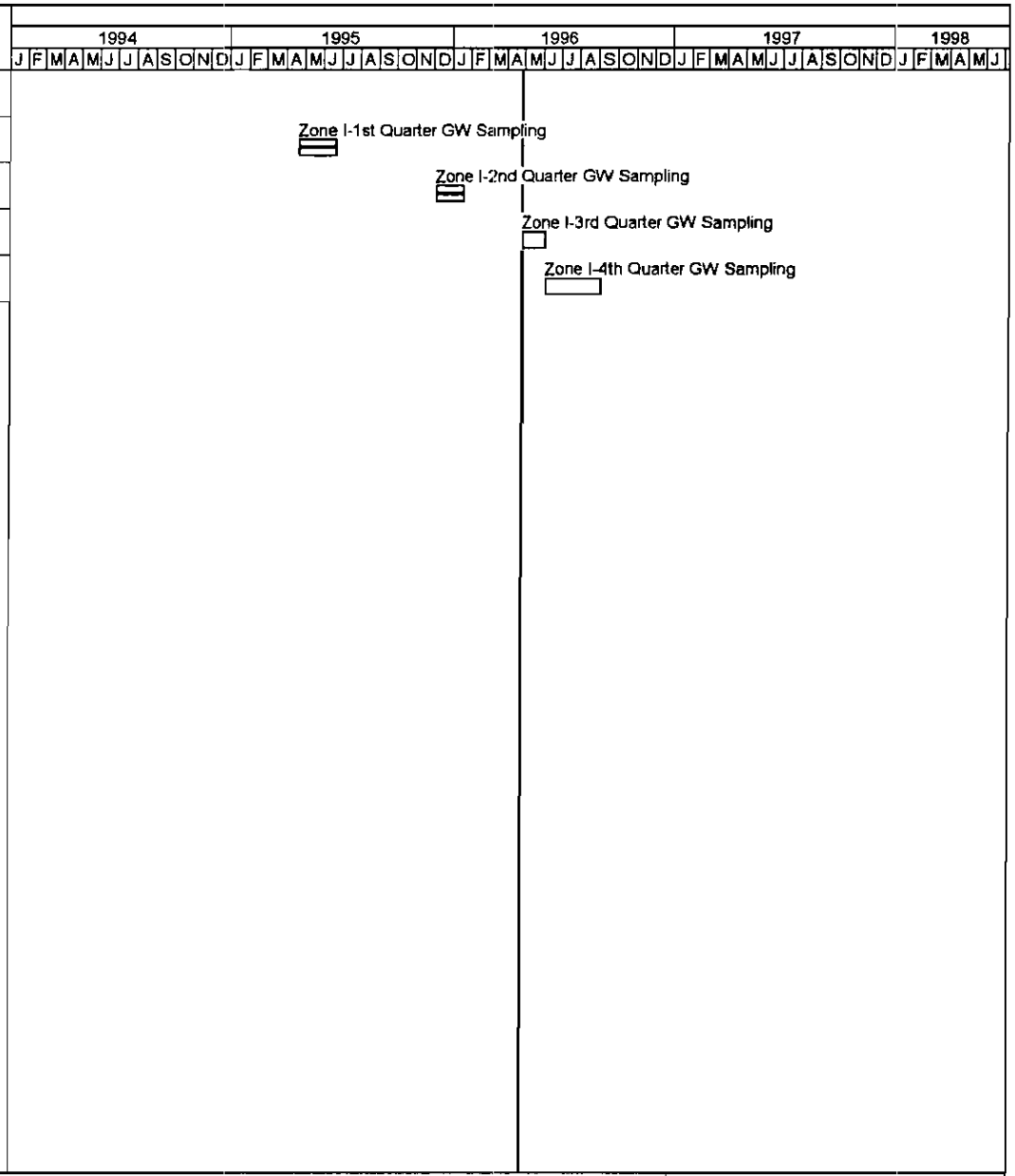
Sheet 7 of 8

Naval Base Charleston
Quarterly Groundwater Sampling Sch.

NAVY CLEAN N62467-89-D-0318

| Date | Revision | Checked | Approved |
|---|---|---|---|
| | | | |

| Scheduled Start | Scheduled Finish | Actual Start | Actual Finish | ORIG DUR | PCT |
|---|---|---|---|---|---|
| Zone Code I RFI Report | | | | | |
| 21APR95 | 21JUL95 | 21APR95 | 9JUN95 | 90 | 100 |
| 21JUL95 | 21OCT95 | 4DEC95 | 19JAN96 | 92 | 100 |
| 4MAR96 | 4JUN96 | | | 39 | 0 |
| 4JUN96 | 4SEP96 | | | 92 | 0 |




| | |
|---|---|
| Plot Date | 30APR96 |
| Data Date | 26APR96 |
| Project Start | 1JAN94 |
| Project Finish | 8MAY98 |

(c) Primavera Systems, Inc.

Activity Bar/Early Dates
Critical Activity
Progress Bar
◇ /P Milestone/Flag Activity

GWS1

Sheet 8 of 8

Naval Base Charleston
Quarterly Groundwater Sampling Sch.

NAVY CLEAN N62467-89-D-0318

| Date | Revision | Checked | Approved |
|---|---|---|---|
| | | | |

COMMANDER, NAVAL BASE CHARLESTON
RESTORATION ADVISORY BOARD (RAB)
Minutes of 12 March 1996

1. Introduction of the RAB Members and Guests

Mr. Daryle Fontenot welcomed everyone to the RAB meeting. This will be the last time the RAB will be meeting while the base is still officially open. Mr. Fontenot gave special recognition to the members of the RAB who have volunteered their time since the RAB's beginning. Captain Augustin introduced Mr. Ray Anderson from the North Charleston City Council.

2. RAB Members Attending

Captain Jim Augustin
Mr. Steve Best
Mr. Doyle Brittain
LCDR Nick Cimorrelli
Bobby Dearhart
Mrs. Susan Floyd
Mr. Daryle Fontenot
Mr. Wilburn Gilliard
Mr. Virgil Johnston
Mr. Ralph Laney
Mr. Louis Mintz
Ms. Wannetta Mallette-Pratt
Mr. Joe Bowers for Ann Ragan

3. Guests Attending

| | |
|---|---|
| Mr. Brian Stockmaster | NAVFAC, SouthDiv |
| Mr. Jim Beltz | NAVFAC, SouthDiv |
| Ms. Pat Franklin | NAVFAC, SouthDiv |
| Ms. Kim Reavis | NAVFAC, SouthDiv |
| Hayes Patterson | NAVFAC, SouthDiv |
| Mr. Jim Moore | OSD |
| CAPT W.F. Nold | CNSY |
| A.T. Gerken | CNSY |
| Jerry Brownlee | CNSY |
| J.N.K. Tunstall | CNSY |
| Ms. Beverly S. Washington | CEERD (CNSY) |
| Mr. Steve Curfman | CEERD |
| Mr. Johnny Tapia | SCDHEC |
| D.S. DeHaven | DOE |
| Jeri Johnson | RDA |
| H.B. Golightly | CAC |
| Ms. Ledlie Bell | League of Women Voters |
| Mrs. June M. Brittain | Concerned Citizen |
| J.T. Amey | |
| Ms. Diane Cutler | EnSafe/Allen&Hoshall |
| Mr. Keith Johns | EnSafe/Allen&Hoshall |
| Mr. Peter McPheters | EnSafe/Allen&Hoshall |
| Mr. Dave Backus | EnSafe/Allen&Hoshall |
| Mr. Todd Haverkost | EnSafe/Allen&Hoshall |

4. Administrative Remarks and Comments on Minutes

No comments or corrections were made on last month's meeting minutes

5. Subcommittee Reports

Mr. Fontenot reported that the Community Relations Subcommittee met prior to the RAB meeting. Members of that Subcommittee include Mr. Fontenot, Mr. Lou Mintz, Mrs. Susan Floyd, Ms. Wannetta Mallette-Pratt, Mr. Arthur Pinckney. In addition, the group receives support from EnSafe/Allen&Hoshall's Community Relations Specialists Diane Cutler and Keith Johns. The subcommittee came up with a proposal to alternate the location of RAB meetings to increase overall community participation. Locations would alternate between North Charleston and East Cooper, West Ashley, and Summerville with every other meeting to be held in North Charleston. In addition, increased advertising is proposed in the specific location of each meeting. The next meeting is proposed for the East Cooper area. Mr. Fontenot asked for input from RAB members.

Mr. Bobby Dearhart asked if the West Ashley and Summerville areas will generate any interest. Mrs. Floyd responded that since those areas are affected, they would benefit by having the RAB come to them. Mr. Dearhart stressed that advertising is essential to get people to the meetings in the new locations.

Mr. Mintz added that this proposal is just a test, if it doesn't improve attendance or increase public interest, the meetings can return to being scheduled regularly in North Charleston. On the other hand, if they are successful, additional locations can be added.

Lt. Commander Nick Cimorrelli added that talk radio stations may be a good avenue for advertising. Captain Augustin recommended that neighborhood associations may be able to sponsor the meetings and act as another good source of advertising.

The general consensus was to adopt the subcommittees proposal. The next meeting will be held in the East Cooper area.

The FOSL fact sheet was reviewed for a final time by the subcommittee. A copy of this fact sheet will be included with the mailing of the March meeting minutes. Comments will be accepted at the April RAB meeting, with distribution to take place shortly after that.

Other fact sheets that the subcommittee will be working on in future meetings include: Zone H Results, RAB Speaker Bureau, Most Commonly Asked Questions, the New RAB, and Property Transfer.

Contaminant Posters are also in the process of being created.

Another item being worked on is a brochure that announces and advertises the Information Repository. Currently a draft brochure has been created, which will be finalized shortly. The Information Repository is located at the Dorchester Road Branch of the Charleston

County Library. No decision has been made regarding if and where additional repository locations will be established.

The Shipyard Detachment Subcommittee is being headed up by Mr. Arthur Pinckney who is absent due to illness today, so there will not be a subcommittee report.

The Finance Subcommittee is being led by Lou Mintz. A report is not available yet, but information is being gathered.

The Reuse Subcommittee has not been started yet.

6. RDA Update

Mr. Virgil Johnston introduced Ms. Jeri Johnson, Director of Operations and Property Management. Next month, Mr. Jack Sprott, Executive Director of the Redevelopment Authority (RDA) will provide the update.

Ms. Johnson reviewed the tenant summary spreadsheet which is the latest information on where the RDA is in the leasing process. The RDA is executing leases, amendments to leases, or licenses on a weekly basis and are talking to prospective tenants on almost a daily basis. Interest has been expressed on almost every facility on base. From a leasing standpoint, things look great. However, utilities are in poor condition. The RDA has finished an assessment study of the condition of the utilities and the cost for upgrades which is about $32 million. They are also working with the State and attempting to use the enterprise Zone Act to generate some funds that would go to the RDA. The Enterprise Zone Act was developed to encourage job creation in hard hit communities and were set up for private industry. The RDA asked if they can apply the Enterprise Zone Act to Federal Facilities on base and get those funds returned to the RDA for infrastructure improvements such as water and sewer distribution and storm water systems.

Although the base is closing on the first of April, the Navy is not going away as for as its responsibilities to take care of the non-leased property. The Navy has worked out an arrangement for the RDA to maintain such caretaker functions as grass cutting and security functions. The RDA is currently arranging for fire protection by the city of North Charleston. DHEC has the latest lease to occupy the top floor of Bldg. 400. The spreadsheet handout (attached) is self-explanatory and provides all the latest activity.

Mr. Dearhart asked if there will be a fee for the North Charleston fire department. There will eventually be a fee in lieu of taxes. The Navy will pay for the first two years of fire protection, but after that time, a fee will be implemented.

Mr. Mintz added that some of the businesses are subleasing, and will make the statistics look more positive. This information may not be clear by looking at the spreadsheet. Ms. Johnson concurred and added that, for instance, Charleston Shipbuilders is leasing a major section of the waterfront.

Mr. Fontenot made an announcement that there is a Business Expo scheduled for April 26th and 27th at the Charleston Coliseum. It would be a good opportunity for the RAB to get some exposure if they were to sponsor a booth. Fact sheets and information on the Information Repository could be distributed. The RAB would need to start making plans if they wanted to do this, and personal commitments would have to be made to man the booth. Mr. Jim Beltz, Public Affairs Officer of NAVFAC Southern Division volunteered to look into a Southern Division sponsored booth.

7. Environmental Cleanup Progress Report

*Status of Environmental Programs*
Mr. Fontenot reported that the Navy is still in the process of generating a report that addresses all the environmental programs.

*Monthly Progress Report*
Mr. Brian Stockmaster presented the RCRA Facility Investigation progress report. There has been no change in funding status since the last report. Progress for February includes: Zone B RFI report was submitted; conducted a 90% status review on Zone A RFI field investigation - additional sampling was determined necessary; Zone K Work Plan was initiated; and Zone H fourth quarter groundwater sampling was conducted.

Most of the activity during February took place in Zone E which is the industrialized area of the shipyard. Soil sampling is complete, all groundwater monitoring wells have been installed. Groundwater sampling begins this week and is expected to be complete by the end of April. The Navy is currently evaluating the soil data to determine if further sampling is needed. Analytical results from soil samples have shown no surprises, in fact, much less contamination is present than expected. Currently, the Navy is ahead of schedule and plans to have field work completed by mid-summer.

Activity projected for March includes: initiation of quarterly groundwater sampling in Zone E; continuation of work on Zone K RFI Work Plan; continue work on Interim Measures Work Plans; second phase of groundwater and soil sampling in Zone A; second quarter groundwater sampling in Zones A and B; and third quarter groundwater sampling in Zones C and I.

Mr. Mintz asked about the status of Zone J. Sampling has not begun for Zone J. The Navy is currently waiting on approval of the final Work Plan. Mr. Mintz also asked why Zone J is less important than the other Zones. Mr. Stockmaster explained that it was decided a long time ago that Zone J was one of the lower priorities of the 12 Zones, and that's why it's taking so long to get to it. Mr. Joe Bowers, DHEC, stated that although it's not at the top of the stack, it is in line at DHEC ready to be reviewed. Mr. Stockmaster agreed to include the status of Zone J in the subsequent progress reports.

*Interim Measures*
Mr. Stockmaster presented a visual presentation on Interim Measures. An interim measure is a mechanism to address site clean up early in the RCRA process to remove source

contaminants and prevent further migration or threat to the environment. The presentation provided an initial list of candidate interim measure sites for consideration. Attached to the minutes are the handouts that provide details on the description of each site, action recommended, and objective of the interim measure. Listed below are the sites and the Zones in which they are located.

| | |
|---|---|
| AOC 574 | Zone E |
| AOC 690 | Zone I |
| AOC 656 | Zone H |
| AOCs 693 & 694 | Zone K |
| AOC 653 | Zone H |
| SWMU 159 | Zone H |
| SWMU 44 | Zone C |
| SWMU 54 | Zone E |

Mr. Mintz asked what will be done with the oil impacted soil. Mr. Stockmaster answered that it will be disposed of properly in a landfill, if appropriate, and if not, it will be taken to a treatment facility. Mr. Mintz offered that asphalt companies may take the material. Mr. Stockmaster agreed but added that often these companies are only interested in large quantities, not the quantities that the Navy will be providing. Mr. Stockmaster reminded the audience that the Navy has not yet decided what to do with the material, that these are just recommendations for which the Navy is open to suggestions. Mr. Mintz replied that he doesn't want the material to go to a landfill.

During the discussion about AOC 653, the former auto hobby shop, Lt. Commander Cimorrelli asked Jeri Johnson if anyone was interested in leasing this building. Ms. Johnson replied that there is not. Mr. Mintz suggested that someone might be interested in the building because of the hydraulic lifts, but Mr. Stockmaster clarified that the lifts are in poor condition and would need to be overhauled.

Lt. Commander Cimorrelli asked if this is a complete list of all Interim Measure sites. No, it's just the list of highest priority sites. As the investigations continue, more sites will probably be added. In some cases, the Interim Measure may conclude all cleanup.

Is the money available to do the Interim Measures? The shipyard detachment is available to do the work and there is $7.5 million allocated.

Mrs. Pat Franklin asked about when work is expected to begin. Mr. Stockmaster replied that he expects work to begin shortly after the base officially closes, sometime in early April.

*Corrective Action Management Plan*
Mr. Fontenot added that the Corrective Action Management Plan (CAMP) is being revised and should be in to the regulators for review within the next couple of weeks. The CAMP is the schedule for the RCRA Facility Investigation.

*Shipyard Radiological Issues*

Mr. Tommy Gerken announced that this will be the final update on radiological decommissioning at the shipyard. They have been preparing Historical Radiological Assessments (HRA) which report on the historical use and presence of radiological material at the shipyard. These studies took a tremendous amount of research including interviews and record searches. Finally, the HRA is complete, and copies for the RAB members are available. A copy will also be placed in the Information Repository at the Dorchester Road Regional Branch of the Charleston County Library.

Only a small amount (several microcuries) of radioactive material was found in various areas. The total amount was the amount that might be found in a couple of smoke detectors. All the areas where radioactive material was found have been remediated and have been released for unrestricted use. Surveys have been confirmed by extensive checks by DHEC and EPA. Only the DRMO site has not been assessed because it is still in operation. Final reports will be issued that document all the collected data. These reports will also be included in the Information Repository. The property is being turned over to Naval Facilities Engineering Command - Southern Division. If there are questions about radiological decommissioning after the base is closed, questions should be forwarded to them.

To provide an idea of the extent of the review, over 8 million square feet of ground and floor space were surveyed, and over 80,000 solid samples were collected and analyzed.

Mr. Doyle Brittain emphasized that the completion of the HRA is an important milestone in the cleanup of Naval Base Charleston. He repeated what Tommy Gerken reported, that the base is free of radioactive material. Mr. Brittain also added that he found the nuclear program at the Base to be well run, clean, and very commendable, and that he has complete confidence in everything they have produced. Mr. Brittain stated that the EPA feels comfortable in saying that Naval Base Charleston is free of radiological contamination.

Mr. Fontenot made one last announcement for the progress report, that Mr. Bobby Dearhart will be heading up the Cleanup Detachment.

8. RAB Membership

Mr. Fontenot reported that as of April 1, when the Base officially closes, the RAB will be losing five of its members: Captain Augustin, Ralph Laney, Lt. Commander Nick Cimorelli, Mr. Bob Veronee, and Mr. Bobby Dearhart. Some of these members have expressed interest in staying on after closure. Currently, there are 22 members, 5 of which will go away on April 1. Other changes are in the works as well. Captain Augustin may be replaced by Commander Dalby, Ms. Wannettta Mallette-Pratt expressed interest in serving as a community member rather than a City of North Charleston representative, (she is looking into handing off her current official position to Councilwoman Greene so she can become a community representative), and additional community membership may be considered.

Captain Augustin explained that when the RAB was being established, a selection committee was chosen to help select individuals. Applications were filled out by community members. Primary and secondary applicants were chosen, and 25 members overall were selected. Since that time, three original members have resigned. RAB members now should provide input on the size of the RAB, membership, etc... Mr. Fontenot read out the names of the current RAB members.

| Community Members | All Other Members |
|---|---|
| Don Harbert | Robert Mikell - SC Coastal Council |
| Van Robinson | Wannetta Pratt - City of N. Charleston |
| Wilburn Gilliard | Diane Duncan - U.S. Dept. of Interior |
| James Conner | Daryle Fontenot - Navy Southern Division |
| Arthur Pinckney | Bobby Dearhart - Shipyard |
| Lou Mintz | Doyle Brittain - EPA |
| Susan Floyd | Jane Settle - SC Dept. of Nat. Resources |
| Steve Best | Virgil Johnston - RDA |
| Oliver Addison | Ann Ragan - DHEC |
| | Bob Veronee - FISC |
| | Lt. Commander Cimorrelli- Naval Station |
| | Ralph Laney - Shipyard |
| | Captain Augustin - Base Closure Officer |

Mr. Dearhart brought up the topic of attendance. Some members have not attended the meetings very regularly. This should be considered when deciding on the new makeup of the RAB. It doesn't do the board any good if members show up once every six months.

Mr. Mintz recommended that a committee be established to decide on RAB membership. He also suggested that when asking for applications for community members, that an ad be placed in the newspaper so everyone has an opportunity to respond.

Captain Augustin pointed out that the DoD guidance for establishing RABs states that a wide diversity in membership is the goal. This guideline was used to select the original Charleston RAB members, and this goal should be maintained.

Mrs. Floyd reiterated the importance of attendance. It was a major issue at the onset of the RAB, and should once again be addressed for community members as well as local and government representatives.

Mr. Brittain added that the purpose of the RAB is to advise the Admiral, however, the process is a public participation process. Mr. Brittain supports Mr. Mintz's recommendation that a committee be formed to decide on future RAB membership, and this committee should include the Navy, the community, EPA, and the State. Mr. Brittain volunteered to serve on this committee. He also suggested once RAB membership is established, that members get involved with subcommittees as suggested by Ann Reagan.

Ms. Pratt pointed out that in addition to bringing new members on board, a mechanism for bringing these members up to speed is essential.

Mr. Fontenot moved to establish a committee for determining RAB membership which will comprise Mr. Fontenot - Navy, Doyle Brittain - EPA, Ann Ragan - DHEC, Lou Mintz - community , Arthur Pinckney - community, Don Harbert - community, and possibly Wannetta Pratt. The group is tentatively scheduled to meet at Tuesday, 3/19/96 at 3:00 at the Base Closure Office.

9. Small Business Outreach for the Community

A Business Opportunity Open House is being sponsored by EnSafe/Allen & Hoshall and Bechtel Environmental, Inc. to encourage small and minority-owned businesses to explore environmental subcontracting opportunities for Navy projects in Charleston. The Open House will be held on April 2, 1996 from 4:00 p.m. to 8:00 p.m. at the North Charleston City Hall in room 515. If anyone has any questions, direct them to Kim Reavis of Southern Division.

10. Remaining Questions and Comments

Mrs. Floyd asked who the Public Affairs Officer contact is now. Mr. Jim Beltz at Southern Division, (803) 820-5771.

Captain Augustin thanked Mr. Jim Moore for serving on the RAB and announced that Mr. Moore has committed to continue attending RAB meeting through September 1996. He also thanked Captain William Nold for his support in attending the RAB meetings.

Ms. Ledlie Bell made a number of observations and recommendation. She stated that now that there will not be an active Navy public relations staff, someone will have to be responsible for dealing with public misconceptions. She also suggested that a good location for one of the rotating RAB meetings would be the Dorchester Road Regional Library. That way, people could come to the meeting and actually see the Information Repository. It may also be a good media hook. Libraries would also be a good way to distribute fact sheets at no cost to the program. Other ideas on how to make the RAB more visible include inviting students from the Public Administration program at the College of Charleston to the RAB meetings, and to include the Naval Base Charleston's cleanup progress at the upcoming closing ceremonies.

Mr. Ray Anderson offered an observation that the process of leasing property is moving too slowly, that the property needs to get to the community as quickly as possible, even if this means writing letters or stepping on political toes.

Captain Nold agreed that the cleanup of the base is moving slowly, but stated that funding and bureaucracy sometime get in the way of progress. The Navy also wants the property to be transferred as quickly as possible so the community can benefit. The Captain said that he has enjoyed coming to the RAB meetings, and wished the community good luck.

Mr. Beltz added that while one part of the Navy is leaving town, namely (Naval Base), Naval Facilities Engineering Command, Southern Division, will be remaining in town and will be the Navy presence for the community as long as property is owned by the Navy. Captain Tyler asked Mr. Beltz to express to the RAB his optimism and encouragement.

The RAB expressed their thanks and appreciation with a hearty round of applause, for the time and energy Captain Augustin has put forth in his commitment to the RAB.

Captain Augustin thanked everyone for the show of support. He went on to say that he has always been pleased with how open the group is with their opinions and suggestions. He added that he is eager to see how the group progresses with the upcoming membership changes. Captain Augustin said that he'll come back in his new position at Southern Division.

11. Agenda for Next Meeting

RAB Membership
Business Expo (The RAB is two years old this month!)
Results of Outreach

12. Adjournment

The meeting was adjourned at 8:50 p.m.

Summary of Action Items

- RAB moved to hold meetings at new locations beginning with East Cooper.
- Research what's needed for booth at Business Expo on April 26th and 27th.
- Add Zone J to monthly Progress Report.
- Lou Mintz stated that he does not want soil from Interim Measures disposed in landfills.
- Committee established to evaluate RAB membership.
- Public Affairs contact is Mr. Jim Beltz at NAVFAC, SouthDiv (803) 820-5771.

Attachments to Minutes
(1) Tuesday March 12, 1996 RAB Meeting Agenda
(2) RCRA Facility Investigation — Progress Report for March 1996
(3) Zone E Summary
(4) Interim Measure
(5) Charleston Naval Complex Tenant Summary

Minutes recorded by: Diane Cutler, EnSafe/Allen&Hoshall

Minutes approved by: _____ _____

Daryle Fontenot
Co-Chairman

Don Harbert
Co-Chairman

Tuesday, March 12, 1996

**Charleston Naval Base**

**RESTORATION ADVISORY BOARD MEETING AGENDA**

6:00 P.M. Location: North Charleston City Hall located @ 4900 LaCross Road at North Charleston. Meeting will be in the City Council Chambers.

RAB Members, BRAC Cleanup Team, and interested citizens informally talk about what's going on from 6 p.m. to 7 p.m.

**7:00 P.M. RAB MEETING**

A. Introduction of the RAB Members and Guests

B. Administrative Remarks, comments on the minutes of the last meeting

C. Subcommittee Reports

| | |
|---|---|
| Community Relations | Finance |
| Shipyard Detachment | Reuse |

D. RDA Update

E. Environmental Cleanup Progress Report — Cleanup Team

Status of the Environmental programs
Interim measures
Corrective Action Management Plan (CAMP)

F. RAB Membership

Discussion on how to replace military RAB members leaving due to closure.
Discussion on how to replace community RAB members.

G. Small Business Outreach for the Community — EnSafe

H. Remaining Questions and Comments from Visitors

I. Agenda for next meeting.

Please mark for calendar. Our next meeting is Tuesday, April 9, 1996. Time and location to be determined.

**Naval Base Charleston**
**RCRA Facility Investigation (RFI)**
**PROGRESS REPORT FOR MARCH 1996**

INVESTIGATIVE ZONES

A. Warehousing and scrap metal yard
B. Golf course and residential
C. Office space and warehouse (NH-45, Navbase HQ)
D. Parking lot, warehouses
E. Shipyard
F. Recreational areas and public works shops
G. Fuel farm and transfer facility
H. Southern end of the base excluding waterfront
I. Southern end of the base including waterfront and dredge material area
J. Ecological study area (waterbodies and certain areas on land)
K. Non-contiguous areas (Naval Station South Annex and tip of Clouter Island)
L. Sewer systems and railroad system

FUNDING

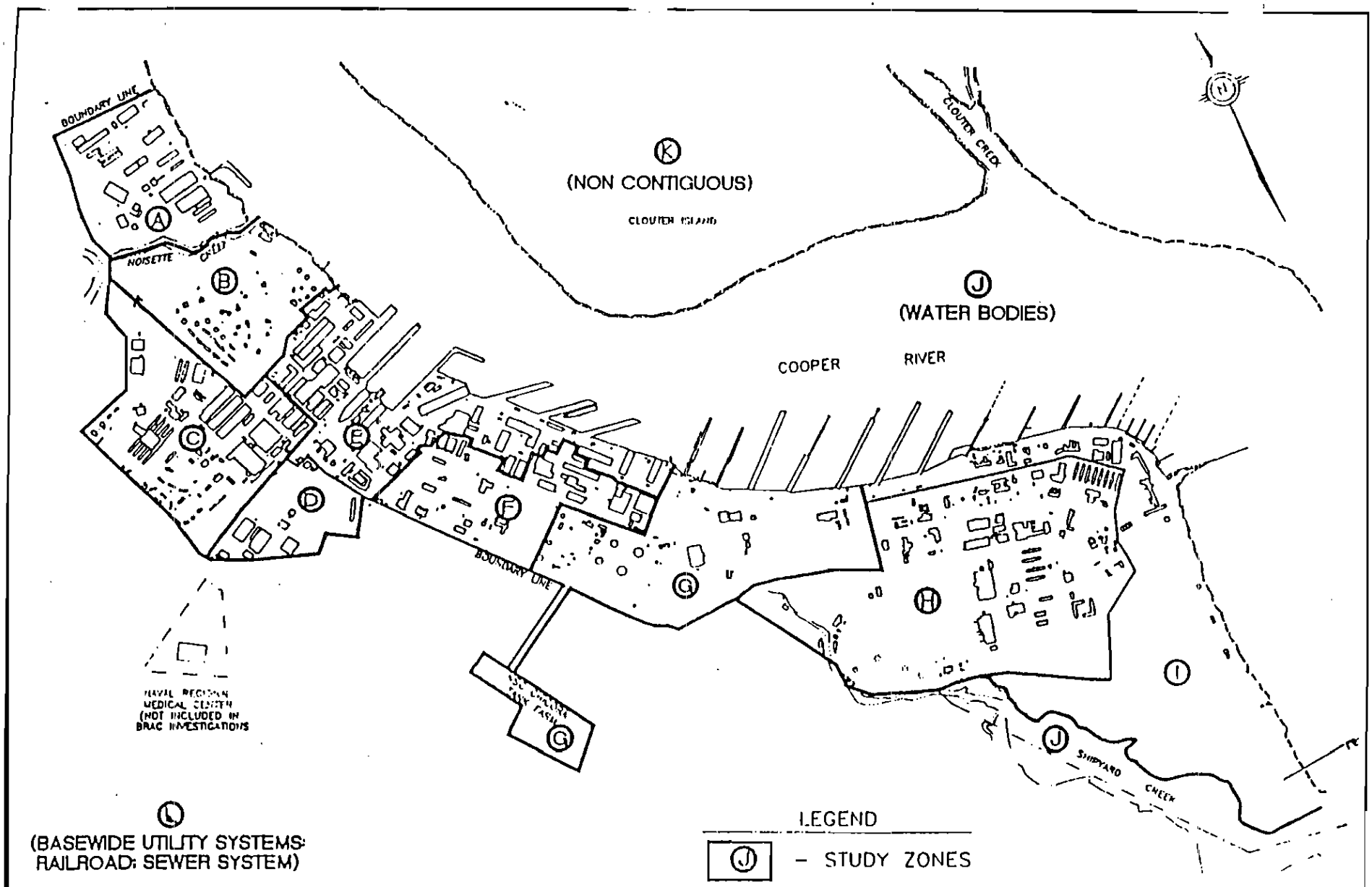
- Fully funded through completion of the Corrective Measures Study:
  Zones A, B, C, E, H, I
  The remaining zones are funded for work plans, funds for investigation through Corrective Measures Study is available however it is not yet negotiated and awarded.

PROGRESS FOR FEBRUARY

- Zones B RFI REPORT was submitted.
- Conducted a 90 % status review on Zone A RFI field investigation. Additional sampling was determined necessary.
- Preparation of Zone K Work Plan.
- In process of fourth quarter (final) ground water sampling in Zone H.

PROJECTED ACTIVITY FOR MARCH

- Begin quarterly groundwater sampling in Zone E
- Continue work on Zone K RFI Work Plan Report.
- Continue work on Interim Measure Work Plans.
- Second phase of groundwater and soil sampling in Zone A.
- Second quarter groundwater sampling in Zones A and B.
- Third quarter groundwater sampling in Zones C and I.




NAVAL BASE CHARLESTON
CHARLESTON, S.C.

FIGURE 1-2
BASE WIDE
ZONE BOUNDARIES

DWG DATE: 01/13/95 | DWG NAME: 29ZONE1

# ZONE E SUMMARY

- Soil sampling is complete.

- All groundwater monitoring wells have been installed.

- Groundwater sampling begins this week — expected to complete end of april.

- We are currently evaluating the soil data to determine if further sampling is needed.

- Analytical results from soil samples have shown no surprises, to the contrary much less contamination is present than expected.

- We are currently running ahead of schedule and plan to have field work completed by mid-summer.

# *Interim Measure*

A mechanism to address site clean up early in the RCRA process to remove source contaminates and prevent further migration or threat to the environment

# *Interim Measure*

This presentation presents an initial list of candidate interim measure sites for consideration. Please provide comments concerning the proposed sites and actions to Mr. Brian Stockmaster @ (803) 820-7481 or Mr. Tony Hunt @ (803) 820-5525.

# *AOC 574*
# *Interim Measure*

- **Description:** Site consists of two above ground fuel tanks with evidence of past releases
- **Action:** Removal of tanks and petroleum impacted soils
- **Objective:** Removal of source media and prevent further migration of source contaminate

# *AOC 690*
# *Interim Measure*

- **Description:** Road scattered with construction debris along southern end of Naval Base
- **Action:** Removal of scattered debris
- **Objective:** Correction of past disposal practices and removal of potential sources

# *AOC 656*
# *Interim Measure*

- **Description:** Site of a past fuel oil release
- **Action:** Removal of petroleum impacted soils
- **Objective**: Removal of source media and prevent further migration of source contaminate

# *AOC 693 & 694 Interim Measure*

- **Description:** Fuse and primer house (#693) and surrounding area (#694) consisting of a former ammunition depot
- **Action:** Removal of debris and identification and removal of white powder substance
- **Objective:** Removal of source media and prevent future migration of source contaminate

# *SWMU 44*
# *Interim Measure*

- **Description:** Coal storage yard covered with coal/soil mixture, approximately 4 acres in area
- **Action:** Removal of coal product and coal/soil mixture
- **Objective:** Eliminate source media of acidic runoff and percolation of water from coal

# *AOC 653*
# *Interim Measure*

- **Description:** Former auto hobby shop containing three hydraulic lifts with evidence of past leak
- **Action:** Removal of three lifts and soils contaminated with hydraulic fluid
- **Objective:** Removal of source media and prevent further migration of source contaminate

# *SWMU 159*
# *Interim Measure*

- **Description:** Former storage area for recycling of various equipment and products
- **Action:** Removal of soil contaminated with indeterminate lubricating oil
- **Objective:** Removal of source media and prevent further migration of source contaminate

# *SWMU 54*
# *Interim Measure*

- Description: former abrasive blasting area contaminated with spent blast grit
- Action: Removal of spent abrasive blast grit
- Objective: Removal of source media and prevent further migration of source contaminate

CH .ESTON NAVAL COMPLEX TENA SUMMARY DATA A 3/12/96

| | CURRENT FACILITIES/EMP YMENT | | | | | | ULTIMATE FACILITIES/EMPL ENT | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DRY DOCKS | PIERS | OTHER NON-BLDGS | BUILD-INGS | BUILDING SQ. FT. | EMPLOY-EES | DRY DOCKS | PIERS | OTHER NON-BLDGS | BUILD-INGS | BUILDING SQ. FT. | EMPLOY-EES |
| **CURRENT LEASES/LICENSES** | | | | | | | | | | | | |
| BABCOCK & WILCOX | 0 | 0 | 0 | 2 | 175,992 | 10 | 0 | 0 | 0 | 3 | 208,930 | 225 |
| CHARLESTON COUNTY PRC | 0 | 2 | 0 | 2 | 6,087 | 5 | 0 | 3 | 2 | 7 | 12,483 | 7 |
| CHARLESTON GRIP & ELECTRIC | 0 | 0 | 0 | 1 | 12,480 | 12 | 0 | 0 | 0 | 1 | 12,480 | 25 |
| CHARLESTON MARINE MANUF. CORP | 3 | 2 | 3 | 31 | 575,943 | 250 | 3 | 5 | 8 | 83 | 1,192,991 | 2,404 |
| CHARLESTON SHIPBUILDING, INC. | 0 | 0 | 0 | 4 | 56,002 | 10 | 2 | 6 | 14 | 79 | 561,198 | 2,000 |
| RDA STAFF/CARETAKER CONTRACTORS | 0 | 0 | 0 | 1 | 17,736 | 17 | 0 | 0 | 0 | 1 | 8,205 | 17 |
| U.S. POSTAL SERVICE | 0 | 0 | 0 | 1 | 17,782 | 114 | 0 | 0 | 0 | 1 | 17,782 | 400 |
| SUBTOTAL | 3 | 4 | 3 | 42 | 862,022 | 418 | 5 | 14 | 24 | 175 | 2,014,069 | 5,078 |
| **UNDER NEGOTIATION** | | | | | | | | | | | | |
| ALLIED TECHNOLOGY | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 0 | 1 | 8,553 | 100 |
| COMMISSIONER OF PUBLIC WORKS | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 0 | 8 | 108,879 | 200 |
| DEPT OF HEALTH & ENV. CONTROL | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 0 | 1 | 16,182 | 54 |
| FOX ASSOCIATES | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 0 | 1 | 4,040 | 15 |
| MCKINNEY ACT TASK FORCE (8 AGENCIES) | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 0 | 21 | 188,078 | 200 |
| M. ROSENBLATT | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 0 | 1 | 2,880 | 25 |
| NORTH CHARLESTON | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 1 | 11 | 43 | 175,286 | 34 |
| SC EMPLOYMENT SECURITY COMMISSION | 0 | 0 | 0 | 1 | 41,196 | 56 | 0 | 0 | 0 | 0 | 0 | 0 |
| SUBTOTAL | 0 | 0 | 0 | 1 | 41,196 | 56 | 0 | 1 | 11 | 76 | 503,898 | 628 |
| **FEDERAL ACTIVITIES** | | | | | | | | | | | | |
| BORDER PATROL | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 6 | 13 | 415,289 | 100 |
| CARETAKER SITE OFFICE/COMNAVBASE | 0 | 0 | 0 | 2 | 35,472 | 21 | 0 | 0 | 0 | 2 | 35,472 | 21 |
| DEFENSE FINANCE & ACCOUNTING | 0 | 0 | 1 | 7 | 402,218 | 473 | 0 | 0 | 1 | 5 | 235,286 | 750 |
| DEF INFO PROCESSING CENTER (B/198A) | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 6 |
| DEFENSE PRINTING | 0 | 0 | 0 | 1 | 26,520 | 37 | 0 | 0 | 0 | 1 | 26,520 | 37 |
| ENVIRONMENTAL DETACHMENT | 0 | 0 | 0 | 8 | 327,539 | 160 | 0 | 0 | 0 | 0 | 0 | 0 |
| MAGNETIC SILENCING FACILITY (PIER Y) | 0 | 1 | 2 | 5 | 6,396 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| MARINE RESERVE (NAVSTA ANNEX) | 0 | 0 | 0 | 6 | 25,056 | 54 | 0 | 0 | 0 | 6 | 25,056 | 54 |
| NATL CIVILIAN COMMUNITY CORPS | 0 | 0 | 0 | 10 | 138,507 | 75 | 0 | 0 | 0 | 10 | 138,507 | 75 |
| NATL OCEANIC & ATMOSPHERIC ADMIN | 0 | 1 | 0 | 7 | 47,592 | 35 | 0 | 2 | 0 | 10 | 48,545 | 200 |
| NISE EAST | 0 | 0 | 0 | 16 | 363,369 | 250 | 0 | 0 | 0 | 16 | 363,369 | 250 |
| STATE DEPARTMENT | 0 | 0 | 2 | 5 | 197,750 | 55 | 0 | 0 | 2 | 5 | 197,750 | 400 |
| U.S. COAST GUARD | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 1 | 2 | 10 | 76,142 | 402 |
| SUBTOTAL | 0 | 2 | 5 | 67 | 1,570,419 | 1,171 | 0 | 3 | 11 | 78 | 1,561,936 | 2,295 |
| **GRAND TOTAL** | 3 | 6 | 8 | 110 | 2,473,637 | 1,645 | 5 | 18 | 46 | 329 | 4,079,903 | 8,001 |

Tuesday, April 9, 1996

# Charleston Naval Base

## RESTORATION ADVISORY BOARD MEETING AGENDA

5:30 P. M. ***Location*** : *Patriot's Point Naval Museum on the USS Yorktown in Mt. Pleasant.*

RAB Members, BRAC Cleanup Team, and interested citizens informally talk about what's going on from 5:30 p.m. to 6:30 p.m.

**6:30 P.M. RAB MEETING**

A. Introduction of the RAB Members and Guests

B. Administrative Remarks, comments on the minutes of the last meeting

C. Subcommittee Reports

| | |
|---|---|
| Community Relations | Finance |
| Shipyard Detachment | Reuse |

D. RDA Update

E. Environmental Cleanup Progress Report — Cleanup Team

Status of the Environmental programs
Interim measures

F. RAB Membership

Report from RAB Membership Subcommittee

G. Feed back on the Business Opportunity Open House

H. Information on Business Expo Booth for RAB

I. Remaining Questions and Comments from Visitors

J. Agenda for next meeting

***Please mark for calendar. Our next meeting is Tuesday, May 14, 1996. Time and location to be determined.**

**Naval Base Charleston**
**RCRA Facility Investigation (RFI)**
**PROGRESS REPORT FOR MARCH 1996**
**RAB MEETING**
**9 April 96**

## INVESTIGATIVE ZONES

Zones:
- A. Warehousing and scrap metal yard
- B. Golf course and residential
- C. Office space and warehouse (NH-45, Navbase HQ)
- D. Parking lot, warehouses
- E. Shipyard
- F. Recreational areas and public works shops
- G. Fuel farm and transfer facility
- H. Southern end of the base excluding waterfront
- I. Southern end of the base including waterfront and dredge material area
- J. Ecological study area (waterbodies and certain areas on land)
- K. Non-contiguous areas
- L. Sewer systems and railroad system

## FUNDING

- Funding status
  - Funding available for all zones
  - Zones being negotiated: D, F, J, G, J, K, L

## PROGRESS FOR MARCH

- Second phase of soil sampling in Zone A was completed the week of 25 March 1996.
- Field work continues in Zone E with the initiation of groundwater sampling.
- The fourth quarter of groundwater sampling in Zone H began on 8 March 1996. To date 47 of the 97 monitoring wells in this zone have been sampled. This is the final round of groundwater sampling required by the work plan.
- Revision 2 of the Corrective Action Management Plan (CAMP) was submitted for SCDHEC and EPA on 26 March 1996 for review.
- The Draft Zone K RFI work plan was submitted for regulatory review on 1 April 1996.

## PROJECTED ACTIVITY FOR APRIL

- Resolve regulatory comments on Comprehensive Work Plan, Zone C and I work plan revisions and Zones J work plans.
- Continue Zone E groundwater sampling.
- Initiate Interim Measures in all zones.

## GROUNDWATER MODEL

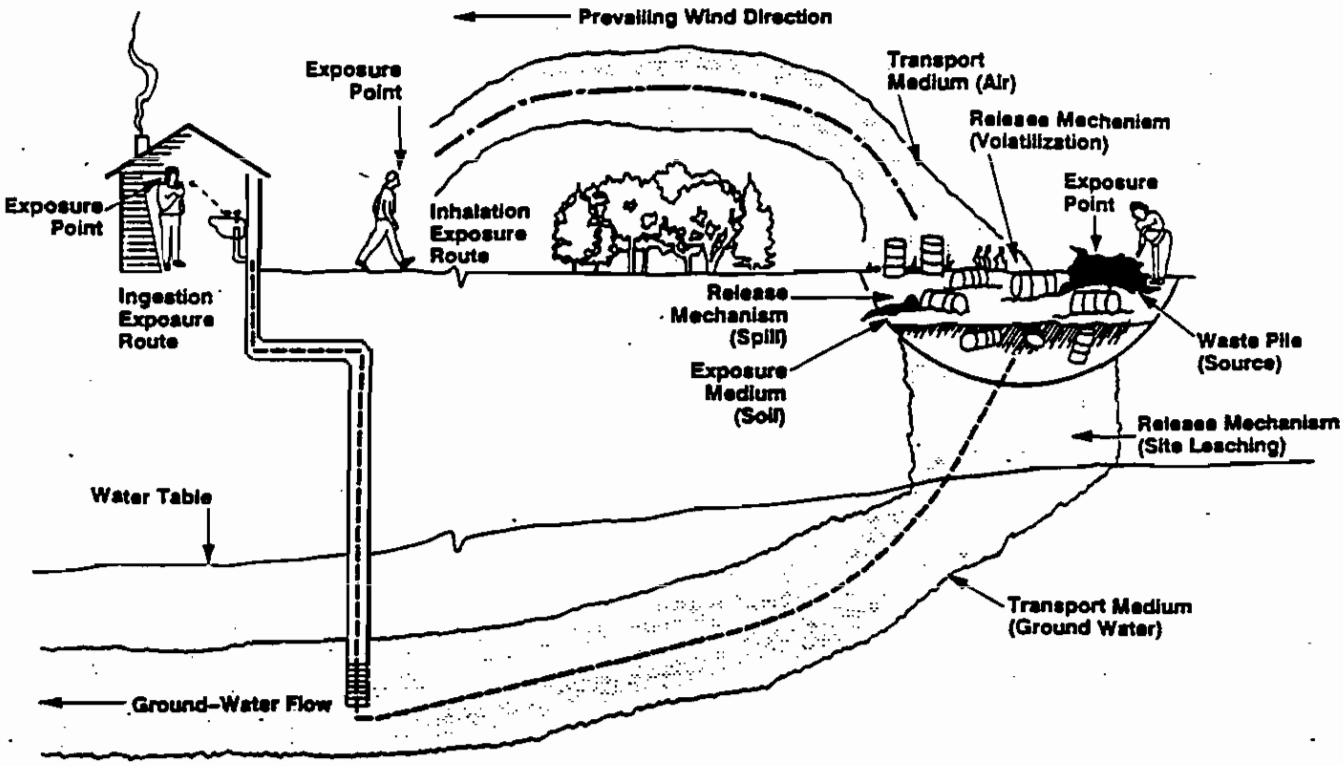
- Development of groundwater model for Naval Base Charleston

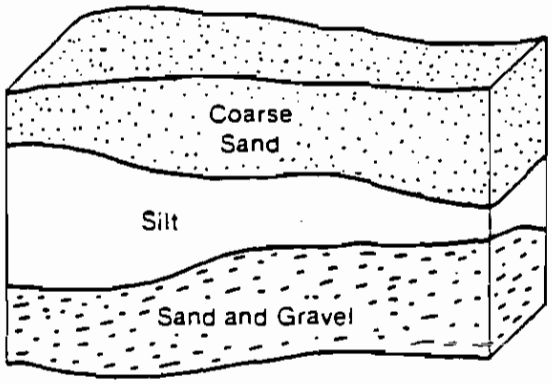
## SUMMARY

- Field work in two zones (A and E)
- Shipyard Detachment accomplishing Interim Measures
- Anticipating other zones beginning in the near future

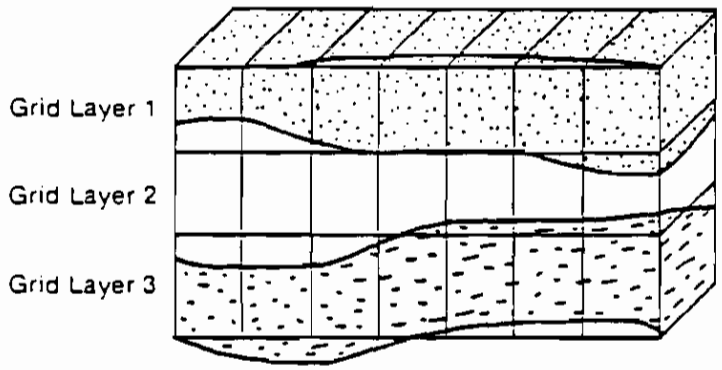
# EXHIBIT 6-2

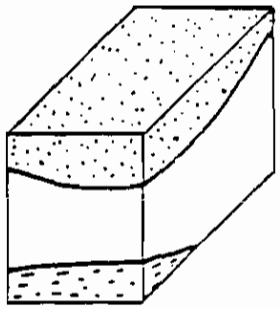
## ILLUSTRATION OF EXPOSURE PATHWAYS





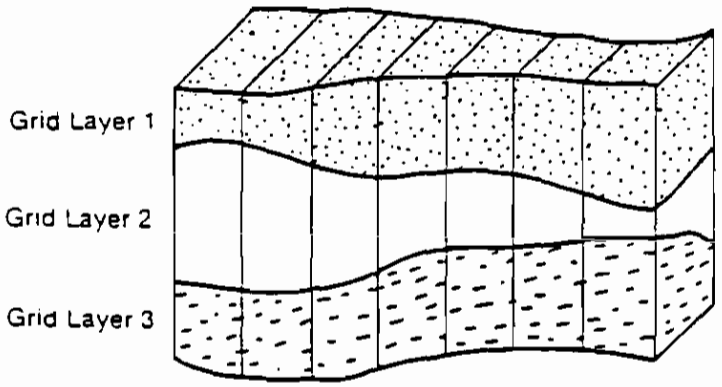

(a) Aquifer Cross Section

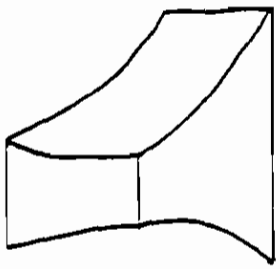


Cell Contains Material from Three Stratigraphic Units. All Faces Are Rectangles

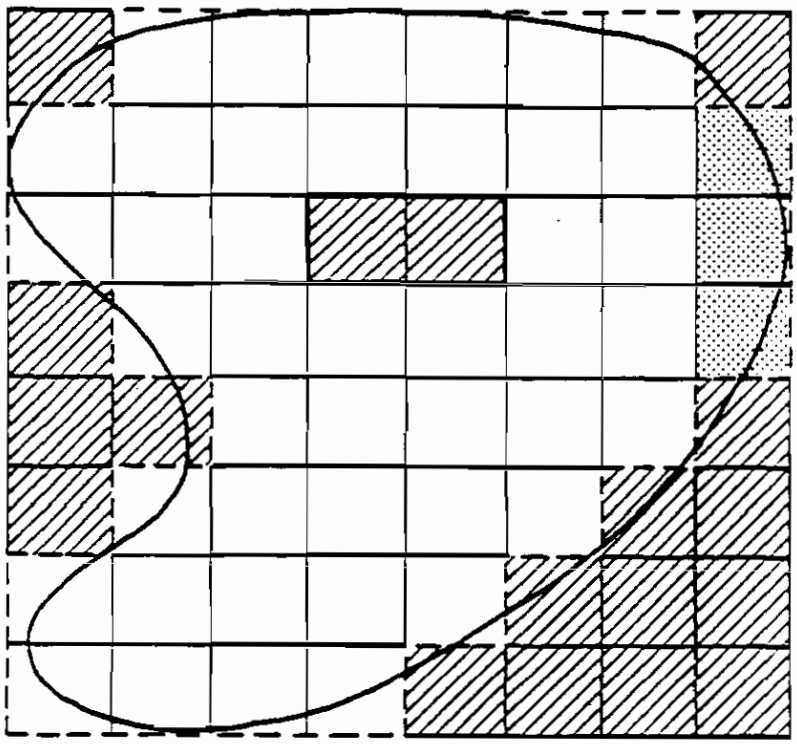
(b) Aquifer Cross Section With Rectilinear Grid Superimposed



Cell Contains Material from Only One Stratigraphic Unit. Faces Are Not Rectangles

(c) Aquifer Cross Section With Deformed Grid Superimposed



Explanation

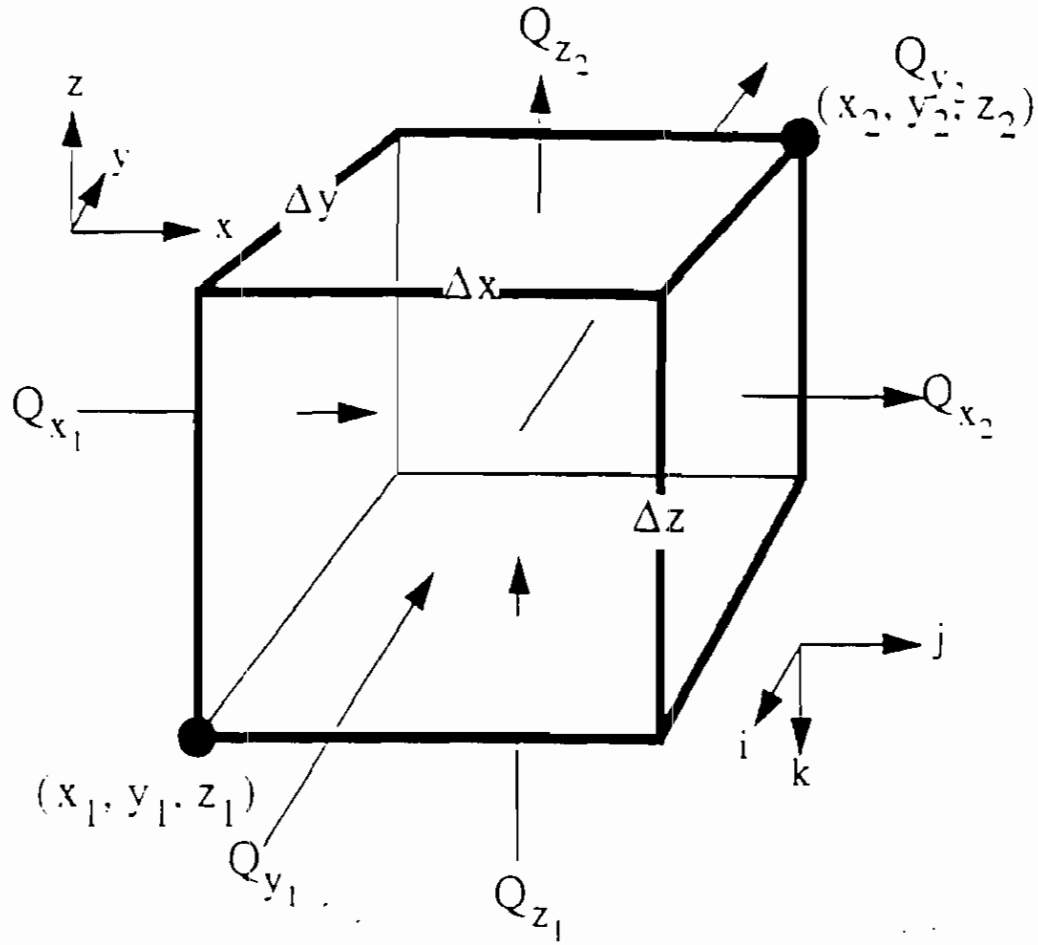
Aquifer Boundary

Model Impermeable Boundary

Inactive Cell

Constant-Head Cell

Variable-Head Cell


$Q_{z_2}$
$Q_{y_2}$
$(x_2, y_2, z_2)$
z
y
x
$\Delta y$
$\Delta x$
$Q_{x_1}$
$Q_{x_2}$
$\Delta z$
j
i
k
$(x_1, y_1, z_1)$
$Q_{y_1}$
$Q_{z_1}$

**DEPARTMENT OF THE NAVY**
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
P.O. BOX 190010
2155 EAGLE DRIVE
NORTH CHARLESTON, S.C. 29419-9010

5090/11
Code 1877
14 May 1996

Mr. G. Randall Thompson
Director, Division of Hazardous and Infectious Waste Management
Bureau of Solid and Hazardous Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201

Re: SUBMITTAL OF THE RCRA FACILITY INVESTIGATION PROGRESS REPORT FOR MAY 1996

Dear Mr. Thompson,

The purpose of this letter is to submit the Monthly RCRA Facility Investigation (RFI) Progress Report for Naval Base Charleston. This report is submitted voluntarily to provide an update on the progress of the RFI to members of the NAVBASE BRAC Cleanup Team (BCT) which includes representatives of the Navy, the Environmental Protection Agency and the South Carolina Department of Health and Environmental Control.

Enclosure (1) is the Monthly Report which contains the activity for the month of May, 1996. If you should have any questions, please contact Joe V. Camp Jr. or me at (803) 743-9985 and (803) 820-5525 respectively.

Sincerely,

Matthew A. Hunt

MATTHEW A. HUNT
Environmental Engineer
Installation Restoration III
Environmental Division

Encl:
(1) Monthly RFI Progress Report - May 1996

Copy to (w/encl):
SCDHEC (Bergstrand, Tapia)
USEPA (3) (Brittain)
SOUTHNAVFACENGCOM (Stockmaster)
CSO Naval Base Charleston (Camp, Fontenot)

**NAVBASE CHARLESTON**
**RFI STATUS REPORT**
**PERIOD: SUMMARY OF**
**01 May 1996 To 31 May 1996**

## I. INTRODUCTION

The following status report has been prepared to satisfy condition II.E.3.a of the Part B Permit Renewal dated 5 December 1994 for Naval Base Charleston (NAVBASE). The requirements of this condition are in effect since the total elapsed time to complete the RCRA Facility Investigation (RFI) is projected to be greater than 180 calendar days from the approval date of the *Final Comprehensive RFI Work Plan* as indicated in the Corrective Action Management Plan (CAMP).

In lieu of submitting quarterly reports, NAVBASE is voluntarily submitting monthly reports to provide an update on the progress of the RFI to members of the NAVBASE BRAC Cleanup Team (BCT) in a more timely manner. The content of the monthly reports includes information intended to satisfy condition II.E.3.a of the Part B Permit. Consequently, this report only addresses activities which occurred during the month of May 1996.

## II. PORTION OF THE RFI COMPLETED

- Revision 01 of the *Final Comprehensive RFI Work Plan* along with a response to comments was resubmitted to the regulatory agencies on 12 April 1996 for approval.

- Approval of the proposed revisions to the *Zone C RFI Work Plan* was received from the regulatory agencies on 8 May 1996. Distribution of the revision packages to all parties who previously received a copy of the work plan was completed on 13 May 1996.

- The third quarter of groundwater sampling in Zone C was initiated on 6 May 1996 and completed on 15 May 1996.

- The first round of groundwater sampling in Zone E was completed 10 May 1996. Per discussions held during the May Project Team meeting, additional soil sampling locations were selected for the Building 79 investigation. The sampling effort has been completed and analytical results are pending.

- Comments pertaining to the *Zone H RFI Report* were received from the regulatory agencies and revisions to the report were initiated.

- Approval of the proposed revisions to the *Zone I RFI Work Plan* was received from the regulatory agencies on 8 May 1996. Distribution of the revision packages to all parties who previously received a copy of the work plan was completed on 13 May 1996.

- The third quarter of groundwater sampling in Zone I was initiated on 15 May 1996.

## III. SUMMARIES OF FINDINGS

At the time of preparation of this document there were no new findings to report.

## IV. DEVIATIONS FROM APPROVED WORK PLANS THIS REPORTING PERIOD

There were no known deviations from the approved RFI Work Plans for this reporting period.

## V. SUMMARY OF CONTACTS WITH LOCAL COMMUNITY PUBLIC INTEREST GROUPS OR STATE GOVERNMENT

As indicated in the January 1995 Quarterly Status Report, the Navy has established a Restoration Advisory Board (RAB) to involve the public in the decisions regarding the investigation and remediation of contaminated sites at Naval Base Charleston. The meetings are held monthly and are open to the public. The minutes of both the March and April 1995 meetings are provided as Attachment A.

## VI. SUMMARY OF PROBLEMS OR POTENTIAL PROBLEMS AND ACTION TAKEN TO RECTIFY PROBLEMS

There were no problems identified during the current reporting period.

## VII. KEY PROJECT PERSONNEL

The status report for March 1996 reflected numerous changes in key Navy personnel for the NAVBASE Charleston RFI resulting from the closure of Charleston Naval Shipyard. No additional changes occurred during the current reporting period.

## VIII. PROJECTED WORK FOR THE NEXT REPORTING PERIOD

**Document Preparation and Data Evaluation:**

- Additional revisions to the *Comprehensive RFI Work Plan* will be made per the comments received from the regulatory agencies.
- Data evaluation for Zones A and E will continue.
- Revisions to the *Zone H RFI Report* will continue. It is anticipated that portions of the revised document will be submitted to the Project Team for review prior to resubmittal of the document.
- The *Zones D,F, and G RFI Work Plan* will be resubmitted to the regulatory agencies for review and approval.

**Field Activities:**

- The groundwater screening effort in Zone A is currently scheduled to begin the week of 17 June 1996. Additionally, the third quarter of groundwater sampling for the permanent monitoring wells will likely begin.
- The third quarter of groundwater sampling in Zone B is scheduled to begin.
- The fourth quarter of groundwater sampling in Zone C is scheduled to begin.
- Following the June Project Team meeting it is anticipated that second round of soil sampling appears will be necessary at some of the Zone E sites.
- The fourth quarter of groundwater sampling in Zone I is scheduled to begin.

## IX. COPIES OF DAILY REPORTS, INSPECTION REPORTS, LABORATORY DATA

Daily activities are recorded in accordance with the Data Management Plan included as Section 14 of the Final Comprehensive Sampling and Analysis Plan. Photocopies of these daily records have not been included with this status report; however, this information is available for review upon request.

Per agreement with SCDHEC and EPA, hard copies of the analytical data are not being submitted. A copy of the data is maintained at the EnSafe/Allen & Hoshall office in Charleston and is available for review.

**Tuesday, May 14, 1996**

**Charleston Naval Base**

**RESTORATION ADVISORY BOARD MEETING AGENDA**

5:30 P.M. Location: Dorchester Road Regional Branch of the Charleston County Library, 6325 Dorchester Road, North Charleston SC

RAB Members, BRAC Cleanup Team, and interested citizens informally talk about what's going on from 5:30 p.m. to 6:30 p.m.

**6:30 P.M. RAB MEETING**

A. Introduction of the RAB Members and Guests

B. Administrative Remarks, comments on the minutes of the last meeting

C. Subcommittee Reports

Community Relations
Shipyard Detachment
Finance

D. RDA Update

E. Environmental Cleanup Progress Report Cleanup Team

BRAC Business Plan
Status of the Environmental Programs
Interim Measures
Chicora Tank Farm Demolition

F. Remaining Questions and Comments from Visitors

G. Agenda for next meeting.

Please mark for calendar. Our next meeting is **Tuesday, June 11, 1996**. Time and location to be determined.

**NAVAL BASE CHARLESTON**
**RESTORATION ADVISORY BOARD (RAB)**
**Minutes of 9 April 1996**

1. Introduction of the RAB Members and Guests

Mr. Don Harbert, Community Co-chair, welcomed everyone to the RAB meeting and asked that all RAB members introduce themselves. He also encouraged guests to ask questions during the meeting if they don't understand something.

2. RAB Members Attending

Mr. Oliver Addison
Mr. Doyle Brittain
Mr. James Conner
Mr. Bobby Dearhart
Mrs. Susan Floyd
Mr. Daryle Fontenot
Mr. Wilburn Gilliard
Mr. Don Harbert
Mr. Louis Mintz
Mr. Arthur Pinckney
Ms. Wannetta Mallette-Pratt
Ms. Ann Ragan

3. Guests Attending

| | |
|---|---|
| Mr. Tony Hunt | NAVFAC, SouthDiv |
| Mr. Brian Stockmaster | NAVFAC, SouthDiv |
| Mr. Jim Beltz | NAVFAC, SouthDiv |
| Ms. Pat Franklin | NAVFAC, SouthDiv |
| Ms. Kim Reavis | NAVFAC, SouthDiv |
| Mr. Jim Moore | OSD |
| J.N.K. Tunstall | CNSY |
| Mr. Steve Curfman | CEERD |
| J.B. Lawrence | CEERD |
| J.T. Hardin | CEERD |
| Mr. Johnny Tapia | SCDHEC |
| Mr. Joe Bowers | SCDHEC |
| Mr. Paul M. Bergstrand | SCDHEC |
| Jerry O'Keefe | Res. Management Consultants |
| Mr. Terry Joyce | Post & Courier |
| Ms. Jeri Johnson | RDA |
| Mr. Jack Sprott | RDA |
| Mrs. June M. Brittain | Concerned Citizen |
| Ms. Margaret McLennan | Concerned Citizen |
| J.T. Amey | CEERD |
| Mr. Paul Tomiczek | Bechtel Environmental, Inc. |
| Ms. Diane Cutler | EnSafe/Allen&Hoshall |
| Mr. Todd Haverkost | EnSafe/Allen&Hoshall |
| Mr. Rick Barlow | EnSafe/Allen&Hoshall |
| Mr. Dave Backus | EnSafe/Allen&Hoshall |
| Mr. Larry Bowers | EnSafe/Allen&Hoshall |

4. Administrative Remarks and Comments on Minutes

No comments or corrections were made on last month's meeting minutes

5. Subcommittee Reports

*Community Relations*
Mr. Fontenot reported that the Community Relations Subcommittee met prior to the RAB meeting. Members of that subcommittee include Mr. Fontenot, Mr. Lou Mintz, Mrs. Susan Floyd, Ms. Wannetta Mallette-Pratt, and Mr. Arthur Pinckney. Mr. Fontenot asked the RAB members if they had any comments on the previously distributed FOSL fact sheet. There were no questions or comments, so the FOSL fact sheet - Fact Sheet #5 - will be printed and distributed. Mr. Fontenot also announced completion of the Information Repository Brochure. Copies are available and explain what is in the repository, where it is located, and the hours it is available. The Information Repository is maintained at the Dorchester Road Regional Branch of the Charleston County Library.

The subcommittee also started working on a Zone H Results fact sheet. The material in this fact sheet will be similar to the information provided in the Zone H presentation given at the February RAB meeting. The information will be a brief summary of the findings in the six-volume report. A draft of the fact sheet should be available by the next RAB meeting.

The Community Relations Subcommittee also tentatively set up the May meeting location at the Dorchester Road Regional Branch of the Charleston County Library. Mr. Pinckney asked if any of the meetings will be held in the City of Charleston. Mr. Fontenot replied that it hadn't been planned to date, but can be considered for future meetings. Since no-one has any objections to the location, reservations for the Dorchester Road Library will be confirmed. The open house will start at 5:30 and the meeting will run from 6:30 - 8:30.

The Community Relations Subcommittee will continue to meet regularly and will keep working on fact sheets and other items to get out to the community in an effort to help them understand the environmental investigation and closure at the Naval Base.

*Shipyard Detachment*
Mr. Bobby Dearhart provided an update on the Shipyard Detachment. The Shipyard Detachment, based out of Norfolk, VA, is now standing up 172 strong with civilian workers. They started up on April 1st. They have been gearing up for environmental cleanup and have now started with some of their first jobs. The detachment started pulling their first tank, and began surveying, groundwater monitoring, and work on SWMU 44. They will also begin work shortly on two additional Interim Measures sites. Mr. Pinckney asked if the detachment personnel is up to capacity or if more workers will be hired. Mr. Dearhart stated that the Secretary of the Navy, who established the detachment, stated that shipyard workers could only be hired up until April 1. There are currently 172 workers, and that will be the maximum, however, that number may decrease if workers are offered permanent positions.

*Finance*
Mr. Lou Mintz stated that the Finance Subcommittee has nothing to report at this time.

6. Environmental Cleanup Progress Report

*Status of Environmental Programs*
Mr. Fontenot reported that the Shipyard Detachment has begun removing tanks for the Underground Storage Tank program, and has plans to begin asbestos removal in the near future.

*Monthly Progress Report*
Mr. Tony Hunt presented the RCRA Facility Investigation (RFI) Progress Report (attached to these minutes). There is funding available for all zones, but negotiations have not yet been conducted for all zones. Negotiations will occur after the Work Plans have been completed and the Navy has a better idea of what will be required. Those negotiations should be accomplished soon. In March, the second phase of soil sampling was completed during the week of March 25th. The Navy hopes to get in the field shortly to do geoprobe sampling which is a groundwater screening method that allows the Navy to cover a relatively large area and get a good indication of what's in the groundwater without actually having to install monitoring wells. Field work continues in Zone E. The fourth quarter of groundwater sampling in Zone H began in March, and is the final round of sampling required. Revision 2 of the Corrective Action Management Plan was submitted to SCDHEC and EPA on March 26th, and the Draft Zone K RFI Work Plan was submitted for regulatory review on April 1, 1996.

Projected activity for April includes resolving EPA draft comments on the Zone J Work Plan. Zone J comprises the water bodies that are being studied for ecological purposes. The Navy is also looking into the "contribution of contaminants in sediment" which means that other industries, as well as the Navy may be contributors to the environmental state of the Zone J water bodies. Zones C and I both had additional sites that were added for investigation, and therefore, the Work Plans are being revised. Zone E groundwater sampling continues.

The Navy has tasked the US Geological Survey (USGS) to develop a groundwater model of the Naval Base. The model encompasses an area from above the Air force Base and around the Naval Base region. In order to successfully place monitoring wells, it is good to know the direction of groundwater flow. Historically, the Navy has been placing wells according to data from topography, which provides a fairly good estimate. Groundwater modeling is a complex process that numerically simulates groundwater flow. It is a tool to provide an estimate of the groundwater flow so the Navy can predict what will occur. Mr. Lou Mintz asked why the survey boundaries carried so far beyond the Base. Mr. Hunt responded that it was a function of the boundary conditions. Mr. Mintz also asked if this survey is coming out of the environmental budget, and how much it cost. Mr. Hunt responded that the survey is coming out of the environmental budget and will cost $178,000, part of which will go toward developing a bioremediation protocol. The survey alone will cost approximately $156,000. Mr. Mintz asked what is the scope of the project,

and who requested/required it. Mr. Hunt said that the USGS was tasked to develop a digital numerical model which will include the boundaries of the Naval Base and the regions necessary to develop the boundary conditions, and that Southern Division initiated it. Southern Division decided that with the number of sites, it would be much easier to use the model which provides a hydrogeologic framework of the facility and would therefore help assess more accurate locations to install monitoring wells. Mr. Mintz asked if this information was available anywhere else. Mr. Hunt said that inputs to this model are developed by EnSafe/Allen &Hoshall (E/A&H) during their investigations. They give information on the water level of wells, and develop topographic maps of the water table. The survey is very near completion at this time. Mr. Mintz stated that he's been on the Restoration Advisory Board for two years now, and keeps being presented with surprises such as this survey. He stated his concern that all this money is going to other activities and not to actual cleanup, and that he doesn't understand why the community isn't involved with the decisions to complete some of this other work.

Bruce Campbell from the USGS provided an explanation of the groundwater model. The purpose of the groundwater model is to bring all the hydrogeologic information together. The USGS uses a computer code to combine aquifer properties to calculate groundwater level and direction of flow. It's a very complex, but useful tool that is successfully used in the environmental industry nation wide. Mr. Campbell's answer to the question "why go so far away from the base," is that the model requires real boundaries to the flow system which are the Cooper and Ashley Rivers and up past the Air Force Base where there is a groundwater divide (groundwater flows in opposite directions). You could take a relatively small area such as the Naval Base and do a small scale model on it, but it would not provide the same confidence factor as with using appropriate flow boundaries. Mr. Pinckney asked if E/A&H could do what USGS is doing. Mr. Hunt answered that the information E/A&H is gathering includes the amount of contaminants that are found at each monitoring well, not an estimate of what will find its way to the Cooper River. The USGS model, however, will tie in the properties of dispersion, invection, and the absorbative components of the aquifer to tell the Navy what concentrations of chemicals will made it to the sediments in Zone J, and further, to the receptors.

Mr. Mintz shared his concerns that the main purpose of the "fast-track" is to clean up the base and prepare it for civilian reuse, not to keep spending money on new models and work that will only be used in the future. Mr. Hunt agreed that the primary goal is to clean up and reuse the property, but said he believes this model will help to realize those goals in a faster and more efficient manner.

Mrs. Susan Floyd asked what zones the groundwater model will be used for. Mr. Hunt answered that it is currently being used for the placement of wells in the Work Plans that are now being developed. Mrs. Floyd announced her concern that tonight is the first time she has heard about this model, and it makes her question what else is going on out there associated with the investigation that she doesn't know about. For the record, she is uneasy that the Navy has been begging for money for cleanup, then $178,000 is spent on a groundwater model that "she can't eat."

Mr. Mintz inquired about who made the decision to have the model done. Mr. Hunt answered that it was approved by him and his supervisors, and was justified on the basis that it would be a useful tool in assessing the fate and transport for the remedial efforts.

Mr. Brian Stockmaster added that the model is a tool to help the Navy in cleanup efforts as well as in the investigation stage of the program. It aids the Navy in doing the remediation
by assessing not only where groundwater contamination is present, but what direction and how fast it is moving. Mr. Oliver Addison asked if groundwater contamination has been found in any of the wells to date. Mr. Hunt answered yes, and that the model will help to determine migration of that contamination. Mr. Stockmaster added that he expects the model to save money by not having to conduct pilot projects which help to assess if a particular method is feasible. Mr. Doyle Brittain added that E/A&H is collecting data for the RFI to determine if there is contamination on the base. Where E/A&H finds contamination, they are installing wells and moving away until they find the horizontal and vertical extent of contamination. They are doing all the groundwater work that needs to be done for cleanup to support the RFI.

In response to Mrs. Floyd's inquiry about the status of Zone J, Mr. Hunt said that Zone J has admittedly been dragged out for a long time. However, all parties are finally coming to agreement about what needs to be in the Work Plan. EPA has provided comments that Southern Division needs to evaluate. Mrs. Floyd stated that someone needs to take responsibility and make this happen. Mr. Hunt said that all parties seem to be in agreement that certain tests need to be run, but are not in agreement about what the data will be used for.

Mr. Brittain added that in the Zone J RFI Work Plan, what's being proposed for ecological risk assessment is good. Basically, what it does, is assess what effect contamination has on birds, plants, and animals. Mr. Brittain's concern is that of human health - people are eating fish from Noisette and Shipyard Creek and the Cooper River. Mr. Brittain wants to know what effects the contamination is having on the people who are eating the fish. At the same time, it must be recognized that the water in this area is tidally influenced, and as a result, some of the fish move with the tides - some don't. Mr. Brittain's concern for the RFI in Zone J is whether it is safe for humans to eat the fish, and if it is not safe, is it because of something that is coming from the Naval Base. He added that it is not an easy job to do. As far as determining how this contamination migrates, E/A&H is doing it in each Zone they investigate. The problems EPA and the State are having with the Zone J Work Plan is if the contamination is coming from the Landfill on the base, is it moving into Shipyard Creek or the Cooper River.

Mr. Mintz stated that the storm sewers have deposited all kinds of waste such as chemicals and radiation from all over the base to the Cooper River, Noisette Creek, and Shipyard Creek. Mr. Brittain agreed, but clarified that there is no radioactive contamination at the base, but other contamination may still be present. Another difficulty is that other industries are located along the waterways and very likely have contributed to the water quality.

Mr. Harbert, as co-chair, suggested that this issue can not be resolved at this time, and that the meeting proceed.

7. RDA Update

Mr. Jack Sprott, Executive Director of the Redevelopment Authority (RDA) provided an update on the Redevelopment Authority. April 1 marked the end of 95 years of the Navy presence at the Shipyard. The newspaper had a good story about the 25,000 workers who were employed in 1943, 10,000 in 1991, and now down to bare-bones. The article was positive about the RDA, and about the overall economy of the Charleston area. The RDA feels very positive about the part they've played, despite past criticism and problems. One of the first criticisms they endured was sending out a Request for Proposal (RFP) regarding leasing property. The RDA, however, felt that the RFP accomplished three things: 1) Made an announcement that the Navy Base was open for business. 2) Suggested that the Navy Base property is worth bidding for, and 3) set up a structure for evaluating bids. As a result, the RDA received 13 proposals. Next, they took the only step they could take, which was issuing interim 5-year leases on an as-is basis (as dictated by the Navy). The RDA has had more success with leasing than at any other closing military base in the country. The RDA, however, can't take credit for all the property that is being used. Some of the facilities and buildings are being used by other federal agencies.

Only offering 5 year interim leases is quite a handicap, but the RDA has done well despite that obstacle. Mr. Pinckney asked if CMMC is building ships, and Mr. Sprott responded that they are only repairing ships. Ships will not be built at that dry-dock; it's too small for the size of the new ships that are being built today.

Another area has been leased to a group out of Florida called Charleston Shipbuilders, Inc. That group will retrofit ships that they purchase from the Navy and put generating power plants in them. Babcock and Wilcox is a Fortune 500 company out of Virginia that took over the rapid access manufacturing parts (RAMP) facility. Many other groups such as the Border Patrol, NOAA, the Coast Guard, and NCCC are all occupying the facility.

Again, the RDA is operating under the handicap of a 5-year lease. Mr. Sprott asked what can be done to get beyond that. Even with all the leases the RDA has processed, the revenue generated is not going to be anywhere near what's needed to redevelop the Naval Base. It may take one hundred million dollars ($100,000,000) just to fix up infrastructure and get the base where it needs to be to accommodate industry. What the RDA will need is the approval of the Navy to get into long-term leases. The RDA feels that the Navy is close to being able to offer long-term or extended leases, which in turn could be passed on to current and future lessees making it more financially attractive.

The environmental cleanup is an important issue to the RDA. If they have property that someone wants to lease, and the Navy says it's not ready due to environmental issues, the RDA is going to come back and ask why not.

Mr. Conner asked if the City of North Charleston is providing services such as fire and security for the facility. Mr. Sprott answered that they are, through a cooperative agreement. The Navy pays for security and fire protection, and for maintenance of the grass, but are going through the RDA. This gives the RDA some say in what's going on and prepares them to do it alone. The cooperative agreement will probably last two or three years. The RDA also just signed a fire protection agreement with the City of North Charleston. The fire department needed a ladder truck to adequately service the base, and the City agreed to buy one under the cooperative agreement that the Navy would pay for it for the first two years. They will also pay for the extra personnel needed for those two years. After the two years are up, the RDA will go to its tenants and ask for a fee in lieu of taxes to pick up the slack.

Mr. Conner also asked about the Base fire alarm system. Ms. Jeri Johnson of the RDA responded that the base fire alarm system is no longer operative because the city of N. Charleston does not man a remote alarm system. Tenants that need that service will have to go through a private service.

Ms. Wannetta Mallette-Pratt asked what Mr. Sprott sees as the role of the RAB and the relationship between the RDA and RAB. Mr. Sprott answered that he sees the RAB as the conscience of the entire community who asks the right questions and exacts answers and accountability from the decision makers. His concern is that the job gets done right.

Ms. Pratt also asked Mr. Sprott how he sees the prioritization of cleanup; as a directive of the RAB or the RDA. Mr. Sprott answered that it's a Navy function to clean up the base, but the prioritization of areas for cleanup is a difficult call, he is not even sure how he would prioritize for reuse right now.

8. <u>RAB Membership</u>

Mr. Fontenot reported on the RAB membership committee meeting established as a result of last month's discussion regarding RAB membership. The committee met on March 19th and consisted of Don Harbert, Lou Mintz, Arthur Pinckney, Ann Ragan, Doyle Brittain, and Daryle Fontenot. The committee came up with recommendations and a proposed membership list, (attached to these minutes). The most important point was to try to maintain historical knowledge of the RAB by keeping as many current RAB members as possible, even if their positions change. Recommendations include:

- CDR Dalby to replace Capt. Augustin on the RAB.
- Ralph Laney remain on the RAB as a community member.
- Bob Veronee remain on the RAB as a representative of NICE East or as a community member.
- Bobby Dearhart remain on the RAB as a representative of CEERD.
- Wannetta Mallette-Pratt remain on the RAB as a community member.
- Councilwoman Gussie Green be added to the RAB as the representative of the City of N. Charleston replacing Ms. Pratt.

- Odell Price be added to the RAB as a community member replacing LCDR Nick Cimorelli.
- Ray Anderson be added to the RAB as a community member.
- Arthur Pinckney to come up with an additional community member to be on the RAB.

These changes would bring RAB membership from 22 to 25 members. The attached handout lists the names of the proposed RAB members.

Mr. Fontenot reported that he called every existing member and asked them if they wished to continue being a member of the RAB. Everyone responded that they are interested in continuing to serve on the RAB with the exception of Diane Duncan who has a conflict and is looking into scheduling alternatives or a replacement. Mrs. Floyd asked if the subcommittee discussed having members send a replacement when they planned on being absent. Mr. Fontenot replied that members are encouraged to attend as often as they can, and that a replacement policy has not been discussed. Mr. Fontenot asked if the RAB would like to accept these recommendations now, or think it over and decide at the next meeting. The RAB moved to accept the recommendations.

9. Feedback on the Business Opportunity Open House

Ms. Kim Reavis from the contracts department at Southern Division reported on the Business Opportunity Open House. On Tuesday April 2nd, SouthDiv, EnSafe/Allen & Hoshall, and Bechtel Environmental, Inc. joined forces and held a small business outreach at the North Charleston City Hall. There was a good turn out with approximately 40 people representing 30 or more businesses. Bechtel and E/A&H gave presentations explaining the type of work they've done, and what is upcoming that needs subcontractor support. Both companies took the names of all the businesses that attended and added them to their mailing list to announce any future projects. The event received a lot of good feedback, and even had two RAB members attend; Mr. Pinckney, and Mr. Fontenot.

Mr. Pinckney made a comment that the Small Business Outreach was generated by the initiation of the RAB in an attempt to get small and minority-owned businesses involved with subcontracting to keep the work within the local community.

10. Information on Business Expo Booth for RAB

Mr. Jim Beltz provided a follow-up from last month's meeting regarding a booth at the Business Exposition at the North Charleston Coliseum. Mr. Beltz reported that Southern Division would in fact be willing to provide a booth to support the Restoration Advisory Board, however, the bad news is that all the booths are sold out. Southern Division, however, will endeavor to reserve a spot for the next time the exposition comes around, and will be an advocate in supporting the RAB for other similar events that may help to get the RAB's message out. Another advance Southern Division is using to reach out to communities and share information is development of a Web Page on the Internet.

11. Remaining Questions and Comments

Joe Bowers from South Carolina Department of Health and Environmental Control made an announcement that he will no longer be assigned to the Charleston Shipyard, he'll be taking on some additional responsibilities and duties. He added that it has been a pleasure serving the RAB, and would like to take this opportunity to introduce his replacement, Paul Bergstrand. Mr. Bowers will be working closely with Mr. Bergstrand to make the transition as painless as possible. Mr. Bergstrand has experience working with the Myrtle Beach Air Force Base, so he is familiar with many of the same issues that are being dealt with at Naval Base Charleston.

Mr. Dearhart expressed that closing the Shipyard and the Naval Base was not an easy task. The Shipyard was a big industrial complex, and the Navy had to worry about completing the overhauls that were required, closing the buildings, completing the radiological surveys, completing paperwork, and maintaining the morale of the people who knew they would be out of a job after closure. One of the tasks most underestimated, however, was the environmental work. Since the Shipyard held all the environmental permits for the Naval Base, they were very concerned with maintaining compliance, and Mr. Dearhart was happy to say that the Navy did a pretty good job of it. However, it took the help of a lot of people. Doyle Brittain from EPA, and Ann Ragan and Joe Bowers from the SCDHEC have been working on this project since the very beginning. They have provided great assistance and guidance, while never forgetting their main purpose which is protecting human health and the environment. Because of this support, they Navy was able to close on time, under budget, and with great dignity. So, in appreciation, and on behalf of Naval SEA Systems Command, Admiral Porter, Captain Nold, Ralph Laney, and all the shipyard workers, Mr. Dearhart presented Mr. Brittain, Ms. Ragan, and Mr. Bowers with a Shipyard plaque.

12. Adjournment The meeting was adjourned at 8:10 p.m.

**Summary of Action Item**

- Fact Sheet #5 will be printed and distributed.
- RAB membership recommendations are accepted by RAB and will be in place for next meeting.

Attachments to Minutes
(1) Tuesday April 9, 1996 RAB Meeting Agenda
(2) RCRA Facility Investigation — Progress Report for March 1996
(3) RAB Membership Subcommittee Meeting Minutes

Minutes recorded by: Diane Cutler, EnSafe/Allen&Hoshall

Minutes approved by: _____ _____

Daryle Fontenot
Co-Chairman

Don Harbert
Co-Chairman

# EnSafe / Allen & Hoshall

a joint venture for professional services

*Program Management Office*
Shelby Oaks Plaza
5909 Shelby Oaks Dr.
Suite 201
Memphis, TN 38134
Phone (901) 383-9115
Fax (901) 383-1743

*EnSafe/Allen & Hoshall Branch Offices:*

**Charleston**
935 Houston Northcutt Blvd.
Suite 113
Mt. Pleasant, SC 29464
Phone (803) 884-0029
Fax (803) 856-0107

**Cincinnati**
400 TechneCenter Dr.
Suite 301
Milford, OH 45150
Phone (513) 248-8449
Fa 248-8447

**Pensacola**
2114 Airport Blvd.
Suite 1150
Pensacola, FL 32504
Phone (904) 479-4595
Fax (904) 479-9120

**Norfolk**
303 Butler Farm Road
Suite 113
Hampton, VA 23666
Phone (804) 766-9556
Fax (804) 766-9558

**Raleigh**
5540 Centerview Drive
Suite 205
Raleigh, NC 27606
Phone (919) 851-1886
Fax (919) 851-4043

**Nashville**
311 Plus Park Blvd.
Suite 130
Nashville, TN 37217
Phone (615) 399-8800
Fax (615) 399-7467

**Dallas**
1545 Fuller Drive
Sui
Plano, TX 75038
Phone (214) 791-3222
Fax (214) 791-0405

May 28, 1996

Naval Base Charleston
Caretaker Site Office
Attn: Daryle Fontenot
2155 Eagle Drive
N. Charleston, SC 29418

Subject: Restoration Advisory Board Meeting Minutes (5/14/96)
CLEAN Contract# N62467-89-D-0318 CTO# 2900

Dear Mr. Fontenot:

Please find enclosed a copy of the May 14, 1996 Restoration Advisory Board meeting minutes with all applicable attachments. Also enclosed is the original sign-in sheet, a diskette version with the file saved in both WordPerfect 5.1 and 6.1, and the audio tape of the meeting. The diskette has been scanned for viruses and none were detected.

Also enclosed in this package are the minutes from the Community Relations Subcommittee Meeting and the meeting announcement and news release for the upcoming June 11th meeting.

If you have any questions regarding the enclosed material, feel free to call me at (919) 851-1886.

Sincerely,

EnSafe/Allen&Hoshall
By: Diane Cutler

Diane Cutler

Enclosures

cc: Jim Beltz, NAVFAC- SouthDiv
Todd Haverkost, E/A&H
Contracts File

NAVAL BASE CHARLESTON
RESTORATION ADVISORY BOARD (RAB)
Minutes of 14 May 1996

1. Introduction of the RAB Members and Guests

Mr. Daryle Fontenot, Navy Co-chair, welcomed everyone to the RAB meeting. It is the first meeting since new members were invited to join. Mr. Odell Price, one of the new community representatives, is present. Other new members include Ms. Gussie Greene and Mr. Ray Anderson from the City of North Charleston, and Commander Phil Dalby from the Caretaker Site Office.

2. RAB Members Attending

Mr. Oliver Addison
Mr. Doyle Brittain
Mr. James Conner
Commander Phil Dalby
Mr. Bobby Dearhart
Mr. Daryle Fontenot
Mr. Wilburn Gilliard
Ms. Gussie Greene
Mr. Ralph Laney
Mr. Arthur Pinckney
Mr. Odell Price
Ms. Wannetta Mallette-Pratt
Mr. Joe Bowers for Ann Ragan
Mr. Bob Veronee

3. Guests Attending

| | |
|---|---|
| RADM W. L. Schachte, Jr. (Ret.) | Retired Navy |
| Mr. Tony Hunt | NAVFAC, SouthDiv |
| Mr. Brian Stockmaster | NAVFAC, SouthDiv |
| Ms. Pat Franklin | NAVFAC, SouthDiv |
| Ms. Kim Reavis | NAVFAC, SouthDiv |
| Mr. Wayne Cotton | NAVFAC, SouthDiv |
| Mr. Gabriel Magwood | NAVFAC, SouthDiv |
| Mr. Jim Moore | OSD |
| J.N.K. Tunstall | CNSY |
| Mr. Johnny Tapia | SCDHEC |
| Mr. Paul M. Bergstrand | SCDHEC |
| Ms. Martha Jane Proctor | Dorchester Road Regional Library |
| Mr. Wayne Nolin | Bldg. Inspection - City of N. Charleston |
| Mr. Mark White | National Civilian Community Corps |
| Ms. Jeri Johnson | RDA |
| Mrs. June M. Brittain | Concerned Citizen |
| M.W. Henderson | Concerned Citizen |
| Mr. Jack L. Stockmaster | Concerned Citizen |
| Mr. James Speakman | EnSafe/Allen&Hoshall |
| Ms. Diane Cutler | EnSafe/Allen&Hoshall |
| Mr. Todd Haverkost | EnSafe/Allen&Hoshall |
| Mr. Dave Backus | EnSafe/Allen&Hoshall |
| Mr. Larry Bowers | EnSafe/Allen&Hoshall |
| Mr. Peter McPheters | EnSafe/Allen&Hoshall |

4. Administrative Remarks and Comments on Minutes

No comments or corrections were made on last month's meeting minutes.

5. Subcommittee Reports

*Community Relations*
Mr. Fontenot reported that the Community Relations Subcommittee met prior to the RAB meeting. Members of that subcommittee include Mr. Fontenot, Mr. Lou Mintz, Mrs. Susan Floyd, Ms. Wannetta Pratt, and Mr. Arthur Pinckney. Today Mr. Fontenot, Mr. Pinckney, and Diane Cutler, the EnSafe/Allen&Hoshall community relations support person met. The first topic to report on is the location of the next RAB meeting. According to the schedule that was established a couple of months ago, meeting locations will be alternating between North Charleston and other locations in the area. Next month the meeting is scheduled for West Ashley. The tentative location is the Saint Andrews Regional Branch of the Charleston County Library. There were no objections from the RAB about the location, so arrangements will be confirmed.

The subcommittee completed a draft of Fact Sheet #6, Zone H - Environmental Investigation Results. A copy of this was provided to RAB members for comments with the April meeting minutes. Mr. Fontenot asked for any comments, written or verbal, to include in the final fact sheet. No comments or edits were provided. Mr. Fontenot announced since there were no comments, he will have the fact sheet printed and distributed. Copies of all the fact sheets are available at the RAB meetings, or can be obtained by calling Mr. Fontenot at the Base.

The subcommittee has also been discussing a series of "contaminant posters" which would explain what has been found at the Base. What the group decided on is a poster station that includes the following posters: 1) outline of the environmental investigation process, 2) contaminant categories, 3) brief description of risk assessment, and 4) for more information. Copies of actual results, such as the Zone H Results Fact Sheet, will be available along with handout-size copies of the posters.

An ongoing effort of the Community Relations Subcommittee is to better publicize the RAB meetings. The subcommittee proposes to create a letter from the RAB, stating what they do, and send it to local government officials. The letter can include a copy of the agenda and meeting announcements so the government representatives can get the word out to their constituents. The co-chairs, Mr. Fontenot and Mr. Don Harbert, will sign the letter and have all RAB member's names included. Mr. Fontenot asked if RAB members had any suggestions or questions about the proposed letter. No comments were made. Mr. Fontentot stated that he will proceed will creating the letter.

The Community Relations Subcommittee will be meeting next on June 11, 1996.

*Shipyard Detachment*
Mr. Bobby Dearhart provided a brief overview of the activities of the Shipyard Detachment since work started up on April 2nd. Mr. Dearhart began by giving special thanks to Mr. Odell Price and Mr. Ralph Laney for being instrumental in getting the Detachment to stand up. There are 172 Shipyard Detachment workers. To date they have pulled six tanks and are in the process of pulling 3 more. Fourteen additional tanks are being prepared for being pulled. They are also preparing to begin asbestos removal work on three buildings: 1171, which has a large amount of asbestos material on the walls; 32, which has asbestos dust on the side of the building; and 1143, which has asbestos tiles on the floor. Hopefully by the first week in June work will begin on those buildings.

The Detachment has completed Interim Measures for Area of Concern 690 and are working on two other sites. Within two weeks, they hope to begin three more. Detailed information on Interim Measures sites will be provided by Brian Stockmaster during his Interim Measures presentation later in the meeting. The Detachment will continue closing facilities, doing process closures, and processing investigation derived waste (IDW). The Detachment is also surveying EnSafe's sample locations, and doing ground water sampling. EnSafe is completing the initial round of ground water sampling, and the Detachment is doing subsequent quarterly monitoring. Overall, the Detachment is staying fairly busy.

Ms. Jeri Johnson of the RDA asked how much asbestos removal needs to be done in building 1143. Mr. Dearhart replied that all they have been authorized to do is remove the tiles, and to board up the crawl space to restrict access.

Mr. Pinckney asked if the Detachment was up to capacity as far as workers. Mr. Dearhart replied that they are up to their maximum (172) which is more than originally anticipated.

Mr. James Conner stated that he thought building 1143 was condemned, which was verified by Mr. Dearhart. Mr. Conner continued that it didn't make much sense to clean up a condemned building, and suggested that it may cost less to tear down the building than to clean up the asbestos. Mr. Dearhart replied that the asbestos needs to be removed before the building can be torn down. Mr. Conner also asked about building 32. Mr. Ralph Laney said that the asbestos in building 32 was from a spill, not from building materials.

*Finance*
Mr. Lou Mintz was not present to provide a Finance Subcommittee report.

6. RDA Update

Ms. Jeri Johnson provided the RDA update in Virgil Johnston's absence. There have not been many changes since Jack Sprott gave his update last month. The RDA is still executing leases at a rate of about one a month, and are currently up to 11. Ms. Johnson passed out a handout showing leasing status (attached to these minutes). She said that they are not having any problems leasing, that there are more people interested than they can accommodate in the available facilities. Ms. Johnston pointed out that DHEC Office of

Coastal Resource Management is taking the top floor of building 400 and the remaining middle floor. This will fill up building 400 with two revenue producing tenants, DHEC and the Postal Service.

Leases vary from 3000 to 500,000 square feet. As buildings become available, they are leased to existing tenants by amendment, so the numbers continue to grow. They still maintain a great deal of federal activities on Base, most of them at the south end of the facility. The magnet school looks like it will be a tenant although there are still some details to be worked out. The fuel farm and dry docks 3 and 4 will be added to CSI (Charleston Shipbuilding) in the next week or two. At that time, all dry docks and the entire Base fuel farm will be leased. Ms. Johnson presented color maps that show the property that has been leased.

The RDA had sent a proposal to the Economic Development Administration (EDA) for a $2 million grant to upgrade the utilities in the shipyard area. EDA has issued the RDA an invitation to apply which is as good as a final approval. The utilities include water, sewer, and storm water. The $2 million is desperately needed as there is a $32 million backlog for utility upgrade needs. The RDA has selected Davis&Floyd as the design agent for the $2 million upgrade. The RDA is also beginning to prepare a reuse plan for the Naval Station Annex which is a 42 acre parcel at the intersection of the interstate and Remount Rd. It was closed along with the main Base. The air force originally showed interest in the parcel but later decided against it so it has become the responsibility of the RDA.

The RDA is also awaiting proposals to do a business plan for the Base which is essentially an appraisal which will state the worth of the property for conveyance purposes. A record of decision (ROD) was signed last week. The ROD is the last step in the Environmental Impact Statement process that basically states that the Navy agrees to dispose of the Base in accordance with the reuse plan. The Navy has stated that it is comfortable with the leasing process and will now consider long-term leases. This is great news for the RDA as they have lost some major tenants due to leasing constraints.

Mr. Pinckney asked a question about an article he read in the paper and how it may pertain to the leasing process at the Base. For instance, if the Navy contaminated the base, and the property was transferred to the RDA, is the RDA stuck with having to clean it up or pay fines? Ms. Johnson said that she is not familiar with that legislation, but if there is a violation of an environmental permit, it is an issue to be addressed between DHEC and the permit holder, not the RDA. The article states "if a person or entity makes a voluntary disclosure of an environmental compliance violation of the state laws, the person or entity is immune from any administrative or civil penalty associated with the issue disclosed." Mr. Pinckney asked what affect this will have on the Naval Base property transfer. Mr. Joe Bowers from DHEC stated that this bill has not yet been passed and that it is too early to tell what affect it will have.

7. Environmental Cleanup Progress Report

*Record of Decision*
As Ms. Johnson touched on briefly, the Record of Decision has been signed. Mr. Fontenot has copies of a summary of the ROD (attached to these minutes), and can provide the actual ROD if anyone is interested.

*BRAC Business Plan*
The BRAC Cleanup Plan (BCP) is a document that outlines the environmental cleanup and how it will be executed. This document has to be updated every year. This year the revision was due and the Navy was given the option by the Department of Defense of revising the BCP or developing a business plan. The Business Plan is a 15 page document which outlines specific sites on the Base, and proposed actions for cleanup. This Business Plan has been completed and Mr. Fontenot has copies for all the RAB members.

*Progress Report for April*
Mr. Tony Hunt presented the RCRA Facility Investigation (RFI) Progress Report for April 1996 (handout is attached to these minutes). There are no changes in funding from last month, there are still five zones to negotiate. The second round of groundwater sampling has been completed by the Shipyard Detachment in Zones A and B which included 32 wells. Groundwater sampling continues in Zone E with 80% of 174 wells complete. EnSafe is doing the initial sampling and well development. The fourth and final quarter of groundwater sampling in Zone H was completed in mid April. As Mr. Dearhart said earlier, the Shipyard Detachment is providing surveying and investigation derived waste (IDW) management support services.

As far as Work Plans go, the draft Zone K RFI Work Plan was submitted for regulatory review on April 1. Revision 1 of the Final Comprehensive RFI Work Plan was resubmitted to the regulatory agencies on April 12; regulatory comments on the Zones C and I Work Plan revisions were resolved and resubmitted; and Zones D, F, G, J, K, and L Work Plans are in regulatory review.

The Navy has received the Zone H regulatory comments on the RFI which seem very encouraging. Zones B, C, and I RFI reports are still in regulatory review. Additional field work is being done at Zone A prior to preparation of the RFI report. Projected activity for May includes resolving regulatory comments on the Zone H RFI report, completing Zone E groundwater sampling, and continuing Interim Measures in all zones.

In summary, field activity is ongoing in Zones A and E and the Shipyard Detachment is providing investigation support and conducting Interim Measures. Mr. Hunt thanked EnSafe for providing the support to the Detachment. The Navy is very close to completion of the RFI in Zone H.

Mr. Pinckney read in the paper that Macalloy is contributing to the contamination in Shipyard Creek. Will the Navy and Macalloy work together to determine who is responsible

for what? Mr. Hunt responded that the Navy is trying to obtain the studies that have been done on Shipyard Creek by the Natural Resource Trustees and by EPA to see what data they have on contamination in sediment and tissue. The Navy's purpose for all this is to determine contamination that may have come from the Navy Base. The question was asked, has the Navy claimed any responsibility for the contamination of Shipyard Creek? Mr. Hunt stated that he can't answer that yet because they have not done all the studies needed to make that determination. Another question was put forward: What is the status of the Navy's investigation. Mr. Hunt answered that they're waiting on comments from the State Fish and Wildlife people before they can begin investigations.

Mr. Jim Moore asked if the issues brought up about Zone J at the last meeting have been resolved. Mr. Hunt said they're in the process of collecting information to resolve those comments. They have EPA's comments and are working on resolving those, but have not yet received the State's comments.

Mr. Laney asked at what point will the RAB give input to the Corrective Measures Study. Mr. Hunt said that cleanup alternatives will be reviewed, then the State will provide a 45 day comment period for the public and any other interested parties to comment on the alternatives. Mr. Bowers added that the RAB's input is welcome at any time, and is not just limited to the comment period.

Mr. Dearhart stated that the Caretaker Site office got a request in for a permit modification. In order to start a Corrective Measure Study, you must get a permit modification. Mr. Dearhart asked if the permit modification process and the Corrective Measures Study (CMS) were going to run concurrently so as not to delay the CMS. Mr. Hunt stated that as far as the CMS, the Navy will begin the process voluntarily as soon as the RFI reports are finalized and approved. As far as the permit, it is required, but Mr. Bowers of DHEC is unsure of when the modification process will begin.

*Chicora Tank Farm*

Mr. Wayne Cotton of Southern Division provided an update of the Chicora Tank Farm (handouts are attached to these minutes). The Chicora Tank Farm is located about a half mile west of the Naval Base. The site consists of five 50,000 gallon concrete cut and cover tanks (138 feet in diameter by 20 feet high), one 27,000 gallon concrete cut and cover tank (102 feet in diameter, by 20 feet high), one 5,000 gallon above ground storage tank, and one 3,200 gallon concrete Underground Storage Tank. There is interconnecting fuel piping between the two tank farms that stretch over about a half mile. There is an old steam plant and 2 small structures housing electrical transformers on site. There are also some power poles on site and the tank farm is enclosed by an 8-foot high chain link fence topped with barbed wire. The site has been classified as clean from a groundwater and soil standpoint. The Navy's proposed course of action is to essentially deactivate the fuel farm by cleaning the interior of tanks and pipelines, securing and sealing tank openings, filling cut and cover tanks and pipelines with inert material, and removing the smaller tanks (5,000 and 3,200 gallon). Buildings, fencing, light and power poles will remain, and the site will look the same as it does today which includes 6 large mounds over the tanks.

Mr. Conner asked for verification that the area was declared clean by DHEC because he's seen that area floating in oil on a number of occasions. Mr. Fontenot responded that the Tank Farm underwent a year-long quarterly monitoring program and results came back clean. Sampling has also been done in the retention pond and didn't show any problems. Mr. Oliver Addison said he thought at one time the Navy had considered cutting the large tanks down. Mr. Cotton responded that they had but have reconsidered because of cost and because it would be a violation of solid waste regulations. Mr. Conner asked if all the tanks had been found to leak at one time or another, to which Mr. Dearhart responded that the french drains have never shown any evidence of leakage. The tanks are all empty now with the exception of the 27,000 gallon tank that has about 2 feet of sludge in it.

A discussion ensued about leaving the tanks in place vs. removing them, imploding them, etc. It was reiterated that the reasons for not demolishing them were cost and potential violation of solid waste regulations, and outright removing them would be cost prohibitive. Ms. Johnson inquired if the community was factored into the decision to not remove the tanks, because the proposed action of leaving the tanks in place will leave an eyesore and unusable land that could otherwise be put to good use. In the long run it may be more cost effective to have reusable property for the community. Cleanup of Chicora Tank Farm was established before BRAC funding was put in place, so the cleanup is not funded under BRAC. Mr. Conner stated for the record that he doesn't think that just filling the tanks in is the best option and that another alternative should be looked into. Mr. Bob Veronee added that the Chicora Fuel Farm property was excessed prior to BRAC. It was not offered to the community, but was offered within DoD.

Ms. Johnson asked what inert material will be used to fill the tanks. Inert material is stable material that will not break down, such as sand. The specific material that the Navy will use to fill the tanks is still unknown. Ms. Johnson also asked how much it will cost to implode the tanks. Mr. Cotton said he can not give that information, but that it will be over 60 percent more expensive to implode than to fill.

Captain Jim Augustin recapped by saying that the Navy has a responsibility to turn over property in an environmentally acceptable state, and although they would like to turn over property in even better condition that it is in today, it is not always financially feasible as funding isn't always available. Ms. Johnson said that the RDA will probably include the cost of restoring the Chicora Tank Farm during their base-wide appraisal which will be reflected as a negative balance on the total conveyance cost of the Navy property.

A guest asked that if roads and infrastructure were damaged during the cleanup process, would the Navy pay for repair. Mr. Cotton answered yes. Ms. Johnson asked how packed pipes will be guaranteed not to leak inert material if damaged in the future. The pipelines themselves will have a slurry in them, not sand.

*Interim Measures*

Mr. Brian Stockmaster provided an update on the status of Interim Measures (IMs) (handout materials are attached to these minutes). Mr. Stockmaster stated that the reason he is

presenting this information is to inform the RAB and provide them with the opportunity to comment on any of the proposed actions. Currently, IMs have been completed on Area of Concern 690 which entailed picking up debris along Perimeter Road on the south end of the base. Two other sites are currently being worked on: Solid Waste Management Unit (SWMU) 44 which is approximately 40% complete, and SWMU 54 which is approximately 50% complete. As a recap, an IM is a mechanism to address site cleanup early in the RCRA process to remove source contaminants and prevent further migration or threat to the environment. A summary of Mr. Stockmaster's material is provided below. For more detailed information, see attached handouts.

| Site | Proposed Action |
|---|---|
| AOC 503 | Search area for UXO. If found, remove ordnance. |
| AOC 605 | Remove contaminants associated with paint spill. |
| AOC 621 | Remove lead and acid residue remaining at site. |
| AOC 626 | Remove petroleum saturated soils and install collection system. |
| AOC 670 | Remove lead contaminated soils. |
| AOC 684 | Remove lead contaminated soils. |
| SWMU 5 | Remediate the site of constituents. |
| SWMU 7 | Remove PCB contaminated soil and concrete pad. |
| SWMU 8 | Excavate and remove remaining sludge and impacted soils. |
| SWMU 14 | Remove subsurface materials such as chemical containers. |
| SWMU 25 | Remove contamination from internal surface of building. |
| SWMU 38 | Clean up pesticide contaminated soils. |
| SWMU 42 | Excavate and dispose of lead contaminated soils. |
| SWMU 83 | Clean up lead, solvents, and PCB contamination. |
| SWMU 109 | Remove abrasive blast material. |
| SWMU 178 | Remove soils contaminated with transformer oil. |

Mr. Pinckney asked if it could be arranged for interested RAB members to visit the IM sites. Mr. Fontenot will check into arranging something for the RAB members.

8. Remaining Questions and Comments

Mr. Fontenot asked the audience how many people were community representatives. Four people raised their hands. He thanked them for coming and asked if they had any questions. He also announced that he felt it was necessary to revisit the purpose of the RAB, especially

**in light of the new members on board. As a result, he prepared some handouts for the RAB members that discuss goals and responsibilities. All RAB members should pick up this material at the end of the meeting.**

**8. Adjournment The meeting was adjourned at 8:00 p.m.**

**Summary of Action Item**

- Fact Sheet #6 will be printed and distributed.
- Prepare letter about RAB for local government officials.
- Revisit alternatives in closing Chicora Tank Farm.
- Look into arrangements for a RAB member visit to Interim Measures Sites.

**Attachments to Minutes**
**(1) Tuesday May 14, 1996 RAB Meeting Agenda**
**(2) Charleston naval Complex Tenant Summary**
**(3) News Release - Record of Decision**
**(4) RCRA Facility Investigation – Progress Report for April 1996**
**(5) Chicora Farm Update and Maps**
**(6) Interim Measures**

**Minutes recorded by: Diane Cutler, EnSafe/Allen&Hoshall**

**Minutes approved by:** _____ _____

**Daryle Fontenot** **Don Harbert**
**Co-Chairman** **Co-Chairman**

**Tuesday, May 14, 1996**

**Charleston Naval Base**

**RESTORATION ADVISORY BOARD MEETING AGENDA**

5:30 P.M. Location: Dorchester Road Regional Branch of the Charleston County Library, 6325 Dorchester Road, North Charleston SC

RAB Members, BRAC Cleanup Team, and interested citizens informally talk about what's going on from 5:30 p.m. to 6:30 p.m.

**6:30 P.M. RAB MEETING**

A. Introduction of the RAB Members and Guests

B. Administrative Remarks, comments on the minutes of the last meeting

C. Subcommittee Reports

Community Relations
Shipyard Detachment
Finance

D. RDA Update

E. Environmental Cleanup Progress Report — Cleanup Team

BRAC Business Plan
Status of the Environmental Programs
Interim Measures
Chicora Tank Farm Demolition

F. Remaining Questions and Comments from Visitors

G. Agenda for next meeting.

Please mark for calendar. Our next meeting is **Tuesday, June 11, 1996**. Time and location to be determined.

CHAR STON NAVAL COMPLEX TENAN UMMARY DATA AS /14/96

| | CURRENT FACILITIES/EMPLOYMENT | | | | | | ULTIMATE FACILITIES/EMPLOYMENT | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DRY DOCKS | PIERS | NON-BLDGS | BUILD-INGS | BUILDING SQ. FT. | EMPLOY-EES | DRY DOCKS | PIERS | NON-BLDGS | BUILD-INGS | BUILDING SQ. FT. | EMPLOY-EES |
| **CURRENT LEASES/LICENSES** | | | | | | | | | | | | |
| ALLIED TECHNOLOGY | 0 | 0 | 0 | 1 | 8,553 | 10 | 0 | 0 | 0 | 1 | 8,553 | 100 |
| BABCOCK & WILCOX | 0 | 0 | 0 | 2 | 175,992 | 17 | 0 | 0 | 0 | 3 | 208,930 | 225 |
| CHARLESTON COUNTY PRC | 0 | 2 | 0 | 2 | 6,087 | 4 | 0 | 3 | 6 | 7 | 12,670 | 6 |
| CHARLESTON GRIP & ELECTRIC | 0 | 0 | 0 | 1 | 12,480 | 12 | 0 | 0 | 0 | 1 | 12,480 | 25 |
| CHARLESTON MARINE MANUF. CORP | 3 | 2 | 4 | 31 | 608,768 | 250 | 3 | 5 | 23 | 69 | 1,186,085 | 2,404 |
| CHARLESTON SHIPBUILDING, INC. | 0 | 1 | 0 | 4 | 56,002 | 4 | 2 | 6 | 22 | 61 | 549,359 | 2,000 |
| FOX ASSOCIATES | 0 | 0 | 0 | 1 | 4,040 | 15 | 0 | 0 | 0 | 1 | 4,040 | 15 |
| M. ROSENBLATT | 0 | 0 | 0 | 1 | 2,880 | 25 | 0 | 0 | 0 | 1 | 2,880 | 25 |
| RDA STAFF/CARETAKER CONTRACTORS | 0 | 0 | 0 | 2 | 42,471 | 17 | 0 | 0 | 0 | 1 | 8,205 | 17 |
| SC FEDERAL CREDIT UNION | 0 | 0 | 0 | 2 | 16,180 | 12 | 0 | 0 | 0 | 2 | 16,180 | 12 |
| U.S. POSTAL SERVICE | 0 | 0 | 0 | 1 | 17,782 | 320 | 0 | 0 | 0 | 1 | 17,782 | 400 |
| SUBTOTAL | 3 | 5 | 4 | 48 | 951,235 | 686 | 5 | 14 | 51 | 148 | 2,027,164 | 5,229 |
| **UNDER NEGOTIATION** | | | | | | | | | | | | |
| CHARLESTON COUNTY SCHOOL DISTRICT | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 0 | 2 | 73,403 | 25 |
| COMMISSIONER OF PUBLIC WORKS | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 0 | 6 | 104,999 | 200 |
| DEPT OF HEALTH & ENV. CONTROL | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 0 | 1 | 16,182 | 54 |
| MCKINNEY ACT TASK FORCE (8 AGENCIES) | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 2 | 22 | 161,513 | 200 |
| NORTH CHARLESTON | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 1 | 13 | 39 | 174,786 | 34 |
| SC EMPLOYMENT SECURITY COMMISSION | 0 | 0 | 0 | 1 | 41,196 | 56 | 0 | 0 | 0 | 2 | 42,278 | 56 |
| SPRINGS TAILORING & DRY CLEANING | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 0 | 1 | 1,089 | 7 |
| SUBTOTAL | 0 | 0 | 0 | 1 | 41,196 | 56 | 0 | 1 | 15 | 73 | 574,250 | 576 |
| **FEDERAL ACTIVITIES** | | | | | | | | | | | | |
| BORDER PATROL | 0 | 0 | 9 | 15 | 417,881 | 68 | 0 | 0 | 9 | 15 | 417,881 | 68 |
| CARETAKER SITE OFFICE/COMNAVBASE | 0 | 0 | 0 | 13 | 125,366 | 21 | 0 | 0 | 0 | 13 | 125,366 | 21 |
| DEFENSE FINANCE & ACCOUNTING | 0 | 0 | 3 | 6 | 373,666 | 525 | 0 | 0 | 3 | 5 | 232,518 | 750 |
| DEF INFO PROCESSING CENTER (B/198A) | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 6 |
| DEFENSE PRINTING | 0 | 0 | 0 | 1 | 26,520 | 37 | 0 | 0 | 0 | 1 | 26,520 | 37 |
| ENVIRONMENTAL DETACHMENT | 0 | 0 | 0 | 7 | 184,274 | 160 | 0 | 0 | 0 | 0 | 0 | 0 |
| MAGNETIC SILENCING FACILITY (PIER Y) | 0 | 1 | 4 | 4 | 6,396 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| MARINE RESERVE (NAVSTA ANNEX) | 0 | 0 | 0 | 6 | 25,056 | 54 | 0 | 0 | 0 | 6 | 25,056 | 54 |
| NATL CIVILIAN COMMUNITY CORPS | 0 | 0 | 6 | 14 | 141,489 | 75 | 0 | 0 | 6 | 14 | 141,489 | 75 |
| NATL OCEANIC & ATMOSPHERIC ADMIN | 0 | 1 | 0 | 5 | 47,340 | 15 | 0 | 2 | 1 | 6 | 47,852 | 25 |
| NISE EAST | 0 | 0 | 2 | 18 | 362,761 | 250 | 0 | 0 | 2 | 18 | 362,761 | 250 |
| STATE DEPARTMENT | 0 | 0 | 2 | 5 | 197,750 | 76 | 0 | 0 | 2 | 5 | 197,750 | 400 |
| U.S. COAST GUARD | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 1 | 3 | 6 | 76,034 | 402 |
| SUBTOTAL | 0 | 2 | 26 | 94 | 1,908,499 | 1,292 | 0 | 3 | 26 | 89 | 1,653,227 | 2,088 |
| **GRAND TOTAL** | 3 | 7 | 30 | 143 | 2,900,930 | 2,034 | 5 | 18 | 92 | 310 | 4,254,641 | 7,893 |

NEWS RELEASE
OFFICE OF ASSISTANT SECRETARY OF DEFENSE
(PUBLIC AFFAIRS)
WASHINGTON, D.C. 20301
PLEASE NOTE DATE

No. 261-96
(703)697-5131(media)
(703)697-3189(copies)
(703)697-5737(public/industry)

IMMEDIATE RELEASE May 7, 1996

# NAVY ISSUES ENVIRONMENTAL RECORD OF DECISION FOR REUSE OF CHARLESTON NAVAL BASE

The Department of the Navy will issue the Record of Decision (ROD) on the transfer and reuse of the Charleston Naval Base in North Charleston, South Carolina. On behalf of Secretary of the Navy John H. Dalton, Deputy Assistant Secretary of the Navy William J. Cassidy, Jr. will present the environmental document to Mr. James C. Bryan, Chairman of the Charleston Naval Complex Redevelopment Authority in a ceremony at the United States Capitol, Room S-237 at 12:30 p.m. today.

The Record of Decision is the final step in the environmental evaluation process established by the National Environmental Policy Act of 1969 (NEPA). NEPA requires Federal agencies such as the Department of the Navy to consider the impact that major federal actions, such as transfer of the Naval Base property, may have on the environment.

The ROD is the Navy's decision to dispose and transfer the Charleston Naval Base property in a manner that is consistent with the reuse plan proposed by the Charleston Naval Complex Redevelopment Authority (RDA), and is in keeping with the Department of Defense's community-based reuse objectives. The Department of the Navy has concluded that the RDA's proposed redevelopment of the base property responds to local economic conditions, promotes rapid economic recovery, and is consistent with President's Five-Part Plan for revitalizing base closure communities. The Record of Decision is an environmental document. It does not convey the Naval Base property. Conveyance, or transfer of title, of the Naval Base property is a separate matter that will be undertaken later in discussions between the Department of the Navy and the local RDA.

The Charleston Naval Base Record of Decision represents the highly successful coordinated efforts of the Charleston Naval Complex Redevelopment Authority and the Navy. It is a significant step in the base closure process in that it allows the local communities to begin long term redevelopment and highlights the Department of the Navy's commitment to economic prosperity at closure sites.

-END-

INTERNET AVAILABILITY: This document is available on DefenseLINK, a World Wide Web Server on the Internet, at: http://www.dtic.dla.mil/defenselink/

**Fact Sheet**
**07 May 1996**

# RECORD OF DECISION FOR REUSE OF CHARLESTON NAVAL BASE, SOUTH CAROLINA

The Record of Decision (ROD) concerns the transfer and reuse of the former Charleston Naval Base in South Carolina. In this Record of Decision, the Department of the Navy sets forth its decision to dispose of the Charleston Naval Base property in a manner consistent with the high-density redevelopment plan proposed by the State selected local redevelopment authority, known as the Charleston Naval Complex Redevelopment Authority (RDA).

The Record of Decision is an environmental document. It does not convey the Naval Base property. Conveyance, or transfer of title, of the Naval Base property is a separate matter that will be undertaken later in discussions between the Department of the Navy and the local RDA.

The 1993 Defense Base Closure and Realignment Commission recommended closure of the Charleston Naval Station and Naval Shipyard complex. The Naval Station and Naval Shipyard observed operational closure on April 1, 1996. Currently, the property is being maintained and protected by the Naval Facilities Engineering Command Southern Division, headquartered in Charleston, South Carolina.

Now that the Record of Decision has been issued, the Department of the Navy may enter into leases in furtherance of conveyance of the property. These leases are for a longer term than the five-year interim leases that the Navy entered into with the RDA before the ROD was issued. Additionally, the RDA may now use buildings and property on the former base for activities different from those previously conducted by the Navy, as long as the activity is consistent with the Record of Decision.

The Record of Decision is the final step in the environmental evaluation process established by the National Environmental Policy Act of 1969 (NEPA). NEPA requires Federal agencies such as the Department of the Navy to consider the impact that major federal actions, such as transfer of the Naval Base property, may have on the environment.

The Charleston Naval Base covers 1,575 acres of land and is composed of the Naval Station which covers 842 acres, the Naval Shipyard which covers 505 acres, the Fleet and Industrial Supply Center which covers 194 acres, the Fleet and Mine Warfare Training Center which covers 10 acres, and the Chicora Tank Farm which covers 24 acres. These properties are known collectively as the Naval Base and are located entirely within the City of North Charleston.

In support of the NEPA process, the Department of the Navy held four public scoping meetings to discuss disposal and reuse of the land, buildings and infrastructure at the Base. Two meetings were held in the City of North Charleston on May 11, 1994, and meetings were also held in Goose Creek and Summerville on May 12, 1994.

On October 21, 1994, the Department of the Navy distributed a Draft Environmental Impact Statement (EIS) and held public hearings on the Draft EIS at the Chicora Community Center on November 28, 1994, and at City Hall in North Charleston on November 29, 1994. Federal agencies, South Carolina state agencies, local governments, and the general public submitted comments on the Draft EIS. These comments and Navy's responses were incorporated in the Final Environmental Impact Statement, which was distributed to the public for a review period that concluded on July 24, 1995. Public comments on the Final EIS were considered before preparation of the Record Of Decision.

As the basis for its NEPA analysis of the environmental impacts arising out of transfer and reuse of the Naval Base property, the Department of the Navy initially relied upon the proposed reuse plan developed in 1994 by the Trident's BEST (Building Economic Solutions Together) Committee, the first local redevelopment authority established by the Governor of South Carolina in 1993 and composed of representatives from Berkeley, Charleston, and Dorchester Counties. In 1994, the BEST Committee's successor, the Charleston Naval Complex Redevelopment Authority, known as the RDA, was created to oversee the reuse and transfer of the Naval Base property.

In the Final Environmental Impact Statement, Navy analyzed three Alternative Reuse Scenario's that had been proposed as possible reuse plans for the Naval Base. Scenario 1 proposed a mixed use of the property with minimal infrastructure improvements and reflected a 500 acre scenario developed by the BEST Committee. Scenario 2 proposed a more intensive mixed use with an emphasis on attracting tourism and reflected a 1000 acre scenario developed by the BEST Committee. Scenario 3 proposed the most intensive redevelopment and reflected the BEST Committee's 1500 acre scenario and the RDA's adoption of that plan with two variations. The three proposals within Alternative Reuse Scenario 3 were known as Development Concepts 3, 3A and 3B.

In mid-1995, the Charleston Naval Complex Redevelopment Authority endorsed high density redevelopment of the entire 1500 acre Naval Base property, with the two variations from the BEST Committee's proposed reuse plan. Designated as Alternative Reuse Scenario 3 in the Final Environmental Impact Statement, this high density redevelopment advanced Development Concepts 3, 3A and 3B as three possible approaches to reuse of the Naval Base.

Development Concept 3, the plan developed by the BEST Committee, provided areas for civic and community use and proposed five major employment centers: an office district, a shipyard district, a marine or maritime industrial district, an intermodal cargo facility, and an industrial park related to the intermodal facility.

Concept 3A proposed the same major employment centers but changed the locations of the intermodal cargo terminal, the related railroad yard, and the maritime industrial district to take account of the environmental remediation planned for two sites on the Naval Station. Concept 3B proposed the use and expansion of existing Naval Shipyard and Naval Station facilities to develop an extensive maritime industrial district as well as an office district, a cultural park district, a community support district, and areas for open space and recreation. Under Concept 3B, however, the intermodal cargo facility would not be built.

The Department of the Navy has determined in the Record of Decision that Alternative Reuse Scenario 3 with its three Development Concepts presents the highest and best use of the Charleston Naval Base property. The ROD does not mandate selection of any one Development Concept. Rather, it leaves selection of the particular means to achieve high density redevelopment to the entity that acquires the Naval Base property and the local zoning authority.

The Department of the Navy has concluded in the Record of Decision that the RDA's proposed high density redevelopment of the entire Base responds to local economic conditions, promotes rapid economic recovery from the impact of base closure, and is consistent with President Clinton's Five-Part Plan for revitalizing base closure communities, which emphasizes local economic redevelopment of the closed military facility and creation of jobs as the means to revitalize these communities. The Department of the Navy believes that the environmental impacts arising out of the proposed redevelopment can be mitigated by the entity that acquires the Naval Base property, under the direction of Federal, State and local regulatory authorities.

The Department of the Navy looks forward to continuing its long, historic and close relationship with the Low Country through the outstanding officers, sailors and civilians assigned to the Naval Weapons Station and the Naval In-Service Engineering-East (NISE EAST) activities located just north of the Naval Base, the Naval Facilities Engineering Command's Southern Division in Charleston, and, soon, the Naval Nuclear Power School.

-END-

**Naval Base Charleston**
**RCRA Facility Investigation (RFI)**
**PROGRESS REPORT FOR APRIL 1996**
**RAB MEETING**
**14 May 96**

## INVESTIGATIVE ZONES

Zones:
- A. Warehousing and scrap metal yard
- B. Golf course and residential
- C. Office space and warehouse (NH-45, Navbase HQ)
- D. Parking lot, warehouses
- E. Shipyard
- F. Recreational areas and public works shops
- G. Fuel farm and transfer facility
- H. Southern end of the base excluding waterfront
- I. Southern end of the base including waterfront and dredge material area
- J. Ecological study area (waterbodies and certain areas on land)
- K. Non-contiguous areas
- L. Sewer systems and railroad system

## FUNDING

- Funding status
  Zones being negotiated: D, F, G, J, L

## PROGRESS FOR APRIL

Field Work

- Second quarter of groundwater sampling in Zones A and B was initiated on 22 April and completed on 26 April 1996 (32 wells, Detachment performed sampling).

- Groundwater sampling continued in Zone E. As of 1 May, 80% of the 174 wells had been sampled (Ensafe performing the well development and initial sampling).

- The fourth quarter of groundwater sampling in Zone H completed on 17 April 1996. This completes the final round of groundwater sampling under the Zone H RFI Work Plan scope.

- The Shipyard Detachment is providing surveying and IDW management support services.

Work Plans

- The Draft Zone K RFI work plan was submitted for regulatory review on 1 April 1996.
- Revision 01 of the Final Comprehensive RFI Work Plan with response to comments was resubmitted to the regulatory agencies on 12 April 1996.
- Regulatory comments on the Zone C and I work plan revisions were resolved and resubmitted.
- Zone D, F, G, J, K, and L work plans are in regulatory review.

Reports

- Zone H comments have been received. Major problem areas appear to be in the presentation of the results.
- Zone B, C and I reports are in regulatory review.
- Zone A report preparation will begin after completion of additional field work.

PROJECTED ACTIVITY FOR MAY

- Resolve regulatory comments on Zone H work plan.
- Complete Zone E groundwater sampling.
- Continue Interim Measures in all zones.

SUMMARY

- Field activity in two zones (A and E)
- Shipyard Detachment providing investigation support and conducting Interim Measures
- Close to completion of the RFI in Zone H, Corrective Measues Studies can begin for those sites which require further study, remaining property will be eligible for transfer.

# CHICORA TANK FARM UPDATE

## Restoration Advisory Board Meeting

**Date: 14 May 1996**

**Location: Dorchester Road Regional Branch Library**
**Charleston, SC**

**A. Tank Farm Location**

**B. Tanks**

- **(5) 50,000 barrel concrete cut-and-cover tanks**
- **(1) 27,000 barrel concrete cut-and-cover tank**
- **(1) 5,000 gallon AST (slop tank)**
- **(1) 3,200 gallon concrete UST (fuel storage tank for old boiler)**

**C. Fuel Piping**

- **18" Fuel Transfer Pipeline**
- **12" Sludge Transfer Line**
- **Routed from Chicora to the Navy Base**

**D. Buildings**

- **Old Steam Plant**
- **(2) small structures housing electric transformers**

**E. Electrical**

- **Light and power poles are located within the fence around the site perimeter**

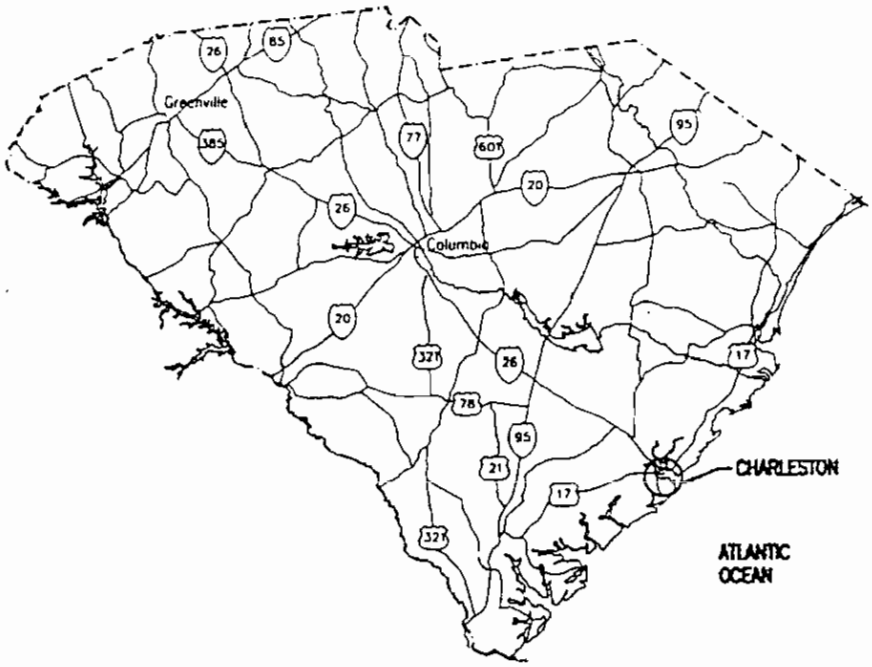
**F. Fencing**

- **Tank farm enclosed by an 8-foot high chain link fence topped with barbed wire**

G. Planned Action

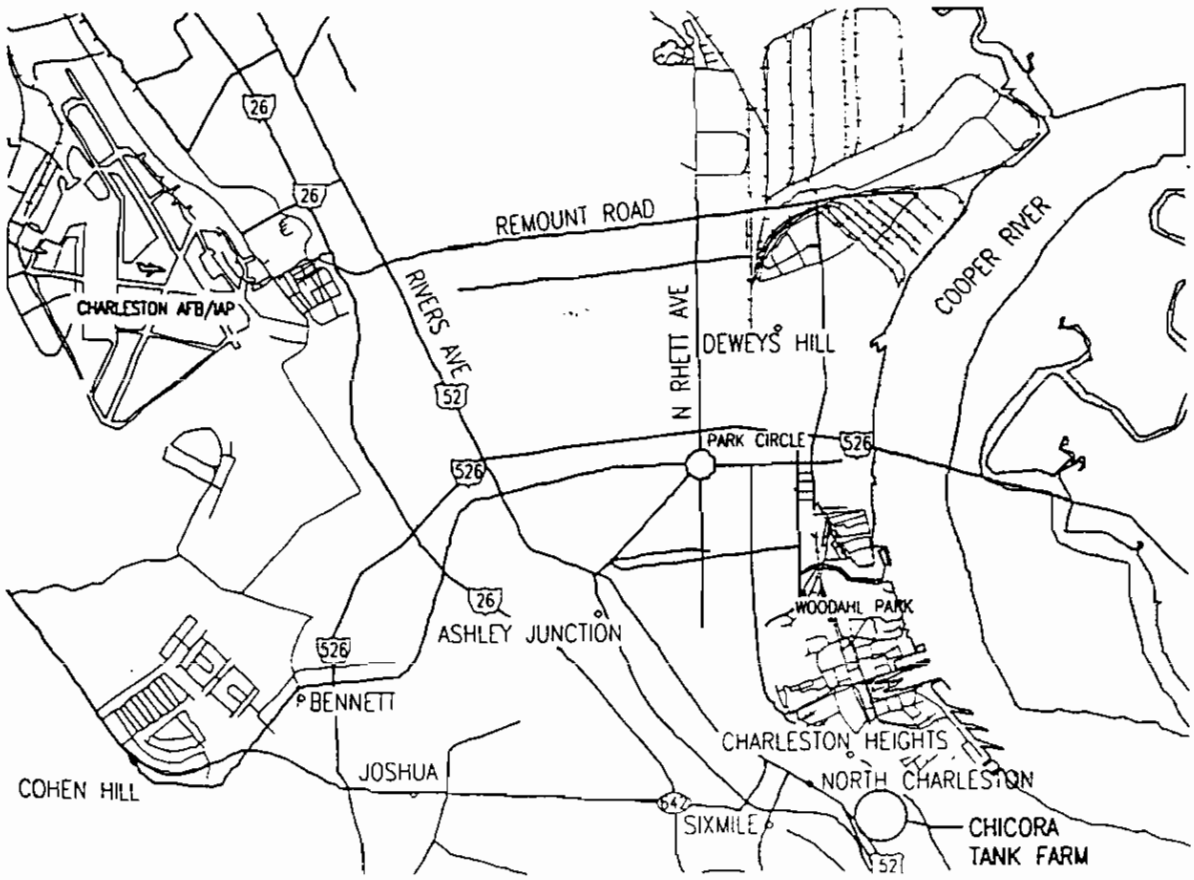
-Deactivation of tank farm
-Clean interior of tanks and pipelines
-Secure and seal tank openings
-Fill cut-and-cover tanks and pipelines with inert material
-Remove 5,000 gallon and 3,200 gallon tanks
-Buildings, fencing, light and power poles will remain
-Site will look the same as it does today

# FLEET INDUSTRIAI
# CHARLESTON, S




SOUTH CAROLINA

SCALE: NOT TO SCALE




VICINITY PLAN

SCALE 1" = 1 MILE

SUPPORT CENTER
OUTH CAROLINA

LOCATION PLAN

SCALE: NOT TO SCALE

| REV. | DESCRIPTION | PREP BY | DATE | APPRVD |
|---|---|---|---|---|
| | | | | |

ENTERPRISE ENGINEERING, INC. ANCHORAGE, AK

TAKWOUTH, WE

DSGN ELAKE DR ELAKE CK DR

SUPV CK DNCR

SUBM BY DATE:

DC BR PD

ITL DR

DEPARTMENT OF THE NAVY

SOUTHERN DIVISION
CHARLESTON, S.C.

NAVAL FACILITIES ENGINEERING COMMAND

FLEET INDUSTRIAL SUPPORT CENTER

CHARLESTON, SOUTH CAROLINA

DEMOLISH CHICORA TANK FARM

COVER SHEET

RECORD DRAWING DATE

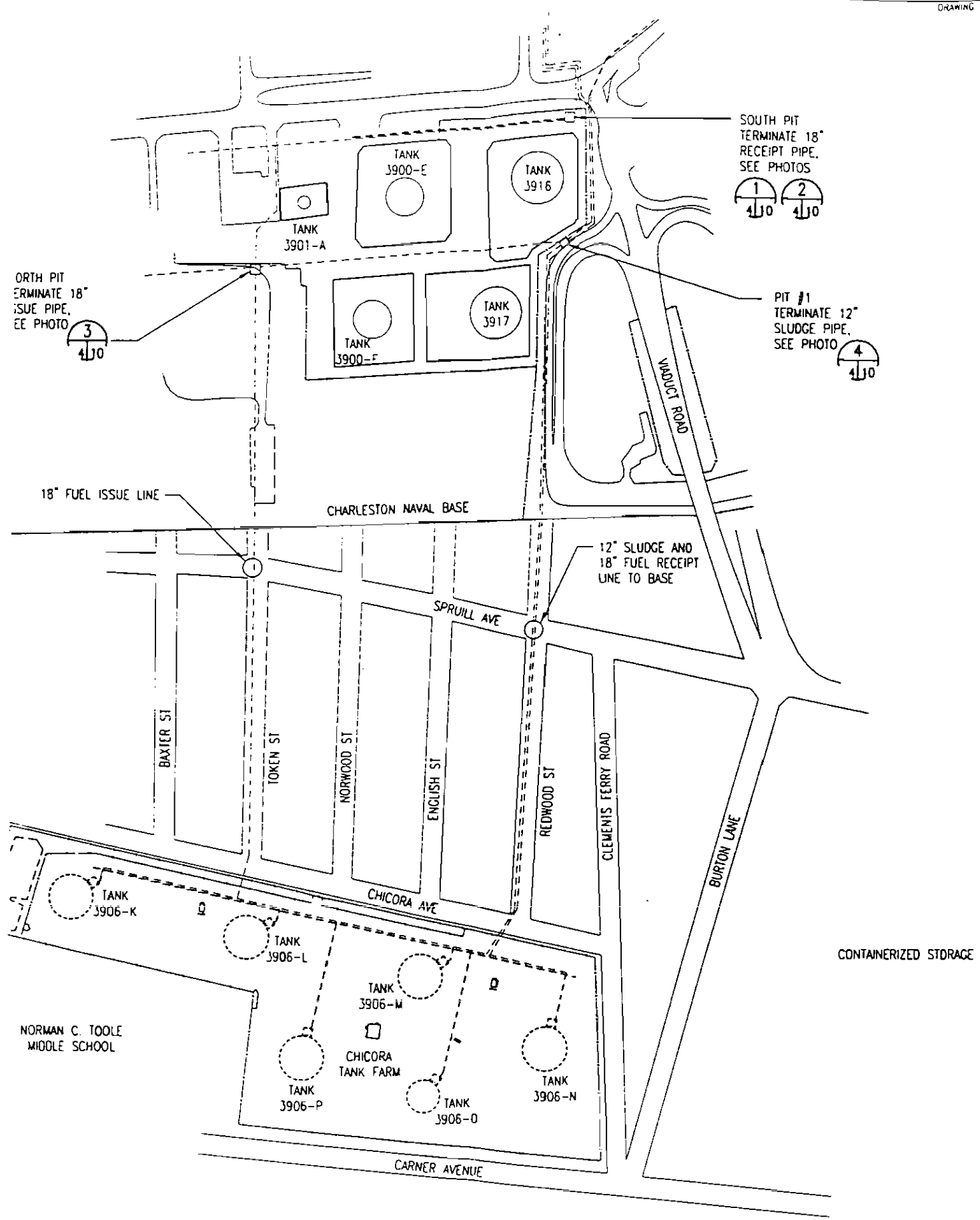
CODE ID. NO. 80091

DRAWING SIZE:

CONSTRC CONTL

NAVFAC DRAWING NO.

SHEET 1 OF 11




## ISSUE/RECEIPT PIPING

SCALE: 1"=200'-0"

# *Interim Measure*

A mechanism to address site clean up early in the RCRA process to remove source contaminates and prevent further migration or threat to the environment

# *Contacts*

This presentation presents an initial list of candidate interim measures sites for considerations. Please provide comments concerning the proposed sites and actions to Mr. Brian Stockmaster @ (803) 820-7481 or Mr. Tony Hunt @ (803) 820-5525.

# *Interim Measure Objective*

- Removal of source media and prevent further migration of source contaminant

# AOC 503
# Interim Measure

- **Description:** Unexploded ordnance (UXO) site in the marsh area South of Building 665 in Zone H
- **Action:** Search area for UXO. If locatable, remove ordnance.

# AOC 605
# Interim Measure

- **Description:** Concrete pad upon which used paint containers were stored/staged in Zone E.
- **Action:** Removal of contaminants associated with paint spillage in the soils surrounding the concrete pad (i.e. lead, chromium).

# AOC 621
# Interim Measure

- **Description:** Facility in which submarine battery cells were disassembled and refurbished. Called a battery cracking area in building 68 in Zone E.
- **Action:** Remove lead and acid residue remaining at site.

# AOC 626
# Interim Measure

- **Description:** Known area of petroleum contamination at the Naval Supply Center Fuel Farm in Zone G.
- **Action:** Remove petroleum saturated soils and install a free product collection system to prevent migration of any free product petroleum into adjacent storm sewer system.

# AOC 670
# Interim Measure

- **Description:** Former skeet range site in Zone H.
- **Action:** Remove lead contaminated soils.

# *AOC 684 Interim Measure*

- **Description:** Former outdoor pistol range, Building 1888 in Zone H.
- **Action:** Remove lead contaminated soils.

# *SWMU 5*
# *Interim Measure*

- **Description:** Facility in Zone E where maintenance of submarine battery cell electrolyte solution was conducted.
- **Action:** Remediate the site of constituents associated with this operation.

# *SWMU 7*
# *Interim Measure*

- **Description:** Storage yard in Zone G where transformers containing PCB were stored on a covered concrete pad and evidence of releases exist.
- **Action:** Remediate concrete pad to remove PCB contamination and dispose of adjacent PCB contaminated soils.

# *SWMU 8*
# *Interim Measure*

- **Description:** Abandoned oil sludge pits in Zone G where waste oils were deposited.
- **Action:** Excavate and remove remaining sludge and impacted soils.

# *SWMU 14*
# *Interim Measure*

- **Description:** Chemical disposal area in Zone H where approximately 32 subsurface anomalies have been identified and some are believed to be discarded chemical containers.
- **Action:** Removal of the subsurface anomalies found at this site.

# *SWMU 25*
# *Interim Measure*

- **Description:** Old electroplating operation in Building 44 of Zone E.
- **Action:** Remove residual contaminatin on internal surface of building.

# *SWMU 38*
# *Interim Measure*

- **Description:** Site of a former storage yard in Zone A in which sampling has indicated a localized area of contamination due to a release of pesticides.
- **Action:** Remediate pesticide contaminated soils.

# SWMU 42
# Interim Measure

- **Description:** Former asphalt plant tanks and boiler plant storage area in Zone A. Sampling has identified several small areas with high concentrations of lead.
- **Action:** Excavate and dispose of lead contaminated soils.

# *SWMU 83*
# *Interim Measure*

- **Description:** Foundry facility in Building 9 of Zone E. Foundry operations have left contaminates of lead, solvents and PCB contamination.
- **Action:** Remediate Foundry building of these contaminates.

# SWMU 109
# Interim Measure

- **Description:** Abrasive blast media storage area in Zone F.
- **Action:** Removal of remaining abrasive blast material.

# *SWMU 178*
# *Interim Measure*

- **Description:** Site of a past transformer fire outside Building NS-53 in Zone H. Fire caused release of transformer oil.
- **Action:** Removal of soils contaminated with transformer oil.

## Community Relations Subcommittee Meeting May 14, 1996

**Time:** 3:00 p.m.

**Attendees:** Daryle Fontenot, Arthur Pinckney, Diane Cutler

### DISCUSSION ITEMS

**RAB Meeting Location** Daryle Fontenot initiated discussion about RAB meeting locations. Does the Community Relations Subcommittee want to continue to be responsible for recommending the location? So far it has been working well. In order to be able to offer tentative meeting locations at the RAB meeting each month, it may be beneficial to consider locations two months in advance. Subcommittee members can come up with locations and make arrangements with contacts (like Lou Mintz did for the meeting on the Yorktown), or suggestions can be made, and Diane Cutler can make arrangements and provide logistics support such as set-up, ordering audio/visual equipment, and break-down.

For next month Pat Franklin recommended either the Saint Andrews Community Center or the Saint Andrews Regional Branch of the Charleston County Library, both located in West Ashley. Diane spoke with the Head Librarian and made tentative arrangements to have the meeting held there on June 11th from 5:30 - 8:30. The facility is identical to the Dorchester Road Regional Branch.

According to the previously identified schedule, the meeting location should return to North Charleston in July. In addition, once Mr. Pinckney's pick for RAB representative from Charleston is brought on board, a suitable location in Charleston may be recommended.

**Federal Facilities Dialogue Committee** Arthur asked Daryle if he has seen a copy of the Federal Facilities Dialogue Committee's document on general community involvement issues. Some of the individuals involved in making recommendations for this document included Ann Ragan (SCDHEC), John Johnson (EPA), Doyle Brittain (EPA), and Sheri Goodman (DOD). Daryle will try to get a copy of the document.

**RAB Member Pick** Mr. Pinckney informed Daryle that he hasn't forgotten his pick for a RAB member from Charleston. There have been some unforseen delays, but he expects to have a candidate's name to Daryle by the week of 5/20.

**RAB Meeting Advertisement/Announcement** Daryle, Arthur, and Diane discussed the increased effort going into advertising the RAB meetings. The main goal it to get the word out. If people know about the meeting but choose not to attend, that's unfortunate, but acceptable. However, if people don't even know that the meetings are taking place, they can't make that choice. Diane suggested reaching out to local government officials through an introduction/invitation letter written by the RAB members. Arthur concurred and said that the Federal Facilities Dialogue Committee recommends getting local governments involved in local RABs. The letter can provide background on what the RAB's goals are, progress made, and meeting schedule. It can be signed by the co-chairs but should include a list of all RAB members and their affiliation. The letter should also include meeting announcement flyers that each recipient can distribute, and one or more fact sheets as examples of the types of issues the RAB is dealing with.

Specific local governments that should be targeted include Mt. Pleasant, Goose Creek, Charleston, Summerville, and Monks Corner (North Charleston is already represented by three members serving on the RAB).

**Fact Sheets** Daryle confirmed that he sent out Fact Sheet #6 (Zone H Sampling Results) to all the RAB members with the April meeting minutes. He will request any comments or changes at the RAB meeting (May 14), and if there are no comments, have it published and distributed.

## DOCUMENT REVIEW

**Contaminant Posters** A number of changes have taken place regarding how data must be reported for the Zone H RCRA Facility Investigation, and as a result, the contaminant posters as originally produced are no longer valid. Daryle, Arthur, and Diane discussed the purpose of having the posters and defined the target audience. The audience should be community members coming to the meeting for the first time, and other people who want a review of what's happening in the environmental program. The purpose of having the posters is to give people a review of the environmental program and some background that will help them understand investigation results. Since fact sheets will be produced as results are finalized for each zone, creating posters that summarize data would be duplicating efforts. Therefore, the group recommended four posters: 1) The Investigative Process, 2) Chemical Categories, 3) Risk Assessment Background, and 4) For More Information. These posters can be reproduced as handouts and can be supplemented with zone result fact sheets as they're produced. The group suggested that the series of posters (the poster station) should be manned with a technical person so any questions can be readily answered. The poster station can be available during the 1-hour open house prior to the RAB meetings.

## ACTION ITEMS

**Zone H Results Fact Sheet** Diane will prepare a draft of the "Poster Station" posters for review at the next Subcommittee meeting.

## REPORT TO RAB

- **Announce proposed meeting location for June meeting -Saint Andrews Regional Library**
- **Request comments/approval on Fact Sheet #6.**
- **Describe ongoing work on poster station.**
- **Recommend RAB letter to local government officials.**

## NEXT MEETING

**Subcommittee Meeting** 6/11/96, 3:00 - 4:30 p.m. Building NH-51 (CSO Office) Conference Room.
***There will **not** be a subcommittee meeting held in July.***

Come and join the Naval Base Charleston **Restoration Advisory Board (RAB)** at their monthly meeting. This month's agenda topics include:

# Environmental Cleanup & Property Reuse

Date ..... Tuesday, June 11, 1996
Time ..... Informal Open House: 5:30 - 6:30 p.m.
RAB Meeting: 6:30 - 8:30 p.m.
Location..... St. Andrew's Regional Branch of the Charleston County Library

(1735 N. Woodmere Dr., behind the Village Square Shopping Center off Sam Rittenberg Blvd. Feel free to call for directions: 766-2546)

The RAB is a forum where community members meet with representatives from the Navy, State and Federal environmental agencies, and other groups to discuss the environmental program under way at Naval Base Charleston.

## For More Information:

Call Jim Beltz at the Public Affairs Office at Naval Facilities Engineering Command, Southern Division: (803) 820-5771

Come and join the Naval Base Charleston **Restoration Advisory Board (RAB)** at their monthly meeting. This month's agenda topics include:

# Environmental Cleanup & Property Reuse

Date ..... Tuesday, June 11, 1996
Time ..... Informal Open House: 5:30 - 6:30 p.m.
RAB Meeting: 6:30 - 8:30 p.m.
Location..... St. Andrew's Regional Branch of the Charleston County Library

(1735 N. Woodmere Dr., behind the Village Square Shopping Center off Sam Rittenberg Blvd. Feel free to call for directions: 766-2546)

The RAB is a forum where community members meet with representatives from the Navy, State and Federal environmental agencies, and other groups to discuss the environmental program under way at Naval Base Charleston.

## For More Information:

Call Jim Beltz at the Public Affairs Office at Naval Facilities Engineering Command, Southern Division: (803) 820-5771

# NAVY NEWS RELEASE

Public Affairs Office
Naval Facilities Engineering Command, Southern Division
P.O. Box 190010
North Charleston, SC 29419

***RAB Meets to Discuss Environmental Cleanup***

*For Publication by Monday, June 10*

*For more information, contact:*
Jim Beltz (803) 820-5771

*North Charleston* - Environmental and reuse issues are again the focus of the next meeting of the Naval Base Charleston Restoration Advisory Board (RAB). This meeting will be held on Tuesday, June 11, 1996 from 6:30 to 8:30 p.m. at the Saint Andrews Regional Branch of the Charleston County Library. Navy staff and environmental specialists will be available from 5:30 to 6:30 for informal discussion prior to the meeting. The meeting is open to the public and all are encouraged to attend.

The RAB is a group of community members, Navy representatives, and federal, state, and local organizations and agencies that gather monthly to discuss the progress of environmental cleanup and property reuse at Naval Base Charleston. Meetings are held on the second Tuesday of every month in alternating locations to accommodate the local communities most significantly affected by the Base closure.

Agenda items for the June 11th meeting include a progress report on the environmental investigations, and a Redevelopment Authority update on the status of property leasing.

For more information on the upcoming meeting, call Jim Beltz at the Public Affairs Office at Naval Facilities Engineering Command, Southern Division, (803) 820-5771.

**DEPARTMENT OF THE NAVY**
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
P.O. BOX 190010
2155 EAGLE DRIVE
NORTH CHARLESTON, S.C 29419-9010

5090/11
Code 1877
16 July 1996

Mr. G. Randall Thompson
Director, Division of Hazardous and Infectious Waste Management
Bureau of Solid and Hazardous Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201

Re: SUBMITTAL OF THE QUARTERLY RCRA FACILITY INVESTIGATION PROGRESS REPORT

Dear Mr. Thompson,

The purpose of this letter is to submit the Quarterly RCRA Facility Investigation (RFI) Progress Report for Naval Base Charleston. This report is submitted in order to comply with condition II.C.5 of the RCRA Part B permit issued to the Naval Base by the Environmental Protection Agency and the South Carolina Department of Health and Environmental Control.

Enclosure (1) is the Quarterly Report which contains the activity for the month of June, 1996. Monthly reports have been submitted previously for the months of April and May which complete the quarter. If you should have any questions, please contact Joe V. Camp Jr. or Tony Hunt at (803) 743-9985 and (803) 820-5525 respectively.

Sincerely,

P. H. Dalby

PHIL H. DALBY
Commander, U.S. Navy
Caretaker Site Officer
By direction

Encl:
(1) Quarterly RFI Progress Report - June 1996

Copy to (w/encl):
SCDHEC (Bowers)
USEPA (Brittain)
SOUTHNAVFACENGCOM (Hunt)
CSO Naval Base Charleston (Camp, Fontenot)

**NAVBASE CHARLESTON**
**RFI STATUS REPORT**
**PERIOD: SUMMARY OF**
**01 June 1996 To 30 June 1996**

## I. INTRODUCTION

The following status report has been prepared to satisfy condition II.E.3.a of the Part B Permit Renewal dated 5 December 1994 for Naval Base Charleston (NAVBASE). The requirements of this condition are in effect since the total elapsed time to complete the RCRA Facility Investigation (RFI) is projected to be greater than 180 calendar days from the approval date of the *Final Comprehensive RFI Work Plan* as indicated in the Corrective Action Management Plan (CAMP).

In lieu of submitting quarterly reports, NAVBASE is voluntarily submitting monthly reports to provide an update on the progress of the RFI to members of the NAVBASE BRAC Cleanup Team (BCT) in a more timely manner. The content of the monthly reports includes information intended to satisfy condition II.E.3.a of the Part B Permit. Consequently, this report only addresses activities which occurred during the month of June 1996.

## II. PORTION OF THE RFI COMPLETED

- Revision 02 of the *Final Comprehensive RFI Work Plan* and a response to comments was resubmitted to the regulatory agencies on 18 June 1996 for approval.

- The direct push soil and groundwater screening effort which focused primarily on SWMU 39 in Zone A were completed.

- Soil sampling was completed at AOCs 522 and 700 in Zone C. In addition, the third quarter of groundwater sampling in Zone C was also completed.

- The 60% progress meeting for the Zone E RFI was held on 12 June 1996 in conjunction with the project team meeting.

- The *Final Zones D, F, and G RFI Work Plan* was submitted to SCDHEC and USEPA for approval on 12 June 1996.

- Revisions to the *Zone H RFI Report* continued. A meeting was held with members of the project team to preliminarily review the risk maps being generated to delineate site boundaries.

- Soil sampling was completed at SWMU 177 in Zone I. In addition, the third quarter of groundwater sampling in Zone C was also completed.

- Revisions to the *Zone L RFI Work Plan* and preparation of a response to comments was initiated.

## III. SUMMARIES OF FINDINGS

During the current reporting period the progress team was provided briefings and handouts pertaining to findings at SWMU 39 in Zone A and the initial round of Zone E soil sample results. A copy of the information provided is included as Attachment A.

## IV. DEVIATIONS FROM APPROVED WORK PLANS THIS REPORTING PERIOD

There were no known deviations from the approved RFI Work Plans for this reporting period.

## V. SUMMARY OF CONTACTS WITH LOCAL COMMUNITY PUBLIC INTEREST GROUPS OR STATE GOVERNMENT

As indicated in the January 1995 Quarterly Status Report, the Navy has established a Restoration Advisory Board (RAB) to involve the public in the decisions regarding the investigation and remediation of contaminated sites at Naval Base Charleston. The meetings are held monthly and are open to the public. The minutes of June 1996 meeting are provided as Attachment B.

## VI. SUMMARY OF PROBLEMS OR POTENTIAL PROBLEMS AND ACTION TAKEN TO RECTIFY PROBLEMS

There were no problems identified during the current reporting period.

## VII. KEY PROJECT PERSONNEL

The status report for March 1996 reflected numerous changes in key Navy personnel for the NAVBASE Charleston RFI resulting from the closure of Charleston Naval Shipyard. No additional changes occurred during the current reporting period.

## VIII. PROJECTED WORK FOR THE NEXT REPORTING PERIOD

**Document Preparation and Data Evaluation:**

- Revisions 01 and 02 to the *Comprehensive RFI Work Plan* will be resubmitted concurrently to the regulatory agencies.
- Data evaluation for Zones A and E will continue.
- The revised *Zone H RFI Report* will be submitted to the regulatory agencies for review.
- The revised *Zones L RFI Work Plan* will be resubmitted to the regulatory agencies for review.

**Field Activities:**

- Installation of additional permanent monitoring wells at SWMU 39 is anticipated.
- The second quarter of groundwater sampling in Zone E along with the second round soil sampling efforts in Zone E are scheduled to begin.

## IX. COPIES OF DAILY REPORTS, INSPECTION REPORTS, LABORATORY DATA

Daily activities are recorded in accordance with the Data Management Plan included as Section 14 of the Final Comprehensive Sampling and Analysis Plan. Photocopies of these daily records have not been included with this status report; however, this information is available for review upon request.

Per agreement with SCDHEC and EPA, hard copies of the analytical data are not being submitted. A copy of the data is maintained at the EnSafe/Allen & Hoshall office in Charleston and is available for review.

**MEMORANDUM**

TO: Zone A Project Team

FROM: Lawson Anderson, E/A&H

RE: Zone A
Summary of Geoprobe Investigation, CTO-2901

DATE: June 28, 1996

## BACKGROUND

This memorandum summarizes the geoprobe investigation conducted in Zone A between Monday, June 17, 1996 and Friday, June 21, 1996. The constituents of concern (COCs) that warranted this investigation were chlorinated solvents, including: cis-1,2-dichloroethene (DCE), trichloroethene (TCE), tetrachloroethene (PCE), and vinyl chloride.

The COCs were detected in several monitoring wells installed during the implementation of the *Zones A and B RFI Work Plan* (E/A&H, September 1995). To date, there have been three sampling events of the monitoring wells in Zone A, including: first quarter sampling after installation, "interim" sampling between first and second quarter, and second quarter sampling. All DCE, TCE, PCE, and vinyl chloride data from these events are shown in Table 1. Also, Figure 1 indicates the locations of all Zone A monitoring wells.

The sampling strategy for this event was outlined in the NAVBASE Project Team Meeting on February 28, 1996. It was included in the memorandum dated March 11, 1996 that detailed all second round sampling planned for both Zones A and B. Sampling was conducted in accordance with Section 6.1.3 included in Revision No. 01 of the *Final Comprehensive Sampling and Analysis Plan* (CSAP) dated December 1, 1995.

This geoprobe investigation was originally scheduled for March 1996. At that time, the investigation included SWMU 39, SWMU 42/AOC 505, and SWMU 43 because only the first quarter of data had been received. The "interim" sampling event was conducted to verify the chlorinated solvent detections prior to the approval of the geoprobe investigation. Once this data was received, the proposed geoprobe investigation was scaled back to include only SWMU 39 and SWMU 43 (Anderson to Bergstrand letter dated May 22, 1996).

## TABLE 1
## Zone A -- Groundwater Data Summary (VOCs)
## Monitoring Wells

| Monitoring Well ID# | RESULTS (ug/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PCE | | | TCE | | | DCE | | | vinyl chloride | | |
| | 01 | 11 | 02 | 01 | 11 | 02 | 01 | 11 | 02 | 01 | 11 | 02 |
| **SWMU 38 and vicinity (shallow)** | | | | | | | | | | | | |
| 038-001 | < DL | -- | -- | < DL | -- | -- | < DL | -- | -- | < DL | -- | -- |
| 038-002 | < DL | -- | -- | < DL | -- | -- | < DL | -- | -- | < DL | -- | -- |
| CNSY-02-04 | < DL | -- | -- | < DL | -- | -- | < DL | -- | -- | < DL | -- | -- |
| **SWMU 39 and vicinity (shallow)** | | | | | | | | | | | | |
| 039-001 | < DL | < DL | < DL | < DL | < DL | < DL | < DL | < DL | < DL | < DL | < DL | < DL |
| 039-002 | < DL | < DL | < DL | < DL | < DL | < DL | < DL | < DL | < DL | < DL | < DL | < DL |
| 039-003 | 15.5 | 7 | 9.2 | 41 | 44 | 48.5 | 4.8 | < DL | 3.0 | < DL | < DL | < DL |
| 039-004 | < DL | 1 | 3.8 | < DL | 1 | 2.3 | < DL | < DL | 2.3 | < DL | < DL | < DL |
| 039-005 | < DL | < DL | < DL | < DL | < DL | < DL | 1.1 | < DL | < DL | 1.9 | < DL | < DL |
| CNSY-02-06 | -- | < DL | -- | -- | < DL | -- | -- | < DL | -- | -- | < DL | -- |
| **SWMU 42/AOC 505 (shallow)** | | | | | | | | | | | | |
| 042-001 | 5.9 | < DL | 1.5 | < DL | < DL | 1.4 | < DL | < DL | < DL | < DL | < DL | < DL |
| 042-002 | < DL | < DL | < DL | < DL | < DL | < DL | < DL | < DL | < DL | < DL | < DL | < DL |
| 042-003 | < DL | < DL | < DL | < DL | < DL | < DL | < DL | < DL | < DL | < DL | < DL | < DL |
| 505-001 | < DL | < DL | < DL | < DL | < DL | < DL | < DL | < DL | < DL | < DL | < DL | < DL |
| **Other Zone A Wells (shallow)** | | | | | | | | | | | | |
| 506-001 | < DL | -- | < DL | < DL | -- | < DL | < DL | -- | < DL | < DL | -- | < DL |
| CNSY-02-01 | < DL | -- | -- | < DL | -- | -- | < DL | -- | -- | < DL | -- | -- |
| CNSY-02-05 | < DL | -- | -- | < DL | -- | -- | < DL | -- | -- | < DL | -- | -- |
| GDA-001 | < DL | -- | -- | < DL | -- | -- | < DL | -- | -- | < DL | -- | -- |
| GDA-002 | < DL | -- | -- | < DL | -- | -- | < DL | -- | -- | < DL | -- | -- |
| GDA-003 | < DL | -- | -- | < DL | -- | -- | < DL | -- | -- | < DL | -- | -- |
| **Zone A Deep Wells** | | | | | | | | | | | | |
| 038-01D | < DL | -- | -- | < DL | -- | -- | < DL | -- | -- | < DL | -- | -- |
| 039-04D | < DL | -- | < DL | < DL | -- | < DL | < DL | -- | < DL | < DL | -- | < DL |
| GDA-01D | < DL | -- | -- | < DL | -- | -- | < DL | -- | -- | < DL | -- | -- |
| GDA-02D | < DL | -- | -- | < DL | -- | -- | < DL | -- | -- | < DL | -- | -- |
| GDA-03D | < DL | -- | -- | < DL | -- | -- | < DL | -- | -- | < DL | -- | -- |

**Notes:**

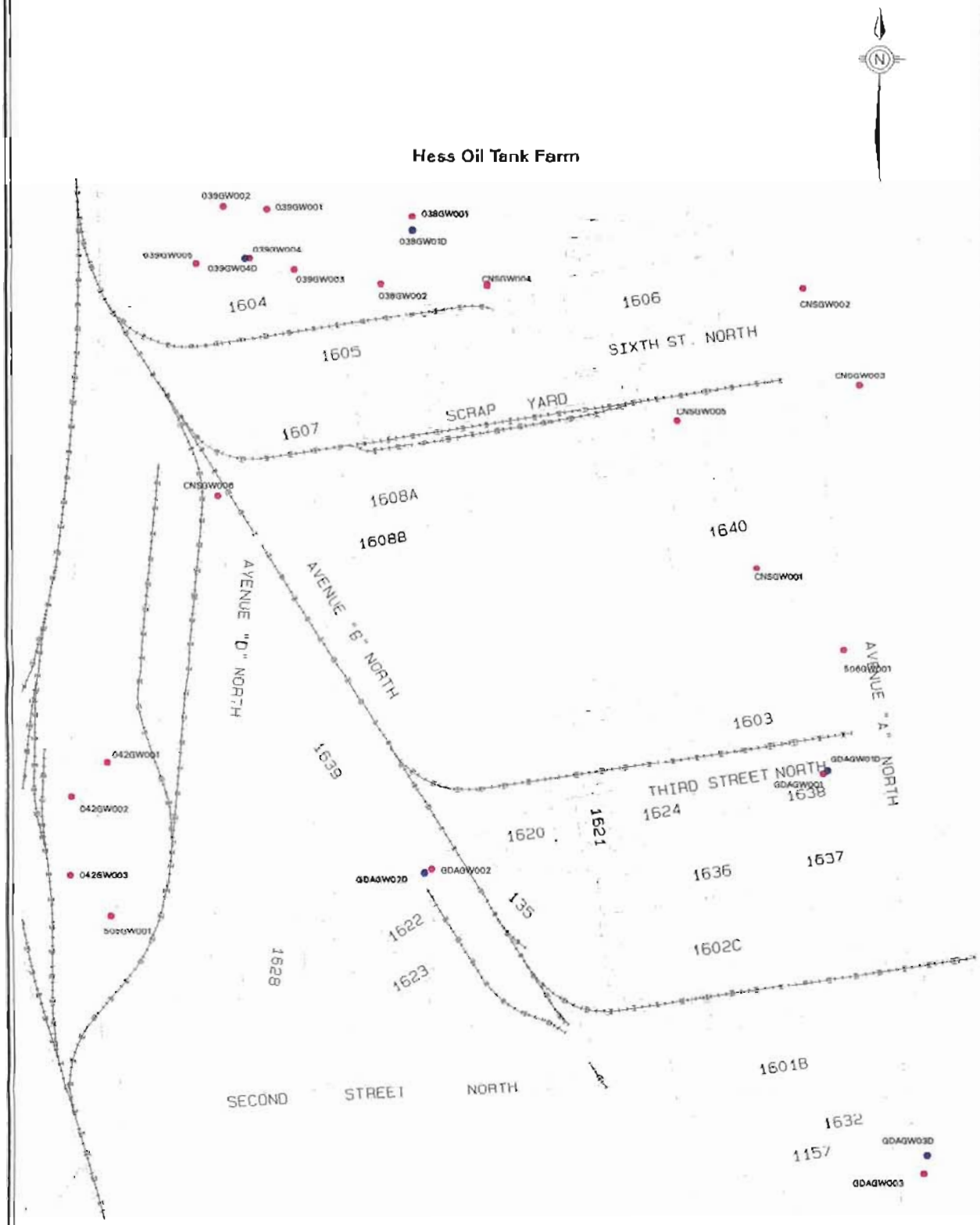
**01 = First quarter sampling event (December 1995)**

**11 = Interim sampling event (April 3, 1996)**

**02 = Second quarter sampling event (April 23-25, 1996)**

**< DL = Below Detection Limit**

**-- = No VOCs sample collected.**




Zone A - Monitoring Wells

- Shallow Wells
- Deep Wells

**NAVBASE Charleston**
**Zone A**
**Geoprobe Investigation**

**FIGURE 1**
**Location of Zone A Monitoring Wells**

## FIELD INVESTIGATION

Soil samples were collected from a subsurface interval (2' to 4' bgs) and groundwater samples were collected from the shallow aquifer at each location. The samples were analyzed at an onsite laboratory with a GC/MS (Method 5030/8260), and 25% were duplicated for offsite laboratory confirmation analyses. A sample was also collected from pertinent existing monitoring wells for onsite analyses. The wells were not triple-volume purged prior to sampling as groundwater was simply extracted from the wells using Teflon tubing. After sampling, each borehole was abandoned using bentonite pellets.

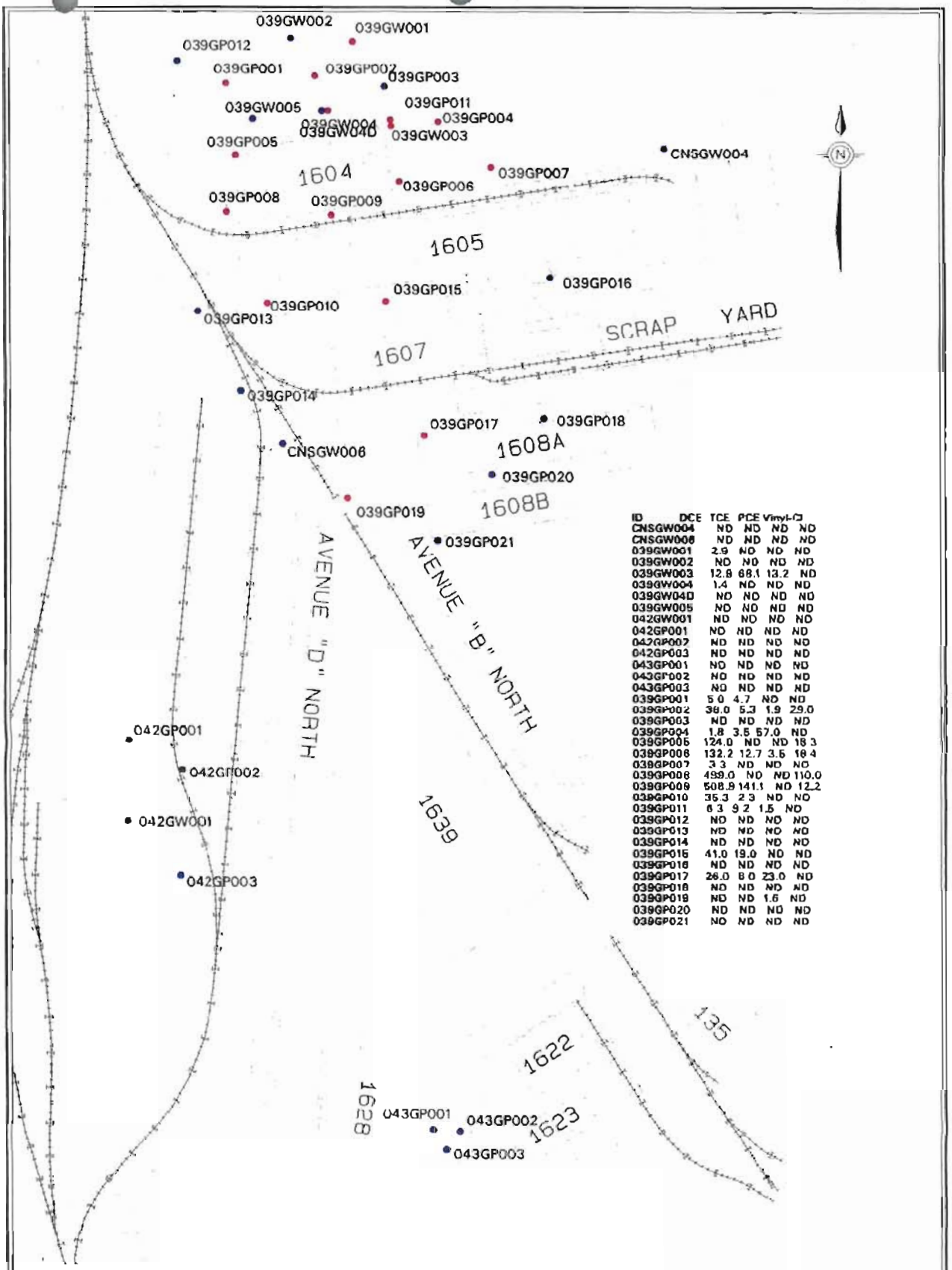
It is important to note that none of the following data presented in this report has been validated and the results from the offsite "duplicates" have not been received.

### SWMU 39 Summary

On Tuesday, June 18, 1996, the geoprobe investigation was initiated at this site. A total of 11 borings were installed, and the subsurface soil and groundwater samples were collected. Based upon the results of these groundwater samples, 10 additional locations were sampled over the following two days. This data is summarized in Table 2 and Figure 2. The depth at which groundwater was encountered for each sample is indicated by the last two digits of the 10-digit alphanumeric code. For example, 039GP00107 was geoprobe boring #1 at SWMU 39 and the sampling interval was 7 feet to 9 feet bgs.

Eight monitoring wells were sampled to support this investigation, including: 5 shallow wells at SWMU 39, 1 deep well at SWMU 39, CNSY-02-04, and CNSY-02-06. With the exception of shallow well NBCA-039-001, all monitoring well data was consistent with earlier analytical results. DCE was detected in NBCA-039-001 for the first time during this investigation.

As indicated on Figure 2, the suspected plume of chlorinated solvent contamination has been defined. It generally exists in the vicinity of Buildings 1604, 1605, and 1607. The boundary of the plume was approximated by the following sampling locations: CNSY-02-04, 039-GP016, 039-GP-018, 039-GP020, 039-GP021, 039-GP019, CNSY-02-06, 039-GP014, and 039-GP013.




| ID | DCE | TCE | PCE | Vinyl-Cl |
|---|---|---|---|---|
| CNSGW004 | ND | ND | ND | ND |
| CNSGW006 | ND | ND | ND | ND |
| 039GW001 | 2.9 | ND | ND | ND |
| 039GW002 | ND | ND | ND | ND |
| 039GW003 | 12.8 | 68.1 | 13.2 | ND |
| 039GW004 | 1.4 | ND | ND | ND |
| 039GW04D | ND | ND | ND | ND |
| 039GW005 | ND | ND | ND | ND |
| 042GW001 | ND | ND | ND | ND |
| 042GP001 | ND | ND | ND | ND |
| 042GP002 | ND | ND | ND | ND |
| 042GP003 | ND | ND | ND | ND |
| 043GP001 | ND | ND | ND | ND |
| 043GP002 | ND | ND | ND | ND |
| 043GP003 | ND | ND | ND | ND |
| 039GP001 | 5.0 | 4.7 | ND | ND |
| 039GP002 | 36.0 | 5.3 | 1.9 | 29.0 |
| 039GP003 | ND | ND | ND | ND |
| 039GP004 | 1.8 | 3.5 | 57.0 | ND |
| 039GP005 | 124.0 | ND | ND | 18.3 |
| 039GP006 | 132.2 | 12.7 | 3.5 | 18.4 |
| 039GP007 | 3.3 | ND | ND | ND |
| 039GP008 | 499.0 | ND | ND | 110.0 |
| 039GP009 | 508.9 | 141.1 | ND | 12.2 |
| 039GP010 | 35.3 | 2.3 | ND | ND |
| 039GP011 | 6.3 | 9.2 | 1.5 | ND |
| 039GP012 | ND | ND | ND | ND |
| 039GP013 | ND | ND | ND | ND |
| 039GP014 | ND | ND | ND | ND |
| 039GP015 | 41.0 | 19.0 | ND | ND |
| 039GP016 | ND | ND | ND | ND |
| 039GP017 | 26.0 | 8.0 | 23.0 | ND |
| 039GP018 | ND | ND | ND | ND |
| 039GP019 | ND | ND | 1.6 | ND |
| 039GP020 | ND | ND | ND | ND |
| 039GP021 | ND | ND | ND | ND |

Wells and Geoprobe Borings

- Hits
- Non-Detects

**NAVBASE Charleston**
**Zone A**
**Geoprobe Investigation**

**FIGURE 2**
**Location of Zone A Geoprobe Borings**

**TABLE 2**
**Zone A — Groundwater Data Summary**
**Geoprobe Investigation at SWMU 39**

| Sample Location | Results (µg/L) | | | | |
|---|---|---|---|---|---|
| | PCE | TCE | DCE | Vinyl Chloride | Other |
| **Geoprobe Borings** | | | | | |
| 039GP00107 | < 2 | 4.7 | 5.0 | < 5 | < DL |
| 039GP00207 | 1.9J | 5.3 | 38.0 | 29.0 | < DL |
| 039GP00309 | < 2 | < 2 | < 2 | < 5 | < DL |
| 039GP00405 | 57.0 | 3.5 | 1.8J | < 5 | 1,2,4-trimethylbenzene 2.4 |
| 039GP00505 | < 2 | < 2 | 124.0 | 18.3 | 1,1-dichloroethane 18.7<br>benzene 9.6 |
| 039GP00609 | 3.5 | 12.7 | 132.2 | 16.4 | 1,2,4-trimethylbenzene 2.4<br>toluene 3.0<br>1,1,2,2-tetrachloroethane 4.4 |
| 039GP00705 | < 2 | < 2 | 3.3 | < 5 | 1,2,4-trimethylbenzene 1.8J |
| 039GP00805 | < 2 | < 2 | 499 | 110 | naphthalene 451 |
| 039GP00907 | < 2 | 141.1 | 508.9 | 12.2 | 1,2,4-trimethylbenzene 2.4<br>benzene 4.5<br>trans-1,2-dichloroethane 5.8<br>1,1-dichloroethane 12.0 |
| 039GP01012 | < 2 | 2.3 | 35.3 | < 5 | 1,2,4-trimethylbenzene 1.9J |
| 039GP01106 | 1.5J | 9.2 | 6.3 | < 5 | 1,2,4-trimethylbenzene 2.3 |
| 039GP01202 | < 2 | < 2 | < 2 | < 5 | < DL |
| 039GP01309 | < 2 | < 2 | < 2 | < 5 | < DL |
| 039GP01409 | < 2 | < 2 | < 2 | < 5 | < DL |
| 039GP01508 | < 2 | 19 | 41 | < 5 | < DL |
| 039GP01612 | < 2 | < 2 | < 2 | < 5 | < DL |
| 039GP01712 | 23 | 6.0 | 26 | < 5 | < DL |
| 039GP01808 | < 2 | < 2 | < 2 | < 5 | < DL |
| 039GP01912 | 1.6J | < 2 | < 2 | < 5 | < DL |
| 039GP02012 | < 2 | < 2 | < 2 | < 5 | < DL |
| 039GP02116 | < 2 | < 2 | < 2 | < 5 | < DL |

| TABLE 2<br>Zone A — Groundwater Data Summary<br>Geoprobe Investigation at SWMU 39 | | | | | |
|---|---|---|---|---|---|
| | Results (μg/L) | | | | |
| Sample Location | PCE | TCE | DCE | Vinyl Chloride | Other |
| Existing Monitoring Wells | | | | | |
| CNSY-02-04 | < 2 | < 2 | < 2 | < 5 | < DL |
| CNSY-02-06 | < 2 | < 2 | < 2 | < 5 | < DL |
| NBCA-039-001 | < 2 | < 2 | 2.9 | < 5 | benzene 24.2<br>n-propylbenzene 4.2<br>ethylbenzene 3.0<br>sec-butylbenzene 3.5<br>m,p-xylene 68.0<br>n-butylbenzene 3.5<br>isopropylbenzene 6.8 |
| NBCA-039-002 | < 2 | < 2 | < 2 | < 5 | < DL |
| NBCA-039-003 | 13.2 | 68.1 | 12.9 | < 5 | < DL |
| NBCA-039-004 | < 2 | < 2 | 1.4J | < 5 | < DL |
| NBCA-039-04D | < 2 | < 2 | < 2 | < 5 | < DL |
| NBCA-039-005 | < 2 | < 2 | < 2 | < 5 | benzene 92<br>n-propylbenzene 4.6<br>naphthalene 174<br>n-butylbenzene 3.2<br>ispropylbenzene 8.0 |

J — Indicates estimated concentration.

The test results for the soil samples analyzed onsite are summarized in Table 3. None of the chlorinated solvents detected were at a concentration greater than 1 mg/kg.

**TABLE 3**
**Zone A — Subsurface Soil Data Summary**
**Geoprobe Investigation at SWMU 39**

| Sample Location | Results (mg/kg) | | | | |
|---|---|---|---|---|---|
| | PCE | TCE | DCE | Vinyl Chloride | Other |
| 039SP00101 | < 2 | < 2 | < 2 | < 5 | < DL |
| 039SP00201 | < 2 | < 2 | < 2 | < 5 | < DL |
| 039SP00301 | < 2 | < 2 | < 2 | < 5 | < DL |
| 039SP00401 | 0.0214 | 0.0032 | < 2 | < 5 | < DL |
| 039SP00501 | < 2 | < 2 | 0.0126 | < 5 | < DL |
| 039SP00601 | < 2 | 0.0033 | 0.0175 | < 5 | < DL |
| 039SP00701 | < 2 | < 2 | < 2 | < 5 | < DL |
| 039SP00801 | < 2 | 0.123 | < 2 | < 5 | Eleven petroleum constituents were detected at < 1 mg/kg each. |
| 039SP00901 | 0.022 | 0.907 | 0.067 | < 5 | ethylbenzene 1.174<br>m,p-xylene 1.359<br>Twelve other petroleum constituents were detected at <1 mg/kg each. |
| 039SP01001 | < 2 | < 2 | < 2 | < 5 | < DL |
| 039SP01101 | < 2 | < 2 | < 2 | < 5 | < DL |
| 039SP01201 | < 2 | < 2 | < 2 | < 5 | Six petroleum constituents were detected at < 1 mg/kg each. |
| 039SP01301 | < 2 | < 2 | < 2 | < 5 | < DL |
| 039SP01401 | < 2 | < 2 | < 2 | < 5 | < DL |
| 039SP01501 | < 2 | < 2 | < 2 | < 5 | < DL |
| 039SP01601 | < 2 | < 2 | < 2 | < 5 | < DL |
| 039SP01701 | < 2 | < 2 | < 2 | < 5 | < DL |
| 039SP01801 | < 2 | < 2 | < 2 | < 5 | < DL |
| 039SP01901 | < 2 | < 2 | < 2 | < 5 | < DL |
| 039SP02001 | < 2 | < 2 | < 2 | < 5 | naphthalene 570.0 |
| 039SP02101 | < 2 | < 2 | < 2 | < 5 | < DL |

## SWMU 43 Summary

Three geoprobe borings were installed at this site on Wednesday, June 19, 1996. This sampling was due to previous subsurface soil detections of chlorinated solvents and the lack of monitoring wells in the vicinity that would verify the potential migration of contamination to groundwater. No chlorinated solvents were detected in the groundwater samples analyzed onsite. This data is summarized in Table 4 and shown on Figure 2.

**TABLE 4**
**Zone A — Groundwater Data Summary**
**Geoprobe Investigation at SWMU 43**

| Sample Location | Results (µg/L) | | | | |
|---|---|---|---|---|---|
| | PCE | TCE | DCE | Vinyl Chloride | Other |
| 043GP00104 | < 2 | < 2 | < 2 | < 5 | < DL |
| 043GP00206 | < 2 | < 2 | < 2 | < 5 | < DL |
| 043GP00306 | < 2 | < 2 | < 2 | < 5 | < DL |

The test results for the soil samples analyzed onsite are summarized in Table 5. No VOCs were detected in any of these samples.

**TABLE 5**
**Zone A — Subsurface Soil Data Summary**
**Geoprobe Investigation at SWMU 43**

| Sample Location | Results (mg/kg) | | | | |
|---|---|---|---|---|---|
| | PCE | TCE | DCE | Vinyl Chloride | Other |
| 043SP00101 | < 2 | < 2 | < 2 | < 5 | < DL |
| 043SP00201 | < 2 | < 2 | < 2 | < 5 | < DL |
| 043SP00301 | < 2 | < 2 | < 2 | < 5 | < DL |

## SWMU 42 Summary

The proposed geoprobe investigation for this site was dropped based upon the "interim" round of well sampling. After the crew arrived onsite, the data from the second quarter sampling was received and chlorinated solvents again were detected in the shallow well NBCA-042-001 (northernmost site well). This well was sampled again for onsite analysis and three geoprobe borings were installed on Wednesday, June 19, 1996 to determine if a plume of contamination exists at this site.

No chlorinated solvents were detected in any of these groundwater samples (see Table 6 and Figure 2). To date, two of four groundwater samples collected from monitoring well NBCA-042-001 have indicated low concentrations of chlorinated solvents. Based upon this geoprobe investigation, it is believed that the SWMU 39 plume is not related to these detections. Also, there is no indication of a large plume at SWMU 42.

**TABLE 6**
**Zone A — Groundwater Data Summary**
**Geoprobe Investigation at SWMU 42**

| Sample Location | Results (µg/L) | | | | |
|---|---|---|---|---|---|
| | PCE | TCE | DCE | Vinyl Chloride | Other |
| NBCA-042-001 | < 2 | < 2 | < 2 | < 5 | < DL |
| 042GP00109 | < 2 | < 2 | < 2 | < 5 | < DL |
| 042GP00202 | < 2 | < 2 | < 2 | < 5 | < DL |
| 042GP00306 | < 2 | < 2 | < 2 | < 5 | < DL |

The test results for the soil samples analyzed onsite are summarized in Table 7. No VOCs were detected in any of these samples.

**TABLE 7**
**Zone A — Subsurface Soil Data Summary**
**Geoprobe Investigation at SWMU 42**

| Sample Location | Results (mg/kg) | | | | |
|---|---|---|---|---|---|
| | PCE | TCE | DCE | Vinyl Chloride | Other |
| 042SP00101 | < 2 | < 2 | < 2 | < 5 | < DL |
| 042SP00201 | < 2 | < 2 | < 2 | < 5 | < DL |
| 042SP00301 | < 2 | < 2 | < 2 | < 5 | < DL |

**Proposed Shallow Monitoring Wells**

Based upon the results of this investigation, six additional monitoring wells are proposed for installation. The approximate locations are shown on Figure 3. Five of the wells in combination with two existing wells (CNSY-02-04 and CNSY-02-06) will provide future monitoring of the boundary of the suspected plume of contamination surrounding SWMU 39 to ensure that no contamination is leaving NAVBASE. The sixth well is proposed between buildings 1604 and 1605. This location yielded the greatest concentration of chlorinated solvents during the geoprobe investigation. A sampling investigation under Buildings 1604 and 1605 is also being considered for possible source location.

**Investigation of the Deep Aquifer**

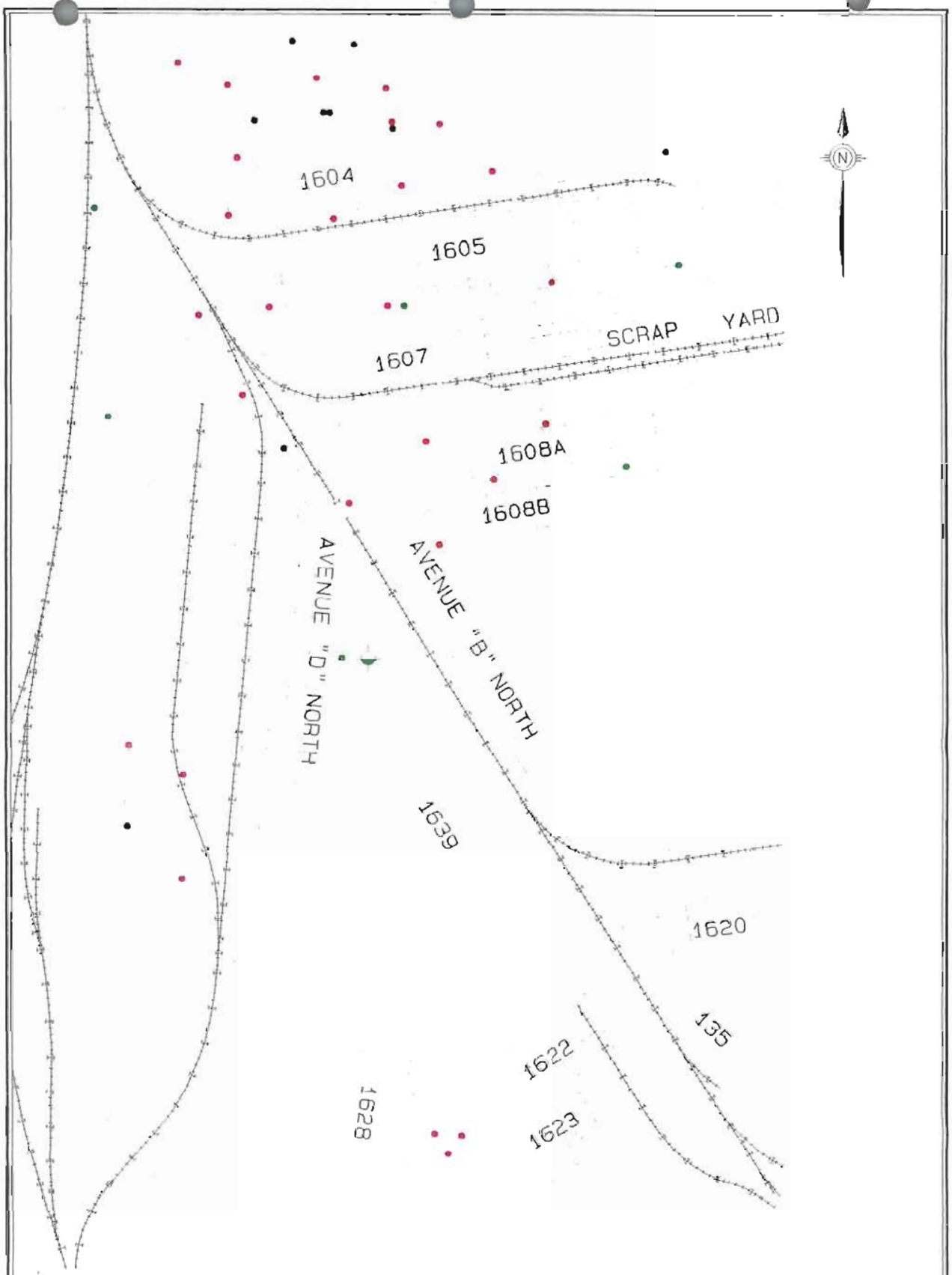
Based upon previous borings and wells installed at NAVBASE, the shallow and deep aquifers in Zone A are separated by a layer of marsh clay. During the installation of Zone A deep wells, this layer of marsh clay was encountered at both the southern and northern regions. However, during the drilling of NBCA-GDA-02D, no marsh clay was encountered. It is not known how far to the north this "hole" in the marsh clay extends. The presence of marsh clay would reduce the possibility that chlorinated solvents have migrated to the deep aquifer.

It is known that a layer of marsh clay was encountered at NBCA-039-04D (in the northern portion of the suspected plume). No COCs have been detected in any of the samples collected at this well. For further definition of the marsh clay layer, a deep boring is proposed south of the plume (see Figure 3). If the marsh clay layer is encountered, it can be assumed that the layer is continuous and protective of the deep aquifer. If no layer is encountered, further investigation of potential contamination in the deep aquifer will be necessary.

No attempts to push into or through this layer with the geoprobe were made because it would have risked opening a conduit for migration of contamination.

**Groundwater Flow Direction**

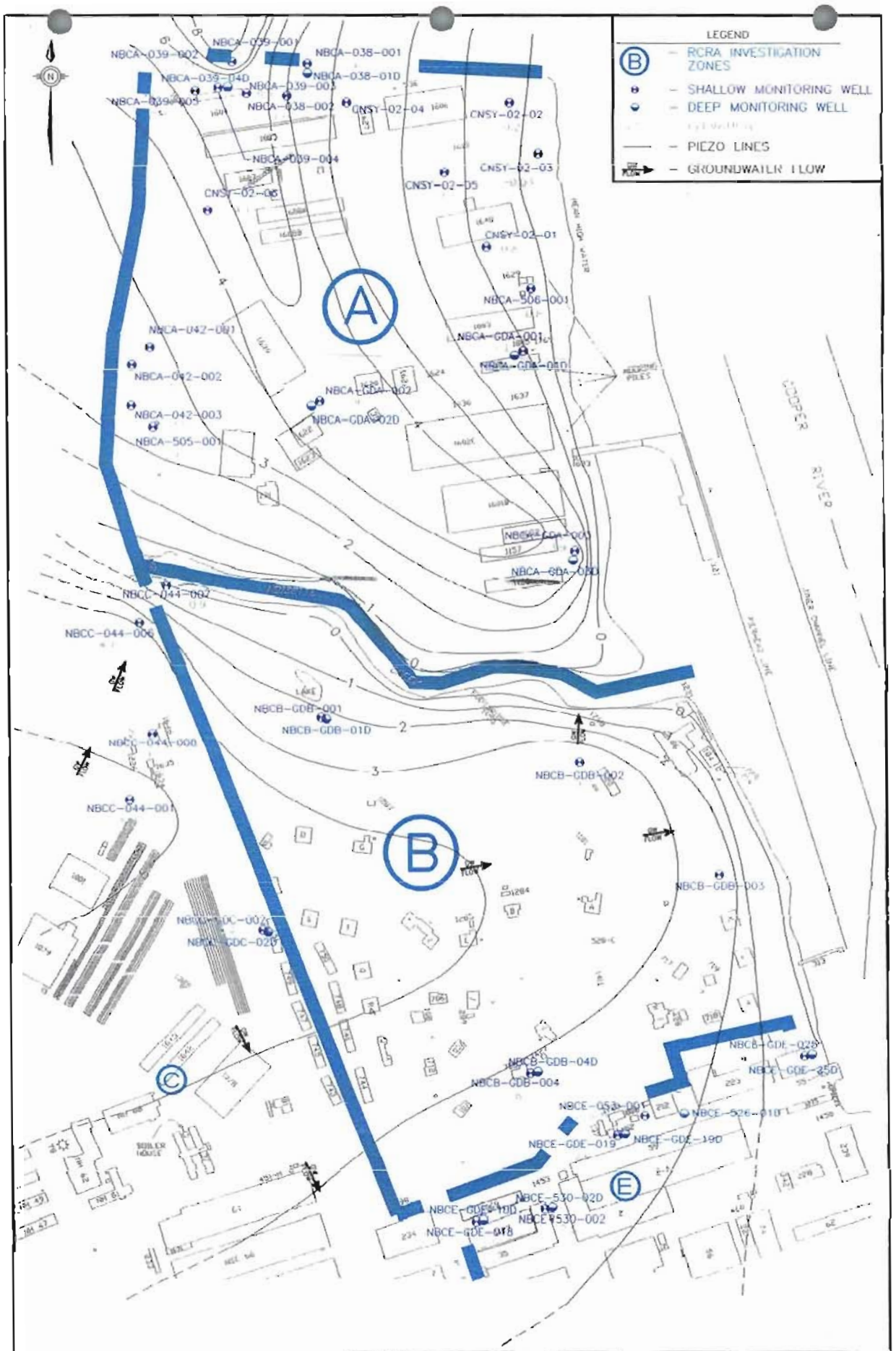
Figure 4, Zone A Potentiometric Map, indicates the direction of groundwater flow in Zone A. Groundwater in the area of contamination flows toward the south, east, and west. The additional six monitoring wells will permit a more accurate depiction of the groundwater flow in the vicinity of the plume.




Existing Wells
Geoprobe Borings
Proposed Shallow Wells
Proposed Deep Boring

**NAVBASE Charleston**
**Zone A**
**Geoprobe Investigation**

**FIGURE 3**
**Location of Zone A Proposed Wells/Boring**




ZONE B
RCRA FACILITY
INVESTIGATION REPORT
NAVAL BASE CHARLESTON
CHARLESTON, S.C

FIGURE 4
2-13-96 POTENTIOMETRIC SURFACE MAP
FOR SHALLOW WELLS AT LOW TIDE
NAVAL BASE CHARLESTON
CHARLESTON, SOUTH CAROLINA

DWG DATE:07/01/96 | DWG NAME:29ZBP01

NAVAL BASE CHARLESTON
RESTORATION ADVISORY BOARD (RAB)
Minutes of 11 June 1996

1. Introduction of the RAB Members and Guests

Mr. Don Harbert, Community Co-chair, welcomed everyone to the RAB meeting and asked that all RAB members introduce themselves to the audience. Mr. Harbert also added that if any of the audience members do not understand an acronym or an issue, that they please ask the speaker to stop and explain it.

2. RAB Members Attending

Mr. Oliver Addison
Mr. Ray Anderson
Mr. Doyle Brittain
Mr. Bobby Dearhart
Mrs. Susan Floyd
Mr. Daryle Fontenot
Ms. Gussie Greene
Mr. Don Harbert
Mr. Virgil Johnston
Mr. Ralph Laney
Ms. Wannetta Mallette
Mr. Robert Mikell
Mr. Louis Mintz
Mr. Arthur Pinckney
Mr. Odell Price
Ms. Ann Ragan

3. Guests Attending

| | |
|---|---|
| Mr. Tony Hunt | NAVFAC, SouthDiv |
| Mr. Brian Stockmaster | NAVFAC, SouthDiv |
| Mr. Gabriel Magwood | NAVFAC, SouthDiv |
| Mr. Jim Beltz | NAVFAC, SouthDiv |
| Mr. Steve Curfman | CEERD |
| Ms. Elise Stoney | CEERD |
| Ms. Virginia Thomas | Detachment |
| J.N.K. Tunstall | Detachment |
| Mr. John B Lawrence | Detachment |
| Mr. Jack Amey | Detachment |
| Mr. Johnny Tapia | SCDHEC |
| Mr. Paul M. Bergstrand | SCDHEC |
| Ms. Ledlie Bell | League of Women Voters |
| Mr. Gene Eaton | Atlantic Drilling Corp. |
| Ms. Jeri Johnson | RDA |
| Ms. Nancy C. Borsich | Concerned Citizen |
| Carmen Infinger | |
| Mrs. June M. Brittain | Concerned Citizen |
| Mr. Paul Tomiczek | Bechtel |
| Ms. Diane Cutler | EnSafe/Allen&Hoshall |
| Mr. Todd Haverkost | EnSafe/Allen&Hoshall |
| Mr. Dave Backus | EnSafe/Allen&Hoshall |
| Mr. Mike Wood | EnSafe/Allen&Hoshall |

| | |
|---|---|
| Mr. Jack Mayfield | EnSafe/Allen&Hoshall |
| Mr. Greg Temple | EnSafe/Allen&Hoshall |

4. Administrative Remarks and Comments on Minutes

No comments or corrections were made on last month's meeting minutes.

5. Subcommittee Reports

*Community Relations*
Ms. Wannetta Mallette provided a review of the latest Community Relations meeting. The meeting was held prior to the RAB meeting at 3:00 p.m. The committee has tentatively scheduled the next RAB meeting to be held at the Dorchester Road Regional Library in North Charleston. The August meeting will be scheduled for the Summerville area. The subcommittee also reviewed Contaminant Posters which can be used collectively as a poster station at RAB meetings and any other type of public meeting or event. The subcommittee will not meet in July due to a scheduling conflict with a BRAC conference that Daryle Fontenot will be attending. Fact Sheet #6 - Zone H Environmental Investigation Results should be mailed to everyone on the mailing list sometime next week. The subcommittee plans on beginning work on Fact Sheet #7 at their next meeting which will be held in August.

Mr. Fontenot added that a letter was sent to local government officials (from RAB members) explaining what the RAB does and how the local officials can help get the word out about their efforts. The letter was mailed out in June (a copy is attached to these minutes).

*Shipyard Detachment*
Mr. Arthur Pinckney did not meet with the Shipyard Detachment but he did try to get some information about the Priority Placement, or PP Program which is involved with the retraining and placement of shipyard workers. Mr. Pinckney reported that the people he contacted would not provide him with the information he was looking for. Mr. Bobby Dearhart told Mr. Pinckney that he would help him get information by putting him in contact with the right person. Mr. Dearhart continued by explaining that the PP Program was initially developed by the Department of Defense to help workers at closing facilities to find jobs at other DOD facilities. That was, in fact, how the environmental detachment was established.

*Finance*
Mr. Mintz stated that there was no report this month.

6. RDA Update

Mr. Virgil Johnston stated that he doesn't have much to report this month to supplement Jeri Johnson's May update, although he did add that the RDA is not in agreement with the Navy's approach to closing the tanks at the Chicora Tank Farm.

Currently the RDA is working on several leases. Now there are two gates open at the Shipyard; the North gate is opened from 6 a.m. to 6 p.m., and the second gate is the McMillan gate. Next week the RDA will select a consultant to develop a business plan.

Mr. Dearhart stated that the Environmental Impact Statement Record of Decision was recently signed through a big push by the local community, and asked if the RDA has done anything as a result. Ms. Johnson said that the ROD was signed last month, and agreed that it was a big step. The Navy has now said that they feel more inclined to allow the RDA to sign long-term leases, however, the RDA has yet to come up with the proper language that makes the Navy feel completely comfortable with it. Currently the RDA is waiting on final approval. Mr. Mintz asked what the definition is for a long-term lease and Ms. Johnson answered anywhere from 20 - 50 years.

7. Environmental Cleanup Progress Report

*Status of the Environmental Programs*

Mr. Fontenot reported that the Tier 1 Project Team at Charleston is still in the process of developing a status sheet which identifies all the environmental projects the Navy is involved with at the facility. Projects will include Underground Storage Tank (UST) removal, asbestos removal, and property transfer and reuse. Under the UST program, tanks are currently being removed. The goal is to remove 27 tanks this year, and so far 12 have been removed. The Navy is also working on a tank management plan which is in regulatory review. Once that is finalized, copies will be made available to let everybody know exactly what the plan is. The Project Team is also working on a proposed remediation plan which is an outline on how they will handle cleanup. They are also working on a bioremediation pilot project proposal for petroleum products in soil. In addition, the asbestos program has a number of activities ongoing at various stages (Building 32, 1171, 1601).

Attached to these minutes is a list of all the Findings of Suitability to Lease (FOSLs) and Environmental Baseline Surveys for Lease (EBSLs) that have been signed to date or are currently being worked on. A second attachment lists the Environmental Baseline Survey to Transfer (EBST) for federal transfer. The Navy Annex was not included in the original Environmental Impact Statement and therefore is only now undergoing an initial assessment.

Mr. Lou Mintz stated that he thought bioremediation was already an approved and established method for remediating wastes. If true, why does the Navy have to do a pilot project? Mr. Fontenot verified that it is a proven method, but the Navy's specific approach must me proven and approved by regulators. Mr. Dearhart added that they are testing three methods to determine which will deliver the fastest and most cost-effective results for the unique characteristics at the Naval Base.

*Progress Report for April*

Mr. Tony Hunt reported that there hasn't been much change in status since last month's report. In terms of field work, the Navy is out in the field doing quarterly groundwater monitoring. They just finished up with the second quarter of A and B and they intend to get

into the third quarter very soon. Additionally, they will soon begin second quarter groundwater monitoring in Zone E, the Controlled Industrial Area where the shipyard activity occurred. The remaining soil sampling in E, used to further delineate the site, will also begin shortly.

Comments from the State have been received on the Work Plan for combined Zones D, F, and G. EPA comments are close to being resolved, and they expect to be in the field for these zones very soon. Remaining Work Plans include Zone J which is the water bodies, Zone L which includes the storm sewers, sanitary sewers, and railroad system, and Zone K which is the non-contiguous areas such as Clouter Island and the Naval Station Annex.

The Navy is also waiting on comments on the RFI Reports for Zones C, I, and B.

Mr. Ralph Laney asked if the Corrective Action Management Plan (CAMP) schedules are being met. Mr. Hunt replied that the CAMP was recently revised because of extended reviews by the regulatory agencies which caused the schedule to shift back a bit. However, they are trying to stick to the schedule as much as possible.

Mrs. Susan Floyd asked if all the kinks were worked out of the Zone H RFI Report. Mr. Hunt responded that site delineation was a difficult problem that they recently worked through. Regulator comments were received in May, and the Navy has been working to incorporate those comments and resubmit the document. As far as the RFI Report for C and I go, comments have not yet been received by the regulators.

Ms. Johnson asked which Zones are being sampled at this time. Mr. Hunt answered that the only soil samples being collected are in the Controlled Industrial Area (CIA). Quarterly groundwater monitoring is currently being done in Zones C and I, and by the end of this month, third quarter monitoring will begin in Zones A and B. In Zone A, Direct Push Technology for groundwater sampling is also being conducted. This method doesn't create a permanent well, but rather pushes a probe into the ground, and samples through it. The resulting hole is then filled in. The reason this sampling was done is because there was an indication that there may be some halogenated hydrocarbons near the DRMO storage area and they're trying to get an indication of what that's all about.

Mr. Mintz asked what kind of samples are being taken in Zone E since there isn't much soil - everything is covered in asphalt or cement. Tony answered that they have actually taken in excess of 900 soil samples in Zone E, much of which was done through coring through cement. This was necessary because any released could have passed through cracks and crevices. The project team discussed the Zone E samples at their earlier meeting and found that the contamination is typically for industrial areas. Mr Mintz asked if Zone E will be acceptable for transfer. Mr. Hunt said it's too soon in the process to be able to answer that question.

Mrs. Floyd asked what contaminants were found through the Direct Push Technology and what caused it. The constituents were TCE and halogenated hydrocarbons which are caused by Freon products and solvents.

*Interim Measures*

Mr. Brian Stockmaster provided an update on the status of Interim Measures. Currently the Shipyard Detachment is working on two sites that are getting close to completion, SWMU 44, and SWMU 54. Work Plans have been completed for three other sites, and are currently awaiting regulatory review: SWMU 159 - a satellite accumulation area, SWMU 7 - a Public Works corral, and AOC 653 - the Auto Hobby Shop. Mr. Stockmaster added that at the last two RAB meetings he had provided a list of all the other Interim Measures Sites that they anticipate addressing. At the last meeting there was interest expressed in going out to see some of these sites. Mr. Fontenot made arrangements on Thursday 6/13/96 for RAB members or other interested parties to visit the site. Two sites that are currently being worked on will be visited, SWMUs 54 and 44, and there should be time to visit another site or two if anybody has a special request.

Mr. Pinckney requested that the Chicora Tank Farm be visited as part of the tour. Mr. Stockmaster stated that area isn't an Interim Measure site but doesn't see why it can't be part of the tour. Mr. Fontenot also reminded everyone that this is not the one and only chance people will get to visit sites. Anyone interested can contact him and arrangements will be made. Anyone interested in this tour should meet at 1:00 p.m. outside the security office at the McMillan gate on Thursday 6/13.

*Chicora Tank Farm*

As a result of the interest shown in last month's discussion on the Chicora Tank Farm, Mr. Fontenot went back and gathered information supporting the decisions that were made to close the site. First of all, there are no environmental problems at the Chicora Tank Farm. An investigation was done to assess the options for closing down the site. The first option was to fill the tanks and lines and close the tanks in place. The next two options dealt with partial demolition, and the last option dealt with the total demolition of the tanks. The regulators only found the first and last option acceptable. Partial demolition was not acceptable. Abandoning the tanks in place is consistent with the reuse plan, addresses all environmental concerns, meets all policy and guidance of the Navy, and meets regulatory requirements. In addition, abandoning the tanks costs the least of all the alternatives. This option costs $3 million, compared to total demolition which costs an additional $5 million, or total of $8 million. After reviewing this decision process, the Navy intends, at this time, to carry forth with their plan to abandon the tanks in place.

Ms. Johnson said that the reuse plan doesn't show the tanks on the property, that it shows it as a level playing field. Mr. Dearhart replied that the reuse plan is a schematic plan that shows a lot of changes on the Naval Base that aren't currently taking place and probably will not take place. The plan shows the Chicora Tank Farm property as a natural-type setting that will be used for the community members. The plan doesn't go into detail about what

it looks like, and neither does the environmental impact statement. The property, however, has been designated for community use, and the RDA can do what they like with it.

Ms. Gussie Greene asked what type of community area could possibly be establisbed there with the tanks remaining. Mr. Dearhart said it could be turned into a nice park, that the tanks will not be visible because they'll be covered over with soil.

Ms. Mallette asked if cutting the tanks down to ground level, and then filling them had been considered. Mr. Fontenot said that was suggested but is considered partial demolition that is not acceptable according to environmental regulations.

Mr. Lou Mintz said that the RAB was informed by Mr. Doyle Brittain of EPA that the public would be informed of all the remediation choices, and if they overwhelmingly chose one over the others, it would be the one implemented. Mr. Brittain responded that Mr. Mintz is correct regarding cleanup, however, in this case, cleanup is already done, and there is no hazardous material of concern. Because the tanks are clean, EPA has no regulatory authority over how they close them. The soil around the tanks is also clean as determined through environmental tests. As a result, EPA has no regulatory authority over how the tanks are to be removed. When there is a contamination issue, the RAB will be involved in making the cleanup decision, but this is not a contamination issue.

Mr. Mintz asked if contamination were to be found at the site, that it would then become a contamination issue and the RAB would then have input. Mr. Brittain concurred. Mr. Mintz continued by stating that if diesel fuel was stored in the tanks, it doesn't come out of the steel. Mr. Johnston interjected that the tanks are made of concrete. Mr. Mintz alleged that the diesel remains within the concrete. Mr. Fontenot clarified that soil and water around the tanks has been tested, and has shown no evidence of leakage from the tanks, supporting the fact that the tanks themselves are not a source of contamination.

Ms. Johnson asked if the RDA were to go back in later and demolish those tanks, would they have to worry about contamination. Mr. Mintz stated that he believes that the tanks are contaminated with diesel, and it was his understanding that the Navy was going to take all their contamination with them when they left. Mr. Fontenot reminded Mr. Mintz that the Chicora Tank farm isn't contaminated, that the soil and water is clean according to state regulatory standards.

Ms. Mallette said that in the past, a plan to demolish the tanks was prepared, and a field trip to watch the tanks being imploded was scheduled. She asked why that option was eliminated and why the RAB wasn't told about it. Ms. Ann Ragan answered that upon regulatory review, the partial demolition option was not acceptable, because once the tank was broken into pieces, those pieces would be considered "solid waste" (not to be confused with hazardous waste) according to state regulations.

Ms. Ledlie Bell asked for clarification about when the land was excessed. Captain Augustin said that the Chicora property was excessed at the same time all the base property was

excessed under BRAC. However, at the time, the tanks were no longer being used and already in the process of being cleaned out. How that particular cleanup was to be paid for was an issue at the time but isn't important now. The Captain recapped the issue - is the tank itself contaminated, and if so, what is an acceptable cleanup method? Mr. Brittain responded that according to regulations, the tanks are not contaminated. The question seems to be, "Where do we go from here?" The hands of the EPA are tied. Mr. Brittain offered two suggestions, one is to talk to Jim Moore at the Base who is the Base Transition Coordinator and answers directly to the Pentagon. The other suggestion is to talk to local government officials. If the RAB and the community are unhappy with the Navy's closure of the Chicora Tank Farm, they should follow up with either of Mr. Brittain's suggestions, because nothing more can be done by the EPA.

Mr. Mintz addressed the BCT and asked if the Navy made the statement that they would not leave any contaminated material behind when they left. Mr. Fontenot answered that the Navy will clean up to state and federal regulatory standards.

Ms. Ragan added that if the tanks were to be demolished, the remains would be classified as solid waste, or rubble (not hazardous waste). State regulations would require a landfill permit for that scenario to take place. Ms. Johnson asked if the Navy could apply for such a permit. Ms. Ragan answered that if they were to do that, then the Navy would hold a permit on that piece of property which would tie their hands regarding transfer. Mr. Mintz asked why the rubble couldn't be hauled away, to which Ms. Ragan answered that it could, but the cost would be prohibitive.

Captain Augustin recapped the Navy's requirements for closure of the tanks. The first is to meet environmental regulations at both the state and federal levels, and the second requirement is to spend the tax payers money in a way that makes good sense. The Navy under BRAC, has no requirement to improve the property. Although the Navy would like to remove a lot of the buildings on the base because they are unsightly and would help reuse, there is no money in the budget to spend on that function. Those costs are a function of redevelopment.

Ms. Bell asked if the Redevelopment Authority could work through local or federal agencies to get some type of grant to improve the land. Mr. Brittain commended her on the suggestion and emphasized that those are the types of avenues that the community should explore in finding an acceptable solution.

Ms. Johnson encouraged anyone interested in pursuing other options to join forces with the RDA. She stated for $1 million more than filling in place, the tanks could be demolished and a permit applied for by the Navy. Mr. Fontenot reminded Ms. Johnson that with a permit, the property can not transfer. Ms. Johnson responded that the RDA will not accept the property unless the tanks are removed, and that it may just as well be in the Navy's best interest to get the permit since the RDA won't accept the property with the tanks.

Mr. Ray Anderson asked about the environmental results of the tank farm and where they could be found. Mr. Fontenot stated that the environmental investigation was conducted separately from the remainder of the Base. The report which includes the findings is at Mr. Fontenot's office at the Base, and an additional copy will be placed in the Information Repository.

The Chairman suggested that the RAB will not be able to resolve the issues at hand and suggested that if there is further discussion, to address the appropriate authority after the RAB meeting.

*Other Issues*

Ms. Mallette asked about a site in Louisville Kentucky that was on the 1995 BRAC list. It is undergoing a fast track cleanup by a private developer who has come in and taken over the entire base. She asked why that cleanup is moving so much faster than Charleston which was on the 1993 list. Mr. Fontenot stated that the fact that a private developer is taking over makes it appealing to the federal government and a high priority.

8. Remaining Questions and Comments

Mr. Fontenot announced the newest RAB member, Fouche'na Shepard, who will be representing downtown Charleston. She is very involved with community affairs and also served on an advisory council for environmental issues.

In an effort to better understand the RAB function, Mr. Fontenot asked that each RAB member review the attached RAB roles and responsibilities. Mr. Dearhart asked that while reviewing this material, that they consider what should be done about members that don't attend. Mr. Fontenot reminded the RAB that a few months ago, he personally contacted every RAB member to find out if they were still interested in serving on the RAB. All but one person said yes, although not everyone has attended the meetings since then. Mr. Dearhart recommended that the person who said no should be replaced.

Mr. Mintz suggested that as an off-shoot of one of the upcoming RAB meetings that the group should gather and decide if anyone needs to be replaced due to chronic absences. Mrs. Floyd said that while they were developing the charter that none of the members had a problem with revoking membership due to excessive absence. Mr. Mintz suggested that this discussion occur at the August meeting, in private among only the RAB members. RAB members who want to be involved are encouraged to come to the August RAB meeting prepared to discuss this.

Ms. Ledlie Bell added, for the record, that due to reorganization, Mr. Rob Mikell's correct affiliation is South Carolina Office of Ocean and Coastal Resource Management - previously known as the South Carolina Coastal Council.

Mr. Harbert reiterated that the next meeting is tentatively scheduled for the Dorchester Road Regional Library.

**Mr. Fontenot added that there may be some out of town guests at the next RAB meeting who are participating in the BRAC conference.**

**9. Adjournment**

**Summary of Action Item**

- RAB members should review RAB roles and responsibilities.
- RAB members be prepared to discuss attendance issues at August RAB meeting.

**Attachments to Minutes**
**(1) Tuesday June 11, 1996 RAB Meeting Agenda**
**(2) RAB letter to Elected Leaders of the Trident area**
**(3) List of FOSLs/EBSLs/EBSTs**
**(4) Charleston Naval Complex - Tenant Summary as of 6/11/96**
**(5) What is a RAB?**

**Minutes recorded by: Diane Cutler, EnSafe/Allen&Hoshall**

**Minutes approved by:** _____ _____

| | |
|---|---|
| **Daryle Fontenot** | **Don Harbert** |
| **Co-Chairman** | **Co-Chairman** |

Tuesday, June 11, 1996

Charleston Naval Base

RESTORATION ADVISORY BOARD MEETING AGENDA

5:30 P.M. Location: St. Andrew's Regional Branch of the Charleston County Library, 1735 North Woodmere Drive, (behind the Village Square Shopping Center off Sam Rittenburg Blvd) Charleston SC

RAB Members, BRAC Cleanup Team, and interested citizens informally talk about what's going on from 5:30 p.m. to 6:30 p.m.

6:30 P.M. RAB MEETING

A. Introduction of the RAB Members and Guests

B. Administrative Remarks, comments on the minutes of the last meeting

C. Subcommittee Reports

Community Relations
Shipyard Detachment
Finance

D. RDA Update

E. Environmental Cleanup Progress Report Cleanup Team

Status of the Environmental Programs
Interim Measures

F. Remaining Questions and Comments from Visitors

G. Agenda for next meeting.

Please mark for calendar. Our next meeting is **Tuesday, July 9, 1996**. Time and location to be determined.

**DEPARTMENT OF THE NAVY**

SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
P.O. BOX 190010
2155 EAGLE DRIVE
NORTH CHARLESTON, S.C. 29419-9010

3 June 96

From: Restoration Advisory Board for Naval Base Charleston

Subj: **NAVAL BASE CHARLESTON RESTORATION ADVISORY BOARD MEETINGS**

Encl: (1) RAB Meeting Announcement
(2) RAB Meeting Agenda

Dear Elected Leaders of the Trident Area:

The Restoration Advisory Board (RAB) is a forum where community members meet with representatives from the Navy, State and Federal environmental agencies, and other groups to discuss the environmental programs under way at Naval Base Charleston.

The purpose of the RAB is to facilitate communication and coordination between the community and governmental agencies in the environmental cleanup of Naval Base Charleston. The RAB works in partnership with the Base Realignment and Closure Cleanup Team (BCT) by providing advice to the BCT on environmental cleanup issues and related matters. The RAB insures that the public has knowledge and input into the environmental investigation and cleanup ongoing at Naval Base Charleston.

The RAB meets every second Tuesday evening of each month at various location through the Trident area. Enclosure (1) is an announcement about our upcoming meeting and enclosure (2) is the agenda for the meeting. We encourage you as elected leaders of the Trident area to support the RAB by attending and inviting your constituents to attend and participate in the meetings.

Respectfully,

Donald R. Harbert
DONALD HARBERT
Community Co-Chair

Daryle L. Fontenot
DARYLE L. FONTENOT
Navy Co-Chair

RAB Members:

Government Agencies
CDR Phil Dalby (Caretaker Site Officer)
Doyle Brittain (EPA)
Ann Ragan (SC DHEC)
Bobby Dearhart (SPORTENVDETCHASN)
Bob Veronee (NISE East)
Virgil Johnston (CNCRA)
Jane Settle (SC DNR)
Diane Duncan (US Dept. of Interior)
Robert Mikell (SC Coastal Council)
Gussie Green (City of North Charleston)

Community
Van Robinson
Wilburn Gilliard
Ralph Laney
James Connor
Arthur Pinckney
Wannetta Mallette-Pratt
Louis Mintz
Susan Floyd
Steve Best
Oliver Addison
Odell Price
Ray Anderson

Distribution:
Mayor and City Council of Charleston
Mayor and City Council of Goose Creek
City Administrator and City Council of Hanahan
Mayor and Town Council of Mt. Pleasant
Mayor and City Council of Moncks Corner
Administrator and Town Council of Summerville

| 11-Jun-96 | | | |
|---|---|---|---|
| FOSL/EBSL DESCRIPTION | # of FAC | FACILITIES IN FOSL | DATE FOSL SIGNED |
| Marina | 4 | 682, 683, 688, X-54 | 5-Dec-94 |
| Building 83 | 1 | 83 | 31-Jul-95 |
| SIMA | 16 | NS-7, NS-8, NS-9, NS-10, NS-11, NS-12, NS-13, NS-17, NS-21, NS-23, NS-26, | 10-Jan-96 |
| | | 27, 417, 680, 681, 684 | |
| CSI | 1 | 241 | 5-Jan-96 |
| Reuser not determined | 16 | 65, NS-66, NS-67, NS-69, NS-71, 601, 602, 652, 653, 655, 656, | 28-Nov-96 |
| | | 657, 665, 668, 669, 1823 | |
| Credit Union | 3 | 244, 623, 666 | 27-Jan-96 |
| Building 76 and 255 | 2 | 76, 255 | 17-Jan-96 |
| Building 249 | 1 | 249 | 10-Jan-96 |
| Building 1655 | 1 | 1655 | 19-Dec-95 |
| Post Office | 1 | 400 | 15-Jun-95 |
| B & W | 3 | 3, 6, 226 | 30-Aug-95 |
| CMMC | 1 | 317D (Pier G) | 28-Nov-95 |
| CSI | 1 | 218 | 16-Nov-95 |
| NS-84 | 2 | NS-84, 1761 | 24-Feb-96 |
| Reuser not determined | 3 | NS-48, 670, 1787 | 24-Feb-96 |
| Building 674 | 1 | 674 | 24-Feb-96 |
| Border Patrol | 13 | 28, NS-43, NS-54, FBM-61, NS-67, 401, 600, 644, 652, 1795, 1799, 1815, 1875 | 8-Dec-95 |
| SeaBee Compound | 15 | 1776, 1777, 1778, 1877, 1878, 1879, 1880, 1881, 1882, 1883, 1885, 1886, | 1-Mar-96 |
| | | 1892, 1894, 1899 | |
| NCCC | 28 | NS-5, NS-6, NS-14, NS-43, NS-44, NS-45, 202, 203, 204, 664, 676, 677, 1281, | 23-Jan-96 |
| | | 1282, 1302, 1303, 1306, 1308, 1309, 1310, 1313, 1424, 1715, 1721, 1744, 1786, | |
| | | 1819, 1834 | |
| N. Charleston | 13 | 92, 180, 1345, 1400, 1401, 1403, 1405, 1412, 1489, 1490, 1724, 1725, 1794 | 24-Jan-96 |
| Building 59 | 1 | 59/59A | 24-Jan-96 |
| Building NS-46 | 1 | NS-46 | 24-Jan-96 |
| Building 2 | 1 | 2/2A | 14-Dec-95 |
| CMMC | 4 | 80, 197, 247, 305(DD#5) | 14-Sep-95 |
| CIA Area | 181 | 181 Facilities for CMMC, CSI, B&W | 31-Jan-96 |
| Misc Areas | 110 | 110 Facilities for CSI, N. Charleston, etc | 4/25/96 |
| Buildings 672, 673 | 2 | 672, 673 | 3/8/96 |
| NS-53 | 1 | NS-53 | 4/4/96 |
| Border Patrol | 2 | 1792, Obstacle Course | 4/23/96 |
| Hobson Avenue (Futrex) | 2 | Hobson Avenue and 1837 | 5/15/96 |
| Railroad System | 3 | Naval Base Railroad System, 482, 513 | 6/7/96 |
| Remaining Facilities | 233 | Remaining Facilities on Naval Base | est 10/31/96 |
| Naval Station Annex | 19 | 2501, 2506, 2507, 2508, 2509, 2511, 2513, 2522, 2524, 2525, 2530, 2532, 2535, 2536, | est 9/6/96 |
| | | 2550, 2552, 2553, 2555, 2556 | |
| McKinney Act Task Force & | 20 | 743, 744, 745, 746, 747, 748, 749, 750, 751, 765, 769, 777, 780, 781, 782, | est 8/23/96 |
| Transition Center | | M-10, M-11, NH-68 and Transition Center - NH-60, NH-61 | |
| TOTAL FACILITIES | 705 | | |

| NAVAL BASE CHARLESTON Environmental Baseline Survey for the Base Realignment and Closure Transfer | | | | |
|---|---|---|---|---|
| 11-Jun-96 | | | | |
| **EBST DESCRIPTION** | **# OF FAC** | **FACILITIES IN EBST** | **DATE OF EBST** | |
| NOAA | 7 | RTC-1, RTC-4, 200, 330(Pier R), 685, 1762, 1874 | Jul-95 | |
| State Department | 6 | 604, 643, 645, 646, 647, 649 | Apr-94 | |
| Coast Guard | 7 | 27, 636, 681, 1347, 1493, 1508, 328(Pier P) | May-96 | |
| Marine Corps (NS Annex) | 6 | 2505, 2517, 2520, 2521, 2523, 2533 | est Aug 96 | |
| US Army COE | 2 | 376, 377 | est 7/19/96 | |
| NISE | 16 | 187, 188, 189, 216, 237 | Pending Transfer | |
| | | 1602C, 1603, 1620, 1621, 1624, 1636, 1637, 1638, 1639, 1647, 1648 | | |
| TOTAL FACILITIES | 44 | | | |

CHARLESTON NAVAL COMPLEX — TENANT SUMMARY — DATA AS OF 11/96

| | CURRENT FACILITIES/EMPLOYMENT | | | | | | ULTIMATE FACILITIES/EMPLOYMENT | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DRY DOCKS | PIERS | NON-BLDGS | BUILD-INGS | BUILDING SQ. FT. | EMPLOY-EES | DRY DOCKS | PIERS | NON-BLDGS | BUILD-INGS | BUILDING SQ. FT. | EMPLOY-EES |
| **CURRENT LEASES/LICENSES** | | | | | | | | | | | | |
| ALLIED TECHNOLOGY | 0 | 0 | 0 | 1 | 8,553 | 10 | 0 | 0 | 0 | 1 | 8,553 | 100 |
| BABCOCK & WILCOX | 0 | 0 | 0 | 2 | 175,992 | 17 | 0 | 0 | 0 | 3 | 208,930 | 225 |
| CHARLESTON COUNTY PRC | 0 | 2 | 0 | 2 | 6,087 | 4 | 0 | 3 | 6 | 7 | 12,670 | 6 |
| CHARLESTON GRIP & ELECTRIC | 0 | 0 | 0 | 1 | 12,480 | 12 | 0 | 0 | 0 | 1 | 12,480 | 25 |
| CHARLESTON MARINE MANUF. CORP | 3 | 2 | 4 | 31 | 608,768 | 250 | 3 | 5 | 23 | 71 | 1,203,732 | 2,404 |
| CHARLESTON SHIPBUILDING, INC. | 0 | 1 | 0 | 4 | 56,002 | 4 | 2 | 6 | 22 | 61 | 549,359 | 2,000 |
| DEPT OF HEALTH & ENV. CONTROL (B/400) | 0 | 0 | 0 | 1 | 16,182 | 0 | 0 | 0 | 0 | 1 | 16,182 | 54 |
| FOX ASSOCIATES | 0 | 0 | 0 | 1 | 4,040 | 15 | 0 | 0 | 0 | 1 | 4,040 | 15 |
| M. ROSENBLATT | 0 | 0 | 0 | 1 | 2,880 | 25 | 0 | 0 | 0 | 1 | 2,880 | 25 |
| NIDA STAFF/CARETAKER CONTRACTORS | 0 | 0 | 0 | 2 | 42,471 | 17 | 0 | 0 | 0 | 1 | 8,205 | 17 |
| SC FEDERAL CREDIT UNION | 0 | 0 | 0 | 2 | 16,180 | 12 | 0 | 0 | 0 | 2 | 16,180 | 12 |
| U.S. POSTAL SERVICE (SHARE B/400) | 0 | 0 | 0 | 0 | 17,782 | 320 | 0 | 0 | 0 | 0 | 17,782 | 400 |
| SUBTOTAL | 3 | 5 | 4 | 48 | 967,417 | 686 | 5 | 14 | 51 | 150 | 2,060,993 | 5,283 |
| **UNDER NEGOTIATION** | | | | | | | | | | | | |
| CHARLESTON COUNTY SCHOOL DISTRICT | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 0 | 2 | 73,403 | 25 |
| COMMISSIONER OF PUBLIC WORKS | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 0 | 6 | 104,999 | 200 |
| MCKINNEY ACT TASK FORCE (8 AGENCIES) | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 2 | 22 | 161,513 | 200 |
| NORTH CHARLESTON | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 1 | 13 | 39 | 174,786 | 34 |
| SC EMPLOYMENT SECURITY COMMISSION | 0 | 0 | 0 | 1 | 41,196 | 56 | 0 | 0 | 0 | 2 | 42,278 | 56 |
| SPRINGS TAILORING & DRY CLEANING | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 0 | 1 | 1,089 | 7 |
| SUBTOTAL | 0 | 0 | 0 | 1 | 41,196 | 56 | 0 | 1 | 15 | 72 | 558,068 | 522 |
| **FEDERAL ACTIVITIES** | | | | | | | | | | | | |
| BORDER PATROL | 0 | 0 | 9 | 15 | 417,881 | 68 | 0 | 0 | 9 | 15 | 417,881 | 68 |
| CARETAKER SITE OFFICE/COMNAVBASE | 0 | 0 | 0 | 14 | 123,814 | 21 | 0 | 0 | 0 | 14 | 123,814 | 21 |
| DEFENSE FINANCE & ACCOUNTING | 0 | 0 | 3 | 6 | 373,666 | 596 | 0 | 0 | 3 | 5 | 232,518 | 750 |
| DEF INFO PROCESSING CENTER (B/198A) | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 6 |
| DEFENSE PRINTING | 0 | 0 | 0 | 1 | 26,520 | 37 | 0 | 0 | 0 | 1 | 26,520 | 37 |
| ENVIRONMENTAL DETACHMENT | 0 | 0 | 0 | 7 | 184,274 | 172 | 0 | 0 | 0 | 0 | 0 | 0 |
| MAGNETIC SILENCING FACILITY (PIER Y) | 0 | 1 | 4 | 4 | 6,396 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| MARINE RESERVE (NAVSTA ANNEX) | 0 | 0 | 0 | 6 | 25,056 | 54 | 0 | 0 | 0 | 6 | 25,056 | 54 |
| NATL CIVILIAN COMMUNITY CORPS | 0 | 0 | 6 | 14 | 141,489 | 75 | 0 | 0 | 6 | 14 | 141,489 | 75 |
| NATL OCEANIC & ATMOSPHERIC ADMIN | 0 | 1 | 0 | 5 | 47,340 | 15 | 0 | 2 | 1 | 6 | 47,852 | 25 |
| NISE EAST | 0 | 0 | 2 | 18 | 362,761 | 250 | 0 | 0 | 2 | 18 | 362,761 | 250 |
| STATE DEPARTMENT | 0 | 0 | 2 | 5 | 197,750 | 76 | 0 | 0 | 2 | 5 | 197,750 | 400 |
| U.S. COAST GUARD | 0 | 1 | 3 | 6 | 76,034 | 5 | 0 | 1 | 3 | 6 | 76,034 | 402 |
| SUBTOTAL | 0 | 3 | 29 | 101 | 1,982,981 | 1,380 | 0 | 3 | 26 | 90 | 1,651,675 | 2,088 |
| **GRAND TOTAL** | 3 | 8 | 33 | 150 | 2,991,594 | 2,122 | 5 | 18 | 92 | 312 | 4,270,736 | 7,893 |

## WHAT IS A RAB

## What Is a RAB

Restoration Advisory Board (RAB):

- Members provide individual advice to government decision makers
- Is NOT a decision-making body
- Is comprised of representatives from community AND government agencies
- All members are equal
- Member selection
  - community representatives: selection panel
  - government representatives: selected by agencies

**Notes**

## Purpose of the RAB

- Act as a forum for the discussion and exchange of information regarding cleanup between the installation, regulatory agencies, and the community
- Provide an opportunity for stakeholders to participate in the cleanup process and provide input to decision makers
- Complement other community involvement initiatives

Policy

The RAB has two primary purposes:

- Provide input to installation and regulatory agency decision makers on the cleanup program. However, the RAB does not make decisions regarding cleanup.
- Serve as a focal point for communicating with the community, but does not take the place of other necessary initiatives, such as preparing community relations plans, issuing public notices, holding public meetings, and establishing and maintaining information repositories. The RAB complements these efforts; it does not supplant them.

Notes

## RAB PURPOSE

- Facilitate communication and coordination between the community and governmental agencies in the environmental fast-track cleanup of the Naval Base, Charleston, SC. The RAB serves as an advisor to Commander, Naval Base, Charleston concerning environmental priorities and concerns.

## Responsibilities of the RAB

- Provide advice to the installation and federal and state regulatory agencies
- Address important issues related to cleanup, such as scope of studies, cleanup levels, waste management, and remedial action alternatives.
- Review and evaluate documents
- Identify proposed project requirements
- Recommend priorities among sites or projects
- Conduct regular meetings, open to the public, at convenient times and locations

**Policy**

- The RAB's focus should be the cleanup program. Undoubtedly, other issues may be raised. For example, at closing bases the community will be concerned about future land use, economic viability, and jobs. There should be other forums to discuss these issues, such as the Reuse Committee taking the lead on land use. It is the responsibility of the RAB members to ensure that discussions stay on track.
- The main responsibilities of the RAB include
  - Advice giving
  - Discussion of such key issues as scope of studies and cleanup levels
  - Reviewing plans and reports
  - Identifying proposed project requirements—planning functions
  - Recommending priorities (human health is most important consideration)
- At closing installations, it is appropriate for the RAB to review the environmental documentation (e.g., environmental baseline survey, Environmental Impact Statement, etc.) that support reuse actions such as leasing and transfer of property.

## Ingredients for a Successful RAB

- Open and forthright communication
- Understanding and trust
- Shared goals
- Willingness to forge partnerships

**Notes**

## WHAT THE RAB IS NOT

- The RAB does not determine property reuse.
- The RAB is not a substitute for public comment required by law.
- The RAB cannot make technical or regulatory decisions.

## RESTORATION ADVISORY BOARD MEMBER EXPECTATIONS

- Commitment to attend meetings.
- Communicate with local citizens and interest groups.
  - Specific base cleanup issues
  - Report back to organized groups
- Direct and reliable conduit for information flow to and from the community.
- Name and phone number widely communicated to local community to enable ready access and communication.
- Review documents and reports.

## RAB ROLES AND RESPONSIBILITIES

- Forum for exchange of information among the community, COMNAVBASE, BEST, and regulatory agencies regarding cleanup and conversion programs.
- Conduct regular meetings, open to the public.
- Participate in exchange of information among BRAC Cleanup Team, reuse entities, and the community.
- Represent and communicate community interests and concerns.
- Review, evaluate, and comment on documents and other materials related to base cleanup and conversion.
- Other functions as determined by RAB members and/or COMNAVBASE.

**Public Comment Periods Required by Regulation**

The DoD installation will solicit and respond to comments from the public as specified in applicable regulations. The public is the community at large, not only the RAB.

**Other Comments**

As a general rule, all draft and final documents distributed to the RAB for review and comment should be made available for a minimum of 30 days before comments are due to enable community input. For documents where a review period shorter than 30 days applies to regulatory staff, this same shorter review period would also apply to the review by the RAB and community members. Every effort should be made to provide the RAB and community members with an adequate review period based on the length and complexity of the document. Where necessary, special focus meetings of the RAB may be called to review and comment on key documents.

In order to demonstrate that all comments received on these documents receive meaningful consideration, the DoD installation should prepare formal written responses to all substantive comments received. For comments answered in the RAB meetings or in the meeting minutes, no separate written response is needed.

## IV. ROLES AND RESPONSIBILITIES

<u>DoD Co-Chair</u>

1. The DoD installation co-chair will coordinate with the community co-chair to prepare and distribute an agenda prior to each RAB meeting. If the RAB will address restoration related to base closure activities, the DoD and community co-chair should coordinate with the BCT.

2. The DoD installation co-chair will ensure that DoD participates in an open and constructive manner.

3. The DoD installation co-chair will ensure that the RAB has the opportunity to participate in the restoration decision process.

4. The DoD installation co-chair will ensure that community issues and concerns related to restoration are addressed when raised.

5. The DoD installation co-chair will ensure documents distributed to the RAB are also made available to the general public.

6. The DoD installation co-chair with assistance from the RAB should ensure that an accurate list of interested/affected parties is developed and maintained.

7. The DoD installation co-chair will provide relevant policies and guidance documents to the RAB in order to enhance the RAB's operation.

8. The DoD installation co-chair will ensure that adequate administrative support to the RAB is provided.

9. The DoD installation co-chair will refer issues not related to restoration to appropriate installation official for them to address.

10. The DoD installation co-chair will report back to the installation.

Community Co-Chair

1. The community co-chair will coordinate with the DoD installation co-chair, RAB community members, and the BCT, as appropriate, to prepare an agenda prior to each RAB meeting.

2. The community co-chair will ensure that community members participate in an open and constructive manner.

3. The community co-chair will ensure that community issues and concerns related to restoration and/or reuse are raised.

4. The community co-chair will assist with the dissemination of information to the general public.

5. The community co-chair should report back to the community.

6. The community co-chair is expected to serve without compensation.

RAB Community Members

1. The RAB community members are expected to attend meetings as required by the RAB's operational procedures.

2. The RAB community members are expected to provide advise and comment on restoration issues to the decision makers.

3. The RAB community members should be responsible for representing and communicating community interests and concerns to the RAB.

4. The RAB community members should act as a conduit for the exchange of information between the community, DoD installation, and environmental oversight agencies regarding the installation's restoration and reuse programs.

5. The RAB community members should review, evaluate, and comment on documents and other such materials related to installation restoration and closure, where applicable.

6. The RAB community members are expected to serve without compensation on the RAB.

State Regulatory Agency Member

1. The state member will attend RAB meetings as required by the RAB operational procedures.

2. The state member will serve as an information, referral and resource bank for communities, installations and agencies regarding installation restoration.

3. The state member will review documents and other materials related to restoration.

4. The state member will ensure that state environmental standards and regulations are identified and addressed by the DoD installation.

5. The state member will facilitate flexible and innovative resolutions of environmental issues and concerns.

6. The state member will assist in eduction and training for the RAB members.

U.S. Environmental Protection Agency (EPA) Member

1. The U.S. EPA member will attend RAB meetings as required by the RAB operational procedures.

2. The U.S. EPA member will serve as an information, referral and resource bank for communities, installations and agencies regarding installation restoration.

3. The U.S. EPA member will facilitate flexible and innovative resolutions of environmental issues and concerns.

4. The U.S. EPA member will ensure that federal environmental standards and regulations are identified and addressed by the DoD installation.

5. The U.S. EPA member will assist in eduction and training for the RAB members.

BRAC Cleanup Team (BCT) at Closing Installations

1. The BCT will maintain a close working relationship with the RAB.

2. The BCT will ensure that all interested/impacted parties including the RAB, and support team members are kept abreast of project activities.

3. The BCT will provide timely and accurate information to the RAB.

4. The BCT will ensure that community input and involvement is actively solicited and meaningfully considered in BCT decision-making.

5. The BCT will keep themselves apprised of community interests and concerns.

**DEPARTMENT OF THE NAVY**
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
P.O. BOX 190010
2155 EAGLE DRIVE
NORTH CHARLESTON, S.C. 29419-9010

5090/11
Code 1877
9 August 1996

Mr. G. Randall Thompson
Director, Division of Hazardous and Infectious Waste Management
Bureau of Solid and Hazardous Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201

Subj: SUBMITTAL OF THE RCRA FACILITY INVESTIGATION STATUS REPORT FOR JULY 1996

Dear Mr. Thompson,

The purpose of this letter is to submit the Monthly RCRA Facility Investigation (RFI) Progress Report for Naval Base Charleston. This report is submitted voluntarily to provide an update on the progress of the RFI to members of the NAVBASE BRAC Cleanup Team (BCT) which includes representatives of the Navy, the Environmental Protection Agency and the South Carolina Department of Health and Environmental Control.

Enclosure (1) is the Monthly Report which contains the activity for the month of July, 1996. If you should have any questions, please contact Joe V. Camp Jr. or me at (803) 743-9985 and (803) 820-5525 respectively.

Sincerely,

Matthew A. Hunt

MATTHEW A. HUNT
Remedial Project Manager
Installation Restoration III

Encl:
(1) Monthly RFI Progress Report - July 1996

Copy to (w/encl):
SCDHEC (Bergstrand, Tapia)
USEPA (3) (Brittain)
SOUTHNAVFACENGCOM (Hunt)
CSO Naval Base Charleston (Camp, Fontenot)

# NAVBASE CHARLESTON PROGRESS REPORT DISTRIBUTION
## as of 7 AUGUST 96

# NAVBASE CHARLESTON PROGRESS REPORT DISTRIBUTION

Mr. G. Randall Thompson **(1 copy via overnight delivery)**
Director, Division of Hazardous and Infectious Waste Management
Bureau of Solid and Hazardous Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201

Mr. Johnny Tapia **(1 copy via overnight delivery)**
Bureau of Solid and Hazardous Waste
south Carolina Department of Health and Environmental Control
8901 Farrow Road
Columbia, SC 29203

Paul Bergstrand **(1 copy via overnight delivery)**
Department of Health and Environmental Control
Bureau of Solid and Hazardous Waste
8901 Farrow Road
Columbia, SC 29203

Mr. Doyle T. Brittain **(1 copy via regular mail)**
Naval Base Charleston (Code N4BEC)
1690 Turnbull Avenue
Charleston, SC 29408-1955

Mr. Doyle T. Brittain **(3 copy via overnight delivery)**
Environmental Protection Agency
Region IV
345 Courtland Street, NE
Atlanta, GA 30365

Mr. Daryle Fontenot **(1 copy via regular mail)**
Naval Base Charleston (Code N4BEC)
1690 Turnbull Avenue
Charleston, SC 29408-1955

| | |
|---|---|
| Commanding Officer<br>ATTN: M. A. Hunt (Code 1877)<br>SOUTHNAVFACENGCOM<br>2155 Eagle Drive<br>North Charleston, SC 29419-9010 | **(1 copies via regular mail)** |
| Mr. Bobby Dearhart<br>SUPSHIP Portsmouth, VA<br>Environmental Detachment, Charleston<br>1899 North Hobson Avenue<br>North Charleston, SC 29405-2106 | **(2 copies via regular mail)** |

**NAVBASE CHARLESTON**
**RFI STATUS REPORT**
**PERIOD: SUMMARY OF**
**01 July 1996 To 31 July 1996**

## I. INTRODUCTION

The following status report has been prepared to satisfy condition II.E.3.a of the Part B Permit Renewal dated 5 December 1994 for Naval Base Charleston (NAVBASE). The requirements of this condition are in effect since the total elapsed time to complete the RCRA Facility Investigation (RFI) is projected to be greater than 180 calendar days from the approval date of the *Final Comprehensive RFI Work Plan* as indicated in the Corrective Action Management Plan (CAMP).

In lieu of submitting quarterly reports, NAVBASE is voluntarily submitting monthly reports to provide an update on the progress of the RFI to members of the NAVBASE BRAC Cleanup Team (BCT) in a more timely manner. The content of the monthly reports includes information intended to satisfy condition II.E.3.a of the Part B Permit. Consequently, this report only addresses activities which occurred during the month of July 1996.

## II. PORTION OF THE RFI COMPLETED

- The installation of 10 monitoring wells at SWMU 39 in Zone A was completed.
- The fourth quarter of groundwater sampling in Zone C was completed.
- The second quarter of Zone E groundwater sampling was initiated.
- The revised *Zone H RFI Report* was submitted to SCDHEC and EPA on 8 July 1996. Also in Zone H, the Two monitoring wells at AOC 653 were abandoned in preparation to begin interim measures activities at the site.
- The revised *Zone L RFI Work Plan* was submitted to SCDHEC and EPA on 25 July 1996.
- Attachment A is the schedule of the basewide quarterly groundwater monitoring.

## III. SUMMARIES OF FINDINGS

Free product was discovered in monitoring well NBCA-039-011 at SWMU 39 in Zone A. The well is one of the new wells installed as a result of the direct push sampling completed in June and is located at the western corner of SWMU 39 adjacent to the Hess fuel farm. Based on the preliminary groundwater flow data, it appears the contamination is migrating onsite from the fuel farm. The product is floating on the surface of the water table and appears to be diesel fuel.

## IV. DEVIATIONS FROM APPROVED WORK PLANS THIS REPORTING PERIOD

There were no known deviations from the approved RFI Work Plans for this reporting period.

## V. SUMMARY OF CONTACTS WITH LOCAL COMMUNITY PUBLIC INTEREST GROUPS OR STATE GOVERNMENT

As indicated in the January 1995 Quarterly Status Report, the Navy has established a Restoration Advisory Board (RAB) to involve the public in the decisions regarding the investigation and remediation of contaminated sites at Naval Base Charleston. The meetings are held monthly and are open to the public. The minutes of July 1996 meeting are provided as Attachment B.

## VI. SUMMARY OF PROBLEMS OR POTENTIAL PROBLEMS AND ACTION TAKEN TO RECTIFY PROBLEMS

There were no problems identified during the current reporting period.

## VII. KEY PROJECT PERSONNEL

The status report for March 1996 reflected numerous changes in key Navy personnel for the NAVBASE Charleston RFI resulting from the closure of Charleston Naval Shipyard. No additional changes occurred during the current reporting period.

## VIII. PROJECTED WORK FOR THE NEXT REPORTING PERIOD

**Document Preparation and Data Evaluation:**

- Revisions 01 and 02 to the *Comprehensive RFI Work Plan* will be resubmitted concurrently to the regulatory agencies.
- Data evaluation for Zones A and E will continue.
- The revised *Zone J RFI Work Plan* will be resubmitted to the regulatory agencies for review.
- The revised *Zones L RFI Work Plan* has been resubmitted to the regulatory agencies for review.

- The *Zone K RFI Work Plan* and a response to comments will be submitted to the regulatory agencies.

**Field Activities:**

- Development and sampling of the newly installed monitoring wells at SWMU 39 is anticipated.

- The second quarter of groundwater sampling in Zone E will continue and the second round soil sampling efforts in Zone E are scheduled to begin.

- The fourth quarter of groundwater sampling in Zone I is scheduled to be completed.

## IX. COPIES OF DAILY REPORTS, INSPECTION REPORTS, LABORATORY DATA

Daily activities are recorded in accordance with the Data Management Plan included as Section 14 of the Final Comprehensive Sampling and Analysis Plan. Photocopies of these daily records have not been included with this status report; however, this information is available for review upon request.

Per agreement with SCDHEC and EPA, hard copies of the analytical data are not being submitted. A copy of the data is maintained at the EnSafe/Allen & Hoshall office in Charleston and is available for review.

# GROUNDWATER MONITORING PROJECT

This project samples groundwater wells segregated in nine (9) zones throughout the Naval Base to analyze for hazardous materials that have leached into the water table. Ensafe is contracted by the Navy to establish the monitoring plan and to monitor all wells quarterly for a total of four quarters. Ensafe will accomplish the initial sampling cycle (1st quarter) in each zone and the detachment will perform the remaining follow-up sampling cycles. Currently the detachment has been funded and authorized to complete sampling Zones A,B,C,E,H and I. Funding and authorization for Zones D,F, and G is expected to be awarded to the detachment.

| ZONE | SCHED START | SCHED COMP | ESD/[ASD] | ECD/[ACD] | % COMP | # WELLS |
|---|---|---|---|---|---|---|
| A (QTR. II) | 03/04/96 | 06/04/96 | [04/22/96] | [04/29/96] | 100% | 26 |
| (QTR. III) | 06/04/96 | 09/04/96 | [06/19/96] | [06/26/96] | 100% | |
| (QTR IV) | 09/04/96 | 12/04/96 | 09/09/96 | 09/18/96 | 0% | |
| B (QTR. II) | 03/04/96 | 06/04/96 | [04/22/96] | [05/02/96] | 100% | 6 |
| (QTR. III) | 06/04/96 | 09/04/96 | [06/19/96] | [06/26/96] | 100% | |
| (QTR IV) | 09/04/96 | 12/04/96 | 09/09/96 | 09/18/96 | 0% | |
| C (QTR. III) | 03/04/96 | 06/04/96 | [05/06/96] | [05/15/96] | 100% | 30 |
| (QTR. IV) | 06/04/96 | 09/04/96 | [06/07/96] | [06/17/96] | 100% | |
| E (QTR. II) | 06/19/96 | 09/19/96 | [07/01/96] | 08/23/96 | 71% | 175 |
| (QTR. III) | 09/19/96 | 12/19/96 | 09/19/96 | 11/08/96 | 0% | |
| (QTR IV) | 12/19/96 | 03/19/97 | 01/02/97 | 03/03/97 | 0% | |
| H (QTR IV) | 07/10/95 | 10/10/95 | [03/08/96] | [04/17/96] | 100% | 97 |
| I (QTR. III) | 03/04/96 | 06/04/96 | [05/15/96] | [06/05/96] | 100% | 55 |
| (QTR. IV) | 06/04/96 | 09/04/96 | 08/12/96 | 08/30/96 | 0% | |

**ESD = Estimated Start Date** **[ASD]= Actual Start Date**
**ECD = Estimated Completion Date** **[ACD ]= Actual Completion Date**

Durations for each Zone in working days

| | | |
|---|---|---|
| Zones A&B | 8 days | [4 men] |
| Zone C | 8 days | [4 men] |
| Zone E | 41 days | [QII = 7/1 - 8/23 6 men/day ; QIII & IV = 4 men/day] |
| Zone H | 26 days | [4 men] |
| Zone I | 15 days | [4 men] |

BENCHMARK = 21 (21.5) WELLS PER WEEK 7/30/96 8:26 AM

# EnSafe / Allen & Hoshall

a joint venture for professional services

*Program Management Office*
Shelby Oaks Plaza
5909 Shelby Oaks Dr.
Suite 201
Memphis, TN 38134
Phone (901) 383-9115
Fax (901) 383-1743

*EnSafe/Allen & Hoshall Branch Offices:*

**Charleston**
935 Houston Northcutt Blvd.
Suite 113
Mt. Pleasant, SC 29464
Phone (803) 884-0029
Fax (803) 856-0107

**Cincinnati**
400 TechneCenter Dr.
Suite 301
Milford, OH 45150
(513) 248-8449
(513) 248-8447

**Pensacola**
2114 Airport Blvd.
Suite 1150
Pensacola, FL 32504
Phone (904) 479-4595
Fax (904) 479-9120

**Norfolk**
303 Butler Farm Road
Suite 113
Hampton, VA 23666
Phone (804) 766-9556
Fax (804) 766-9558

**Raleigh**
5540 Centerview Drive
Suite 205
Raleigh, NC 27606
Phone (919) 851-1886
Fax (919) 851-4043

**Nashville**
311 Plus Park Blvd.
Suite 130
Nashville, TN 37217
Phone (615) 399-8800
Fax (615) 399-7467

**Dallas**
ller Drive
26
Irving, TX 75038
Phone (214) 791-3222
Fax (214) 791-0405

July 26, 1996

Naval Base Charleston
Caretaker Site Office
Attn: Daryle Fontenot
2155 Eagle Drive
N. Charleston, SC 29418

Subject: Restoration Advisory Board Meeting Minutes (7/9/96)
CLEAN Contract# N62467-89-D-0318 CTO# 2900

Dear Mr. Fontenot:

Please find enclosed a copy of the July 9, 1996 Restoration Advisory Board meeting minutes with all applicable attachments. Also enclosed is the original sign-in sheet, the audio tape of the meeting, and a diskette version with the file saved in WordPerfect 5.1, 6.1, and Microsoft Word for Windows 6.0. The diskette has been scanned for viruses and none were detected.

Also enclosed in this package are the meeting announcement and news release for the upcoming August 13th meeting.

If you have any questions regarding the enclosed material, feel free to call me at (919) 851-1886.

Sincerely,

EnSafe/Allen&Hoshall
By:

Diane Cutler

Enclosures

cc: Jim Beltz, NAVFAC- SouthDiv
Todd Haverkost, E/A&H
Contracts File

NAVAL BASE CHARLESTON
RESTORATION ADVISORY BOARD (RAB)
Minutes of 9 July 1996

1. Introduction of the RAB Members and Guests

Mr. Daryle Fontenot, Navy Co-chair, welcomed everyone to the RAB meeting and noted that there were a number of special guests in the audience due to the Risk Communication Course and the East Coast BRAC Conference that are both in town this week. Mr. Fontenot asked that RAB members and the audience introduce themselves and their affiliation.

2. RAB Members Attending

Mr. Steve Best
Mr. Doyle Brittain
Mr. James Conner
Lt Com. Paul Rose for Com. Phil Dalby
Mr. Bobby Dearhart
Mr. Daryle Fontenot
Ms. Gussie Greene
Mr. Virgil Johnston
Mr. Ralph Laney
Mr. Louis Mintz
Mr. Jim Moore
Mr. Arthur Pinckney
Mr. Odell Price
Ms. Fouche'na Sheppard

3. Guests Attending

| | |
|---|---|
| Mr. Tony Hunt | NAVFAC, SouthDiv |
| Mr. Brian Stockmaster | NAVFAC, SouthDiv |
| Mr. Gabriel Magwood | NAVFAC, SouthDiv |
| Mr. Jim Beltz | NAVFAC, SouthDiv |
| Ms. Pat Franklin | NAVFAC, SouthDiv |
| Captain Jim Augustin | NAVFAC, SouthDiv |
| Mr. Hayes H. Patterson Jr. | NAVFAC, SouthDiv |
| Ms. Virginia Thomas | Detachment |
| Mr. Kevin Tunstall | Detachment |
| Mr. John Lawrence | Detachment |
| Ms. Allison Abernathy | EPA |
| Ms. Lucreatsia Holloway | Navy |
| Mr. David Hoel | MUSC |
| Mr. Paul J. Lioy | MUSC |
| Mr. Johnny Tapia | SCDHEC |
| Mr. Paul M. Bergstrand | SCDHEC |
| Mr. Charles W. Grosse | Navy Environmental Health Center |
| Ms. Jeri Johnson | RDA |
| Mr. Joseph T. Crowder | CCS&T/Charleston |
| Ms. Susan Dunn | Grassroots Coalition |
| Mrs. June M. Brittain | Concerned Citizen |
| Mr. John Sulkowski | ERM - Southeast |
| Ms. Diane Cutler | EnSafe/Allen&Hoshall |

3. Guests Attending, continued

| | |
|---|---|
| Mr. Jeff Bennett | EnSafe/Allen&Hoshall |
| Mr. Lawson Anderson | EnSafe/Allen&Hoshall |
| Mr. Larry Bowers | EnSafe/Allen&Hoshall |
| Mr. Peter McPheters | EnSafe/Allen&Hoshall |

4. Administrative Remarks and Comments on Minutes

Mr. Fontenot asked for comments on last month's minutes. Mr. Bobby Dearhart stated that on page 3, paragraph 7, reference to Building 1601 should be replaced with 1143. He also added one comment for clarification: on page 4, second from the last paragraph, it states that soil samples are being collected in the Controlled Industrial Area, however, that area is no longer the Controlled Industrial Area; it would suffice to simply say samples are being collected in Zone E.

Mr. Fontenot stated that the minutes will be corrected to reflect these changes.

5. Subcommittee Reports

*Community Relations*
The Community Relations Subcommittee did not meet this month due to a scheduling conflict with the BRAC conference. They are scheduled to meet on August 13, 1996 at 3:30 p.m at the Caretaker Site Office.

*Shipyard Detachment*
Mr. Arthur Pinckney reiterated that he had tried to get information about the Priority Placement (PP) Program at the Shipyard last month. He also stated that he visited interim measures sites and had the opportunity to talk to shipyard workers. Although they're doing a good job, they said that they would be able to do a better, faster, and more efficient job if they had the equipment they needed. The equipment they need is available on base, but the problem is that they can't access it.

Mr. Pinckney gathered information regarding the PP Program. It is a federally funded program and workers can qualify for the program if they were laid-off from Charleston Naval Shipyard. Through this program, the qualified applicant can sign up for 5 different positions, and then they are questioned by HRO about their qualifications for these positions. If deemed qualified, the worker will be added to the PP list. However, Mr. Pinckney was unable to attain qualification criteria used for filling positions.

The receiving entity is supposed to pick the individuals they want from the PP list to fill their positions, even if there are most qualified individuals out there that are not on the list. Mr. Pinckney is unsure of how the checks and balances work for this program.

Mr. Dearhart offered to speak with HRO to answer any outstanding questions Mr. Pinckney had. Mr. Pinckney responded that he would like to find out more about checks and balances of the program.

*Finance*

Mr. Mintz asked if the fiscal year ended on June 30. Mr. Fontenot responded that the fiscal year ends on September 30. Mr. Mintz said that the finance committee had put together an end of the year finance summary to find out where some of the money has gone, and wanted to know if it would be better to present it now, or wait until the end of the year. He said that he'd like to wait and include all the work through the end of the fiscal year, but will need to see the financial information. Mr. Fontenot said he would speak with Kim Reavis to set something up for Mr. Mintz to review the documents he needs.

6. RDA Update

Mr. Virgil Johnston introduced Ms. Jeri Johnson to provide the Redevelopment Authority update. Ms. Johnson handed out the latest status report on how they're doing. There are not too many changes since last month as the leasing process doesn't proceed very quickly. Since last month, the RDA added to Charleston Shipbuilders lease. In this case, as with some of the other major tenants, additional facilities are added to the lease, through amendment, as they become available. Although the number of lessees doesn't increase, the number of facilities that the RDA is leasing does increase. This month they leased the two small dry docks, 3 and 4, and leased Piers Lima and Zulu to Charleston Shipbuilders. Last month CSI had only 4 employees, this month they're up to 20, and are still hiring and converting the surplus navy vessels into floating power plants. Currently they have 6 vessels on the west coast that they will eventually bring here.

The RDA is still negotiating will the Navy on long-term leasing. Up until now they've been using the 5-year lease that has been hurting re-use. Captain Augustin answered that the Navy is willing to enter into a 25 year lease with a particular interest that has come to the RDA, with two provisions, 1) at the point that the land is deemed clean and transferrable, that the lease end and the land be transferred to the RDA, and 2) work out an arrangement where essentially the full cost of running the site will be divided among all the people who live at the site. This means there must be a provision in future leases to cover costs that are currently borne by subleases and the Navy. From the Washington level, there are people who are interested in concluding that lease by 7/19.

Ms. Johnson stated that she was glad to hear that because they have a very interesting potential tenant who is awaiting the results of the lease negotiations and would bring in a significant number of jobs and reuse an area that the RDA didn't even realize had reuse value. As far as everyone paying their fair share, the Rural Development Act passed about two weeks ago. Within that act is a provision that the RDA had requested, and the Department of Revenue inserted, that stipulates that all of the state tax generated by federal employees on a closed base would come to the RDA. If you look on the handout, there are a lot of federal employees on the base, which are not paying their fair share. This is one way

the state has come to the RDA's assistance, by allowing them to keep the state tax levied on the federal employees. This works out to be several million dollars a year and under this act, the RDA may be able to get that revenue for up to 15 years. This will solve some long-standing problems such as getting upgrades to water and sewer so that the North Charleston Sewer District and CPW will assume ownership of those utilities. The Rural Development Act will also provide incentives to private industry to relocate on the base.

Mr. Kevin Tunstall asked of the 702 employees on base from current leases/licenses, how many are shipyard workers. Ms. Johnson said the RDA has no way of knowing that. The RDA encourages all new industry to hire Navy workers, and even without that encouragement, there seems to be a trend to do so anyway. CMMC is full of former shipyard employees. Mr. Pinckney asked if the RDA could come up with a count of how many shipyard workers are currently employed at the base. Ms. Johnson said she'll try to get that information.

Mr. Mintz asked if it's justified that Charleston Shipbuilders have almost 355,000 feet of space and only 20 employees. Ms. Johnson responded that they're only starting out, and that they are projected at 2000 people. Charleston Shipbuilders Inc. (CSI) is owned by F. Brown Grey who was voted as the Florida entrepreneur of the year last year and has been very successful with his other businesses. Hopefully CSI will prove to be as successful as some of his other enterprises. Mr. Mintz asked if the summary sheet includes subleases. Ms. Johnson said that it does not. She also clarified by stating that the RDA leases from the Navy, and that CSI and CMMC sublease from the RDA. Other entities in turn can sub-sub-lease from those companies.

Mr. Pinckney noted that there are no subleases for the McKinney Act. Mr. Virgil Johnston added that the Navy is working on a FOSL for the property in question. A FOSL is the Finding of Suitability for Lease which includes a process for determining the environmental condition of a site, and a remediation plan for cleaning it up. The FOSL states whether the site can be used as is, or with stipulations. The buildings have to be inspected by regulators and deemed acceptable for use.

Ms. Johnson stated that they have come to an agreement on what facilities they want for the most part, but that they're just waiting for the FOSL process to be completed. Mr. Fontenot added that the FOSL process should be completed next week.

Mr. Jim Conner asked how much a manufacturing area leases for by the square foot. Ms. Johnson said they don't have a standard lease rate, that it depends on the condition of the facility and the amount of jobs the lessee is offering. For most of the industrial area, the RDA leases that on a percentage of gross revenue. It is a sliding scale each year and differs for various tenants ranging from 0.5 to 1.0 percent. Small leases are leased on a square footage basis. A warehouse could run anywhere from $0.50 to $3.00 per square foot depending on the quality of the warehouse. Some of the small leases that have been administered are Fox Associates and M. Rosenblatt.

Captain Augustin noted with interest that half of the base is in reuse, by virtue of either federal entities or commercial leases. The proportion of commercial to federal still favors federal but everyone is eager to see the number of commercial entities grow and surpass the number of federal employees.

Mr. Mintz noted that the RDA has leased out every square foot of the waterfront, yet there is very little activity in that area with the exception of the dry docks. Ms. Johnson responded that he may be surprised if he looked at the three dry-docks and the three piers which are full of activity. On the other hand, the Naval Station side doesn't appear to be very active but the and NOAA have each taken over a pier.

Ms. Susan Dunn asked about the status of the Business Plan. Ms. Johnson said that the RDA had a selection process where eight proposals were submitted, and interviews were conducted. However, the RDA made an error in the way they evaluated the firms and will cancel the process. The firm they wanted did not come out in top as a result of an error in numbers. The entire process will be resolicited with a new request for proposal. Ms. Dunn asked if the delay will jeopardize the money that is available. Ms. Johnson answered no, it's just going to slow down the process a little bit.

Mr. John Lawrence asked if they're still in negotiation for the South Carolina Rail System. Ms. Johnson was unsure and added that they may have it under a licence, that it is being leased to the SC Railways commission to operate and maintain on a short term basis until recommendations can be made as to the long term revenue producing aspects. It may make more sense to enter into an agreement with Norfolk Southern or CSX, but for the moment, they needed someone to come in and actually be able to operate the equipment.

Mr. John Sulkowski asked if there are checks and balances that ensure that the tenants are following regulations and not disposing or spilling hazardous waste? Lt. Paul Rose answered that the Caretaker Site Office (CSO) takes care of this, DHEC comes out to the site, and EPA is represented at the CSO. The Navy is the permit holder for environmental permits on the property, and as the land owner, they have people check to make sure everything is running accordingly.

7. <u>Environmental Cleanup Progress Report</u>

*Status of the Environmental Programs*

Mr. Fontenot reported that they're still working on what they want to hand out to all RAB members on the status of environmental programs. The detachment is involved with three asbestos projects. 1) For Building 32, the cost estimate is at SouthDiv. 2) Work is anticipated to begin at Building 1143 next week. 3) At Building 1171, equipment is in the process of being lined up. Once it is obtained, that project should begin. For Underground Storage Tanks, 22 have been removed to date. The FOSL for the McKinney Act should be to the regulators next week for review. Another FOSL was sent to regulators last week concerning Naval Annex property. The Environmental Baseline Survey for Transfer was signed for Clouter Island, and the next one they'll be working on is the Naval Annex Marine Corps,

which should be sent to SouthDiv next week. They are also working on a FOSL that will include approximately 233 facilities, which should be completed sometime in the fall. Currently they have approximately 400 facilities with FOSLs, and once these 200+ are added in the fall, they should have close to 700 signed that will be available to the RDA for lease.

*Progress Report for June*

Mr. Tony Hunt presented the status of the RFI for the environmental work going on at the base. Within the presentation he will talk about the field work going on in Zone A which is the DRMO storage area and Zone E which is the shipyard.

The Zone H RFI report is going to be delivered to the regulators this week, and the Navy feels that it will be an approvable document. Following are some of the points they discussed in trying to reach resolution on the document. 1) Contour - they had to come to some agreement on how to delineate the site. The difficultly was due to the heterogeneous soil conditions and the variety of contaminants which made it difficult to map. What they've done instead is map risk. For each sample point they have calculated risk from carcinogenic and non-carcinogenic contaminants and developed a risk for that particular point and then mapped, or used contours to establish risk levels. That was done for both residential and industrial scenarios. During the Corrective Measure Study (CMS) they'll compare the extent of those contours and will determine the areas to remediate. 2) Resolving Ecological Problems - Reviewers will identify what contaminants are driving risk at each sample point and identify the contaminant in tables so it's easier to review. The Navy also modified the conclusion section which will be a document that someone can remove and very easily find out what the results of the investigation are, and what's driving risk.

Mr. Jim Moore asked that once this is submitted and reviewed by the regulators, will it be the final RFI report for Zone H. Mr. Hunt answered that he thinks this will come back approved. Mr. Moore asked how it fits in with the Corrective Action Management Plan. Mr. Hunt answered that according to the CAMP issued in the spring of 1995, the Zone H RFI was supposed to be submitted in June 1995 with CMS activity beginning in the fall of 1995. Mr. Moore asked now that the Zone H issues such as contouring have been addressed, should the remaining Zone reports move more swiftly. Mr. Hunt answered yes, but to keep in mind that the Zone B, C and I reports were submitted before these changes. There will be some changes that are required to those documents and the Navy is already working on them.

The Zone J Work Plan comments from the state were received on June 28 and the Navy anticipates responding to those comments by July 28. The Natural Resource Trustees brought up some issues about the ecological receptors that need to be evaluated. There is also the issue of connecting sediment contamination with Navy activities. Mr. Mintz asked if there has been any testing in Zone J. Mr. Hunt clarified by saying that there has been testing along the waterfront in the sediment adjacent to Zones E and I. The Navy knows there are some high levels of PAHs (Polynuclear Aromatic Hydrocarbons) of which some are cancer causing compounds, or carcinogens.

Mr. Mintz asked if any sampling has been done around the storm water outlets. Mr. Hunt answered no, that testing will be conducted as part of the sewer system in Zone L.

Mr. Doyle Brittain added that one of the problems the Navy and regulators are going to run into in Zone J is that the river has been dredged. During dredging, sediment is being stirred up, moved around, and spilled. As the material becomes mobile in the water, it is carried by the river. There has also been a lot of industrial activity all around Naval Base Charleston for over 200 years, so they don't really know who has done what. One of the big problems will be having to sort out the contamination as it relates to Naval Base Charleston.

Mr. Mintz expressed his concern for private industry - that they can't dredge (e.g., for a marina) because something from upstream has been washed into their waterway and contaminated it. For example, the City Marina can't dredge because they have PCBs from the neck area that was doing creosote work. Mr. Mintz asked what the difference is between the problems industry is running into and the Navy. Mr. Brittain explained that there isn't any difference, that they're going to have to work through the regulations and do whatever cleanup is necessary. Commercial entities are also bound by the same laws as the Navy when it comes to cleanup. However, in some cases, removal may not be the best alternative, sometimes leaving material in place may prove to be the best option.

Mr. Mintz stated that the reason he's bringing this up is because he thinks the Chicora Tank Farm tanks are contaminated and that they're being left on site by the Navy, yet the Navy said they would clean up their "dirty stuff." He inquired if this was what the Navy was going to practice at the waterfront. Mr. Brittain emphasized that he Navy will clean up what the Navy owns and/or caused.

Mr. Mintz alleged that the tanks at Chicora tank farm are contaminated. Mr. Fontenot explained to Mr. Mintz that testing has been conducted around the tanks at the tank farm and were not found to be contaminating the surrounding soil or groundwater. Mr. Mintz continued, saying that he doesn't feel that the Navy is doing what they said they would, specifically, taking their contamination with them.

Mr. John Sulkowski asked about the risk zones and contours, specifically, are they divided into carcinogenic or non-carcinogenic lines or are they further delineated into the types of carcinogens/non-carcinogens. Mr. Hunt answered that right now they're just providing the former. Once they start considering corrective measure, they will have to go back and look at the individual constituents and what technology addresses those.

Mr. Sulkowski also asked if the Navy is seeing any carcinogens at levels that may be considered a hazard. Mr. Hunt answered that there are several areas that exceed $10^{-4}$ which the Navy feels is an action level, but there are none that pose an imminent and substantial endangerment.

Mr. Conner asked if the Shipyard Creek problem has been addressed from the Shipyard side. Mr. Hunt stated that the Navy has not finished its assessment of the site, they have

some limited data for the sediments in the upper region of the creek mostly around SWMU 121 and 19. But the larger part of the sampling effort will be done during the Zone J investigation. The Navy suspects that they may have to approach other industries in the future depending on what they find. Right now, they don't foresee that any of the Navy sites are contributing to that sediment contamination. In response to an inquiry about Clouter Island, it is an operating confined disposal unit by the Army and its discharges are regulated under the Clean Water Act.

Mr. Conner continued that Shipyard Creek, Noisette Creek, and the Chicora Tank farm are Navy properties and that the community wants them cleaned up. Mr. Brittain replied by stating that he understands the problems with Chicora Tank Farm, and as he has stated before, they do not have any control over that situation. EPA doesn't have any regulatory or statutory authority over the tank farm because all the regulations have been complied with regarding cleaning those tanks. The tanks have also been cleaned to all state statutes and regulations. An investigation has been done and no contamination was found. The issue that keeps coming up is disposal of the tanks. The tanks are above ground, and may have some effect on reuse, however, the Navy has done everything that's required of them. Mr. Brittain recommended that if the community has problems with this solution, to contact Jim Moore, the Base Transition Coordinator who is Naval Base Charleston's link to the Pentagon.

Regarding Shipyard Creek, the Cooper River, Noisette Creek, and the remainder of the Naval Base, the Navy has not completed everything that they're scheduled to do as far as investigation and cleanup of the base. They're not going to walk off and leave any hazardous waste that is not in full compliance with the requirements. The time is nearing that the cleanup alternatives will be brought to the community and RAB during public meetings. These meetings will give the public the opportunity to provide input.

Mr. Mintz wanted to know if the tanks were to be broken down, could the pieces be brought to any landfill for disposal. Mr. Brittain said that from an EPA standpoint, they are considered clean and could be disposed at any landfill, however, the state is allowed to be more stringent in their regulations than the EPA and in this case, does not allow it. Mr. Johnny Tapia from SCDHEC added that from a DHEC standpoint, the pieces of tank would not be allowed to be disposed in a landfill because they had been in contact with petroleum products. Mr. Tapia stated that these tanks are not considered contaminated. The petroleum that was once in the tanks has not been released to the ground.

Mr. Tapia also added that last week a group of DHEC regulators got together in response to the RAB's comments from the last meeting in an effort to see what other options can be explored regarding the tanks. Right now they are looking into other solutions that will satisfy the Navy, the regulators, and the community.

Mr. Conner commented that in addressing petroleum tanks, DHEC should follow the same guidelines as required in renovating a service station. Mr. Tapia responded that those are the guidelines that DHEC is using.

Mr. Pinckney asked if this could be pursued further as an environmental justice concern. Mr. Fontenot was unsure how this would be addressed as such.

Mr. Hunt continued with his presentation. Field work progress to date includes collection of second round samples and second quarter groundwater samples in Zone E, and finishing up some ground water screening in Zone A. The groundwater contamination that they're trying to delineate appears to be from a warehouse. In that area they will do geoprobe sampling and install permanent monitoring wells. The contamination there is TCE (trichloroethylene) and degradation products from TCE. The 60% progress meeting for Zone E was held, and as a result, second round sampling on about 15 sites will occur.

Projected progress for July includes responding to comments on the Work Plan for Zone J and continue with field work in Zones E and A.

*Interim Measures*

Mr. Brian Stockmaster provided an update on the status of Interim Measures. Currently the Shipyard Detachment is in the field and they're still working on SWMU 44 which is the coal field. It is 75% complete. Another site they're working on is SWMU 54, the abrasive glass grit area which was one of the sites on last month's tour. Two new sites that the detachment is working on is AOC 653 and SWMU 159.

As a review, an Interim Measure is a mechanism to address the site early in the site cleanup process. The objective of Interim Measures is the removal of source medium and to stop further migration of source contamination. One new site is AOC 707 which is a one-time fuel oil spill. Proposed action is to remove the contaminated soil. Another similar site is AOC 708 where soil from a petroleum release will be removed. A third new action site is SWMU 13 which is the fire fighter training area in Zone H. Soil will be removed from this area as well. The fourth area is not an AOC or SWMU. They have tested some of the storm sewer catch basins in the area and found out that some of them (approximately 11) have soils that have high hits of contaminants. Soil will be removed and catch basins will be cleaned out. These basins are on dry land and should not contain any tide water.

8. "Perspective" Talk Show Appearance

Ms. Wannetta Mallette contacted someone regarding the talk show which is a half hour show that runs Sunday mornings and evenings. "Perspective" extended an invitation for RAB representatives to come on the show and talk about what the RAB is doing and how they're involved in the cleanup of the Naval Base. Mr. Fontenot asked the RAB if they are interested in scheduling an appearance. Two representatives can be involved. The RAB's consensus is that they want to get the word out and agree they should proceed. The show is an interview-type talk show, not a call in show. It is taped on Monday evening and aired on Sunday mornings and evenings. Mr. Fontenot said he will call his contact at "Perspective" to set something up and will use the support of the Southern Division Public Affairs Office and EnSafe/Allen&Hoshall's Community Relations Specialist to prepare any material. A recommendation was made that the two co-chairs should be the representatives on the show.

**9. Remaining Questions and Comments**

**Mr. Fontenot scheduled homework for the RAB members. He asked that each RAB member review the information and come up with what they think are their responsibilities. This should be the first step in re-educating the RAB**

**In the June meeting there was a recommendation that the RAB have a closed meeting to discuss membership. Mr. Fontenot asked if this is still something that the RAB wants to pursue in August. The RAB concurred and suggested that it be part of the agenda for next month.**

**Mr. Fontenot announced that the next meeting will be held in the Summerville area on August 13, and that the specific location will be provided with the Agenda.**

**10. Adjournment**

**Summary of Action Item**

- RAB members should review RAB roles and responsibilities.
- Mr. Fontenot will set up time with "Perspective" for talk-show appearance.

**Attachments to Minutes**
**(1) Tuesday July 9, 1996 RAB Meeting Agenda**
**(2) Charleston Naval Complex - Tenant Summary as of 6/25/96**

**Minutes recorded by: Diane Cutler, EnSafe/Allen&Hoshall**

**Minutes approved by:** _____ _____

| | |
|---|---|
| **Daryle Fontenot** | **Don Harbert** |
| **Co-Chairman** | **Co-Chairman** |

**Tuesday, July 9, 1996**

**Charleston Naval Base**

**RESTORATION ADVISORY BOARD MEETING AGENDA**

5:30 P.M. Location: Dorchester Road Regional Branch of the Charleston County Library, 6325 Dorchester Road, North Charleston, SC

RAB Members, BRAC Cleanup Team, and interested citizens informally talk about what's going on from 5:30 p.m. to 6:30 p.m.

**6:30 P.M. RAB MEETING**

A. Introduction of the RAB Members and Guests

B. Administrative Remarks, comments on the minutes of the last meeting

C. Subcommittee Reports

Community Relations
Shipyard Detachment
Finance

D. RDA Update

E. Environmental Cleanup Progress Report Cleanup Team

Status of the Environmental Programs
Interim Measures

F. Perspective Talk Show Appearance

G. Remaining Questions and Comments from Visitors

H. Agenda for next meeting.

Please mark for calendar. Our next meeting is **Tuesday, August 13, 1996**. Time and location in the Summerville area to be determined.

CHARLESTON NAVAL COMPLEX — TENANT SUMMARY — DATA AS OF 6/25/96

| | CURRENT FACILITIES/EMPLOYMENT | | | | | | ULTIMATE FACILITIES/EMPLOYMENT | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DRY DOCKS | PIERS | NON-BLDGS | BUILD-INGS | BUILDING SQ. FT. | EMPLOY-EES | DRY DOCKS | PIERS | NON-BLDGS | BUILD-INGS | BUILDING SQ. FT. | EMPLOY-EES |
| **CURRENT LEASES/LICENSES** | | | | | | | | | | | | |
| ALLIED TECHNOLOGY | 0 | 0 | 0 | 1 | 8,553 | 10 | 0 | 0 | 0 | 1 | 8,553 | 100 |
| BABCOCK & WILCOX | 0 | 0 | 0 | 2 | 175,992 | 17 | 0 | 0 | 0 | 3 | 208,930 | 225 |
| CHARLESTON COUNTY PRC | 0 | 2 | 0 | 2 | 6,087 | 4 | 0 | 3 | 6 | 7 | 12,670 | 6 |
| CHARLESTON GRIP & ELECTRIC | 0 | 0 | 0 | 1 | 12,480 | 12 | 0 | 0 | 0 | 1 | 12,480 | 25 |
| CHARLESTON MARINE MANUF. CORP | 3 | 5 | 17 | 49 | 845,848 | 250 | 3 | 5 | 23 | 64 | 1,131,142 | 2,404 |
| CHARLESTON SHIPBUILDERS, INC. | 2 | 3 | 2 | 27 | 354,629 | 20 | 2 | 6 | 22 | 62 | 549,777 | 2,000 |
| DEPT OF HEALTH & ENV. CONTROL (B/400) | 0 | 0 | 0 | 1 | 16,182 | 0 | 0 | 0 | 0 | 1 | 16,182 | 54 |
| FOX ASSOCIATES | 0 | 0 | 0 | 1 | 4,040 | 15 | 0 | 0 | 0 | 1 | 4,040 | 15 |
| M. ROSENBLATT | 0 | 0 | 0 | 1 | 2,880 | 25 | 0 | 0 | 0 | 1 | 2,880 | 25 |
| RDA STAFF/CARETAKER CONTRACTORS | 0 | 0 | 0 | 2 | 42,471 | 17 | 0 | 0 | 0 | 1 | 8,205 | 17 |
| SC FEDERAL CREDIT UNION | 0 | 0 | 0 | 2 | 16,180 | 12 | 0 | 0 | 0 | 2 | 16,180 | 12 |
| U.S. POSTAL SERVICE (SHARE B/400) | 0 | 0 | 0 | 0 | 17,782 | 320 | 0 | 0 | 0 | 0 | 17,782 | 400 |
| SUBTOTAL | 5 | 10 | 19 | 89 | 1,503,124 | 702 | 5 | 14 | 51 | 144 | 1,988,821 | 5,283 |
| **UNDER NEGOTIATION** | | | | | | | | | | | | |
| CHARLESTON COUNTY SCHOOL DISTRICT | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 0 | 2 | 73,403 | 25 |
| COMMISSIONER OF PUBLIC WORKS | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 0 | 6 | 104,999 | 200 |
| MCKINNEY ACT TASK FORCE (8 AGENCIES) | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 2 | 22 | 161,513 | 200 |
| NORTH CHARLESTON | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 1 | 13 | 39 | 174,786 | 34 |
| SC EMPLOYMENT SECURITY COMMISSION | 0 | 0 | 0 | 1 | 41,196 | 56 | 0 | 0 | 0 | 2 | 42,278 | 56 |
| SPRINGS TAILORING & DRY CLEANING | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 0 | 1 | 1,089 | 7 |
| WILSON & GREEN CUSTOM BUILDERS | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 0 | 1 | 3,390 | 10 |
| SUBTOTAL | 0 | 0 | 0 | 1 | 41,196 | 56 | 0 | 1 | 15 | 73 | 561,458 | 532 |
| **FEDERAL ACTIVITIES** | | | | | | | | | | | | |
| BORDER PATROL | 0 | 0 | 8 | 16 | 417,881 | 68 | 0 | 0 | 9 | 15 | 417,881 | 68 |
| CARETAKER SITE OFFICE/COMNAVBASE | 0 | 0 | 0 | 15 | 123,814 | 21 | 0 | 0 | 0 | 15 | 123,814 | 21 |
| DEFENSE FINANCE & ACCOUNTING | 0 | 0 | 3 | 6 | 373,666 | 596 | 0 | 0 | 3 | 5 | 232,518 | 750 |
| DEF INFO PROCESSING CENTER (B/198A) | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 6 |
| DEFENSE PRINTING | 0 | 0 | 0 | 1 | 26,520 | 37 | 0 | 0 | 0 | 1 | 26,520 | 37 |
| ENVIRONMENTAL DETACHMENT | 0 | 0 | 0 | 7 | 184,274 | 172 | 0 | 0 | 0 | 0 | 0 | 0 |
| MAGNETIC SILENCING FACILITY (PIER Y) | 0 | 1 | 4 | 4 | 6,396 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| MARINE RESERVE (NAVSTA ANNEX) | 0 | 0 | 0 | 6 | 25,056 | 54 | 0 | 0 | 0 | 6 | 25,056 | 54 |
| NATL CIVILIAN COMMUNITY CORPS | 0 | 0 | 6 | 14 | 141,489 | 75 | 0 | 0 | 6 | 14 | 141,489 | 75 |
| NATL OCEANIC & ATMOSPHERIC ADMIN | 0 | 1 | 0 | 5 | 47,340 | 15 | 0 | 2 | 1 | 6 | 47,852 | 25 |
| NISE EAST | 0 | 0 | 2 | 18 | 362,761 | 250 | 0 | 0 | 2 | 18 | 362,761 | 250 |
| STATE DEPARTMENT | 0 | 0 | 2 | 5 | 197,750 | 76 | 0 | 0 | 2 | 5 | 197,750 | 400 |
| U.S. COAST GUARD | 0 | 1 | 3 | 6 | 76,034 | 5 | 0 | 1 | 3 | 6 | 76,034 | 402 |
| SUBTOTAL | 0 | 3 | 28 | 103 | 1,982,981 | 1,380 | 0 | 3 | 26 | 91 | 1,651,675 | 2,088 |
| **GRAND TOTAL** | 5 | 13 | 47 | 193 | 3,527,301 | 2,138 | 5 | 18 | 92 | 308 | 4,201,954 | 7,903 |

# NAVY NEWS RELEASE

Public Affairs Office
Naval Facilities Engineering Command, Southern Division
P.O. Box 190010
North Charleston, SC 29419

***RAB Meets to Discuss Environmental Cleanup***

*For Publication by Monday, August 12*

*For more information, contact:*
Jim Beltz (803) 820-5771

*North Charleston* – Environmental and reuse issues will be the focus of the next meeting of the Naval Base Charleston Restoration Advisory Board (RAB). This meeting will be held on Tuesday, August, 13 1996 from 6:30 to 8:30 p.m. at the Dorchester County Services Building in the County Council Chambers in Summerville. Navy staff and environmental specialists will be available from 5:30 to 6:30 for informal discussion prior to the meeting. The meeting is open to the public and all are encouraged to attend.

The RAB is a group of community members, Navy representatives, and federal, state, and local organizations and agencies that gather monthly to discuss the progress of environmental cleanup and property reuse at Naval Base Charleston. Meetings are held on the second Tuesday of every month in alternating locations to accommodate the local communities most significantly affected by the Base closure.

Agenda items for the August 13th meeting include a progress report on the environmental investigations, and a Redevelopment Authority update on the status of property leasing.

For more information on the upcoming meeting, call Jim Beltz at the Public Affairs Office at Naval Facilities Engineering Command, Southern Division, (803) 820-5771.

**DEPARTMENT OF THE NAVY**
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
P.O. BOX 190010
2155 EAGLE DRIVE
NORTH CHARLESTON, S.C. 29419-9010

5090/11
Code 1877
9 September 1996

Mr. G. Randall Thompson
Director, Division of Hazardous and Infectious Waste Management
Bureau of Solid and Hazardous Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201

Subj: SUBMITTAL OF THE RCRA FACILITY INVESTIGATION PROGRESS REPORT FOR AUGUST 1996

Dear Mr. Thompson,

The purpose of this letter is to submit the Monthly RCRA Facility Investigation (RFI) Progress Report for Naval Base Charleston. This report is submitted voluntarily to provide an update on the progress of the RFI to members of the NAVBASE BRAC Cleanup Team (BCT) which includes representatives of the Navy, the Environmental Protection Agency and the South Carolina Department of Health and Environmental Control.

Enclosure (1) is the Monthly Report which contains the activity for the month of August, 1996. If you should have any questions, please contact Joe V. Camp Jr. or me at (803) 743-9985 and (803) 820-5525 respectively.

Sincerely,

Matthew A. Hunt

MATTHEW A. HUNT
Remedial Project Manager
Naval Base Charleston

Encl:
(1) Monthly RFI Progress Report - August 1996

Copy to (w/encl):
SCDHEC (Bergstrand, Tapia), USEPA (3)(Brittain)
SOUTHNAVFACENGCOM (Hunt, Stockmaster)
CSO Naval Base Charleston (Camp, Fontenot)

**NAVBASE CHARLESTON**
**RFI STATUS REPORT**
**PERIOD: SUMMARY OF**
**01 August 1996 To 31 August 1996**

## I. INTRODUCTION

The following status report has been prepared to satisfy condition II.E.3.a of the Part B Permit Renewal dated 5 December 1994 for Naval Base Charleston (NAVBASE). The requirements of this condition are in effect since the total elapsed time to complete the RCRA Facility Investigation (RFI) is projected to be greater than 180 calendar days from the approval date of the *Final Comprehensive RFI Work Plan* as indicated in the Corrective Action Management Plan (CAMP).

In lieu of submitting quarterly reports, NAVBASE is voluntarily submitting monthly reports to provide an update on the progress of the RFI to members of the NAVBASE BRAC Cleanup Team (BCT) in a more timely manner. The content of the monthly reports includes information intended to satisfy condition II.E.3.a of the Part B Permit. Consequently, this report only addresses activities which occurred during the month of August 1996.

## II. PORTION OF THE RFI COMPLETED

- Revisions 01 and 02 to the *Comprehensive RFI Work Plan* were resubmitted concurrently to the regulatory agencies.
- Preliminary sampling of the 10 new monitoring wells at SWMU 39 in Zone A was completed.
- The second quarter of Zone E groundwater sampling was completed.
- The *Final Zones D, F, and G RFI Work Plan* was approved by the regulatory agencies on 15 August 1996. Field work was initiated in the zones on 26 August 1996.
- The fourth quarter of groundwater sampling in Zone I was approximately 50% complete at the end of this reporting period.

## III. SUMMARIES OF FINDINGS

Attachment A contains copies of the preliminary groundwater data from the 10 new wells at SWMU 39. Also enclosed is a map depicting well locations and the apparent groundwater flow direction. Based on the data, it appears that two sources of groundwater contamination exist. Chlorinated solvent contamination, which has migrated both horizontally and vertically, is originating from an area in the vicinity of Building 1604 and BTEX contamination is suspected to be migrating on to navy property from the adjacent Hess fuel farm.

Attachment B is a summary of the first quarter groundwater data from Zone E.

## IV. DEVIATIONS FROM APPROVED WORK PLANS THIS REPORTING PERIOD

In an effort to expeditiously evaluate the groundwater contamination problem at SWMW 39, groundwater samples were collected from the newly installed wells prior to letting the wells sit undisturbed for 2 weeks before sampling. The data will be qualified accordingly and additional samples will be collected in accordance with the work plan.

## V. SUMMARY OF CONTACTS WITH LOCAL COMMUNITY PUBLIC INTEREST GROUPS OR STATE GOVERNMENT

As indicated in the January 1995 Quarterly Status Report, the Navy has established a Restoration Advisory Board (RAB) to involve the public in the decisions regarding the investigation and remediation of contaminated sites at Naval Base Charleston. The meetings are held monthly and are open to the public. The minutes of August 1996 meeting are provided as Attachment C.

## VI. SUMMARY OF PROBLEMS OR POTENTIAL PROBLEMS AND ACTION TAKEN TO RECTIFY PROBLEMS

There were no problems identified during the current reporting period.

## VII. KEY PROJECT PERSONNEL

The status report for March 1996 reflected numerous changes in key Navy personnel for the NAVBASE Charleston RFI resulting from the closure of Charleston Naval Shipyard. No additional changes occurred during the current reporting period.

## VIII. PROJECTED WORK FOR THE NEXT REPORTING PERIOD

**Document Preparation and Data Evaluation:**

- A Project Team meeting is scheduled for 3 September 1996 to discuss the *Draft Zone A RFI Report*, the revised *Zone J RFI Work Plan*, and the *Zone K RFI Work Plan*. Following the meeting, these documents will be submitted to the regulatory agencies for review.

- Data evaluation for Zone E will continue.

**Field Activities:**

- Sampling of the newly installed monitoring wells at SWMU 39 is anticipated as is additional field work to delineate the extent of groundwater contamination.
- Field activities in Zones D, F, and G will continue.
- The second round soil sampling efforts in Zone E are scheduled to begin.
- The fourth quarter of groundwater sampling in Zone I will be completed.

## IX. COPIES OF DAILY REPORTS, INSPECTION REPORTS, LABORATORY DATA

Daily activities are recorded in accordance with the Data Management Plan included as Section 14 of the Final Comprehensive Sampling and Analysis Plan. Photocopies of these daily records have not been included with this status report; however, this information is available for review upon request.

Per agreement with SCDHEC and EPA, hard copies of the analytical data are not being submitted. A copy of the data is maintained at the EnSafe/Allen & Hoshall office in Charleston and is available for review.

# LOCKHEED ANALYTICAL SERVICES

VOLATILE ORGANICS BY GC/MS
'60 VOLATILES

| | | | |
|---|---|---|---|
| Client Sample ID: | NBCA\039GW0100A | LAL Sample ID: | L7570-10 |
| Date Collected: | 01-AUG-96 | Date Received: | 02-AUG-96 |
| Date Analyzed: | 12-AUG-96 | Analytical Dilution: | 1 |
| Matrix: | Water | Analytical Batch ID: | 081296-8260-I1 |
| | | Preparation Dilution: | 1.00 |

| SURROGATE | RECOVERY | QC LIMITS |
|---|---|---|
| 1,2-Dichloroethane-d4 | 104% | 84-122 |
| Toluene-d8 | 101% | 87-117 |
| Bromofluorobenzene | 97% | 83-118 |

| CONSTITUENT | CAS NO. | RESULT ug/L | PRACTICAL QUANTITATION LIMIT ug/L | DATA QUALIFIER(S) |
|---|---|---|---|---|
| Chloromethane | 74-87-3 | <5.0 | 5.0 | |
| Vinyl Chloride | 75-01-4 | <5.0 | 5.0 | |
| Bromomethane | 74-83-9 | <5.0 | 5.0 | |
| Chloroethane | 75-00-3 | <5.0 | 5.0 | |
| Trichlorofluoromethane | 75-69-4 | <5.0 | 5.0 | |
| Acetone | 67-64-1 | 6.1 | 10. | JB |
| 1,1-Dichloroethene | 75-35-4 | <5.0 | 5.0 | |
| Carbon Disulfide | 75-15-0 | <5.0 | 5.0 | |
| Methylene Chloride | 75-09-2 | 5.0 | 5.0 | |
| trans-1,2-Dichloroethene | 156-60-5 | <5.0 | 5.0 | |
| Vinyl Acetate | 108-05-4 | <10. | 10. | |
| 1,1-Dichloroethane | 75-34-3 | <5.0 | 5.0 | |
| 2-Butanone | 78-93-3 | <10. | 10. | |
| cis-1,2-Dichloroethene | 156-59-2 | <5.0 | 5.0 | |
| Chloroform | 67-66-3 | <5.0 | 5.0 | |
| 1,1,1-Trichloroethane | 71-55-6 | 1.1 | 5.0 | J |
| Carbon tetrachloride | 56-23-5 | <5.0 | 5.0 | |
| 1,2-Dichloroethane | 107-06-2 | <5.0 | 5.0 | |
| Benzene | 71-43-2 | <5.0 | 5.0 | |
| Trichloroethene | 79-01-6 | <5.0 | 5.0 | |
| 1,2-Dichloropropane | 78-87-5 | <5.0 | 5.0 | |
| Bromodichloromethane | 75-27-4 | <5.0 | 5.0 | |
| 2-Chloroethylvinylether | 110-75-8 | <20. | 20. | |
| 4-Methyl-2-Pentanone | 108-10-1 | <10. | 10. | |
| cis-1,3-Dichloropropene | 10061-01-5 | <5.0 | 5.0 | |
| Toluene | 108-88-3 | <5.0 | 5.0 | |
| trans-1,3-Dichloropropene | 10061-02-6 | <5.0 | 5.0 | |
| 2-Hexanone | 591-78-6 | <10. | 10. | |
| 1,1,2-Trichloroethane | 79-00-5 | <5.0 | 5.0 | |
| Tetrachloroethene | 127-18-4 | <5.0 | 5.0 | |
| Dibromochloromethane | 124-48-1 | <5.0 | 5.0 | |
| Chlorobenzene | 108-90-7 | <5.0 | 5.0 | |
| Ethylbenzene | 100-41-4 | <5.0 | 5.0 | |
| m,p-Xylene | 136777-61-2 | <5.0 | 5.0 | |
| o-Xylene | 95-47-6 | <5.0 | 5.0 | |
| Styrene | 100-42-5 | <5.0 | 5.0 | |
| Bromoform | 75-25-2 | <5.0 | 5.0 | |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | <5.0 | 5.0 | |
| 1,3-Dichlorobenzene | 541-73-1 | <5.0 | 5.0 | |
| 1,4-Dichlorobenzene | 106-46-7 | <5.0 | 5.0 | |
| 1,2-Dichlorobenzene | 95-50-1 | <5.0 | 5.0 | |

# LOCKHEED ANALYTICAL SERVICES

**VOLATILE ORGANICS BY GC/MS**
**TENTATIVELY IDENTIFIED COMPOUNDS**
**8260 VOLATILES**

| | | | |
|---|---|---|---|
| Client Sample ID: | NBCA\039GW0100A | LAL Sample ID: | L7570-10 |
| Date Collected: | 01-AUG-96 | Date Received: | 02-AUG-96 |
| Date Analyzed: | 12-AUG-96 | Analytical Dilution: | 1 |
| Matrix: | Water | Analytical Batch ID: | 081296-8260-I1 |
| | | Preparation Dilution: | 1.00 |

Number of TICs found: 10

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

| | CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|---|
| 1 | | Substituted Naphthalene | 21.77 | 10 | J |
| 2 | | Substituted Benzene | 22.26 | 10 | J |
| 3 | | Substituted Benzene | 22.51 | 20 | J |
| 4 | | Substituted Benzene | 22.69 | 7. | J |
| 5 | | Unknown | 22.96 | 30 | J |
| 6 | | Unknown | 23.93 | 6. | J |
| 7 | | Substituted Benzene | 24.12 | 7. | J |
| 8 | | Unknown | 24.32 | 20 | J |
| 9 | | Unknown | 24.87 | 10 | J |
| 10 | | Unknown | 25.32 | 10 | J |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |
| 21 | | | | | |
| 22 | | | | | |
| 23 | | | | | |
| 24 | | | | | |
| 25 | | | | | |
| 26 | | | | | |
| 27 | | | | | |
| 28 | | | | | |
| 29 | | | | | |

# LOCKHEED ANALYTICAL SERVICES

**VOLATILE ORGANICS BY GC/MS**
**8260 VOLATILES**

| | | | |
|---|---|---|---|
| Client Sample ID: | NBCA\039GW0090A | LAL Sample ID: | L7570-1 |
| Date Collected: | 01-AUG-96 | Date Received: | 02-AUG-96 |
| Date Analyzed: | 12-AUG-96 | Analytical Dilution: | 1 |
| Matrix: | Water | Analytical Batch ID: | 081296-8260-I1 |
| | | Preparation Dilution: | 1.00 |

| SURROGATE | RECOVERY | QC LIMITS |
|---|---|---|
| 1,2-Dichloroethane-d4 | 104% | 84-122 |
| Toluene-d8 | 100% | 87-117 |
| Bromofluorobenzene | 98% | 83-118 |

| CONSTITUENT | CAS NO. | RESULT µg/L | PRACTICAL QUANTITATION LIMIT µg/L | DATA QUALIFIER(S) |
|---|---|---|---|---|
| Chloromethane | 74-87-3 | <5.0 | 5.0 | |
| Vinyl Chloride | 75-01-4 | 6.2 | 5.0 | |
| Bromomethane | 74-83-9 | <5.0 | 5.0 | |
| Chloroethane | 75-00-3 | <5.0 | 5.0 | |
| Trichlorofluoromethane | 75-69-4 | <5.0 | 5.0 | |
| Acetone | 67-64-1 | 13. | 10. | B |
| 1,1-Dichloroethene | 75-35-4 | 1.1 | 5.0 | J |
| Carbon Disulfide | 75-15-0 | <5.0 | 5.0 | |
| Methylene Chloride | 75-09-2 | 2.8 | 5.0 | J |
| trans-1,2-Dichloroethene | 156-60-5 | <5.0 | 5.0 | |
| Vinyl Acetate | 108-05-4 | <10. | 10. | |
| 1,1-Dichloroethane | 75-34-3 | 1.5 | 5.0 | J |
| 2-Butanone | 78-93-3 | <10. | 10. | |
| cis-1,2-Dichloroethene | 156-59-2 | 39. | 5.0 | |
| Chloroform | 67-66-3 | <5.0 | 5.0 | |
| 1,1,1-Trichloroethane | 71-55-6 | <5.0 | 5.0 | |
| Carbon tetrachloride | 56-23-5 | <5.0 | 5.0 | |
| 1,2-Dichloroethane | 107-06-2 | <5.0 | 5.0 | |
| Benzene | 71-43-2 | <5.0 | 5.0 | |
| Trichloroethene | 79-01-6 | 1.7 | 5.0 | J |
| 1,2-Dichloropropane | 78-87-5 | <5.0 | 5.0 | |
| Bromodichloromethane | 75-27-4 | <5.0 | 5.0 | |
| 2-Chloroethylvinylether | 110-75-8 | <20. | 20. | |
| 4-Methyl-2-Pentanone | 108-10-1 | <10. | 10. | |
| cis-1,3-Dichloropropene | 10061-01-5 | <5.0 | 5.0 | |
| Toluene | 108-88-3 | <5.0 | 5.0 | |
| trans-1,3-Dichloropropene | 10061-02-6 | <5.0 | 5.0 | |
| 2-Hexanone | 591-78-6 | <10. | 10. | |
| 1,1,2-Trichloroethane | 79-00-5 | <5.0 | 5.0 | |
| Tetrachloroethene | 127-18-4 | <5.0 | 5.0 | |
| Dibromochloromethane | 124-48-1 | <5.0 | 5.0 | |
| Chlorobenzene | 108-90-7 | <5.0 | 5.0 | |
| Ethylbenzene | 100-41-4 | <5.0 | 5.0 | |
| m,p-Xylene | 136777-61-2 | <5.0 | 5.0 | |
| o-Xylene | 95-47-6 | <5.0 | 5.0 | |
| Styrene | 100-42-5 | <5.0 | 5.0 | |
| Bromoform | 75-25-2 | <5.0 | 5.0 | |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | <5.0 | 5.0 | |
| 1,3-Dichlorobenzene | 541-73-1 | <5.0 | 5.0 | |
| 1,4-Dichlorobenzene | 106-46-7 | <5.0 | 5.0 | |
| 1,2-Dichlorobenzene | 95-50-1 | <5.0 | 5.0 | |

# LOCKHEED ANALYTICAL SERVICES

**VOLATILE ORGANICS BY GC/MS**
**TENTATIVELY IDENTIFIED COMPOUNDS**
**8260 VOLATILES**

| | | | |
|---|---|---|---|
| Client Sample ID: | NBCA\039GW0090A | LAL Sample ID: | L7570-1 |
| Date Collected: | 01-AUG-96 | Date Received: | 02-AUG-96 |
| Date Analyzed: | 12-AUG-96 | Analytical Dilution: | 1 |
| Matrix: | Water | Analytical Batch ID: | 081296-8260-I1 |
| | | Preparation Dilution: | 1.00 |

Number of TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

| | CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|---|
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |
| 21 | | | | | |
| 22 | | | | | |
| 23 | | | | | |
| 24 | | | | | |
| 25 | | | | | |
| 26 | | | | | |
| 27 | | | | | |
| 28 | | | | | |
| 29 | | | | | |

# LOCKHEED ANALYTICAL SERVICES

**VOLATILE ORGANICS BY GC/MS**
**8260 VOLATILES**

| | | | |
|---|---|---|---|
| Client Sample ID: | NBCA\039GW0120A | LAL Sample ID: | L7570-4 |
| Date Collected: | 01-AUG-96 | Date Received: | 02-AUG-96 |
| Date Analyzed: | 12-AUG-96 | Analytical Dilution: | 1 |
| Matrix: | Water | Analytical Batch ID: | 081296-8260-I1 |
| | | Preparation Dilution: | 1.00 |

| SURROGATE | RECOVERY | QC LIMITS |
|---|---|---|
| 1,2-Dichloroethane-d4 | 106% | 84-122 |
| Toluene-d8 | 100% | 87-117 |
| Bromofluorobenzene | 97% | 83-118 |

| COMPOUND | CAS NO. | RESULT ug/L | QUANTITATION LIMIT ug/L | DATA QUALIFIERS |
|---|---|---|---|---|
| Chloromethane | 74-87-3 | <5.0 | 5.0 | |
| Vinyl Chloride | 75-01-4 | 3.9 | 5.0 | J |
| Bromomethane | 74-83-9 | <5.0 | 5.0 | |
| Chloroethane | 75-00-3 | <5.0 | 5.0 | |
| Trichlorofluoromethane | 75-69-4 | <5.0 | 5.0 | |
| Acetone | 67-64-1 | 8.4 | 10. | JB |
| 1,1-Dichloroethene | 75-35-4 | 2.9 | 5.0 | J |
| Carbon Disulfide | 75-15-0 | <5.0 | 5.0 | |
| Methylene Chloride | 75-09-2 | 1.4 | 5.0 | J |
| trans-1,2-Dichloroethene | 156-60-5 | 4.0 | 5.0 | J |
| Vinyl Acetate | 108-05-4 | <10. | 10. | |
| 1,1-Dichloroethane | 75-34-3 | 1.7 | 5.0 | J |
| 2-Butanone | 78-93-3 | <10. | 10. | |
| cis-1,2-Dichloroethene | 156-59-2 | 140 | 5.0 | |
| Chloroform | 67-66-3 | <5.0 | 5.0 | |
| 1,1,1-Trichloroethane | 71-55-6 | <5.0 | 5.0 | |
| Carbon tetrachloride | 56-23-5 | <5.0 | 5.0 | |
| 1,2-Dichloroethane | 107-06-2 | <5.0 | 5.0 | |
| Benzene | 71-43-2 | <5.0 | 5.0 | |
| Trichloroethene | 79-01-6 | 72. | 5.0 | |
| 1,2-Dichloropropane | 78-87-5 | <5.0 | 5.0 | |
| Bromodichloromethane | 75-27-4 | <5.0 | 5.0 | |
| 2-Chloroethylvinylether | 110-75-8 | <20. | 20. | |
| 4-Methyl-2-Pentanone | 108-10-1 | <10. | 10. | |
| cis-1,3-Dichloropropene | 10061-01-5 | <5.0 | 5.0 | |
| Toluene | 108-88-3 | <5.0 | 5.0 | |
| trans-1,3-Dichloropropene | 10061-02-6 | <5.0 | 5.0 | |
| 2-Hexanone | 591-78-6 | <10. | 10. | |
| 1,1,2-Trichloroethane | 79-00-5 | <5.0 | 5.0 | |
| Tetrachloroethene | 127-18-4 | <5.0 | 5.0 | |
| Dibromochloromethane | 124-48-1 | <5.0 | 5.0 | |
| Chlorobenzene | 108-90-7 | <5.0 | 5.0 | |
| Ethylbenzene | 100-41-4 | <5.0 | 5.0 | |
| m,p-Xylene | 136777-61-2 | <5.0 | 5.0 | |
| o-Xylene | 95-47-6 | <5.0 | 5.0 | |
| Styrene | 100-42-5 | <5.0 | 5.0 | |
| Bromoform | 75-25-2 | <5.0 | 5.0 | |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | <5.0 | 5.0 | |
| 1,3-Dichlorobenzene | 541-73-1 | <5.0 | 5.0 | |
| 1,4-Dichlorobenzene | 106-46-7 | <5.0 | 5.0 | |
| 1,2-Dichlorobenzene | 95-50-1 | <5.0 | 5.0 | |

# LOCKHEED ANALYTICAL SERVICES

**VOLATILE ORGANICS BY GC/MS**
**TENTATIVELY IDENTIFIED COMPOUNDS**
**8260 VOLATILES**

| | | | |
|---|---|---|---|
| Client Sample ID: | NBCA\039GW0120A | LAL Sample ID: | L7570-4 |
| Date Collected: | 01-AUG-96 | Date Received: | 02-AUG-96 |
| Date Analyzed: | 12-AUG-96 | Analytical Dilution: | 1 |
| Matrix: | Water | Analytical Batch ID: | 081296-8260-I1 |
| | | Preparation Dilution: | 1.00 |

Number of TICs found: 3

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

| | CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|---|
| 1 | | Unknown | 9.03 | 20 | J |
| 2 | | Unknown Hydrocarbon | 9.84 | 30 | J |
| 3 | | Unknown | 10.22 | 6. | J |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |
| 21 | | | | | |
| 22 | | | | | |
| 23 | | | | | |
| 24 | | | | | |
| 25 | | | | | |
| 26 | | | | | |
| 27 | | | | | |
| 28 | | | | | |
| 29 | | | | | |

# LOCKHEED ANALYTICAL SERVICES

**VOLATILE ORGANICS BY GC/MS**
**8260 VOLATILES**

| | | | |
|---|---|---|---|
| Client Sample ID: | NBCA\039TW0090A | LAL Sample ID: | L7570-7 |
| Date Collected: | 01-AUG-96 | Date Received: | 02-AUG-96 |
| Date Analyzed: | 12-AUG-96 | Analytical Dilution: | 1 |
| Matrix: | Water | Analytical Batch ID: | 081296-8260-I1 |
| | | Preparation Dilution: | 1.00 |

| SURROGATE | RECOVERY | QC LIMITS |
|---|---|---|
| 1,2-Dichloroethane-d4 | 105% | 84-122 |
| Toluene-d8 | 100% | 87-117 |
| Bromofluorobenzene | 98% | 83-118 |

| COMPOUND | CAS NO. | RESULT ug/L | REPORTING LIMIT ug/L | DATA QUALIFIERS |
|---|---|---|---|---|
| Chloromethane | 74-87-3 | <5.0 | 5.0 | |
| Vinyl Chloride | 75-01-4 | <5.0 | 5.0 | |
| Bromomethane | 74-83-9 | <5.0 | 5.0 | |
| Chloroethane | 75-00-3 | <5.0 | 5.0 | |
| Trichlorofluoromethane | 75-69-4 | <5.0 | 5.0 | |
| Acetone | 67-64-1 | 7.3 | 10. | JB |
| 1,1-Dichloroethene | 75-35-4 | <5.0 | 5.0 | |
| Carbon Disulfide | 75-15-0 | <5.0 | 5.0 | |
| Methylene Chloride | 75-09-2 | 4.2 | 5.0 | J |
| trans-1,2-Dichloroethene | 156-60-5 | <5.0 | 5.0 | |
| Vinyl Acetate | 108-05-4 | <10. | 10. | |
| 1,1-Dichloroethane | 75-34-3 | <5.0 | 5.0 | |
| 2-Butanone | 78-93-3 | <10. | 10. | |
| cis-1,2-Dichloroethene | 156-59-2 | <5.0 | 5.0 | |
| Chloroform | 67-66-3 | <5.0 | 5.0 | |
| 1,1,1-Trichloroethane | 71-55-6 | <5.0 | 5.0 | |
| Carbon tetrachloride | 56-23-5 | <5.0 | 5.0 | |
| 1,2-Dichloroethane | 107-06-2 | <5.0 | 5.0 | |
| Benzene | 71-43-2 | <5.0 | 5.0 | |
| Trichloroethene | 79-01-6 | <5.0 | 5.0 | |
| 1,2-Dichloropropane | 78-87-5 | <5.0 | 5.0 | |
| Bromodichloromethane | 75-27-4 | <5.0 | 5.0 | |
| 2-Chloroethylvinylether | 110-75-8 | <20. | 20. | |
| 4-Methyl-2-Pentanone | 108-10-1 | <10. | 10. | |
| cis-1,3-Dichloropropene | 10061-01-5 | <5.0 | 5.0 | |
| Toluene | 108-88-3 | <5.0 | 5.0 | |
| trans-1,3-Dichloropropene | 10061-02-6 | <5.0 | 5.0 | |
| 2-Hexanone | 591-78-6 | <10. | 10. | |
| 1,1,2-Trichloroethane | 79-00-5 | <5.0 | 5.0 | |
| Tetrachloroethene | 127-18-4 | <5.0 | 5.0 | |
| Dibromochloromethane | 124-48-1 | <5.0 | 5.0 | |
| Chlorobenzene | 108-90-7 | <5.0 | 5.0 | |
| Ethylbenzene | 100-41-4 | <5.0 | 5.0 | |
| m,p-Xylene | 136777-61-2 | <5.0 | 5.0 | |
| o-Xylene | 95-47-6 | <5.0 | 5.0 | |
| Styrene | 100-42-5 | <5.0 | 5.0 | |
| Bromoform | 75-25-2 | <5.0 | 5.0 | |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | <5.0 | 5.0 | |
| 1,3-Dichlorobenzene | 541-73-1 | <5.0 | 5.0 | |
| 1,4-Dichlorobenzene | 106-46-7 | <5.0 | 5.0 | |
| 1,2-Dichlorobenzene | 95-50-1 | <5.0 | 5.0 | |

# LOCKHEED ANALYTICAL SERVICES

**VOLATILE ORGANICS BY GC/MS**
**TENTATIVELY IDENTIFIED COMPOUNDS**
**8260 VOLATILES**

| | | | |
|---|---|---|---|
| Client Sample ID: | NBCA\039TW0090A | LAL Sample ID: | L7570-7 |
| Date Collected: | 01-AUG-96 | Date Received: | 02-AUG-96 |
| Date Analyzed: | 12-AUG-96 | Analytical Dilution: | 1 |
| Matrix: | Water | Analytical Batch ID: | 081296-8260-I1 |
| | | Preparation Dilution: | 1.00 |

Number of TICs found: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

| | CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|---|
| 1 | | Unknown | 9.81 | 7. | J |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |
| 21 | | | | | |
| 22 | | | | | |
| 23 | | | | | |
| 24 | | | | | |
| 25 | | | | | |
| 26 | | | | | |
| 27 | | | | | |
| 28 | | | | | |
| 29 | | | | | |

# LOCKHEED ANALYTICAL SERVICES

**VOLATILE ORGANICS BY GC/MS**
**8260 VOLATILES**

| | | | |
|---|---|---|---|
| Client Sample ID: | NBCA\039GW0070A | LAL Sample ID: | L7560-1 |
| Date Collected: | 31-JUL-96 | Date Received: | 01-AUG-96 |
| Date Analyzed: | 12-AUG-96 | Analytical Dilution: | 1 |
| Matrix: | Water | Analytical Batch ID: | 081296-8260-I1 |
| | | Preparation Dilution: | 1.00 |

| SURROGATE | % RECOVERY | QC LIMITS |
|---|---|---|
| 1,2-Dichloroethane-d4 | 98% | 84-122 |
| Toluene-d8 | 101% | 87-117 |
| Bromofluorobenzene | 96% | 83-118 |

| COMPOUND | CAS NO. | RESULT ug/L | QUANTITATION LIMIT ug/L | DATA QUALIFIER(S) |
|---|---|---|---|---|
| Chloromethane | 74-87-3 | <5.0 | 5.0 | |
| Vinyl Chloride | 75-01-4 | <5.0 | 5.0 | |
| Bromomethane | 74-83-9 | <5.0 | 5.0 | |
| Chloroethane | 75-00-3 | <5.0 | 5.0 | |
| Trichlorofluoromethane | 75-69-4 | <5.0 | 5.0 | |
| Acetone | 67-64-1 | 9.2 | 10. | JB |
| 1,1-Dichloroethane | 75-35-4 | 1.2 | 5.0 | J |
| Carbon Disulfide | 75-15-0 | <5.0 | 5.0 | |
| Methylene Chloride | 75-09-2 | 1.7 | 5.0 | J |
| trans-1,2-Dichloroethene | 156-60-5 | <5.0 | 5.0 | |
| Vinyl Acetate | 108-05-4 | <10. | 10. | |
| 1,1-Dichloroethane | 75-34-3 | <5.0 | 5.0 | |
| 2-Butanone | 78-93-3 | <10. | 10. | |
| cis-1,2-Dichloroethene | 156-59-2 | <5.0 | 5.0 | |
| Chloroform | 67-66-3 | <5.0 | 5.0 | |
| 1,1,1-Trichloroethane | 71-55-6 | 6.0 | 5.0 | |
| Carbon tetrachloride | 56-23-5 | <5.0 | 5.0 | |
| 1,2-Dichloroethane | 107-06-2 | <5.0 | 5.0 | |
| Benzene | 71-43-2 | <5.0 | 5.0 | |
| Trichloroethene | 79-01-6 | <5.0 | 5.0 | |
| 1,2-Dichloropropane | 78-87-5 | <5.0 | 5.0 | |
| Bromodichloromethane | 75-27-4 | <5.0 | 5.0 | |
| 2-Chloroethylvinylether | 110-75-8 | <20. | 20. | |
| 4-Methyl-2-Pentanone | 108-10-1 | <10. | 10. | |
| cis-1,3-Dichloropropene | 10061-01-5 | <5.0 | 5.0 | |
| Toluene | 108-88-3 | <5.0 | 5.0 | |
| trans-1,3-Dichloropropene | 10061-02-6 | <5.0 | 5.0 | |
| 2-Hexanone | 591-78-6 | <10. | 10. | |
| 1,1,2-Trichloroethane | 79-00-5 | <5.0 | 5.0 | |
| Tetrachloroethene | 127-18-4 | <5.0 | 5.0 | |
| Dibromochloromethane | 124-48-1 | <5.0 | 5.0 | |
| Chlorobenzene | 108-90-7 | <5.0 | 5.0 | |
| Ethylbenzene | 100-41-4 | <5.0 | 5.0 | |
| m,p-Xylene | 136777-61-2 | <5.0 | 5.0 | |
| o-Xylene | 95-47-6 | <5.0 | 5.0 | |
| Styrene | 100-42-5 | <5.0 | 5.0 | |
| Bromoform | 75-25-2 | <5.0 | 5.0 | |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | <5.0 | 5.0 | |
| 1,3-Dichlorobenzene | 541-73-1 | <5.0 | 5.0 | |
| 1,4-Dichlorobenzene | 106-46-7 | <5.0 | 5.0 | |
| 1,2-Dichlorobenzene | 95-50-1 | <5.0 | 5.0 | |

# LOCKHEED ANALYTICAL SERVICES

VOLATILE ORGANICS BY GC/MS
TENTATIVELY IDENTIFIED COMPOUNDS
8260 VOLATILES

| | | | |
|---|---|---|---|
| Client Sample ID: | NBCA\039GW0070A | LAL Sample ID: | L7560-1 |
| Date Collected: | 31-JUL-96 | Date Received: | 01-AUG-96 |
| Date Analyzed: | 12-AUG-96 | Analytical Dilution: | 1 |
| Matrix: | Water | Analytical Batch ID: | 081296-8260-I1 |
| | | Preparation Dilution: | 1.00 |

Number of TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

| | CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|---|
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |
| 21 | | | | | |
| 22 | | | | | |
| 23 | | | | | |
| 24 | | | | | |
| 25 | | | | | |
| 26 | | | | | |
| 27 | | | | | |
| 28 | | | | | |
| 29 | | | | | |

# LOCKHEED ANALYTICAL SERVICES

**VOLATILE ORGANICS BY GC/MS**
**8260 VOLATILES**

| | | | |
|---|---|---|---|
| Client Sample ID: | NBCA\039GW0080A | LAL Sample ID: | L7560-4 |
| Date Collected: | 31-JUL-96 | Date Received: | 01-AUG-96 |
| Date Analyzed: | 12-AUG-96 | Analytical Dilution: | 1 |
| Matrix: | Water | Analytical Batch ID: | 081296-8260-I1 |
| | | Preparation Dilution: | 1.00 |

| SURROGATE | RECOVERY | QC LIMITS |
|---|---|---|
| 1,2-Dichloroethane-d4 | 102% | 84-122 |
| Toluene-d8 | 101% | 87-117 |
| Bromofluorobenzene | 98% | 83-118 |

| COMPOUND | CAS NO. | RESULT ug/L | QUANTITATION LIMIT ug/L | DATA QUALIFIER(s) |
|---|---|---|---|---|
| Chloromethane | 74-87-3 | <5.0 | 5.0 | |
| Vinyl Chloride | 75-01-4 | <5.0 | 5.0 | |
| Bromomethane | 74-83-9 | <5.0 | 5.0 | |
| Chloroethane | 75-00-3 | <5.0 | 5.0 | |
| Trichlorofluoromethane | 75-69-4 | <5.0 | 5.0 | |
| Acetone | 67-64-1 | 8.1 | 10. | JB |
| 1,1-Dichloroethene | 75-35-4 | <5.0 | 5.0 | |
| Carbon Disulfide | 75-15-0 | <5.0 | 5.0 | |
| Methylene Chloride | 75-09-2 | <5.0 | 5.0 | |
| trans-1,2-Dichloroethene | 156-60-5 | <5.0 | 5.0 | |
| Vinyl Acetate | 108-05-4 | <10. | 10. | |
| 1,1-Dichloroethane | 75-34-3 | <5.0 | 5.0 | |
| 2-Butanone | 78-93-3 | <10. | 10. | |
| cis-1,2-Dichloroethene | 156-59-2 | <5.0 | 5.0 | |
| Chloroform | 67-66-3 | <5.0 | 5.0 | |
| 1,1,1-Trichloroethane | 71-55-6 | <5.0 | 5.0 | |
| Carbon tetrachloride | 56-23-5 | <5.0 | 5.0 | |
| 1,2-Dichloroethane | 107-06-2 | <5.0 | 5.0 | |
| Benzene | 71-43-2 | <5.0 | 5.0 | |
| Trichloroethene | 79-01-6 | <5.0 | 5.0 | |
| 1,2-Dichloropropane | 78-87-5 | <5.0 | 5.0 | |
| Bromodichloromethane | 75-27-4 | <5.0 | 5.0 | |
| 2-Chloroethylvinylether | 110-75-8 | <20. | 20. | |
| 4-Methyl-2-Pentanone | 108-10-1 | <10. | 10. | |
| cis-1,3-Dichloropropene | 10061-01-5 | <5.0 | 5.0 | |
| Toluene | 108-88-3 | <5.0 | 5.0 | |
| trans-1,3-Dichloropropene | 10061-02-6 | <5.0 | 5.0 | |
| 2-Hexanone | 591-78-6 | <10. | 10. | |
| 1,1,2-Trichloroethane | 79-00-5 | <5.0 | 5.0 | |
| Tetrachloroethene | 127-18-4 | <5.0 | 5.0 | |
| Dibromochloromethane | 124-48-1 | <5.0 | 5.0 | |
| Chlorobenzene | 108-90-7 | <5.0 | 5.0 | |
| Ethylbenzene | 100-41-4 | <5.0 | 5.0 | |
| m,p-Xylene | 136777-61-2 | <5.0 | 5.0 | |
| o-Xylene | 95-47-6 | <5.0 | 5.0 | |
| Styrene | 100-42-5 | <5.0 | 5.0 | |
| Bromoform | 75-25-2 | <5.0 | 5.0 | |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | <5.0 | 5.0 | |
| 1,3-Dichlorobenzene | 541-73-1 | <5.0 | 5.0 | |
| 1,4-Dichlorobenzene | 106-46-7 | <5.0 | 5.0 | |
| 1,2-Dichlorobenzene | 95-50-1 | <5.0 | 5.0 | |

# LOCKHEED ANALYTICAL SERVICES

**VOLATILE ORGANICS BY GC/MS**
**TENTATIVELY IDENTIFIED COMPOUNDS**
**8260 VOLATILES**

| | | | |
|---|---|---|---|
| Client Sample ID: | NBCA\039GW0080A | LAL Sample ID: | L7560-4 |
| Date Collected: | 31-JUL-96 | Date Received: | 01-AUG-96 |
| Date Analyzed: | 12-AUG-96 | Analytical Dilution: | 1 |
| Matrix: | Water | Analytical Batch ID: | 081296-8260-I1 |
| | | Preparation Dilution: | 1.00 |

Number of TICs found: 2

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

| | CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|---|
| 1 | | Unknown | 8.83 | 10 | JB |
| 2 | | Unknown | 10.22 | 8. | J |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |
| 21 | | | | | |
| 22 | | | | | |
| 23 | | | | | |
| 24 | | | | | |
| 25 | | | | | |
| 26 | | | | | |
| 27 | | | | | |
| 28 | | | | | |
| 29 | | | | | |

# LOCKHEED ANALYTICAL SERVICES

**VOLATILE ORGANICS BY GC/MS**
**8260 VOLATILES**

| | | | |
|---|---|---|---|
| Client Sample ID: | NBCA\039GW0060A | LAL Sample ID: | L7560-7 |
| Date Collected: | 31-JUL-96 | Date Received: | 01-AUG-96 |
| Date Analyzed: | 12-AUG-96 | Analytical Dilution: | 1 |
| Matrix: | Water | Analytical Batch ID: | 081296-8260-I1 |
| | | Preparation Dilution: | 1.00 |

| SURROGATE | RECOVERY | QC LIMITS |
|---|---|---|
| 1,2-Dichloroethane-d4 | 101% | 84-122 |
| Toluene-d8 | 100% | 87-117 |
| Bromofluorobenzene | 98% | 83-118 |

| COMPOUND | CAS NO. | RESULT (ug/L) | REPORTING LIMIT (ug/L) | DATA CONSTRUCTS |
|---|---|---|---|---|
| Chloromethane | 74-87-3 | <5.0 | 5.0 | |
| Vinyl Chloride | 75-01-4 | <5.0 | 5.0 | |
| Bromomethane | 74-83-9 | <5.0 | 5.0 | |
| Chloroethane | 75-00-3 | <5.0 | 5.0 | |
| Trichlorofluoromethane | 75-69-4 | <5.0 | 5.0 | |
| Acetone | 67-64-1 | 6.8 | 10. | JB |
| 1,1-Dichloroethane | 75-35-4 | <5.0 | 5.0 | |
| Carbon Disulfide | 75-15-0 | <5.0 | 5.0 | |
| Methylene Chloride | 75-09-2 | <5.0 | 5.0 | |
| trans-1,2-Dichloroethene | 156-60-5 | <5.0 | 5.0 | |
| Vinyl Acetate | 108-05-4 | <10. | 10. | |
| 1,1-Dichloroethane | 75-34-3 | <5.0 | 5.0 | |
| 2-Butanone | 78-93-3 | <10. | 10. | |
| cis-1,2-Dichloroethene | 156-59-2 | <5.0 | 5.0 | |
| Chloroform | 67-66-3 | <5.0 | 5.0 | |
| 1,1,1-Trichloroethane | 71-55-6 | <5.0 | 5.0 | |
| Carbon tetrachloride | 56-23-5 | <5.0 | 5.0 | |
| 1,2-Dichloroethane | 107-06-2 | <5.0 | 5.0 | |
| Benzene | 71-43-2 | <5.0 | 5.0 | |
| Trichloroethene | 79-01-6 | <5.0 | 5.0 | |
| 1,2-Dichloropropane | 78-87-5 | <5.0 | 5.0 | |
| Bromodichloromethane | 75-27-4 | <5.0 | 5.0 | |
| 2-Chloroethylvinylether | 110-75-8 | <20. | 20. | |
| 4-Methyl-2-Pentanone | 108-10-1 | <10. | 10. | |
| cis-1,3-Dichloropropene | 10061-01-5 | <5.0 | 5.0 | |
| Toluene | 108-88-3 | <5.0 | 5.0 | |
| trans-1,3-Dichloropropene | 10061-02-6 | <5.0 | 5.0 | |
| 2-Hexanone | 591-78-6 | <10. | 10. | |
| 1,1,2-Trichloroethane | 79-00-5 | <5.0 | 5.0 | |
| Tetrachloroethene | 127-18-4 | <5.0 | 5.0 | |
| Dibromochloromethane | 124-48-1 | <5.0 | 5.0 | |
| Chlorobenzene | 108-90-7 | 1.5 | 5.0 | J |
| Ethylbenzene | 100-41-4 | <5.0 | 5.0 | |
| m,p-Xylene | 136777-61-2 | <5.0 | 5.0 | |
| o-Xylene | 95-47-6 | <5.0 | 5.0 | |
| Styrene | 100-42-5 | <5.0 | 5.0 | |
| Bromoform | 75-25-2 | <5.0 | 5.0 | |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | <5.0 | 5.0 | |
| 1,3-Dichlorobenzene | 541-73-1 | <5.0 | 5.0 | |
| 1,4-Dichlorobenzene | 106-46-7 | <5.0 | 5.0 | |
| 1,2-Dichlorobenzene | 95-50-1 | <5.0 | 5.0 | |

# LOCKHEED ANALYTICAL SERVICES

**VOLATILE ORGANICS BY GC/MS**
**TENTATIVELY IDENTIFIED COMPOUNDS**
**8260 VOLATILES**

| | | | |
|---|---|---|---|
| Client Sample ID: | NBCA\039GW0060A | LAL Sample ID: | L7560-7 |
| Date Collected: | 31-JUL-96 | Date Received: | 01-AUG-96 |
| Date Analyzed: | 12-AUG-96 | Analytical Dilution: | 1 |
| Matrix: | Water | Analytical Batch ID: | 081296-8260-I1 |
| | | Preparation Dilution: | 1.00 |

Number of TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

| | CAS NUMBER | COMPOUND NAME | EST. CONC. | RT | RT | Q |
|---|---|---|---|---|---|---|
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |
| 6 | | | | | | |
| 7 | | | | | | |
| 8 | | | | | | |
| 9 | | | | | | |
| 10 | | | | | | |
| 11 | | | | | | |
| 12 | | | | | | |
| 13 | | | | | | |
| 14 | | | | | | |
| 15 | | | | | | |
| 16 | | | | | | |
| 17 | | | | | | |
| 18 | | | | | | |
| 19 | | | | | | |
| 20 | | | | | | |
| 21 | | | | | | |
| 22 | | | | | | |
| 23 | | | | | | |
| 24 | | | | | | |
| 25 | | | | | | |
| 26 | | | | | | |
| 27 | | | | | | |
| 28 | | | | | | |
| 29 | | | | | | |

# LOCKHEED ANALYTICAL SERVICES

**VOLATILE ORGANICS BY GC/MS**
**8260 VOLATILES**

| | | | |
|---|---|---|---|
| Client Sample ID: | NBCA\039TW0060A | LAL Sample ID: | L7560-10 |
| Date Collected: | 31-JUL-96 | Date Received: | 01-AUG-96 |
| Date Analyzed: | 12-AUG-96 | Analytical Dilution: | 1 |
| Matrix: | Water | Analytical Batch ID: | 081296-8260-I1 |
| | | Preparation Dilution: | 1.00 |

| SURROGATE | RECOVERY | QC LIMITS |
|---|---|---|
| 1,2-Dichloroethane-d4 | 93% | 84-122 |
| Toluene-d8 | 102% | 87-117 |
| Bromofluorobenzene | 95% | 83-118 |

| CONSTITUENT | CAS NO. | RESULT ug/L | PRACTICAL QUANTITATION LIMIT ug/L | DATA QUALIFIER |
|---|---|---|---|---|
| Chloromethane | 74-87-3 | <5.0 | 5.0 | |
| Vinyl Chloride | 75-01-4 | <5.0 | 5.0 | |
| Bromomethane | 74-83-9 | <5.0 | 5.0 | |
| Chloroethane | 75-00-3 | <5.0 | 5.0 | |
| Trichlorofluoromethane | 75-69-4 | <5.0 | 5.0 | |
| Acetone | 67-64-1 | 4.3 | 10. | JB |
| 1,1-Dichloroethene | 75-35-4 | <5.0 | 5.0 | |
| Carbon Disulfide | 75-15-0 | <5.0 | 5.0 | |
| Methylene Chloride | 75-09-2 | 1.8 | 5.0 | J |
| trans-1,2-Dichloroethene | 156-60-5 | <5.0 | 5.0 | |
| Vinyl Acetate | 108-05-4 | <10. | 10. | |
| 1,1-Dichloroethane | 75-34-3 | <5.0 | 5.0 | |
| 2-Butanone | 78-93-3 | <10. | 10. | |
| cis-1,2-Dichloroethene | 156-59-2 | <5.0 | 5.0 | |
| Chloroform | 67-66-3 | <5.0 | 5.0 | |
| 1,1,1-Trichloroethane | 71-55-6 | 2.3 | 5.0 | J |
| Carbon tetrachloride | 56-23-5 | <5.0 | 5.0 | |
| 1,2-Dichloroethane | 107-06-2 | <5.0 | 5.0 | |
| Benzene | 71-43-2 | <5.0 | 5.0 | |
| Trichloroethene | 79-01-6 | <5.0 | 5.0 | |
| 1,2-Dichloropropane | 78-87-5 | <5.0 | 5.0 | |
| Bromodichloromethane | 75-27-4 | <5.0 | 5.0 | |
| 2-Chloroethylvinylether | 110-75-8 | <20. | 20. | |
| 4-Methyl-2-Pentanone | 108-10-1 | <10. | 10. | |
| cis-1,3-Dichloropropene | 10061-01-5 | <5.0 | 5.0 | |
| Toluene | 108-88-3 | <5.0 | 5.0 | |
| trans-1,3-Dichloropropene | 10061-02-6 | <5.0 | 5.0 | |
| 2-Hexanone | 591-78-6 | <10. | 10. | |
| 1,1,2-Trichloroethane | 79-00-5 | <5.0 | 5.0 | |
| Tetrachloroethene | 127-18-4 | <5.0 | 5.0 | |
| Dibromochloromethane | 124-48-1 | <5.0 | 5.0 | |
| Chlorobenzene | 108-90-7 | <5.0 | 5.0 | |
| Ethylbenzene | 100-41-4 | <5.0 | 5.0 | |
| m,p-Xylene | 136777-61-2 | <5.0 | 5.0 | |
| o-Xylene | 95-47-6 | <5.0 | 5.0 | |
| Styrene | 100-42-5 | <5.0 | 5.0 | |
| Bromoform | 75-25-2 | <5.0 | 5.0 | |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | <5.0 | 5.0 | |
| 1,3-Dichlorobenzene | 541-73-1 | <5.0 | 5.0 | |
| 1,4-Dichlorobenzene | 106-46-7 | <5.0 | 5.0 | |
| 1,2-Dichlorobenzene | 95-50-1 | <5.0 | 5.0 | |

# LOCKHEED ANALYTICAL SERVICES

**VOLATILE ORGANICS BY GC/MS**
**TENTATIVELY IDENTIFIED COMPOUNDS**
**8260 VOLATILES**

| | | | |
|---|---|---|---|
| Client Sample ID: | NBCA\039TW0060A | LAL Sample ID: | L7560-10 |
| Date Collected: | 31-JUL-96 | Date Received: | 01-AUG-96 |
| Date Analyzed: | 12-AUG-96 | Analytical Dilution: | 1 |
| Matrix: | Water | Analytical Batch ID: | 081296-8260-I1 |
| | | Preparation Dilution: | 1.00 |

Number of TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

| | CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|---|
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |
| 21 | | | | | |
| 22 | | | | | |
| 23 | | | | | |
| 24 | | | | | |
| 25 | | | | | |
| 26 | | | | | |
| 27 | | | | | |
| 28 | | | | | |
| 29 | | | | | |

# LOCKHEED ANALYTICAL SERVICES

**VOLATILE ORGANICS BY GC/MS**
**8260 VOLATILES**

| | | | |
|---|---|---|---|
| Client Sample ID: | NBCA\039GW12I0A | LAL Sample ID: | L7586-1 |
| Date Collected: | 02-AUG-96 | Date Received: | 03-AUG-96 |
| Date Analyzed: | 14-AUG-96 | Analytical Dilution: | 1 |
| Matrix: | Water | Analytical Batch ID: | 081496-8260-I1 |
| | | Preparation Dilution: | 1.00 |

| SURROGATE | RECOVERY | QC LIMITS |
|---|---|---|
| 1,2-Dichloroethane-d4 | 102% | 84-122 |
| Toluene-d8 | 101% | 87-117 |
| Bromofluorobenzene | 102% | 83-118 |

| COMPOUND | CAS NO. | RESULT ug/L | PRACTICAL QUANTITATION LIMIT ug/L | DATA QUALIFIERS |
|---|---|---|---|---|
| Chloromethane | 74-87-3 | <5.0 | 5.0 | |
| Vinyl Chloride | 75-01-4 | <5.0 | 5.0 | |
| Bromomethane | 74-83-9 | <5.0 | 5.0 | |
| Chloroethane | 75-00-3 | <5.0 | 5.0 | |
| Trichlorofluoromethane | 75-69-4 | <5.0 | 5.0 | |
| Acetone | 67-64-1 | <10. | 10. | |
| 1,1-Dichloroethene | 75-35-4 | 5.0 | 5.0 | J |
| Carbon Disulfide | 75-15-0 | <5.0 | 5.0 | |
| Methylene Chloride | 75-09-2 | 2.8 | 5.0 | J |
| trans-1,2-Dichloroethene | 156-60-5 | 1.7 | 5.0 | J |
| Vinyl Acetate | 108-05-4 | <10. | 10. | |
| 1,1-Dichloroethane | 75-34-3 | 2.0 | 5.0 | J |
| 2-Butanone | 78-93-3 | <10. | 10. | |
| cis-1,2-Dichloroethene | 156-59-2 | 190 | 5.0 | |
| Chloroform | 67-66-3 | <5.0 | 5.0 | |
| 1,1,1-Trichloroethane | 71-55-6 | 10. | 5.0 | |
| Carbon tetrachloride | 56-23-5 | <5.0 | 5.0 | |
| 1,2-Dichloroethane | 107-06-2 | <5.0 | 5.0 | |
| Benzene | 71-43-2 | 1.3 | 5.0 | J |
| Trichloroethene | 79-01-6 | 110 | 5.0 | |
| 1,2-Dichloropropane | 78-87-5 | <5.0 | 5.0 | |
| Bromodichloromethane | 75-27-4 | <5.0 | 5.0 | |
| 2-Chloroethylvinylether | 110-75-8 | <20. | 20. | |
| 4-Methyl-2-Pentanone | 108-10-1 | <10. | 10. | |
| cis-1,3-Dichloropropene | 10061-01-5 | <5.0 | 5.0 | |
| Toluene | 108-88-3 | 1.2 | 5.0 | J |
| trans-1,3-Dichloropropene | 10061-02-6 | <5.0 | 5.0 | |
| 2-Hexanone | 591-78-6 | <10. | 10. | |
| 1,1,2-Trichloroethane | 79-00-5 | <5.0 | 5.0 | |
| Tetrachloroethene | 127-18-4 | <5.0 | 5.0 | |
| Dibromochloromethane | 124-48-1 | <5.0 | 5.0 | |
| Chlorobenzene | 108-90-7 | <5.0 | 5.0 | |
| Ethylbenzene | 100-41-4 | <5.0 | 5.0 | |
| m,p-Xylene | 136777-61-2 | <5.0 | 5.0 | |
| o-Xylene | 95-47-6 | <5.0 | 5.0 | |
| Styrene | 100-42-5 | <5.0 | 5.0 | |
| Bromoform | 75-25-2 | <5.0 | 5.0 | |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | <5.0 | 5.0 | |
| 1,3-Dichlorobenzene | 541-73-1 | <5.0 | 5.0 | |
| 1,4-Dichlorobenzene | 106-46-7 | <5.0 | 5.0 | |
| 1,2-Dichlorobenzene | 95-50-1 | <5.0 | 5.0 | |

# LOCKHEED ANALYTICAL SERVICES

**VOLATILE ORGANICS BY GC/MS**
**TENTATIVELY IDENTIFIED COMPOUNDS**
**8260 VOLATILES**

| | | | |
|---|---|---|---|
| Client Sample ID: | NBCA\039GW12I0A | LAL Sample ID: | L7586-1 |
| Date Collected: | 02-AUG-96 | Date Received: | 03-AUG-96 |
| Date Analyzed: | 14-AUG-96 | Analytical Dilution: | 1 |
| Matrix: | Water | Analytical Batch ID: | 081496-8260-I1 |
| | | Preparation Dilution: | 1.00 |

Number of TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

| | CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|---|
| 1 | | Unknown | 9.04 | 10 | J |
| 2 | | Unknown Hydrocarbon | 9.84 | 8. | J |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |
| 21 | | | | | |
| 22 | | | | | |
| 23 | | | | | |
| 24 | | | | | |
| 25 | | | | | |
| 26 | | | | | |
| 27 | | | | | |
| 28 | | | | | |
| 29 | | | | | |

# LOCKHEED ANALYTICAL SERVICES

**VOLATILE ORGANICS BY GC/MS**
**8260 VOLATILES**

| | | | |
|---|---|---|---|
| Client Sample ID: | NBCA\039GW0110A | LAL Sample ID: | L7586-4 |
| Date Collected: | 02-AUG-96 | Date Received: | 03-AUG-96 |
| Date Analyzed: | 14-AUG-96 | Analytical Dilution: | 1 |
| Matrix: | Water | Analytical Batch ID: | 081496-8260-I1 |
| | | Preparation Dilution: | 1.00 |

| SURROGATE | RECOVERY | QC LIMITS |
|---|---|---|
| 1,2-Dichloroethane-d4 | 100% | 84-122 |
| Toluene-d8 | 100% | 87-117 |
| Bromofluorobenzene | 97% | 83-118 |

| CONSTITUENT | CAS NO. | RESULT ug/L | PRACTICAL QUANTITATION LIMIT ug/L | DATA QUALIFIER(S) |
|---|---|---|---|---|
| Chloromethane | 74-87-3 | <5.0 | 5.0 | |
| Vinyl Chloride | 75-01-4 | <5.0 | 5.0 | |
| Bromomethane | 74-83-9 | <5.0 | 5.0 | |
| Chloroethane | 75-00-3 | <5.0 | 5.0 | |
| Trichlorofluoromethane | 75-69-4 | <5.0 | 5.0 | |
| Acetone | 67-64-1 | 19. | 10. | B |
| 1,1-Dichloroethene | 75-35-4 | 1.4 | 5.0 | J |
| Carbon Disulfide | 75-15-0 | <5.0 | 5.0 | |
| Methylene Chloride | 75-09-2 | <5.0 | 5.0 | |
| trans-1,2-Dichloroethene | 156-60-5 | <5.0 | 5.0 | |
| Vinyl Acetate | 108-05-4 | <10. | 10. | |
| 1,1-Dichloroethane | 75-34-3 | <5.0 | 5.0 | |
| 2-Butanone | 78-93-3 | 6.3 | 10. | J |
| cis-1,2-Dichloroethene | 156-59-2 | <5.0 | 5.0 | |
| Chloroform | 67-66-3 | <5.0 | 5.0 | |
| 1,1,1-Trichloroethane | 71-55-6 | 1.0 | 5.0 | J |
| Carbon tetrachloride | 56-23-5 | <5.0 | 5.0 | |
| 1,2-Dichloroethane | 107-06-2 | 1.6 | 5.0 | J |
| Benzene | 71-43-2 | 310 | 5.0 | E |
| Trichloroethene | 79-01-6 | <5.0 | 5.0 | |
| 1,2-Dichloropropane | 78-87-5 | <5.0 | 5.0 | |
| Bromodichloromethane | 75-27-4 | <5.0 | 5.0 | |
| 2-Chloroethylvinylether | 110-75-8 | <20. | 20. | |
| 4-Methyl-2-Pentanone | 108-10-1 | 2.1 | 10. | J |
| cis-1,3-Dichloropropene | 10061-01-5 | <5.0 | 5.0 | |
| Toluene | 108-88-3 | 140 | 5.0 | |
| trans-1,3-Dichloropropene | 10061-02-6 | <5.0 | 5.0 | |
| 2-Hexanone | 591-78-6 | <10. | 10. | |
| 1,1,2-Trichloroethane | 79-00-5 | <5.0 | 5.0 | |
| Tetrachloroethene | 127-18-4 | <5.0 | 5.0 | |
| Dibromochloromethane | 124-48-1 | <5.0 | 5.0 | |
| Chlorobenzene | 108-90-7 | <5.0 | 5.0 | |
| Ethylbenzene | 100-41-4 | 190 | 5.0 | |
| m,p-Xylene | 136777-61-2 | 380 | 5.0 | |
| o-Xylene | 95-47-6 | 33. | 5.0 | |
| Styrene | 100-42-5 | <5.0 | 5.0 | |
| Bromoform | 75-25-2 | <5.0 | 5.0 | |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | <5.0 | 5.0 | |
| 1,3-Dichlorobenzene | 541-73-1 | <5.0 | 5.0 | |
| 1,4-Dichlorobenzene | 106-46-7 | <5.0 | 5.0 | |
| 1,2-Dichlorobenzene | 95-50-1 | <5.0 | 5.0 | |

# LOCKHEED ANALYTICAL SERVICES

**VOLATILE ORGANICS BY GC/MS**
**TENTATIVELY IDENTIFIED COMPOUNDS**
**8260 VOLATILES**

| | | | |
|---|---|---|---|
| Client Sample ID: | NBCA\039GW0110A | LAL Sample ID: | L7586-4 |
| Date Collected: | 02-AUG-96 | Date Received: | 03-AUG-96 |
| Date Analyzed: | 14-AUG-96 | Analytical Dilution: | 1 |
| Matrix: | Water | Analytical Batch ID: | 081496-8260-I1 |
| | | Preparation Dilution: | 1.00 |

Number of TICs found: 10

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

| | CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|---|
| 1 | | Unknown Hydrocarbon | 9.46 | 70 | J |
| 2 | | Unknown Hydrocarbon | 9.84 | 100 | J |
| 3 | | Unknown Hydrocarbon | 10.21 | 60 | J |
| 4 | | Unknown Hydrocarbon | 11.19 | 500 | J |
| 5 | | Unknown | 12.09 | 200 | J |
| 6 | | Unknown | 18.23 | 100 | J |
| 7 | 95-36-3 | 1,2,4-Trimethylbenzene | 20.18 | 80 | JN |
| 8 | | Substituted Benzene | 21.51 | 60 | J |
| 9 | | Unknown | 23.40 | 60 | J |
| 10 | 91-20-3 | Naphthalene | 25.81 | 100 | JN |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |
| 21 | | | | | |
| 22 | | | | | |
| 23 | | | | | |
| 24 | | | | | |
| 25 | | | | | |
| 26 | | | | | |
| 27 | | | | | |
| 28 | | | | | |
| 29 | | | | | |

# LOCKHEED ANALYTICAL SERVICES

**VOLATILE ORGANICS BY GC/MS**
**8260 VOLATILES**

| | | | |
|---|---|---|---|
| Client Sample ID: | NBCA\039GW0110A | LAL Sample ID: | L7586-4 |
| Date Collected: | 02-AUG-96 | Date Received: | 03-AUG-96 |
| Date Analyzed: | 14-AUG-96 | Analytical Dilution: | 5 |
| Matrix: | Water | Analytical Batch ID: | 081496-8260-I1 |
| | | Preparation Dilution: | 1.00 |

| Surrogate | Recovery | Acceptable |
|---|---|---|
| 1,2-Dichloroethane-d4 | 105% | 84-122 |
| Toluene-d8 | 102% | 87-117 |
| Bromofluorobenzene | 105% | 83-118 |

| Compounds | CAS No. | Result ug/L | Practical Quantitation Limit ug/L | Data Qualifier(s) |
|---|---|---|---|---|
| Chloromethane | 74-87-3 | <25. | 25. | |
| Vinyl Chloride | 75-01-4 | <25. | 25. | |
| Bromomethane | 74-83-9 | <25. | 25. | |
| Chloroethane | 75-00-3 | <25. | 25. | |
| Trichlorofluoromethane | 75-69-4 | <25. | 25. | |
| Acetone | 67-64-1 | <50. | 50. | |
| 1,1-Dichloroethene | 75-35-4 | <25. | 25. | |
| Carbon Disulfide | 75-15-0 | <25. | 25. | |
| Methylene Chloride | 75-09-2 | <25. | 25. | |
| trans-1,2-Dichloroethene | 156-60-5 | <25. | 25. | |
| Vinyl Acetate | 108-05-4 | <50. | 50. | |
| 1,1-Dichloroethane | 75-34-3 | <25. | 25. | |
| 2-Butanone | 78-93-3 | 12. | 50. | J |
| cis-1,2-Dichloroethene | 156-59-2 | <25. | 25. | |
| Chloroform | 67-66-3 | <25. | 25. | |
| 1,1,1-Trichloroethane | 71-55-6 | <25. | 25. | |
| Carbon tetrachloride | 56-23-5 | <25. | 25. | |
| 1,2-Dichloroethane | 107-06-2 | <25. | 25. | |
| Benzene | 71-43-2 | 620 | 25. | |
| Trichloroethene | 79-01-6 | <25. | 25. | |
| 1,2-Dichloropropane | 78-87-5 | <25. | 25. | |
| Bromodichloromethane | 75-27-4 | <25. | 25. | |
| 2-Chloroethylvinylether | 110-75-8 | <100 | 100 | |
| 4-Methyl-2-Pentanone | 108-10-1 | <50. | 50. | |
| cis-1,3-Dichloropropene | 10061-01-5 | <25. | 25. | |
| Toluene | 108-88-3 | 150 | 25. | |
| trans-1,3-Dichloropropene | 10061-02-6 | <25. | 25. | |
| 2-Hexanone | 591-78-6 | <50. | 50. | |
| 1,1,2-Trichloroethane | 79-00-5 | <25. | 25. | |
| Tetrachloroethane | 127-18-4 | <25. | 25. | |
| Dibromochloromethane | 124-48-1 | <25. | 25. | |
| Chlorobenzene | 108-90-7 | <25. | 25. | |
| Ethylbenzene | 100-41-4 | 200 | 25. | |
| m,p-Xylene | 136777-61-2 | 410 | 25. | |
| o-Xylene | 95-47-6 | 31. | 25. | |
| Styrene | 100-42-5 | <25. | 25. | |
| Bromoform | 75-25-2 | <25. | 25. | |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | <25. | 25. | |
| 1,3-Dichlorobenzene | 541-73-1 | <25. | 25. | |
| 1,4-Dichlorobenzene | 106-46-7 | <25. | 25. | |
| 1,2-Dichlorobenzene | 95-50-1 | <25. | 25. | |

# LOCKHEED ANALYTICAL SERVICES

**VOLATILE ORGANICS BY GC/MS**
**8260 VOLATILES**

| | | | |
|---|---|---|---|
| Client Sample ID: | NBCA\039GW12D0A | LAL Sample ID: | L7586-7 |
| Date Collected: | 02-AUG-96 | Date Received: | 03-AUG-96 |
| Date Analyzed: | 14-AUG-96 | Analytical Dilution: | 1 |
| Matrix: | Water | Analytical Batch ID: | 081496-8260-I1 |
| | | Preparation Dilution: | 1.00 |

| SURROGATE | RECOVERY | QC LIMITS |
|---|---|---|
| 1,2-Dichloroethane-d4 | 101% | 84-122 |
| Toluene-d8 | 101% | 87-117 |
| Bromofluorobenzene | 100% | 83-118 |

| COMPOUND | CAS NO. | RESULT ug/L | PRACTICAL QUANTITATION LIMIT ug/L | DATA QUALIFIERS |
|---|---|---|---|---|
| Chloromethane | 74-87-3 | <5.0 | 5.0 | |
| Vinyl Chloride | 75-01-4 | <5.0 | 5.0 | |
| Bromomethane | 74-83-9 | <5.0 | 5.0 | |
| Chloroethane | 75-00-3 | <5.0 | 5.0 | |
| Trichlorofluoromethane | 75-69-4 | <5.0 | 5.0 | |
| Acetone | 67-64-1 | 5.5 | 10. | JB |
| 1,1-Dichloroethene | 75-35-4 | <5.0 | 5.0 | |
| Carbon Disulfide | 75-15-0 | <5.0 | 5.0 | |
| Methylene Chloride | 75-09-2 | <5.0 | 5.0 | |
| trans-1,2-Dichloroethene | 156-60-5 | <5.0 | 5.0 | |
| Vinyl Acetate | 108-05-4 | <10. | 10. | |
| 1,1-Dichloroethane | 75-34-3 | <5.0 | 5.0 | |
| 2-Butanone | 78-93-3 | <10. | 10. | |
| cis-1,2-Dichloroethene | 156-59-2 | <5.0 | 5.0 | |
| Chloroform | 67-66-3 | <5.0 | 5.0 | |
| 1,1,1-Trichloroethane | 71-55-6 | <5.0 | 5.0 | |
| Carbon tetrachloride | 56-23-5 | <5.0 | 5.0 | |
| 1,2-Dichloroethane | 107-06-2 | <5.0 | 5.0 | |
| Benzene | 71-43-2 | <5.0 | 5.0 | |
| Trichloroethene | 79-01-6 | <5.0 | 5.0 | |
| 1,2-Dichloropropane | 78-87-5 | <5.0 | 5.0 | |
| Bromodichloromethane | 75-27-4 | <5.0 | 5.0 | |
| 2-Chloroethylvinylether | 110-75-8 | <20. | 20. | |
| 4-Methyl-2-Pentanone | 108-10-1 | <10. | 10. | |
| cis-1,3-Dichloropropene | 10061-01-5 | <5.0 | 5.0 | |
| Toluene | 108-88-3 | <5.0 | 5.0 | |
| trans-1,3-Dichloropropene | 10061-02-6 | <5.0 | 5.0 | |
| 2-Hexanone | 591-78-6 | <10. | 10. | |
| 1,1,2-Trichloroethane | 79-00-5 | <5.0 | 5.0 | |
| Tetrachloroethene | 127-18-4 | <5.0 | 5.0 | |
| Dibromochloromethane | 124-48-1 | <5.0 | 5.0 | |
| Chlorobenzene | 108-90-7 | <5.0 | 5.0 | |
| Ethylbenzene | 100-41-4 | <5.0 | 5.0 | |
| m,p-Xylene | 136777-61-2 | <5.0 | 5.0 | |
| o-Xylene | 95-47-6 | <5.0 | 5.0 | |
| Styrene | 100-42-5 | <5.0 | 5.0 | |
| Bromoform | 75-25-2 | <5.0 | 5.0 | |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | <5.0 | 5.0 | |
| 1,3-Dichlorobenzene | 541-73-1 | <5.0 | 5.0 | |
| 1,4-Dichlorobenzene | 106-46-7 | <5.0 | 5.0 | |
| 1,2-Dichlorobenzene | 95-50-1 | <5.0 | 5.0 | |

# LOCKHEED ANALYTICAL SERVICES

**VOLATILE ORGANICS BY GC/MS**
**TENTATIVELY IDENTIFIED COMPOUNDS**
**8260 VOLATILES**

| | | | |
|---|---|---|---|
| Client Sample ID: | NBCA\039GW12D0A | LAL Sample ID: | L7586-7 |
| Date Collected: | 02-AUG-96 | Date Received: | 03-AUG-96 |
| Date Analyzed: | 14-AUG-96 | Analytical Dilution: | 1 |
| Matrix: | Water | Analytical Batch ID: | 081496-8260-I1 |
| | | Preparation Dilution: | 1.00 |

Number of TICs found: 2

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

| | CAS Number | Compound Name | RT | Est. Conc. | Q |
|---|---|---|---|---|---|
| 1 | | Unknown | 8.83 | 6. | JB |
| 2 | 91-20-3 | Naphthalene | 25.79 | 10 | JN |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |
| 21 | | | | | |
| 22 | | | | | |
| 23 | | | | | |
| 24 | | | | | |
| 25 | | | | | |
| 26 | | | | | |
| 27 | | | | | |
| 28 | | | | | |
| 29 | | | | | |

# LOCKHEED ANALYTICAL SERVICES

**VOLATILE ORGANICS BY GC/MS**
**8260 VOLATILES**

| | | | |
|---|---|---|---|
| Client Sample ID: | NBCA\039TW12D0A | LAL Sample ID: | L7586-10 |
| Date Collected: | 02-AUG-96 | Date Received: | 03-AUG-96 |
| Date Analyzed: | 14-AUG-96 | Analytical Dilution: | 1 |
| Matrix: | Water | Analytical Batch ID: | 081496-8260-I1 |
| | | Preparation Dilution: | 1.00 |

| SURROGATE | RECOVERY | QC LIMITS |
|---|---|---|
| 1,2-Dichloroethane-d4 | 99% | 84-122 |
| Toluene-d8 | 101% | 87-117 |
| Bromofluorobenzene | 100% | 83-118 |

| CONSTITUENT | CAS NO. | RESULT (ug/L) | PRACTICAL QUANTITATION LIMIT (ug/L) | DATA QUALIFIERS |
|---|---|---|---|---|
| Chloromethane | 74-87-3 | <5.0 | 5.0 | |
| Vinyl Chloride | 75-01-4 | <5.0 | 5.0 | |
| Bromomethane | 74-83-9 | <5.0 | 5.0 | |
| Chloroethane | 75-00-3 | <5.0 | 5.0 | |
| Trichlorofluoromethane | 75-69-4 | <5.0 | 5.0 | |
| Acetone | 67-64-1 | 5.4 | 10. | JB |
| 1,1-Dichloroethene | 75-35-4 | <5.0 | 5.0 | |
| Carbon Disulfide | 75-15-0 | <5.0 | 5.0 | |
| Methylene Chloride | 75-09-2 | <5.0 | 5.0 | |
| trans-1,2-Dichloroethene | 156-60-5 | <5.0 | 5.0 | |
| Vinyl Acetate | 108-05-4 | <10. | 10. | |
| 1,1-Dichloroethane | 75-34-3 | <5.0 | 5.0 | |
| 2-Butanone | 78-93-3 | <10. | 10. | |
| cis-1,2-Dichloroethene | 156-59-2 | <5.0 | 5.0 | |
| Chloroform | 67-66-3 | <5.0 | 5.0 | |
| 1,1,1-Trichloroethane | 71-55-6 | <5.0 | 5.0 | |
| Carbon tetrachloride | 56-23-5 | <5.0 | 5.0 | |
| 1,2-Dichloroethane | 107-06-2 | <5.0 | 5.0 | |
| Benzene | 71-43-2 | <5.0 | 5.0 | |
| Trichloroethene | 79-01-6 | <5.0 | 5.0 | |
| 1,2-Dichloropropane | 78-87-5 | <5.0 | 5.0 | |
| Bromodichloromethane | 75-27-4 | <5.0 | 5.0 | |
| 2-Chloroethylvinylether | 110-75-8 | <20. | 20. | |
| 4-Methyl-2-Pentanone | 108-10-1 | <10. | 10. | |
| cis-1,3-Dichloropropene | 10061-01-5 | <5.0 | 5.0 | |
| Toluene | 108-88-3 | <5.0 | 5.0 | |
| trans-1,3-Dichloropropene | 10061-02-6 | <5.0 | 5.0 | |
| 2-Hexanone | 591-78-6 | <10. | 10. | |
| 1,1,2-Trichloroethane | 79-00-5 | <5.0 | 5.0 | |
| Tetrachloroethene | 127-18-4 | <5.0 | 5.0 | |
| Dibromochloromethane | 124-48-1 | <5.0 | 5.0 | |
| Chlorobenzene | 108-90-7 | <5.0 | 5.0 | |
| Ethylbenzene | 100-41-4 | <5.0 | 5.0 | |
| m,p-Xylene | 136777-61-2 | <5.0 | 5.0 | |
| o-Xylene | 95-47-6 | <5.0 | 5.0 | |
| Styrene | 100-42-5 | <5.0 | 5.0 | |
| Bromoform | 75-25-2 | <5.0 | 5.0 | |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | <5.0 | 5.0 | |
| 1,3-Dichlorobenzene | 541-73-1 | <5.0 | 5.0 | |
| 1,4-Dichlorobenzene | 106-46-7 | <5.0 | 5.0 | |
| 1,2-Dichlorobenzene | 95-50-1 | <5.0 | 5.0 | |

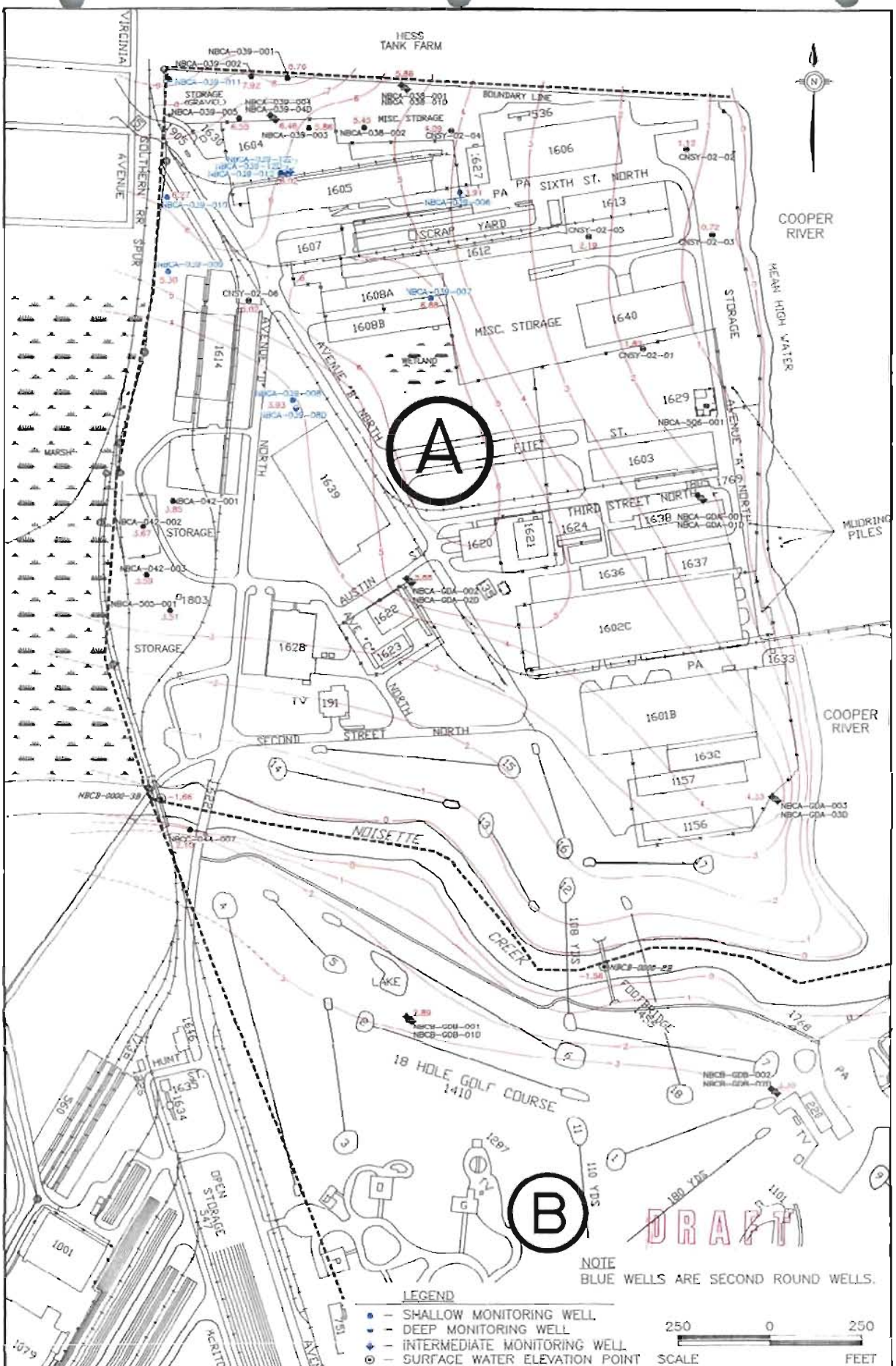
# LOCKHEED ANALYTICAL SERVICES

**VOLATILE ORGANICS BY GC/MS**
**8260 VOLATILES**

| | | | |
|---|---|---|---|
| Client Sample ID: | NBCA\039GW08D0A | LAL Sample ID: | L7633-1 |
| Date Collected: | 05-AUG-96 | Date Received: | 06-AUG-96 |
| Date Analyzed: | 14-AUG-96 | Analytical Dilution: | 1 |
| Matrix: | Water | Analytical Batch ID: | 081496-8260-I1 |
| | | Preparation Dilution: | 1.00 |

| SURROGATE | RECOVERY | QC LIMITS |
|---|---|---|
| 1,2-Dichloroethane-d4 | 97% | 84-122 |
| Toluene-d8 | 100% | 87-117 |
| Bromofluorobenzene | 98% | 83-118 |

| CONSTITUENT | CAS NO. | RESULT ug/L | PRACTICAL QUANTITATION LEVEL ug/L | DATA QUALIFIER(s) |
|---|---|---|---|---|
| Chloromethane | 74-87-3 | <5.0 | 5.0 | |
| Vinyl Chloride | 75-01-4 | <5.0 | 5.0 | |
| Bromomethane | 74-83-9 | <5.0 | 5.0 | |
| Chloroethane | 75-00-3 | <5.0 | 5.0 | |
| Trichlorofluoromethane | 75-69-4 | <5.0 | 5.0 | |
| Acetone | 67-64-1 | <10. | 10. | |
| 1,1-Dichloroethene | 75-35-4 | <5.0 | 5.0 | |
| Carbon Disulfide | 75-15-0 | 10. | 5.0 | |
| Methylene Chloride | 75-09-2 | <5.0 | 5.0 | |
| trans-1,2-Dichloroethene | 156-60-5 | <5.0 | 5.0 | |
| Vinyl Acetate | 108-05-4 | <10. | 10. | |
| 1,1-Dichloroethane | 75-34-3 | <5.0 | 5.0 | |
| 2-Butanone | 78-93-3 | <10. | 10. | |
| cis-1,2-Dichloroethene | 156-59-2 | <5.0 | 5.0 | |
| Chloroform | 67-66-3 | <5.0 | 5.0 | |
| 1,1,1-Trichloroethane | 71-55-6 | <5.0 | 5.0 | |
| Carbon tetrachloride | 56-23-5 | <5.0 | 5.0 | |
| 1,2-Dichloroethane | 107-06-2 | <5.0 | 5.0 | |
| Benzene | 71-43-2 | <5.0 | 5.0 | |
| Trichloroethene | 79-01-6 | <5.0 | 5.0 | |
| 1,2-Dichloropropane | 78-87-5 | <5.0 | 5.0 | |
| Bromodichloromethane | 75-27-4 | <5.0 | 5.0 | |
| 2-Chloroethylvinylether | 110-75-8 | <20. | 20. | |
| 4-Methyl-2-Pentanone | 108-10-1 | <10. | 10. | |
| cis-1,3-Dichloropropene | 10061-01-5 | <5.0 | 5.0 | |
| Toluene | 108-88-3 | <5.0 | 5.0 | |
| trans-1,3-Dichloropropene | 10061-02-6 | <5.0 | 5.0 | |
| 2-Hexanone | 591-78-6 | <10. | 10. | |
| 1,1,2-Trichloroethane | 79-00-5 | <5.0 | 5.0 | |
| Tetrachloroethene | 127-18-4 | <5.0 | 5.0 | |
| Dibromochloromethane | 124-48-1 | <5.0 | 5.0 | |
| Chlorobenzene | 108-90-7 | <5.0 | 5.0 | |
| Ethylbenzene | 100-41-4 | <5.0 | 5.0 | |
| m,p-Xylene | 136777-61-2 | <5.0 | 5.0 | |
| o-Xylene | 95-47-6 | <5.0 | 5.0 | |
| Styrene | 100-42-5 | <5.0 | 5.0 | |
| Bromoform | 75-25-2 | <5.0 | 5.0 | |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | <5.0 | 5.0 | |
| 1,3-Dichlorobenzene | 541-73-1 | <5.0 | 5.0 | |
| 1,4-Dichlorobenzene | 106-46-7 | <5.0 | 5.0 | |
| 1,2-Dichlorobenzene | 95-50-1 | <5.0 | 5.0 | |


HESS TANK FARM
VIRGINIA AVENUE
SOUTHERN RR SPUR
BOUNDARY LINE
MISC. STORAGE
SCRAP YARD
PA SIXTH ST. NORTH
COOPER RIVER
MEAN HIGH WATER
STORAGE
MISC. STORAGE
WETLAND
AVENUE "B" NORTH
AVENUE "A" NORTH
FIFTH ST.
THIRD STREET NORTH
MUDRING PILES
MARSH
AUSTIN ST.
SECOND STREET NORTH
NOISETTE CREEK
LAKE
18 HOLE GOLF COURSE
FOOTBRIDGE
HUNT
OPEN STORAGE
MCRITCHIE AVE
A
B
DRAFT
NOTE
BLUE WELLS ARE SECOND ROUND WELLS.
LEGEND
SHALLOW MONITORING WELL
DEEP MONITORING WELL
INTERMEDIATE MONITORING WELL
SURFACE WATER ELEVATION POINT
250 0 250
SCALE FEET
ZONE A
NAVAL BASE CHARLESTON
CHARLESTON, S.C.
WATER TABLE ELEVATIONS IN SHALLOW WELLS AT LOW TIDE ON 8-7-96
NAVAL BASE CHARLESTON
CHARLESTON, SOUTH CAROLINA
DWG DATE: 08/09/96
DWG NAME: 29TODD

## NAVBASE CHARLESTON RFI
## ZONE E GROUNDWATER SUMMARY

The following summary details the number of monitoring wells installed at each site and the constituents which exceeded RBCs at each location. Results for the initial round of groundwater sampling have been received and validated. A total of 175 deep and shallow wells have been installed and sampled with five additional deep wells and eight additional shallow wells proposed at several locations throughout the zone. Additional well locations are based upon the need to define the extent of constituents detected at several locations and the need to further define the hydrogeologic conditions within Zone E. Five of the additional shallow wells will be paired with the five additional deep wells as supplemental well pairs.

### 1) SWMU 5, SWMU 18, AOC 605

Five shallow wells were installed at this site, two at SWMU 18 (NBCE018001, NBCE018002) and three at AOC 605 (NBCE605001, NBCE605002, NBCE605003).

SWMU 18 — PCB Spill Area, Public Works Resource Recovery Facility Storage Area; Inorganic constituents exceeding RBCs include: Antimony in NBCE018001; Barium, Iron and Manganese in NBCE018002. No additional wells have been proposed for this site.

AOC 605 — Waste Paint Storage Area, Pad 1278; Inorganic constituents exceeding RBCs include: Arsenic and Iron in NBCE605001; Antimony, Iron, and Manganese in NBCE605002; Antimony, Arsenic, Iron, Lead, and Manganese in NBCE605003. No additional wells have been proposed for this site.

### 2) SWMU 21, SWMU 54

Three shallow wells were installed at SWMU 54 (NBCE054001, NBCE054002, NBCE054003), in addition to three existing shallow wells at SWMU 21 (NBCE021001, NBCE021002, NBCE021003).

SWMU 21 — Old Paint Storage Area, Pad 1275; Inorganic constituents exceeding RBCs include: Iron and Manganese in NBCE021001; Antimony, Arsenic, Iron, and Manganese in NBCE021002. No additional wells have been proposed for this site.

SWMU 54 — Former Abrasive Blasting Area, Area around Pad 1275; Inorganic constituents exceeding RBCs include: Manganese in NBCE054001; Antimony, Iron, Manganese, and Thallium in NBCE054002; Arsenic, Iron, and Manganese in NBCE054003. No additional well have been proposed for this site.

### 3) SWMU 22, SWMU 25, AOC 554

One shallow well was installed at SWMU 25 (NBCE025004), in addition to three existing shallow wells (NBCE025001, NBCE025002, NBCE025003).

SWMU 25 — Old Plating Operation, Building 44; Inorganic constituents exceeding RBCs include: Cadmium and Chromium in NBCE025002; Antimony, Cadmium, Chromium, Manganese, and Nickel in NBCE025003; Chromium in NBCE025004.

Organic constituents exceeding RBCs include: alpha-Chlordane and gamma-Chlordane in NBCE025001; Tetrachloroethylene (PCE) and Trichloroethylene (TCE) in NBCE025003; Trichloroethylene (TCE) in NBCE025004.

No additional wells have been proposed for this site; however, additional supplemental well pairs placed to the west of this site will help to determine the extent of constituents detected based on the direction of groundwater flow at this site.

## 4) SWMU 23, SWMU 63, AOC 540, AOC 541, AOC 542, AOC 453

Nine wells were installed at this site, one shallow and one deep at SWMU 23 (NBCE023001, NBCE02301D), two shallow at SWMU 63 (NBCE063001, NBCE063002), four shallow at AOC 542 (NBCE542001, NBCE542002, NBCE542003, NBCE542004), and one shallow at AOC 543 (NBCE543001).

SWMU 23 — New Plating Shop Wastewater Treatment System, Building 226; Inorganic constituents exceeding RBCs include: Iron in NBCE023001; Manganese in NBCE02301D. No additional wells are proposed for this site.

SWMU 63 — Battery Charging Station, Former Building 73; Inorganic constituents exceeding RBCs include: Manganese in NBCE063001; Arsenic, Iron, and Manganese in NBCE063002. No additional wells are proposed for this site.

AOC 542 — Paint Shop and Oxy-Acetylene Plant, Former Building 22; Inorganic constituents exceeding RBCs include: Iron and Aluminum in NBCE542001; Iron and Manganese in NBCE542002; Iron in NBCE542003; Arsenic, Iron, and Manganese in NBCE542004. No additional wells have been proposed for this site.

AOC 543 — Storage Facility, Former Building 1026; Inorganic constituents exceeding RBCs include: Iron in NBCE543001. No additional wells have been proposed for this site.

## 5) SWMU 53, AOC 526

Four wells were installed at this site, one shallow at SWMU 53 (NBCE053001), and two shallow and one deep at AOC 526 (NBCE526001, NBCE52601D, NBCE526002).

SWMU 53 — Former Satellite Accumulation Area, Building 212; Inorganic constituents exceeding RBCs include: Arsenic, Iron, and Manganese in NBCE053001. No additional wells have been proposed for this site.

AOC 526 — Paint Area, Building 212; Inorganic constituents exceeding RBCs include: Iron in NBCE526001; Iron and Manganese in NBCE526002.
Organic constituents exceeding RBCs include: bis(2-Ethylhexyl)phthalate in NBCE52601D. No additional wells have been proposed for this site.

## 6) SWMU 65, AOC 544, AOC 546

Seven wells were installed at this site, six shallow and one deep at SWMU 65 (NBCE065001, NBCE065002, NBCE065003, NBCE065004, NBCE06504D, NBCE065005, NBCE065006).

SWMU 65 — Lead Storage, Building 221; Inorganic constituents exceeding RBCs include: Iron and Manganese in NBCE065001; Iron and Manganese in NBCE065002; Aluminum, Antimony, Arsenic, Beryllium, Cadmium, Chromium, Copper, Iron, Lead, Vanadium, and Zinc in NBCE065003; Aluminum, Arsenic, Beryllium, Chromium, Copper, Iron, Lead, Manganese, Mercury, and Vanadium in NBCE065004; Arsenic, Iron, and Manganese in NBCE06504D; Arsenic, Iron, and Manganese in NBCE065005; Iron and Manganese in NBCE065006.

Organic constituents exceeding RBCs include: 1,2-Dichloroethylene, Trichloroethylene, and Vinyl Chloride in NBCE065003; alpha HCH, and beta HCH in NBCE065004; 1,2-Dichloroethylene, Trichloroethylene, and Vinyl Chloride in NBCE06504D;

Two additional shallow wells (NBCE065007 and NBCE065008) have been proposed to define the extent of constituents detected at this site.

## 7) SWMU 67

Two shallow wells were installed at SWMU 67 (NBCE067001, NBCE067002).

SWMU 67 — Mercury Gauge Room, Building 3; Samples were analyzed for mercury with no detections. No additional wells are proposed for this site.

## 8) SWMU 70, AOC 548, 549

Six wells were installed at this site, three shallow at AOC 549 (NBCE549001, NBCE549002, NBCE549003), two shallow and one deep at SWMU 70 (NBCE070001, NBCE07001D, NBCE070002).

SWMU 70 — Dip Tank Area, Building 5; Inorganic constituents exceeding RBCs include: Antimony, Cadmium, Chromium, and Iron in NBCE070001; Antimony, Arsenic, Chromium, Manganese, and Thallium in NBCE07001D; Aluminum, Arsenic, Chromium, and Iron in NBCE070002.

Organic constituents exceeding RBCs include: 1,2-Dichloroethylene, and Trichloroethylene in NBCE070001; 1,2-Dichloroethylene, Tetrachloroethylene, and Trichloroethylene in NBCE07001D; Trichloroethylene in NBCE070002.

No additional wells have been proposed for this site; however, additional supplemental well pairs placed to the west of this site will help to determine the extent of constituents detected based on the direction of groundwater flow at this site.

AOC 549 — Former Scrap Yard, Buildings 3 and 5; Inorganic constituents exceeding RBCs include: Arsenic and Iron in NBCE549001; Iron in NBCE549002; Antimony and Chromium in NBCE549003.

Organic constituents exceeding RBCs include: Benzene and Chlorobenzene in NBCE549001; 1,2-Dichloroethylene in NBCE549002; 1,2-Dichloroethylene, and Trichloroethylene in NBCE549003.

No additional wells have been proposed for this site; however, additional supplemental well pairs placed to the west of this site will help to determine the extent of constituents detected based on the direction of groundwater flow at this site.

## 9) SWMU 81

No monitoring wells were installed at this site.

## 10) SWMU 83, SWMU 84, AOC 574

Eight monitoring wells were installed at this site, two shallow at SWMU 83 (NBCE083001, NBCE083002), two shallow at SWMU 84 (NBCE084001, NBCE084002), and three shallow wells and one deep well at AOC 574 (NBCE574001, NBCE57401D, NBCE574002, NBCE574003).

SWMU 83 — Former Foundry, Building 9; Inorganic constituents exceeding RBCs include: Arsenic, Iron, and Manganese in NBCE083001; Arsenic and Iron in NBCE083002. No additional wells have been proposed for this site.

SWMU 84 — Former Lead Storage Area, Building 9; Inorganic constituents exceeding RBCs include: Arsenic, Iron, and Manganese in NBCE084002. No additional wells are proposed for this site.

AOC 574 — Fuel Tank, Building 9; Inorganic constituents exceeding RBCs include: Manganese in NBCE574001; Arsenic, Iron, and Manganese in NBCE57401D; Iron, and Manganese in NBCE574002; Iron and Manganese in NBCE574003. No additional wells are proposed for this site.

## 11) SWMU 87, SWMU 172, AOC 564

Three wells were installed at SWMU 172, two shallow and one deep (NBCE172001, NBCE172002, NBCE17202D).

SWMU 172 — Steam Cleaning Operations, Building 80; Inorganic constituents exceeding RBCs include: Iron, and Manganese in NBCE172001; Arsenic, Iron, and Manganese in NBCE172002; Arsenic, Iron, and Manganese in NBCE17202D.

Organic constituents exceeding RBCs include: 1,4-Dichlorobenzene, 1,2-Dichloroethylene, and Chlorobenzene in NBCE172001; No additional wells have been proposed for this site.

**12) SWMU 97**

One shallow well was installed at SWMU 97 (NBCE097001).

SWMU 97 — <90 Day Accumulation Area, Building 236; Inorganic constituents exceeding RBCs include: Antimony and Arsenic in NBCE097001. No additional wells have been proposed for this site.

**13) SWMU 100**

One shallow well was installed at SWMU 100 (NBCE100001).

SWMU 100 — Satellite Accumulation Area, Building 218; Inorganic constituents exceeding RBCs include: Arsenic, Iron, and Manganese in NBCE100001. No additional wells have been proposed for this site.

**14) SWMU 102**

One shallow well was installed at SWMU 102 (NBCE102001).

SWMU 102 — Mercury Spill, Building 79; Inorganic constituents exceeding RBCs include: Arsenic in NBCE102001. No additional wells have been proposed for this site.

**15) SWMU 106, AOC 603**

Two wells were installed at this site, one shallow well and one deep well at SWMU 106 (NBCE106001, NBCE10601D).

SWMU 106 — Blast Area, Drydock 3; Inorganic constituents exceeding RBCs include: Arsenic, Iron, and Manganese in NBCE106001. No additional wells have been proposed for this site.

**16) SWMU 145**

Four wells were installed at SWMU 145, three shallow and one deep (NBCE145001, NBCE145002, NBCE145003, NBCE14503D).

SWMU 145 — Mercury Spill, Building 13A; No constituents were detected above RBCs. No additional wells have been proposed for this site.

## 17) SWMU 170, SWMU 171

No monitoring wells were installed at this site.

## 18) SWMU 173

No monitoring wells were installed at this site.

## 19) AOC 525

One shallow well was installed at AOC 525 (NBCE525001).

AOC 525 — Paint Booth, Building 223; Inorganic constituents exceeding RBCs include: Manganese in NBCE525001. No additional wells have been proposed for this site.

## 20) AOC 528

One shallow well was installed at AOC 528 (NBCE528001).

AOC 528 — Steam Cleaning Shop, Building 59; Inorganic constituents exceeding RBCs include: Arsenic, Iron, and Manganese in NBCE528001. No additional wells have been proposed for this site.

## 21) AOC 530

Four monitoring wells were installed at AOC 530, two shallow and two deep (NBCE530001, NBCE53001D, NBCE530002, NBCE53002D).

AOC 530 — Paint and Oil Storage, Building 35; Inorganic constituents exceeding RBCs include: Arsenic, Beryllium, Iron, and Manganese in NBCE530001; Beryllium, Manganese, and Thallium in NBCE53001D; Arsenic, Iron, and Thallium in NBCE530002; Arsenic, Manganese, and Thallium in NBCE53002D.

Organic constituents exceeding RBCs include: 1,1-Dichloroethylene in NBCE530001; Bis(2-ethylhexyl)phthalate in NBCE530002.

No additional wells have been proposed for this site; however, additional supplemental well pairs placed to the west of this site will help to determine the extent of constituents detected based on the direction of groundwater flow at this site.

## 22) AOC 531

No monitoring wells were installed at this site.

## 23) AOC 538, AOC 539

Four monitoring wells were installed at this site, one shallow and one deep at AOC 538 (NBCE538001, NBCE53801D), and one shallow and one deep at AOC 539 (NBCE539001, NBCE53901D).

AOC 538 — Forge Shop, Building 6; Inorganic constituents exceeding RBCs include: Arsenic in NBCE538001; Arsenic and Manganese in NBCE53801D. No additional wells have been proposed for this site.

AOC 539 — Propeller Shop, Building 6; Inorganic constituents exceeding RBCs include: Iron and Manganese in NBCE53901D.

Organic constituents exceeding RBCs include: 1,2-Dichloroethylene, and Trichloroethylene in NBCE53901D. No additional wells have been proposed for this site; however, additional supplemental well pairs placed to the west of this site will help to determine the extent of constituents detected based on the direction of groundwater flow at this site.

## 24) AOC 550

One shallow monitoring well was installed at AOC 550 (NBCE550001).

AOC 550 — Boiler House, Former Building 1111; Inorganic constituents exceeding RBCs include: Arsenic, Iron, and Manganese in NBCE550001. No additional wells have been proposed for this site.

## 25) AOC 551, AOC 552

Three monitoring wells were installed at AOC 551, two shallow and one deep (NBCE551001, NBCE551002, NBCE55102D).

AOC 551 — Boiler House, Building 1119; Inorganic constituents exceeding RBCs include: Manganese in NBCE551001; Iron and Manganese in NBCE551002; Arsenic, Iron, and Manganese in NBCE55102D.

Organic constituents exceeding RBCs include: Tetrachloroethylene and Trichloroethylene in NBCE55102D. No additional wells have been proposed for this site.

## 26) AOC 555

No monitoring wells were installed at this site.

## 27) AOC 556

No monitoring wells were installed at this site.

## 28) AOC 558

No monitoring wells were installed at this site.

## 29) AOC 559, AOC 560, AOC 561

Eight monitoring wells were installed at AOC 559, five shallow and three deep (NBCE559001, NBCE559002, NBCE55902D, NBCE559003, NBCE55903D, NBCE559004, NBCE55904D, NBCE559005).

AOC 559 — Central Power Station, Building 32; Inorganic constituents exceeding RBCs include: Beryllium and Thallium in NBCE559002; Arsenic in NBCE559003; Arsenic, Manganese, and Thallium in NBCE55903D; Arsenic, Iron, and Manganese in NBCE559004; Arsenic, Iron, and Manganese in NBCE55904D; Iron and Manganese in NBCE559005.

Organic constituents exceeding RBCs include: Bis(2-ethylhexyl)phthalate, and Trichloroethylene in NBCE55903D; 1,2-Dichlorobenzene, 1,4-Dichlorobenzene, Benzene, and Chlorobenzene in NBCE559005.

No additional wells have been proposed for this site; however, additional supplemental well pairs placed to the west of this site will help to determine the extent of constituents detected based on the direction of groundwater flow at this site.

## 30) AOC 562

No monitoring wells were installed at this site.

## 31) AOC 563

Four wells were installed at AOC 563, three shallow and one deep (NBCE563001, NBCE56301D, NBCE563002, NBCE563003).

AOC 563 — Locomotive House, Former Building 37; Inorganic constituents exceeding RBCs include: Arsenic, Chromium, Iron, Lead, Manganese and Vanadium in NBCE563001; Arsenic, Iron, and Manganese in NBCE563002; Arsenic and Manganese in NBCE563003.

Organic constituents exceeding RBCs include: 1,2-Dichloroethylene in NBCE563001; 1,2-Dichloroethylene in NBCE563002; 1,2-Dichloroethylene and Trichloroethylene in NBCE563003. No additional wells have been proposed for this site.

## 32) AOC 566

Two wells were installed at AOC 566, one shallow and one deep (NBCE566001, NBCE56601D).

AOC 566 — Paint Shop Storage, Building 194; Inorganic constituents exceeding RBCs include: Beryllium, Iron, and Manganese in NBCE566001; Arsenic, Iron and Manganese in NBCE56601D. No additional wells have been proposed for this site.

## 33) AOC 567

No monitoring wells were installed at this site.

## 34) AOC 569, AOC 570, AOC 578

Eight wells were installed at this site, two shallow and one deep at AOC 569 (NBCE569001, NBCE56901D, NBCE569002), three shallow and two deep at AOC 570 (NBCE570001, NBCE570002, NBCE57002D, NBCE570003, NBCE57003D).

AOC 569 — Former Gas Station and Oil Storehouse, Former Building 1279; Inorganic constituents exceeding RBCs include: Manganese in NBCE569001; Arsenic, Manganese, and Thallium in NBCE56901D.

Organic constituents exceeding RBCs include: Tetrachloroethylene and Trichloroethylene in NBCE569002. No additional wells have been proposed for this site; however, additional supplemental well pairs placed to the west of this site will help to determine the extent of constituents detected.

AOC 570 — Former Coal Storage Area, Area from Building 30 to Sixth Avenue and Carolina Avenue to Hobson Avenue; Inorganic constituents exceeding RBCs include: Beryllium and Manganese in NBCE570001; Aluminum, Arsenic, Beryllium, Chromium, Iron, Lead, Manganese, and Vanadium in NBCE570002; Manganese in NBCE57002D; Manganese in NBCE570003.

Organic constituents exceeding RBCs include: 1,2-Dichloroethylene and Trichloroethylene in NBCE57003D. One additional shallow well (NBCE570004) has been proposed to define the extent of constituents detected in NBCE570002. Also, additional supplemental well pairs placed to the west of this site will help to determine the extent of constituents detected and further define the hydrogeologic conditions of Zone E.

## 35) AOC 571

No monitoring wells were proposed for this site.

## 36) AOC 572

Three shallow monitoring wells were installed at AOC 572 (NBCE572001, NBCE572002, NBCE572003).

AOC 572 — Motor Area, Building 177; Inorganic constituents exceeding RBCs include: Arsenic, Iron, and Manganese in NBCE572001; Iron and Manganese in NBCE572002; Iron and Manganese in NBCE572003. No additional wells have been proposed for this site.

## 37) AOC 573

Two monitoring wells were installed at AOC 573, one shallow and one deep (NBCE573001, NBCE57301D).

AOC 573 — Anodizing Process, Building 177; Inorganic constituents exceeding RBCs include: Iron and Manganese in NBCE573001; Manganese in NBCE57301D. No additional wells have been proposed for this site.

## 38) AOC 576

Three monitoring wells were installed at AOC 576, two shallow and one deep (NBCE576001, NBCE576002, NBCE57602D).

AOC 576 — Oil and Paint Storehouse/Print Office, Former Building 1012; Inorganic constituents exceeding RBCs include: Aluminum, Beryllium, Iron, and Manganese in NBCE576001; Arsenic, Iron, and Manganese in NBCE57602D.

Organic constituents exceeding RBCs include: Pentachlorophenol and Bromodichloromethane in NBCE576002; Trichloroethylene in NBCE57602D. No additional wells have been proposed for this site.

## 39) AOC 579

No monitoring wells were installed at this site.

## 40) AOC 580

Three monitoring wells were installed at AOC 580, two shallow and one deep (NBCE580001, NBCE58001D, NBCE580002).

AOC 580 — Former Pattern and Electric Shop, Building 10; Inorganic constituents exceeding RBCs include: Iron and Manganese in NBCE580001; Arsenic, Iron, and Manganese in NBCE58001D; Arsenic, Iron, and Manganese in NBCE580002. No additional wells have been proposed for this site.

## 41) AOC 583

Four monitoring wells were installed at AOC 583, three shallow and one deep (NBCE583001, NBCE583002, NBCE58302D, NBCE583003).

AOC 583 — Northeast Corner of Building 236; Inorganic constituents exceeding RBCs include: Arsenic and Manganese in NBCE58302D. No additional wells have been proposed for this site.

## 42) AOC 586

One shallow well was installed at AOC 586 (NBC586001).

AOC 586 — Temporary Powerhouse, Former Building 1014; Inorganic constituents exceeding RBCs include: Arsenic in NBCE586001. No additional wells have been proposed for this site.

## 43) AOC 590

Two wells were installed at AOC 590, one shallow and one deep (NBCE590001, NBCE59001D).

AOC 590 — Alley between Buildings 1760 and 79; Inorganic constituents exceeding RBCs include: Arsenic, Iron, and Manganese in NBCE590001; Barium, Beryllium, and Manganese in NBCE59001D. No additional wells have been proposed for this site.

## 44) AOC 592

No monitoring wells were installed at this site.

## 45) AOC 596

Six wells were installed at AOC 596, four shallow and two deep (NBCE596001, NBCE59601D, NBCE596002, NBCE596003, NBCE596004, NBCE59604D).

AOC 596 — Former Torpedo Storage, Building 101; Inorganic constituents exceeding RBCs include: Arsenic and Iron in NBCE596001; Arsenic, Iron, and Manganese in NBCE59601D; Arsenic in NBCE596003; and Arsenic, Iron, and Manganese in NBCE59604D. No additional wells have been proposed for this site.

## 46) AOC 597

No monitoring wells were installed at this site.

## 47) AOC 598, AOC 599

Two wells were installed at this site, one shallow at AOC 598 (NBCE598001) and one shallow at AOC 599 (NBCE599001).

AOC 598 — Sonar Dome Area, End of Pier J; Inorganic constituents exceeding RBCs include: Arsenic, Barium, Iron, and Manganese in NBCE598001. No additional wells have been proposed for this site.

AOC 599 — Pump House, Pier J; Inorganic constituents exceeding RBCs include: Iron in NBCE599001. Organic constituents exceeding RBCs include: Heptachlor in NBCE599001. No additional wells have been proposed for this site.

**48) AOC 602**

No monitoring wells were installed at this site.

**49) AOC 604**

No monitoring wells were installed at this site.

**Supplemental Well Locations** (Shallow Grid Wells)

Twenty-five supplemental well pairs were installed throughout Zone E. Five additional well pairs have been proposed in order to fill data gaps. Additional well locations are based upon the need to define the extent of constituents detected at several locations and the need to further define the hydrogeologic conditions of Zone E. The following is a list of constituents exceeding RBCs at grid well locations.

**Shallow Grid-Based Wells**

NBCEGDE001 — Iron, Heptachlor
NBCEGDE002 — Arsenic, Iron
NBCEGDE003 — Arsenic, Iron, Manganese
NBCEGDE004 — None
NBCEGDE005 — Iron
NBCEGDE006 — Arsenic, Iron, Manganese
NBCEGDE007 — Iron, Manganese
NBCEGDE008 — Arsenic, Iron, Manganese
NBCEGDE009 — Arsenic, Iron, Manganese
NBCEGDE010 — Arsenic, Iron, Manganese, Pentachlorophenol
NBCEGDE011 — Arsenic, Iron, Manganese
NBCEGDE012 — Barium, Iron, Managnese, Thallium
NBCEGDE013 — Iron, Manganese
NBCEGDE014 — Arsenic, Iron, Manganese, Bis(2-ethylhexyl)phthalate
NBCEGDE015 — Iron
NBCEGDE016 — Arsenic, Iron, Manganese
NBCEGDE017 — Iron, Trichloroethylene
NBCEGDE018 — Antimony, Arsenic, Iron, Manganese
NBCEGDE019 — Aluminum, Antimony, Iron
NBCEGDE020 — None
NBCEGDE021 — Iron, Manganese
NBCEGDE022 — Arsenic, Iron, Manganese
NBCEGDE023 — Iron, Manganese
NBCEGDE024 — Antimony, Iron, Lead
NBCEGDE025 — Manganese, 1,1-Dichloroethylene, Trichloroethylene

## Deep Grid-Based Wells

NBCEGDE01D — None
NBCEGDE02D — Arsenic, Iron, Manganese
NBCEGDE03D — Manganese, Bis(2-ethylhexyl)phthalate
NBCEGDE04D — Manganese
NBCEGDE05D — Beryllium
NBCEGDE06D — None
NBCDGDE07D — Arsenic, Iron, Bis(2-ethylhexyl)phthalate
NBCEGDE08D — Manganese
NBCEGDE09D — Arsenic, Iron, Manganese, Trichloroethylene
NBCEGDE10D — Antimony, Iron, Manganese
NBCEGDE11D — Iron
NBCEGDE12D — Arsenic, Iron, Manganese
NBCEGDE13D — Arsenic, Iron, Manganese
NBCEGDE14D — Arsenic, Iron, Manganese
NBCEGDE15D — Arsenic, Iron, Manganese, Thallium, Bis(2-ethylhexyl)phthalate, 1,2-Dichloroethylene
NBCEGDE16D — Arsenic, Iron, Manganese
NBCEGDE17D — Arsenic, Manganese, 1,1-Dichloroethylene, 1,2-Dichloroethylene, Tetrachloroethylene, Trichloroethylene
NBCEGDE18D — Beryllium, Manganese
NBCEGDE19D — Antimony
NBCEGDE20D — Manganese
NBCEGDE21D — Iron, Manganese
NBCEGDE22D — Manganese
NBCEGDE23D — Barium, Manganese, Bis(2-ethylhexyl)phthalate
NBCEGDE24D — Manganese, 1,2-Dichloroethylene, Trichloroethylene
NBCEGDE25D — Manganese

NAVAL BASE CHARLESTON
RESTORATION ADVISORY BOARD (RAB)
Minutes of 13 August 1996

1. Introduction of the RAB Members and Guests

Mr. Don Harbert, Community Co-chair, welcomed everyone to the RAB meeting and asked that both the RAB members and audience introduce themselves. He also announced that this is Mrs. Susan Floyd's last meeting as she is resigning from the board after 27 months of active membership.

2. RAB Members Attending

Mr. Doyle Brittain
Mr. James Conner
Mr. Bobby Dearhart
Mrs. Susan Floyd
Mr. Daryle Fontenot
Mr. Tom Fressilli
Mr. Donald Harbert
Ms. Jeri Johnson
Ms. Wannetta Mallette
Mr. Louis Mintz
Mr. Odell Price
Ms. Ann Ragan
LDCR Paul Rose
Mr. Bob Veronee

3. Guests Attending

| | |
|---|---|
| Mr. Tony Hunt | NAVFAC, SouthDiv |
| Mr. Brian Stockmaster | NAVFAC, SouthDiv |
| Mr. Gabriel Magwood | NAVFAC, SouthDiv |
| Mr. Hayes H. Patterson Jr. | NAVFAC, SouthDiv |
| Mr. Kevin Tunstall | Detachment |
| Mr. Johnny Tapia | SCDHEC |
| Mr. Paul M. Bergstrand | SCDHEC |
| Mrs. June M. Brittain | Concerned Citizen |
| Mr. Rutherford Smith | Dorchester County Council |
| Mr. Richard Grumbine | Applied Technology Services, Inc. |
| Mr. Gene Eaton | Atlantic Drilling Corp. |
| Mr. Trey Smith | FENN-VAC, Inc. |
| Mr. Andrew Lennon | Geophex |
| Mr. E.C. Killingbeck | RDA |
| Ms. Diane Cutler | EnSafe/Allen&Hoshall |
| Mr. Larry Bowers | EnSafe/Allen&Hoshall |
| Dr. Jim Speakman | EnSafe/Allen&Hoshall |

4. Administrative Remarks and Comments on Minutes

Mr. Harbert asked for comments on last month's minutes. No comments or changes were made.

5. Subcommittee Reports

*Community Relations*
The Community Relations Subcommittee met prior to the RAB meeting. Mr. Daryle Fontenot announced that the location for next month's RAB meeting will be North Charleston and is tentatively set for the North Charleston City Hall in Room 515. The subcommittee also provided final approval on the contaminant posters that can be displayed at RAB meetings and any other outreach activity. Posters include Cleanup Process, Review of Risk, Types of Contaminants, and For More Information.

The Subcommittee also discussed the upcoming TV appearance which will be taped on August 26 at 7:30 p.m., and will air on Sunday, September 1, 1996 at 6:30 a.m. The show is called "Focus" and is on Channel 2. Mr. Fontenot and Mr. Harbert will be the RAB representatives on the show. The show was also supposed to air in the evening but since the appearance was scheduled, there has been an affiliate change. For those who can't watch it, a tape will be provided to Mr. Fontenot. The purpose of the appearance is to try to spread the word of what the RAB is doing.

Another topic discussed by the subcommittee is a RAB speaker's bureau. The subcommittee recommends that RAB members make themselves available to go out to different groups in the community and talk about what the RAB is all about. This service can be announced through flyers. In order for it to be successful, however, RAB members have to commit to being involved with this effort. Mr. Fontenot asked if anyone was opposed. No opposition was voiced, so Mr. Fontenot said the subcommittee will move ahead with having the flyers developed.

The subcommittee will not meet in September but will reconvene on October 8th and will begin working on another fact sheet. Mr. Fontenot thanked Mrs. Floyd for her involvement with the subcommittee.

*Shipyard Detachment*
Mr. Arthur Pinckney was not present to give a subcommittee report, but Mr. Bobby Dearhart provided a brief update on the activities of the Shipyard Detachment. The Shipyard Detachment consists of 170 former shipyard employees that are out doing environmental cleanup at the Naval Base. It is a fairly aggressive group which has been up and running for four months. So far, they have pulled 25 underground storage tanks, started work on four interim measures, are doing geodetic surveying for EnSafe, have installed groundwater monitoring wells, and are gearing up for an upcoming bioremediation project. Fifteen other interim measures are also being looked at and should start up soon.

*Finance*
Mr. Lou Mintz announced that the Finance Subcommittee will wait until the end of the fiscal year to provide a report.

6. RDA Update

Ms. Jeri Johnson provided the Redevelopment Authority update. She compiled a list of action items as a result of the last two RDA meetings. The RDA meets every two weeks and has therefore met twice since the last update to the RAB. The action items that were approved include:

The authority hired General Engineering Laboratories to provide consultation for the RDA on environmental issues. This is because the RDA has no environmental expertise on the staff and are finding out that the permits are a big part of the redevelopment process.

Executed one lease this month which was actually an amendment to CMMC's lease. They are now leasing Building 35 for welder training purposes.

The RDA authorized the chairman to execute a lease with the Charleston County School District for Cochran Hall, and they're about 4 days away from signing the lease. Cochran Hall will be the temporary home for the magnet school. That move is scheduled for January.

The RDA decided to apply to become part of a Foreign Trade Zone because of the incentives to business. That application is under way.

The RDA has entered into a lease with Wilson and Green which is a small custom builders outfit.

There have been two secondary subleases entered into with existing tenants: Babcock&Wilcox and Excell.

The RDA has been given the authority to execute a lease for Building 53.

Part of Building 255 will be leased to a state institution for document storage.

The RDA has requested a license from the Navy to allow the McKinney Act agencies to occupy the facilities that they have requested in anticipation of the lease that should be signed in September.

7. Environmental Cleanup Progress Report

*Chicora Tank Farm*

Ms. Ann Ragan provided an update on the Chicora Tank Farm. Tanks are 138 feet wide, 20 feet high, partially buried, and covered with dirt and grass. The tank farm looks like a big bumpy field. The question is what to do with the tanks. As a recap, while working on the closure of the tank farm, four options were explored:

1) Fill the tanks with sand at a cost of about $2.5 million.

2) Partial demolition and fill the rest in with sand. This would drop the level of the mound by about 4 feet, but would still leave a bumpy field.

3) Knock in the top, push in the walls, fill with some type of cover and regrade. This would leave a gently rolling field.
4) Totally remove the tanks and fill in the void for a cost of about $8 million.

SC Department of Health and Environmental Control (DHEC) has now gone back and will consider option number three. The reason it wasn't considered before is because there was a miscommunication. The tanks will be steam cleaned before being partially demolished. Ms. Ragan asked for the RAB's input. Mr. Mintz stated that he would be pleased with option #3, that it would be worth the cost difference (half to one million dollars) to provide the community with a useable piece of land. Both Ann Ragan and Mr. Doyle Brittain clarified, however, that the land would not be completely flat, that there would be a gentle slope because it will have to be graded for drainage.

Mr. Dearhart questioned if the $3 million cost estimate includes a drainage system for the new option. Mr. Bob Veronee answered that a drainage system is already there.

Mr. Mintz asked if the space in the partially demolished tanks could accommodate other materials that may need to be discarded. Ms. Ragan replied that, although that is a good idea, there would not be enough room.

Mr. Dearhart asked if this option requires a permit and if it is going to be a Navy liability. Ms. Ragan answered that DHEC has worked through the permit issue, that it had been a misunderstanding - all the information was not on the table. The solid waste people had not heard that the tanks would be steam cleaned which would bring any petroleum residue in the tanks to an acceptable level.

Although pleased with the progress, Mrs. Floyd asked how loud the RAB has to yell and how upset they have to get before the decision-makers listen. The RAB relies on the professionals in the field to guide them, and when all the information is not "on the table" it scares her. Ms. Ragan explained that another group in DHEC either didn't get all the information, or didn't ask for the right information and thought there were stumbling blocks. Once everyone got together (DHEC Solid Waste, DHEC Underground Storage Tank, RCRA, Ms. Ragan, top management, Navy, EPA in an advisory capacity, and RDA) everything was worked out.

Ms. Johnson, Mr. Odell Price, and Mr. Mintz all expressed their appreciation for DHEC's efforts in reconsidering the tank farm options. Ms. Wannetta Mallette shared her opinion that this option is the best, and that it meets her definition of base closure. Mr. Jim Conner also expressed his opinion that this is the best option.

Mrs. Floyd said she thought the estimate for a similar option was considerable higher as discussed in the June meeting. Ms. Ragan said that it was originally, because it included the demolition of buildings which is no longer required. The Navy left the planning meeting agreeing to re-work their numbers, so they will come up with a new estimate. Then, the whole group will reconvene on September 30th, lay it all out on the table again, look at the cost differentials, and choose the preferred option.

Mrs. Floyd stated that this turn of events has restored her faith a little bit. However, as she said before, the Navy will have to continue to prove to her that they're going to do the right thing.

Mr. Fontenot stated that they will keep the RAB appraised of the status of the Chicora Tank Farm tank demolition.

*Environmental Cleanup Progress Report*
Mr. Fontenot reported that the environmental program project status handout that he has been promising for a few months is finally available. It identifies each program, the action that is taking place, the time frame, and any follow-up action. This report will be updated monthly. It provides the RAB with a list of all the environmental issues that are being addressed on Base, not just the RCRA corrective action issues. The list includes property transfer, permits, the RCRA corrective action process, underground storage tank, and asbestos. A complete listing of current activities can be found in the Project Status - 8/13/96 handout attached to these minutes. A list of acronyms used in this status sheet are provided as part of the attachment.

*Progress Report for June*
Mr. Tony Hunt presented the status of the RCRA Facility Investigation (RFI) for the environmental work going on at the base. Funds are available when they negotiate the contract, however, they have not yet negotiated Zones J and L. Negotiations have been completed for Zones D, F and G, so preparations are underway to begin field work.

In terms of field work, the Navy has completed the third phase of soil sampling in Zone A in addition to the installation of groundwater monitoring wells. Initial sampling for Solid Waste Management Unit (SWMU) 39 found TCE (Trichloroethylene) contamination in ground water. TCE is a solvent found in degreasing and other operations. Groundwater screening using a geoprobe was initiated and the results showed contamination. As a result, monitoring wells were installed to ensure that the area was well defined. Additionally, some soil sampling was done in the vicinity of SWMU 38 and had hits of PCBs and DDT.

In Zone E, 2nd quarter groundwater sampling is ongoing, and in Zone I, 4th quarter groundwater monitoring is ongoing. The second phase of soil sampling in Zone E should start this week. The Shipyard Detachment will be doing a significant amount of work on soil and water sampling as well as surveying in Zones D, F, and G.

The State has provided comments to the Navy on the Work Plans for Zones J and K. Zone L Work Plan comments were also recently received from the state, and the Navy has prepared the responses to those comments and resubmitted the document.

The Navy will meet on September 1st to discuss Zone A results (with the exception of SWMU 39 because that data is not in yet). Other activities include continued groundwater sampling in Zone E, work on interim measures, begin field work in Zones D, F and G as soon as possible, and continue to resolve comments on remaining Work Plans.

Mr. Hunt reported that he feels the Navy is pretty close to resolution regarding the Comprehensive RFI Work Plan issues. The Zone H RFI report was submitted to the regulators on 7/8/96. The Navy is currently waiting on comments from regulators on Zone C and I.

Mr. Mintz asked if analysis of samples can determine how long a chemical has been at a particular site. Mr. Hunt answered no.

*Interim Measures*

Mr. Brian Stockmaster provided an update on the status of Interim Measures that the Shipyard Detachment is currently working on in the field. Area of Concern (AOC) 690, Perimeter Road, is complete, and the report is currently being compiled. SWMU 54 which is the abrasive blast grit area, is approximately 95 percent complete. They are just waiting to get rid of some of the waste piles they have accumulated. SWMU 44 is also about 95 percent complete, and is also waiting for disposal of waste piles. AOC 653 is the Auto Hobby Shop which is approximately 50 percent complete. Action includes removal of hydraulic vaults and petroleum contaminated soils. SWMU 159 is a former storage area that also requires removal of petroleum contaminated soil, and is about 60 percent complete. Approximately 15 other interim measures will be initiated in the near future, and Mr. Stockmaster will continue to provide updates.

Someone asked how deep the coal removal was at SWMU 44. The response was that the average depth was 2 to 3 feet, but one area was approximately 8 to 10 feet deep. Mr. Mintz asked what is being done with the waste material. Mr. Stockmaster said most of the material is going to be reused or recycled, but it is not disposed as a hazardous material. Someone else asked what the interim measures were at Perimeter Road. Mr. Stockmaster stated that it was primarily pick-up of solid waste. Some of the waste such as concrete was used along the road for erosion control since the road is along the marsh.

*Miscellaneous*

Mr. Fontenot added that the final NNPP (Navy Nuclear Propulsion Program) and G-RAM (General Radioactive Material) reports for the Shipyard and Naval Base can be found in the Information Repository at the Dorchester Road Regional Library.

In the next couple of months, presentations will be provided at the RAB meeting on the results of the investigations for Zones C and I. These will be similar in scope to the presentation provided for the Zone H results.

8. <u>RAB Roles and Responsibilities</u>

Mr. Fontenot provided a slide presentation on the purpose of the RAB. Over the last few months he has been providing material to RAB members to provide them with a review of the RAB's roles and responsibilities. The purpose of this material is to get the new members up to speed and make sure everybody has a clear understanding of what their job is so the board can work together most effectively.

A copy of the slide presentation is included as an attachment to these minutes and consists of the following topics: Purpose of the RAB; Rationale for a RAB; Responsibilities of the RAB members, including specific duties of the Navy Co-Chair, the Community Co-Chair, the regulators, and the community members; RAB member expectations; general RAB roles and responsibilities; and what the RAB is NOT.

Mr. Fontenot asked each RAB member to come up with a listing of what they think their roles and responsibilities are for the next meeting. He added that he'd like to get everybody's feedback to make sure the RAB is functioning in everybody's best interest while meeting the goal of cleaning up Naval Base Charleston in a fast and efficient manner.

Ms. Mallette asked what prompted this exercise. Mr. Fontenot replied that there are a number of new members on the RAB, and he feels that everyone should be at the same level to ensure continuity.

9. Remaining Questions and Comments

Mr. Harbert asked for any remaining comments and questions. He thanked everyone for attending and gave special thanks to members of the community who took time from their busy evenings to sit in on the session.

10. Adjournment (of non-RAB members)

11. Executive Session on RAB Membership

RAB members reconvened immediately after meeting adjournment to discuss RAB membership and attendance. A summary of the final consensus follows:

If a RAB member misses three consecutive meetings or three meetings in one calendar year without sending a suitable replacement (if applicable), the Co-chairs will send a letter to the subject member requesting an explanation for the absences and confirmation of continued interest and commitment.

Upon receipt of the response, the Co-chairs will make a decision to request the member's resignation, or grant continued membership if the absences were excusable. Co-chairs will bring this decision to the entire board for approval.

In order to address the immediate issue of attendance, Mr. Fontenot will tally the attendance record of current RAB members.

The RAB will reconvene next month to work out the details associated with implementing this policy for current members.

**Summary of Action Item**

- Community Relations Subcommittee will begin working on Speaker's Bureau Flyer.
- RAB Members should prepare a list of their understanding of RAB Roles and Responsibilities.

Attachments to Minutes
(1) Tuesday August 13, 1996 RAB Meeting Agenda
(2) Charleston Naval Complex - Tenant Summary as of 7/23/96
(3) Naval Base Charleston Project Status - 8/13/96 with List of Acronyms
(4) RFI Progress Report for July 1996
(5) Interim Measures Status Summary
(6) What is a RAB?

Minutes recorded by: Diane Cutler, EnSafe/Allen&Hoshall

Minutes approved by: _____ _____

Daryle Fontenot
Co-Chairman

Don Harbert
Co-Chairman

**Tuesday, August 13, 1996**

**Charleston Naval Base**

**RESTORATION ADVISORY BOARD MEETING AGENDA**

5:30 P.M. Location: Dorchester County Services Building, County Council Chambers, 500 North Main Street, Summerville, SC (Use Cedar Street entrance.)

RAB Members, BRAC Cleanup Team, and interested citizens informally talk about what's going on from 5:30 p.m. to 6:30 p.m.

**6:30 P.M. RAB MEETING**

A. Introduction of the RAB Members and Guests

B. Administrative Remarks, comments on the minutes of the last meeting

C. Subcommittee Reports

| | | |
|---|---|---|
| Community Relations | - | Daryle Fontenot |
| Shipyard Detachment | - | Arthur Pinckney |
| Finance | - | Lou Mintz |

D. RDA Update

E. Environmental Cleanup Progress Report - Cleanup Team

Status of the Environmental Programs
Interim Measures

F. RAB Roles and Responsibility - Daryle Fontenot

G. Perspective Talk Show Appearance - Daryle Fontenot

H. Remaining Questions and Comments from Visitors

I. Agenda for next meeting.

J. RAB Members Only Session on RAB Membership

Please mark for calendar. Our next meeting is **Tuesday, September 10, 1996**. Time and location in the North Charleston area to be determined.

CHARLESTON NAVAL COMPLEX | TENANT SUMMARY | DATA AS OF 7/23/96

| | CURRENT FACILITIES/EMPLOYMENT | | | | | | ULTIMATE FACILITIES/EMPLOYMENT | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DRY DOCKS | PIERS | NON-BLDGS | BUILD-INGS | BUILDING SQ. FT. | EMPLOY-EES | DRY DOCKS | PIERS | NON-BLDGS | BUILD-INGS | BUILDING SQ. FT. | EMPLOY-EES |
| **CURRENT TENANTS/SUB-TENANTS** | | | | | | | | | | | | |
| ALLIED TECHNOLOGY | 0 | 0 | 0 | 1 | 8,553 | 10 | 0 | 0 | 0 | 1 | 8,553 | 100 |
| BABCOCK & WILCOX | 0 | 0 | 0 | 2 | 175,992 | 36 | 0 | 0 | 0 | 3 | 208,930 | 225 |
| TBD ELECTRICAL CONTRACTORS | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 13 |
| CHARLESTON COUNTY PRC | 0 | 2 | 0 | 2 | 6,087 | 4 | 0 | 3 | 6 | 7 | 12,670 | 6 |
| CHARLESTON GRIP & ELECTRIC | 0 | 0 | 0 | 1 | 12,480 | 12 | 0 | 0 | 0 | 1 | 12,480 | 25 |
| CHARLESTON MARINE MANUF. CORP | 3 | 5 | 17 | 49 | 845,848 | 250 | 3 | 5 | 23 | 64 | 1,131,142 | 2,404 |
| CHOPLIN PREDICTIVE MAINTENANCE | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 16 |
| CHARLESTON SHIPBUILDERS, INC. | 2 | 3 | 2 | 27 | 354,629 | 20 | 2 | 6 | 22 | 62 | 549,777 | 2,000 |
| CAROLINA MARINE HANDLING | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 100 |
| DEPT OF HEALTH & ENV. CONTROL (B/400) | 0 | 0 | 0 | 1 | 16,182 | 54 | 0 | 0 | 0 | 1 | 16,182 | 54 |
| FOX ASSOCIATES | 0 | 0 | 0 | 1 | 4,040 | 15 | 0 | 0 | 0 | 1 | 4,040 | 15 |
| M. ROSENBLATT | 0 | 0 | 0 | 1 | 2,880 | 25 | 0 | 0 | 0 | 1 | 2,880 | 25 |
| RDA STAFF/CARETAKER CONTRACTORS | 0 | 0 | 0 | 2 | 42,471 | 17 | 0 | 0 | 0 | 1 | 8,205 | 17 |
| SC FEDERAL CREDIT UNION | 0 | 0 | 0 | 2 | 16,180 | 12 | 0 | 0 | 0 | 2 | 16,180 | 12 |
| U.S. POSTAL SERVICE (SHARE B/400) | 0 | 0 | 0 | 0 | 17,782 | 320 | 0 | 0 | 0 | 0 | 17,782 | 400 |
| SUBTOTAL | 5 | 10 | 19 | 89 | 1,503,124 | 800 | 5 | 14 | 51 | 144 | 1,988,821 | 5,412 |
| **UNDER NEGOTIATION** | | | | | | | | | | | | |
| CHARLESTON COUNTY SCHOOL DISTRICT | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 0 | 2 | 73,403 | 25 |
| COMMISSIONER OF PUBLIC WORKS | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 0 | 6 | 104,999 | 200 |
| MCKINNEY ACT TASK FORCE (8 AGENCIES) | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 2 | 22 | 161,513 | 200 |
| NORTH CHARLESTON | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 1 | 13 | 39 | 174,786 | 34 |
| SC EMPLOYMENT SECURITY COMMISSION | 0 | 0 | 0 | 1 | 41,196 | 56 | 0 | 0 | 0 | 2 | 42,278 | 56 |
| SPRINGS TAILORING & DRY CLEANING | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 0 | 1 | 1,089 | 7 |
| WILSON & GREEN CUSTOM BUILDERS | N/A | N/A | N/A | N/A | N/A | N/A | 0 | 0 | 0 | 1 | 3,390 | 10 |
| SUBTOTAL | 0 | 0 | 0 | 1 | 41,196 | 56 | 0 | 1 | 15 | 73 | 561,458 | 532 |

| | CURRENT FACILITIES/EMPLOYMENT | | | | | | ULTIMATE FACILITIES/EMPLOYMENT | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DRY DOCKS | PIERS | NON-BLDGS | BUILD-INGS | BUILDING SQ. FT. | EMPLOY-EES | DRY DOCKS | PIERS | NON-BLDGS | BUILD-INGS | BUILDING SQ. FT. | EMPLOY-EES |
| **FEDERAL ACTIVITIES** | | | | | | | | | | | | |
| BORDER PATROL | 0 | 0 | 8 | 16 | 417,881 | 68 | 0 | 0 | 9 | 15 | 417,881 | 68 |
| CARETAKER SITE OFFICE/COMNAVBASE | 0 | 0 | 0 | 15 | 123,814 | 21 | 0 | 0 | 0 | 15 | 123,814 | 21 |
| DEFENSE FINANCE & ACCOUNTING | 0 | 0 | 3 | 6 | 373,666 | 596 | 0 | 0 | 3 | 5 | 232,518 | 750 |
| DEF INFO PROCESSING CENTER (B/198A) | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 6 |
| DEFENSE PRINTING | 0 | 0 | 0 | 1 | 26,520 | 37 | 0 | 0 | 0 | 1 | 26,520 | 37 |
| ENVIRONMENTAL DETACHMENT | 0 | 0 | 0 | 7 | 184,274 | 172 | 0 | 0 | 0 | 0 | 0 | 0 |
| MAGNETIC SILENCING FACILITY (PIER Y) | 0 | 1 | 4 | 4 | 6,396 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| MARINE RESERVE (NAVSTA ANNEX) | 0 | 0 | 0 | 6 | 25,056 | 54 | 0 | 0 | 0 | 6 | 25,056 | 54 |
| NATL CIVILIAN COMMUNITY CORPS | 0 | 0 | 6 | 14 | 141,489 | 75 | 0 | 0 | 6 | 14 | 141,489 | 75 |
| NATL OCEANIC & ATMOSPHERIC ADMIN | 0 | 1 | 0 | 5 | 47,340 | 15 | 0 | 2 | 1 | 6 | 47,852 | 25 |
| NISE EAST | 0 | 0 | 2 | 18 | 362,761 | 250 | 0 | 0 | 2 | 18 | 362,761 | 250 |
| STATE DEPARTMENT | 0 | 0 | 2 | 5 | 197,750 | 76 | 0 | 0 | 2 | 5 | 197,750 | 400 |
| U.S. COAST GUARD | 0 | 1 | 3 | 6 | 76,034 | 5 | 0 | 1 | 3 | 6 | 76,034 | 402 |
| **SUBTOTAL** | 0 | 3 | 28 | 103 | 1,982,981 | 1,380 | 0 | 3 | 26 | 91 | 1,651,675 | 2,088 |
| **GRAND TOTAL** | 5 | 13 | 47 | 193 | 3,527,301 | 2,236 | 5 | 18 | 92 | 308 | 4,201,954 | 8,032 |

Acronym List

EBSL - Environmental Baseline Survey for Lease
FOSL - Finding of Suitability for Lease
BEC - BRAC Environmental Coordinator
NS - Naval Station
COE - Army Corps of Engineers
EBST - Environmental Baseline Survey for Transfer
MC - Marine Corps
fac. - facility
EA - Environmental Assessment
RCRA - Resource, Conservation and Recovery Act
SCDHEC - South Carolina Department of Health and Environmental Control
LCDR - Lieutenant Commander
OIC - Officer in Charge
RFI - RCRA Facility Investigation
WP - Work Plan
EPA - Environmental Protection Agency
RTC - Response to Comments
RFA - RCRA Facility Assessment
SWMU - Solid Waste Management Unit
IM - Interim Measures
AOC - Area of Concern
IR - Installation Restoration
UST - Underground Storage Tank
DRMO - Defense Reutilization and Marketing Office
IDW - Investigative Derived Waste
USGS - United States Geological Survey
CSO - Caretaker Site Office
PEP - Project Execution Package
GRAM - General Radioactive Material
Det. - Shipyard Detachment
SOW - Statement of Work
ASB - Asbestos
ECD - Estimated Completion Date

Naval Bas[illegible] Charleston
Pro[illegible]tus
8[illegible]

| | PROJECT DESCRIPTION | PROGRAM | ACTION REQUIRED | ECD | NEXT ACTION |
|---|---|---|---|---|---|
| Property Transfer | | | | | |
| | EBSL/FOSL for McKinney Act (20 fac.) | BEC | EPA/SCDHEC reviewing | 9/6/96 | Incorporate regulatory comments |
| | EBSL/FOSL for 233 facilities | BEC | Ensafe preparing Draft EBSL/FOSL | | Navy review of Draft EBSL/FOSL |
| | EBSL/FOSL for NS Annex (19 fac.) | BEC | EPA/SCDHEC reviewing | 9/6/96 | Incorporate regulatory comments |
| | EBST Clouter Island (Transfer to COE, 2 fac.) | BEC | Awaiting CO signature | | |
| | EBST NS Annex (Transfer to MC, 6 fac.) | BEC | Awaiting CO signature | | |
| | Environmental Condition of Property map | BEC | Determine what changes can be made, to be discussed at Septermber Project meeting | 9/10/96 | Ensafe revise map and distribute |
| | Environmental Assessment of South Annex | BEC | Water & Air Research Inc provide Draft Environmental Assessment to Navy | 11/1/96 | Navy review of Draft EA |
| | Environmental Baseline Survey | BEC | EPA/SCDHEC review | | Incorporate regulatory comments |
| | | | | | |
| Permits | | | | | |
| | RCRA Permit | Compliance | Closure inspection of Bldg 246 complete 7/19/96 | complete | |
| | | | Bldg 246 closure letter received dated 7/29/96 | complete | |
| | | | CSO submit Part B application | 10/13/96 | SCDHEC review and approve |
| | | Compliance | Part A-Letter submitted and letter of receipt received on LCDR Rose as OIC | complete | None |
| | Generator ID-Naval Annex | Compliance | CSO has prepared change of owner for Naval Annex ID number | complete | None |
| | | | | | |
| RCRA Corrective Action Process | | | | | |
| | Comprehensive RFI WP Revision 01 | IR | Response to SCDHEC comments dated 7/12 complete and resubmit as Rev 02 (combined) | complete | EPA/SCDHEC review and approve |
| | Zone H RFI report | IR | Resubmitted 7/8/96 | | EPA/DHEC review and approve |
| | Zone C RFI report | IR | In EPA/SCDHEC review | | Navy submit RTC |
| | Zone I RFI report | IR | In EPA/SCDHEC review | | Navy submit RTC |
| | Zone B RFI report | IR | In SCDHEC rereview, 90% progress copy reviewed versus draft | 8/21/96 | Navy submit RTC |
| | Zone A RFI report | IR | In progress, presubmittal review on 8/23, SWMU 39 and SWMU 2 will not be finished | 9/9/96 | EPA/DHEC review and approve |
| | Zone D, F & G RFI WP | IR | Recieved additional comments 8/8/96 | 8/20/96 | Navy submit RTC and revised work plan |
| | Zone L RFI WP | IR | Response to comments complete, resubmitted 7/29 | | EPA/SCDHEC review and approve |
| | Zone J RFI WP | IR | Comments recieved, responses due 9/1 | | Navy submit RTC |
| | Zone K RFI WP | IR | Comments received, responses due 8/28 | | Navy submit RTC |
| | Zone E RFI field work | IR | In progress, next progress meeting (90%) is 11/22 | | 90% progress meeting |
| | RFA additions | IR | Final copies ready for distribution, prepare cover letter | 8/16/96 | Include in current investigation |
| | | | | | |
| | Miscellaneous issues | | | | |
| | Groundwater Model | IR | USGS preparing draft egional and local report | 10/1/96 | Project Team review |
| | Transfer of IR sites to UST program | IR | CSO submitted letter 7/26 | | EPA/SCDHEC review and approve |
| | GRAM survey of DRMO | IR | PEP dated 8/6 accepted, $ to be converted by 8/13 | complete | SDIV issue Notice to Proceed |
| | Support services | | | | |
| | IDW Management | IR | Work in progress. Existing DRMO contract modified | complete | |
| | | | Ensafe developing proposal for background levels for organics | 8/16/96 | EPA/SCDHEC review and approve |
| | Groundwater Monitoring | IR | Zone E second quarter in progress, 4th quarter Zone I beginning | | |
| | Surveying | IR | Navy to issue SOW for Zones D, F & G | 8/16/96 | Det prepare PEP |
| | | | | | |
| UST | | | | | |
| | Tank Management Plan | UST | Comments received, resoonses prepared, in review cycle for submit to Navy | 8/16/96 | Navy review and forward to EPA/SCDHE |
| | Petroleum Remediation Plan | UST | Det preparing plan of action | 8/30/96 | EPA/SCDHEC review |
| | Bioremediation demonstration project | UST | Det preparing plan, facility floor being prepared | | EPA/SCDHEC review |
| | Removals | UST | 51 tanks to be removed | | 25 removed, 5 in progress |
| | | | | | |
| Asbestos | | | | | |
| | Building 32 remediation | ASB | Scope being revised | | Negotiate with SDIV |
| | Building 1171 remediation | ASB | In progress, notification to State required | 8/30/96 | |
| | Building 1601 | ASB | Det preparing to start work | | |

**Naval Base Charleston**
**RCRA Facility Investigation (RFI)**
**PROGRESS REPORT FOR JULY 1996**
**RAB MEETING**
**13 August 96**

## INVESTIGATIVE ZONES

Zones:
- A. Warehousing and scrap metal yard
- B. Golf course and residential
- C. Office space and warehouse (NII-45, Navbase HQ)
- D. Parking lot, warehouses
- E. Shipyard
- F. Recreational areas and public works shops
- G. Fuel farm and transfer facility
- H. Southern end of the base excluding waterfront
- I. Southern end of the base including waterfront and dredge material area
- J. Ecological study area (waterbodies and certain areas on land)
- K. Non-contiguous areas
- L. Sewer systems and railroad system

## FUNDING

- Funding status; Funds available when negotiated
  Zones yet to be negotiated: J, L

## PROGRESS FOR JULY

- Third phase of soil sampling in Zone A was completed. Additional groundwater monitoring wells have been installed and will be developed and sampled in the next couple of weeks.

- Field work continues in Zone E with groundwater sampling being performed by the Detachment. Second phase soil sampling is expected to begin in August.

- Contract negotiations were completed for Zones D, F and G. Preparations for commencing field work are underway.

- Received comments on Zone J and K, response development is in progress.

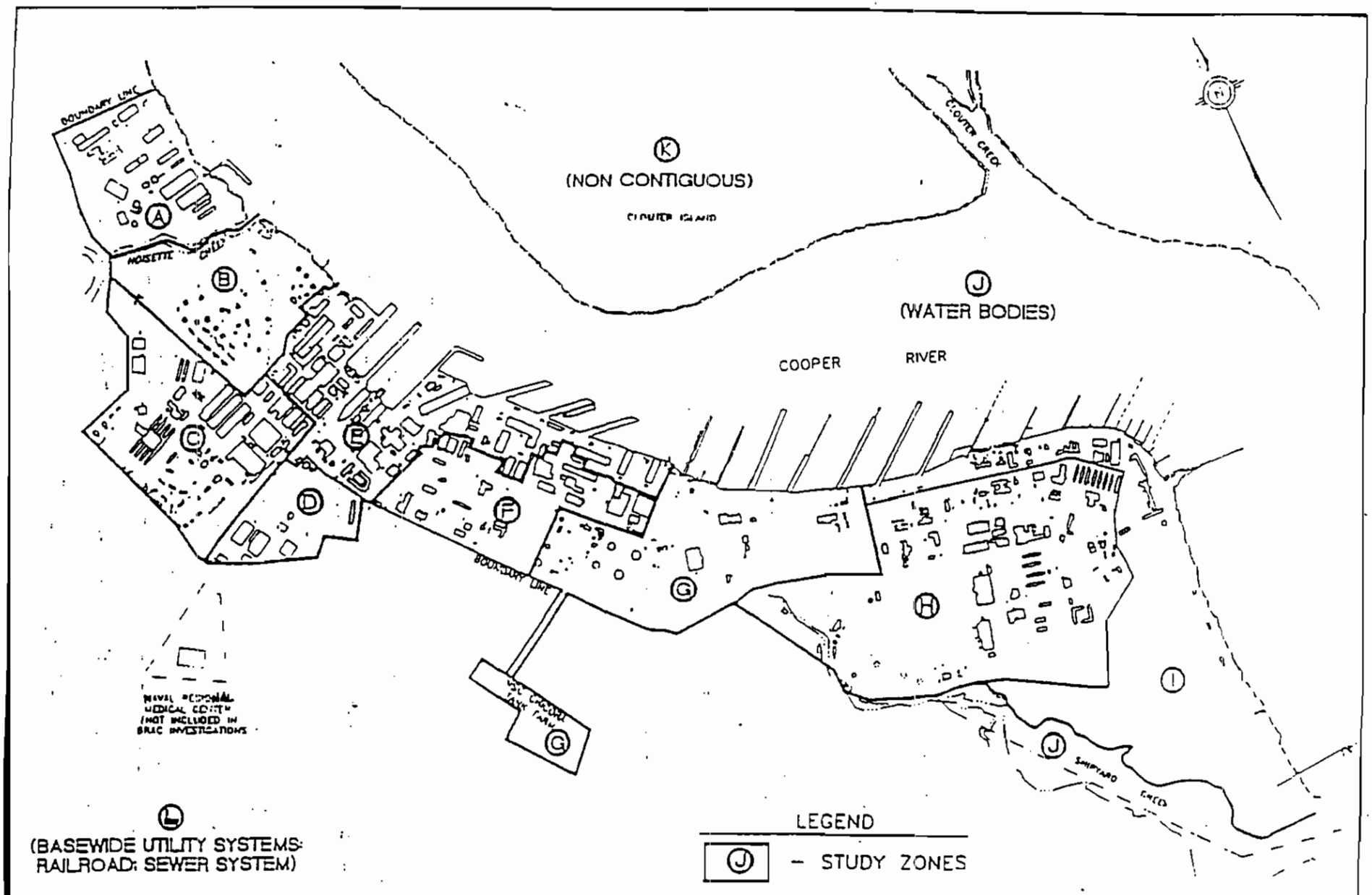
- Responses to comments for Zone L Work Plan have been prepared and the document has been resubmitted.

## PROJECTED ACTIVITY FOR AUGUST

- Review draft Zone A RFI report with Project Team.
- Review responses to comments on Zone J and K with Project Team.
- Continue Zone E groundwater sampling.
- Continue Interim Measures in all zones.
- Begin field work in Zones D, F & G.
- Resolve comments on remaining workplans.

## SUMMARY

- Field work in progress in zones A and E. Soon to include D, F & G.
- Shipyard Detachment active in investigation and clean up efforts.
- Resolving issues with outstanding workplans.




NAVAL BASE CHARLESTON
CHARLESTON, S.C.

FIGURE 1-2
BASE WIDE
ZONE BOUNDARIES

DWG DATE: 01/13/95 | DWG NAME: 29ZONE1

# *Interim Measure Status Summary*

| SITE | DESCRIPTON | STATUS |
|---|---|---|
| AOC 690 | Perimeter road. Remediate site of solid waste along perimeter road | Completed |
| SWMU 54 | Abrasive blast grit area. Remediate site of spent blast grit. | 95% |
| SWMU 44 | Coal yard. Remediate site of coal. | 95% |
| AOC 653 | Auto Hobby Shop. Remove hydralical vaults and remediate soils of petroleum. | 50% |
| SWMU 159 | Former storage area. Removal of soils contaminated with petroleum. | 60% |

# WHAT IS A RAB?

## NAVAL BASE CHARLESTON RESTORATION ADVISORY BOARD

# PURPOSE OF THE RAB

- Facilitate communication and coordination between the community and governmental agencies in the environmental cleanup of Naval Base Charleston
- Act as a forum for the discussion and exchange of information regarding cleanup between the installation, regulatory agencies, and the community
- Provide an opportunity for stakeholders to participate in the cleanup process and provide input to decision makers
- Complement other community involvement initiatives

# RATIONALE FOR A RAB

- Encourages dialogue between stakeholders
- Built on successful Technical Review Committee (TRC) model
- Fosters true partnership between the community and government agencies
  - shared chairmanship
  - equal member status
  - meetings open to the public

# Restoration Advisory Board (RAB)

- Members provide individual advice to government decision makers
- Is NOT a decision-making body
- Is comprised of representatives from community AND government agencies
- All members are equal
- Member selection
  - community representatives: selection panel
  - government representatives: selected by agencies

# RESPONSIBILITIES OF THE RAB

- Provide advice to the installation and federal and state regulatory agencies
- Address important issues related to cleanup, such as scope of studies, cleanup levels, waste management, and remedial alternatives
- Review and evaluate documents
- Identify proposed project requirements
- Recommend priorities among sites or projects
- Conduct regular meetings, open to the public, at convenient times and locations

# RESPONSIBILITIES OF THE RAB MEMBERS

# Responsibilities of the RAB Navy Co-Chair

- Coordinate with the Community Co-chair to prepare and distribute an agenda prior to each RAB meting
- Ensure that installation participates in an open and constructive manner
- Ensure that the RAB has the opportunity to provide input into decision process
- Ensure that community issues and concerns related to cleanup are brought to the table
- Provide draft documents in a timely manner to the RAB for review and ensure that these documents are made available to the public
- Refer non-cleanup issues to appropriate installation officials for processing
- Report back to the installation
- Ensure that administrative support to the RAB is provided

# Responsibilities of the RAB Community Co-Chair

- Coordinate with the Navy Co-chair to prepare and distribute an agenda prior to each RAB meeting
- Ensure that community members participate in an open and constructive manner
- Ensure that the RAB has the opportunity to provide input into the decision process
- Ensure that community issues and concerns related to cleanup are brought to the table
- Provide draft documents in a timely manner to the RAB for review and ensure that these documents are made available to the public
- Report back to the community

# Responsibilities of the State RAB Member

- Attend RAB meetings
- Serve as an information, referral, and resource bank regarding installation cleanup
- Review and provide comments on documents
- Ensure that state environmental standards and regulatory issues are identified and addressed
- Facilitate resolution of environmental issues and constraints
- Assist in the education and training of RAB members

# Responsibilities of the EPA RAB Member

- Attend RAB meetings
- Serve as an information, referral, and resource bank regarding installation cleanup
- Review and provide comments on documents
- Ensure that federal environmental standard and regulatory issues are identified and addressed
- Facilitate resolution of environmental issues and constraints
- Assist in the education and training of RAB members

# Responsibilities of the RAB Community Members

- Attend RAB meetings
- Advise and comment on cleanup issues to government decision makers
- Report back to the organization or community they represent
- Serve as a conduit for information flow to and from the community
- Review and provide comments on documents
- Serve in a voluntary capacity

# RAB Member Expectations

- Commitment to attend meetings
- Communicate with local citizens and interest groups
  - Specific base cleanup issues
  - Report back to organized groups
- Direct and reliable conduit for information flow to and from the community
- Name and phone number widely communicated to local community to enable ready access and communication
- Review documents and reports

# RAB Roles and Responsibilities

- Forum for exchange of information among the community, Navy, Redevelopment Authority, and regulatory agencies regarding cleanup and conversion programs
- Conduct regular meetings, open to the public
- Participate in exchange of information among BRAC Cleanup Team, reuse entities, and the community
- Represent and communicate interests and concerns
- Review, evaluate, and comment on documents and other materials related to base cleanup and conversion
- Other functions as determined by RAB members

# WHAT THE RAB IS NOT

- The RAB does not determine property reuse
- The RAB is not a substitute for public comment required by law
- The RAB cannot make technical or regulatory decisions

# WHAT DO YOU AS RAB MEMBERS THINK YOUR ROLES AND RESPONSIBILITIES ARE?

# Community Relations Subcommittee Meeting August 13, 1996

**Time:** 3:30 p.m.

**Attendees:** Daryle Fontenot, Susan Floyd, Louis Mintz, Wannetta Mallette, Diane Cutler

## DISCUSSION ITEMS

**Goodbye Susan** Susan Floyd is resigning from the RAB (and subsequently the Community Relations Subcommittee) after 27 months of volunteer service.

**Focus** Daryle Fontenot and Don Harbert will be interviewed for the Channel 2 TV talk show, *Focus*, on August 26, 1996. The show will air on Sunday, September 1, 1996 at 6:30 in the morning. The appearance was originally scheduled with the talk show *Perspective* which would also have aired in the evening, however, an affiliate change took place changing some of the specifications. The contaminant posters will be printed in time for the appearance. Lou Mintz suggested that the posters be created with a grey background rather than white so the cameras don't pick up too much contrast. Daryle will bring a blank tape to the session so that he can have a copy of the interview. The taped copy may be useful to bring to RAB meetings or other outreach activities that the RAB may sponsor, however, permission may be needed from the TV station to show the tape for anything other than personal viewing.

**September RAB Meeting** Discussed the location of the September RAB meeting which is scheduled for North Charleston. Dorchester Road Regional Library and North Charleston City Hall were recommended. Wannetta Mallette will look into scheduling room 515 at City Hall. Diane Cutler announced that she will not be able to attend, or send a replacement to, the September RAB or subcommittee meetings. As a result, an alternate will need to be found to take meeting minutes. Daryle asked Diane to check with Pete McPheter, E/A&H, to see if he would be available to record and take minutes at the meeting.

**Contaminant Posters** Diane passed out copies of the posters with the latest revisions. The subcommittee concurred that there were no additional changes and that the posters should be printed, laminated, mounted on foam core and shipped to Charleston in time for the August 26th taping of *Focus*. Diane will talk with the coordinator at *Focus* to determine format and color issues for the taping.

**Fact Sheets** The subcommittee discussed which fact sheet to produce next. Topics from a previous meeting included: RAB Speaker's Bureau; Reintroduce the New RAB; Property Transfer: and 10 Most Commonly Asked Questions. Lou Mintz added a new topic, RAB Goals.

The topic of a speaker's bureau was discussed at length. Rather than a fact sheet, a flyer should be produced offering the availability of RAB members to speak at community and other civic meetings. Two issues must be addressed before proceeding with the flyer: securing a committment from RAB members, and preparing a script and visual material. Daryle will ask the RAB membership for their committment at the RAB meeting. If there is no opposition by the RAB, Diane will begin to update the existing script and visual material.

No decision was made on the next fact sheet to produce.

## IMPROMTU DISCUSSION ITEMS

An impromtu discussion covered the following issues:

**Chicora Tank Farm** Wannetta believes that the tank farm should be restored to its original terrain. Lou's concern regarding the tank farm is that the tanks themselves are not clean. Susan added that she believes the regulators are looking out for the community's best interest and are telling the truth about the condition of the tanks.

**Community Input** Wannetta expressed frustration with the RAB decision-making process. Although she understands that the community is not a decision making body, they **are** an advisory body, and to date, none of their recommendations have been taken by the Navy. Susan feels that the Navy only established the RAB because they had to, not necessarily because they have the community's best interests in mind.

**Trust** The general consensus of the group is that they have a low level of trust for the Navy. The Navy only tells them what they need to know, and keeps information from them such as the U.S. Geological Survey Groundwater Model. When asked direct questions, certain Navy representatives are defensive or evasive, and at times, condescending. The level of trust has not increased after being on the RAB for over 2 years.

Susan Floyd added for the record that Daryle has been a noteable exception; that he answers the RAB's questions directly and honestly, and has been diplomatic and effective in running the Community Relations Subcommittee and RAB meetings.

## ACTION ITEMS

**September RAB Meeting** Wannetta will check the availability of North Charleston City Hall for the September RAB meeting. Diane will check Peter McPheter's availability to take minutes.

**Contaminant Posters** Diane will have posters printed, laminated, and mounted on foam core for the August 26th taping of Focus and will check with the Focus coordinator on specifications for the posters for filming.

**Speaker's Bureau** Diane will work on updating the existing script and visuals for the RAB Speaker's Bureau.

## NEXT MEETING

**Subcommittee Meeting** There will **not** be a subcommittee meeting held in September. The subcommittee will reconvene on October 8th.

# NAVY NEWS RELEASE

Public Affairs Office
Naval Facilities Engineering Command, Southern Division
P.O. Box 190010
North Charleston, SC 29419

***RAB Meets to Discuss Environmental Cleanup***

*For Publication by Monday, September 9*

*For more information, contact:*
Jim Beltz (803) 820-5771

*North Charleston* – Environmental and reuse issues will be the focus of the next meeting of the Naval Base Charleston Restoration Advisory Board (RAB). This meeting will be held on Tuesday, September 10, 1996 from 6:30 to 8:30 p.m. at the Dorchester Road Regional Branch of the Charleston County Library. Navy staff and environmental specialists will be available from 5:30 to 6:30 for informal discussion prior to the meeting. The meeting is open to the public and all are encouraged to attend.

The RAB is a group of community members, Navy representatives, and federal, state, and local organizations and agencies that gather monthly to discuss the progress of environmental cleanup and property reuse at Naval Base Charleston. Meetings are held on the second Tuesday of every month in alternating locations to accommodate the local communities most significantly affected by the Base closure.

Agenda items for the September 10 meeting include a progress report on the environmental investigations, and a Redevelopment Authority update on the status of property leasing.

For more information on the upcoming meeting, call Jim Beltz at the Public Affairs Office at Naval Facilities Engineering Command, Southern Division, (803) 820-5771.

# MARK YOUR CALENDAR

TV 2 "Focus" 6:30 a.m.

1

**Restoration Advisory Board**
**Tuesday, September 10, 1996**
**Dorchester Road Regional Branch (6325 Dorchester Rd)**
**Charleston County Library**

10
RAB Mtg.
6:30 p.m.

**Open House: 5:30 - 6:30 p.m.**
**RAB Meeting: 6:30 - 8:30 p.m.**

The RAB is a forum where community members meet with representatives from the Navy, State and Federal environmental agencies, and other groups to discuss the environmental programs underway at Naval Base Charleston. **All meetings are open to the public and everyone is encouraged to attend.**

## For More Information

Call Jim Beltz at the Public Affairs Office at Naval Facilities Engineering Command, Southern Division: (803) 820-5771.


# MARK YOUR CALENDAR

TV 2 "Focus" 6:30 a.m.

1

**Restoration Advisory Board**
**Tuesday, September 10, 1996**
**Dorchester Road Regional Branch (6325 Dorchester Rd)**
**Charleston County Library**

10
RAB Mtg.
6:30 p.m.

**Open House: 5:30 - 6:30 p.m.**
**RAB Meeting: 6:30 - 8:30 p.m.**

The RAB is a forum where community members meet with representatives from the Navy, State and Federal environmental agencies, and other groups to discuss the environmental programs underway at Naval Base Charleston. **All meetings are open to the public and everyone is encouraged to attend.**

## For More Information

Call Jim Beltz at the Public Affairs Office at Naval Facilities Engineering Command, Southern Division: (803) 820-5771.

**DEPARTMENT OF THE NAVY**
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
P.O. BOX 190010
2155 EAGLE DRIVE
NORTH CHARLESTON, S.C. 29419-9010

5090/11
Code 1877
21 October 1996

Mr. G. Randall Thompson
Director, Division of Hazardous and Infectious Waste Management
Bureau of Solid and Hazardous Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201

Subj: SUBMITTAL OF THE QUARTERLY RCRA FACILITY INVESTIGATION PROGRESS REPORT

Dear Mr. Thompson,

The purpose of this letter is to submit the Quarterly RCRA Facility Investigation (RFI) Progress Report for Naval Base Charleston. This report is submitted in order to comply with condition II.C.5 of the RCRA Part B permit issued to the Naval Base by the Environmental Protection Agency and the South Carolina Department of Health and Environmental Control.

Enclosure (1) is the Quarterly Report which contains the activity for the month of September, 1996. Monthly reports have been submitted previously for the months of July and August which complete the quarter. If you should have any questions, please contact Joe V. Camp Jr. or Tony Hunt at (803) 743-9985 and (803) 820-5525 respectively.

Sincerely,

PAUL ROSE
Lieutenant Commander, U.S. Navy
Caretaker Site Officer
By direction

Encl:
(1) Quarterly RFI Progress Report - September 1996
Copy to (w/encl):
SCDHEC (Tapia, Bergstrand)
USEPA (3) (Brittain)
SOUTHNAVFACENGCOM (Hunt)
CSO Naval Base Charleston (Camp, Fontenot)

**NAVBASE CHARLESTON**
**RFI STATUS REPORT**
**PERIOD: SUMMARY OF**
**01 September 1996 To 30 September 1996**

## I. INTRODUCTION

The following status report has been prepared to satisfy condition II.E.3.a of the Part B Permit Renewal dated 5 December 1994 for Naval Base Charleston (NAVBASE). The requirements of this condition are in effect since the total elapsed time to complete the RCRA Facility Investigation (RFI) is projected to be greater than 180 calendar days from the approval date of the *Final Comprehensive RFI Work Plan* as indicated in the Corrective Action Management Plan (CAMP).

In lieu of submitting quarterly reports, NAVBASE is voluntarily submitting monthly reports to provide an update on the progress of the RFI to members of the NAVBASE BRAC Cleanup Team (BCT) in a more timely manner. The content of the monthly reports includes information intended to satisfy condition II.E.3.a of the Part B Permit. Consequently, this report only addresses activities which occurred during the month of September 1996.

## II. PORTION OF THE RFI COMPLETED

- Revisions 01 and 02 to the *Comprehensive RFI Work Plan* were approved by the regulatory agencies 05 September 1996.

- Members of the project team met on 03 September 1996 to conduct a presubmittal review of the *Final Zone J RFI Work Plan, the Final Zone K RFI Work Plan, and the Draft Zone A RFI Report*. The documents were officially submitted on 09, 13, and 16 September 1996 respectively.

  As part the continuing SWMU 39 investigation in Zone A, a cone penetrometer was used to collect groundwater samples and generate logs of the subsurface lithology. Thirteen pushes were completed on Navy property and 16 pushes were conducted at off site locations. Following the completion of the on site locations an additional 7 groundwater monitoring wells were installed. The results of the cone penetrometer are being compiled for submittal at the October project team meeting.

- Thirteen additional groundwater monitoring wells were installed in Zone E. The locations were selected based on the a review of the first quarter of groundwater data which was presented in the status report last month.

- Field work continued in Zones D, F, and G. A summary of the findings to date are enclosed as Attachment A.

- The fourth quarter of groundwater sampling in Zone I was completed. A current schedule of the groundwater monitoring activities is included as Attachment B.

## III. SUMMARIES OF FINDINGS

As mentioned above a copy of the findings to date for the Zone D, F, and G investigation are included in Attachment A.

## IV. DEVIATIONS FROM APPROVED WORK PLANS THIS REPORTING PERIOD

The following deviations from the Zone D, F, and G RFI Work Plan were noted during the scheduled implementation.

AOC 609 — The soil sample locations were modified based on removal of the waste oil tank by the Detachment and detections of elevated metals concentrations. Two samples were collected in addition to those proposed in the work plan.

AOC 607 — The direct push sample grid was expanded and water samples were collected from two depth intervals instead of one as a result of the detection of PCE.

AOC 613/615 — Expanded sampling grid to include SWMU 175 due to close proximity.

AOC 638 — A shallow well proposed in the work plan was moved approximately 25' north to a location nearer to a UST at Building 132.

AOC 633 — Based on personal conversations with an SCE&G Project Coordinator it was discovered the proposed sample locations were outside the area of the release. The locations were modified to cover the release/soil removal area.

## V. SUMMARY OF CONTACTS WITH LOCAL COMMUNITY PUBLIC INTEREST GROUPS OR STATE GOVERNMENT

As indicated in the January 1995 Quarterly Status Report, the Navy has established a Restoration Advisory Board (RAB) to involve the public in the decisions regarding the investigation and remediation of contaminated sites at Naval Base Charleston. The meetings are held monthly and are open to the public. The minutes of September 1996 meeting are provided as Attachment C.

## VI. SUMMARY OF PROBLEMS OR POTENTIAL PROBLEMS AND ACTION TAKEN TO RECTIFY PROBLEMS

There were no problems identified during the current reporting period.

## VII. KEY PROJECT PERSONNEL

The status report for March 1996 reflected numerous changes in key Navy personnel for the NAVBASE Charleston RFI resulting from the closure of Charleston Naval Shipyard. No additional changes occurred during the current reporting period.

## VIII. PROJECTED WORK FOR THE NEXT REPORTING PERIOD

**Document Preparation and Data Evaluation:**

- The 30% progress meeting for Zones D, F, and G is scheduled for October.
- Data evaluation for Zone E will continue.

**Field Activities:**

- Installation of off site monitoring wells near SWMU 39 is likely.
- Field activities in Zones D, F, and G will continue.
- The third quarter groundwater sampling event in Zone E is scheduled to begin.

## IX. COPIES OF DAILY REPORTS, INSPECTION REPORTS, LABORATORY DATA

Daily activities are recorded in accordance with the Data Management Plan included as Section 14 of the Final Comprehensive Sampling and Analysis Plan. Photocopies of these daily records have not been included with this status report; however, this information is available for review upon request.

Per agreement with SCDHEC and EPA, hard copies of the analytical data are not being submitted. A copy of the data is maintained at the EnSafe/Allen & Hoshall office in Charleston and is available for review.

AOC 607

In accordance with the approved workplan, soil and groundwater samples were collected at AOC 607 using Direct Push Technology (DPT) sampling methods. The samples were analyzed by an onsite field laboratory using GC/MS methods, which achieve Level III DQO. The analytical results were compared to Risk Based Concentrations (RBCs) developed for a residential soil scenario and tap water which were generated by EPA Region III, and updated 6/3/96.

Soil Screening Results

First Interval (2-4 feet BGS)

- Volatile Organic Compound (VOC) detections related to releases from the former dry cleaners are limited to the areas surrounding borings 27, 33, and 59.

- No VOC detections exceed RBCs for a residential exposure scenario.

Second Interval (4-6 feet BGS)

- The distribution of VOC detections in the second interval are very similar to those observed in the first interval, borings 27, 33, and 59

- Again, no detections exceed residential RBCs.

Proposed Confirmatory Soil Sampling

- One soil boring will be completed and sampled in close proximity to boring 27 to confirm and characterize the detection. Samples will be collected from two intervals.

- Five additional borings will be completed and sampled in the locations shown on the soil figures to confirm delineation around boring 27. Two intervals will be collected at these locations. Depending on the results of the non-screening soil boring locations inside of Building 1189, additional soil boring locations will be added to fully delineate the extent of soil contamination in this area.

Groundwater was initially collected from the first water-bearing horizon encountered (8-10 feet BGS). Due to the elevated concentrations detected in this first depth interval and the relative density of the contaminants, a deeper intermediate depth interval (18-20 feet BGS) was identified and sampled. The intermediate zone was only sampled in areas of no detection in the shallow zone to minimize the potential for cross contamination and false positive results. Temporary piezometers are planned to be installed in both zones to optimize placement of the proposed permanent monitoring wells.

Groundwater Screening Results

Shallow Zone (8-10 feet BGS)

- Detections of dry cleaning related VOCs which exceed the tap water RBC were present throughout the central portion of AOC 607.

Intermediate Zone (18-20 feet BGS)

- Two intermediate depth sample locations, borings 29 and 32 exhibited detections of VOCs above the RBCs.

Additional intermediate depth samples are currently being collected west of borings 20, 30, and 31 to delineate extent in this area. This activity should be completed by the date of the meeting.

Proposed Confirmatory Sampling

- Up to 5 shallow and intermediate monitoring wells are proposed to confirm the delineation exhibited by the screening activity. The number and exact locations of these may be modified based on the flow directions in the two zones as dictated by the temporary piezometers. In addition, one shallow monitoring well is proposed for the source area, near boring 27.

Additional Proposed Activity

A cone penetrometer will be used to determine the stratigraphy to the top of the Cooper Formation at three locations on the edges of the site. To evaluate the AOCs impact on deeper horizons, the DPT rig will sample the first water-bearing horizon encountered above the Cooper Formation. These sample locations will be on a 100-foot grid around the perimeter of the shallower detections. An appropriate number of permanent confirmatory monitoring wells will be installed to this depth when DPT screening has determined the extent of contamination.

AOC 613/615 and SWMU 175

In accordance with the workplan, soil and groundwater samples were collected on a 50 foot grid at AOCs 613/615. Because of the proximity and similar anticipated contaminants, SWMU 175 was incorporated into the 613/616 grid. Soil samples were collected from 2-4 and 4-6 foot BGS and composited. The groundwater samples were collected from the first water-bearing horizon encountered, usually between 9 and 12 feet BGS. The samples were analyzed for volatile organics, semivolatile organics, and metals on a 7-day quick-turnaround basis to facilitate an expeditious characterization, and delineation of the site. The data was analyzed using Level III DQO. Field QA samples were also collected and were analyzed using Level IV DQO. The deeper monitoring well has been installed and developed and will be sampled in accordance with the workplan.

Soil Sample Results

Metals

- Most all sample points exceeded the residential RBCs for beryllium and arsenic. The concentration of iron exceeded the residential RBC in only one location.

- When the industrial RBCs were applied, arsenic concentrations exceeded the RBC in almost half of the locations sampled. No detections of beryllium or iron exceeded the industrial RBCs. Thallium was detected in four locations across the sites.

- No detections of metals in the soil exceeded the UTL for naturally occurring background metals established for Zone H subsurface soil.

Volatile Organics

- Only two sample locations, 22 and 31, exhibited detections of volatile compounds which exceeded residential RBCs. Application of industrial RBCs limited exceedances to boring 22.

Semivolatile Organics

- Polyaromatic hydrocarbon detections were converted to benzo(a)pyrene equivalents (BEQs) for the purpose of risk evaluation.

- As shown on the 613/615 Semivolatile Exceedances figure only 10 locations exceeded the residential RBCs for BEQ. Of these 10, only two BEQs also exceed the industrial RBCs.

Additional Proposed Activity

- Six additional soil sample only locations are proposed to delineate the extent of elevated PAHs in the area adjacent to 11th Street.

- Soil borings are proposed to be completed at 5% of the grid locations to confirm previous results and characterize the contaminants.

Groundwater Results

Metals

- Almost all groundwater samples collected during the grid sampling exhibited concentrations of metals which exceeded tap water RBCs. Many concentrations also exceeded the background UTL established for NAVBASE. However it should be noted, the DPT groundwater sampling method produced visually turbid samples. Therefore, the concentrations detected most likely are the result of sediment entrained in the water and do not accurately depict the dissolved metals in the shallow groundwater.

Volatile Organics

- As shown on the volatile groundwater exceedances figure, six compounds were detected at concentrations which exceed the applicable tap water RBCs.

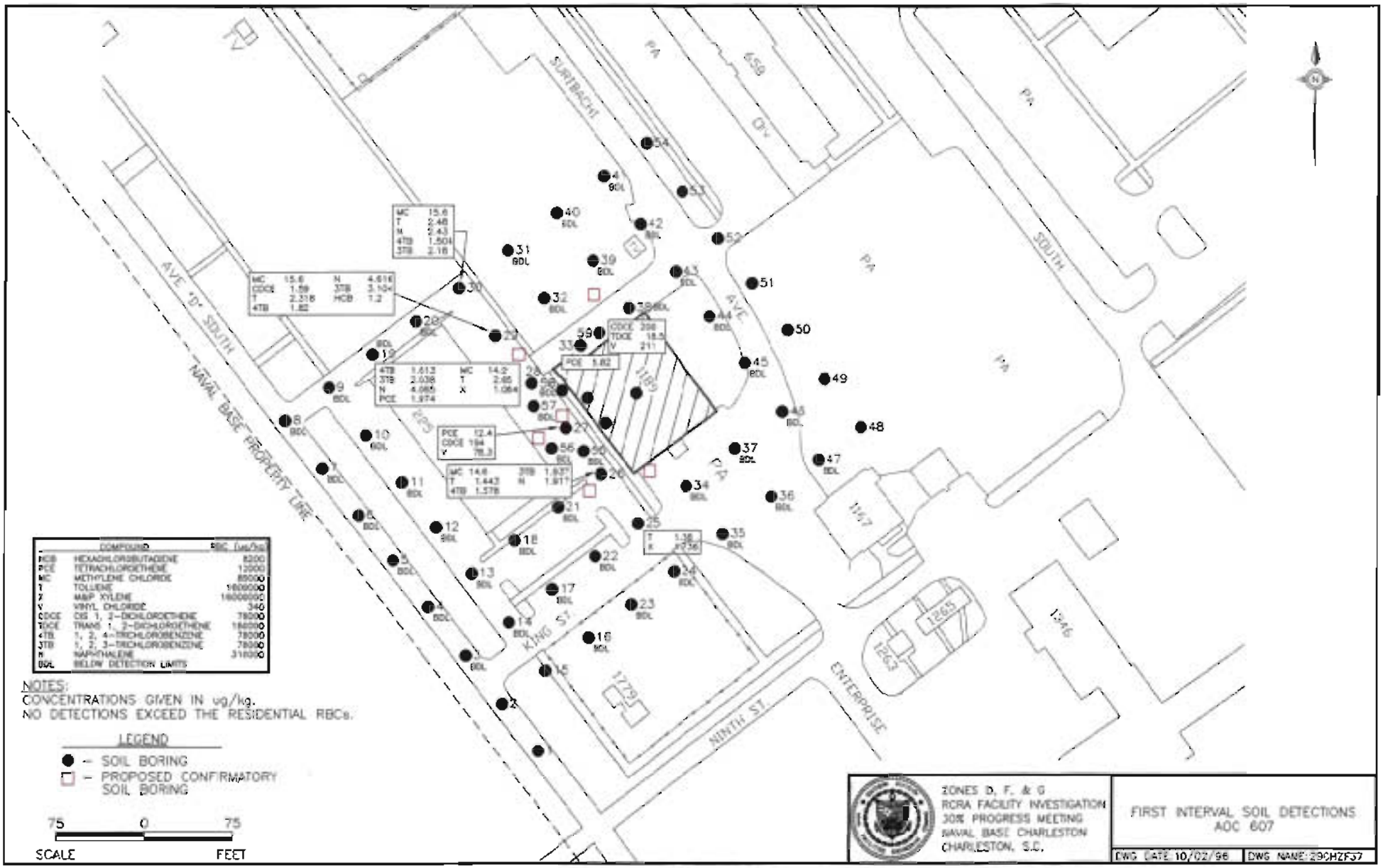
Semivolatile Organics

- Only two semivolatile compounds, Benzo(a)anthracene and Bis(2-ethyl-hexyl)phthalate, were detected at concentrations above the tap water RBC.

Additional Proposed Activity

- Four additional shallow wells are proposed in the locations shown on the groundwater figures. These locations will supplement the existing eight wells installed during the city's baseline evaluation (MW-5, MW-6, MW-7, MW-8, MW-11, MW-12, MW-13, and MW-14) and CSY-240-1 as originally planned. A total of 13 shallow and one deep monitoring will be sampled at AOCs 613/615.

- Based on the past industrial activities at AOCs 613/615 and SWMU 175, an industrial scenario should be used to evaluate risk at these three sites.




| | COMPOUND | RBC (ug/kg) |
|---|---|---|
| HCB | HEXACHLOROBUTADIENE | 8200 |
| PCE | TETRACHLOROETHENE | 12000 |
| MC | METHYLENE CHLORIDE | 85000 |
| T | TOLUENE | 1000000 |
| X | M&P XYLENE | 16000000 |
| V | VINYL CHLORIDE | 340 |
| CDCE | CIS 1, 2-DICHLOROETHENE | 78000 |
| TDCE | TRANS 1, 2-DICHLOROETHENE | 160000 |
| 4TB | 1, 2, 4-TRICHLOROBENZENE | 78000 |
| 3TB | 1, 2, 3-TRICHLOROBENZENE | 78000 |
| N | NAPHTHALENE | 310000 |
| BDL | BELOW DETECTION LIMITS | |

NOTES:
CONCENTRATIONS GIVEN IN ug/kg.
NO DETECTIONS EXCEED THE RESIDENTIAL RBCs.

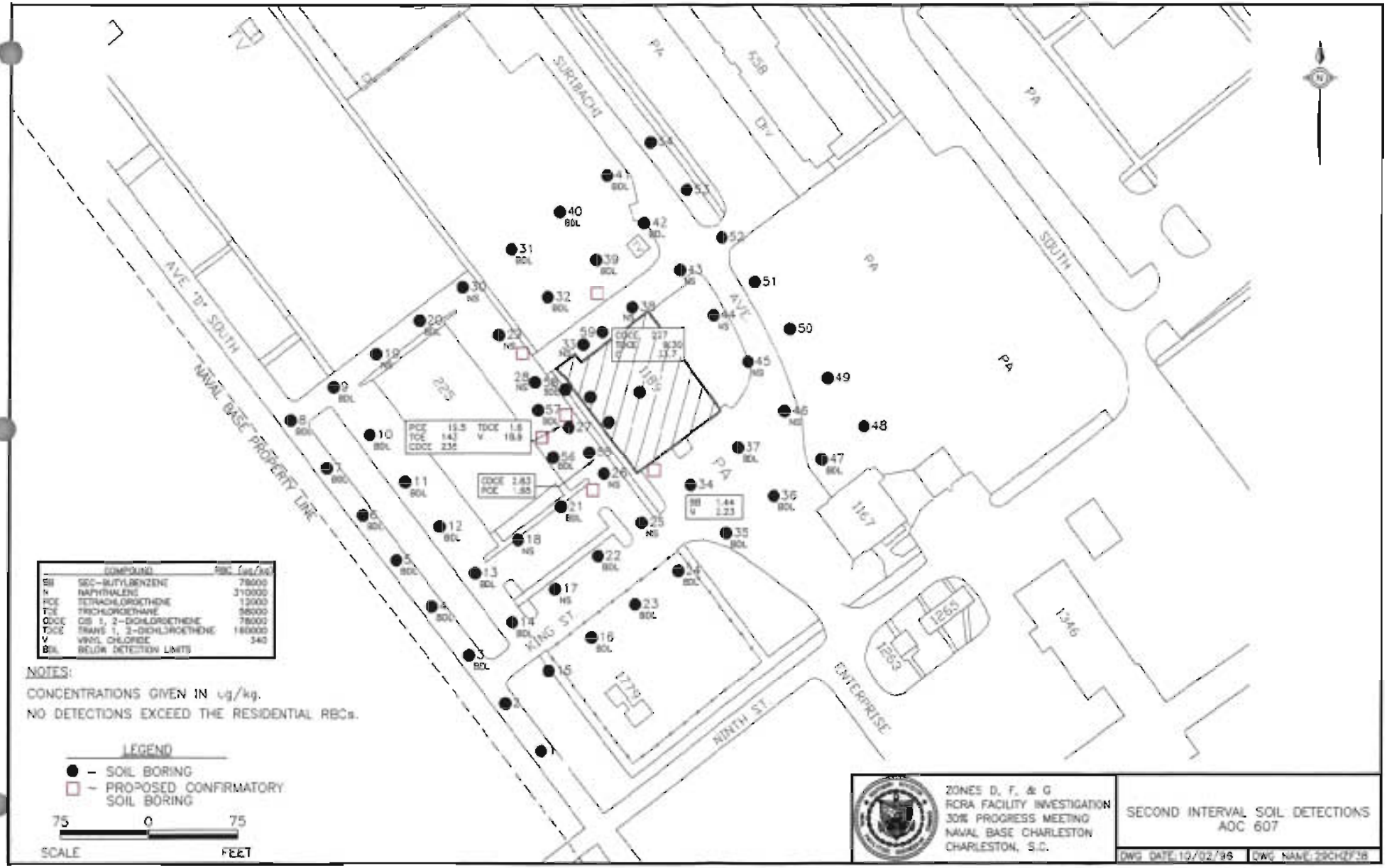
LEGEND
● – SOIL BORING
□ – PROPOSED CONFIRMATORY SOIL BORING

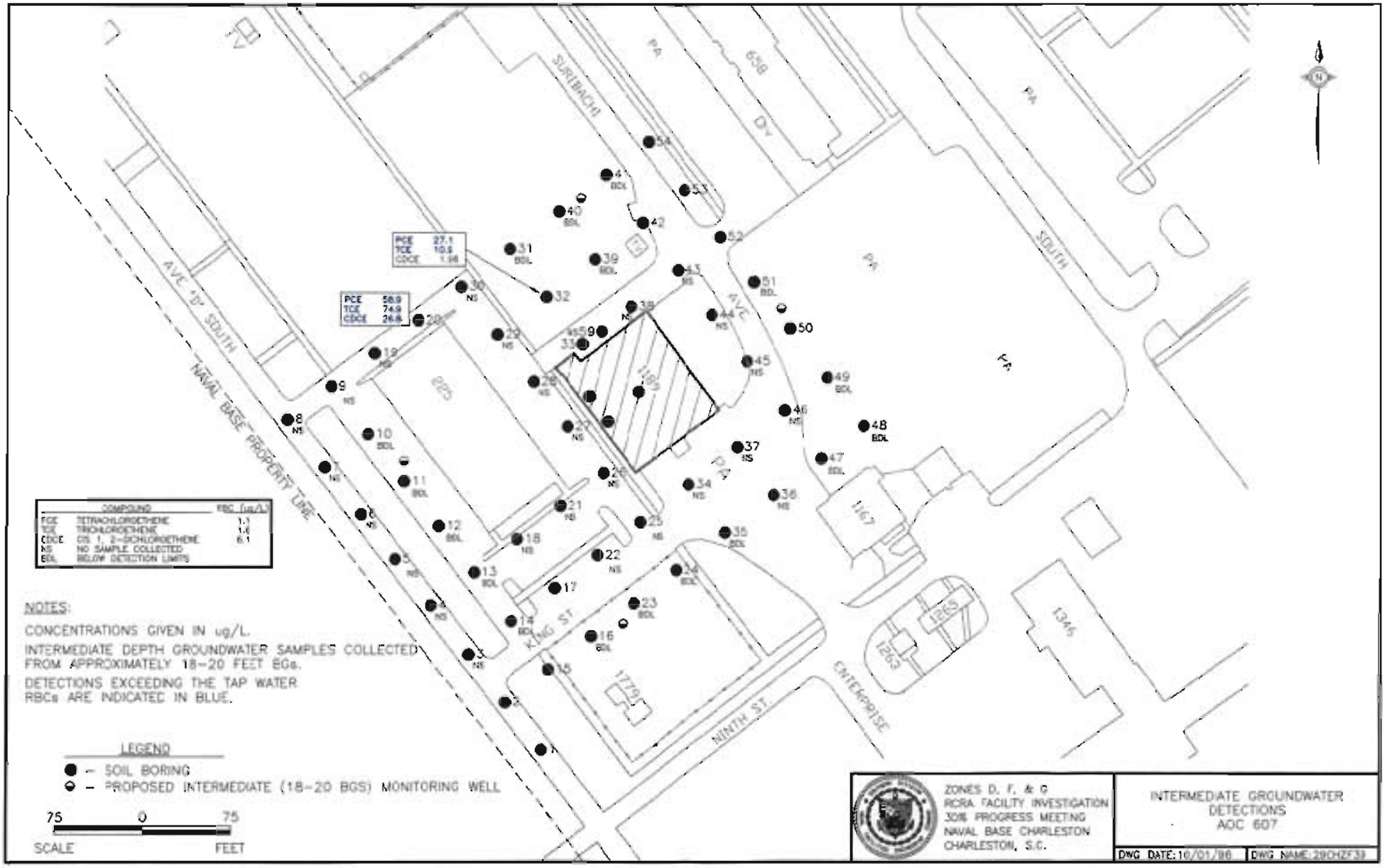
75 0 75
SCALE FEET

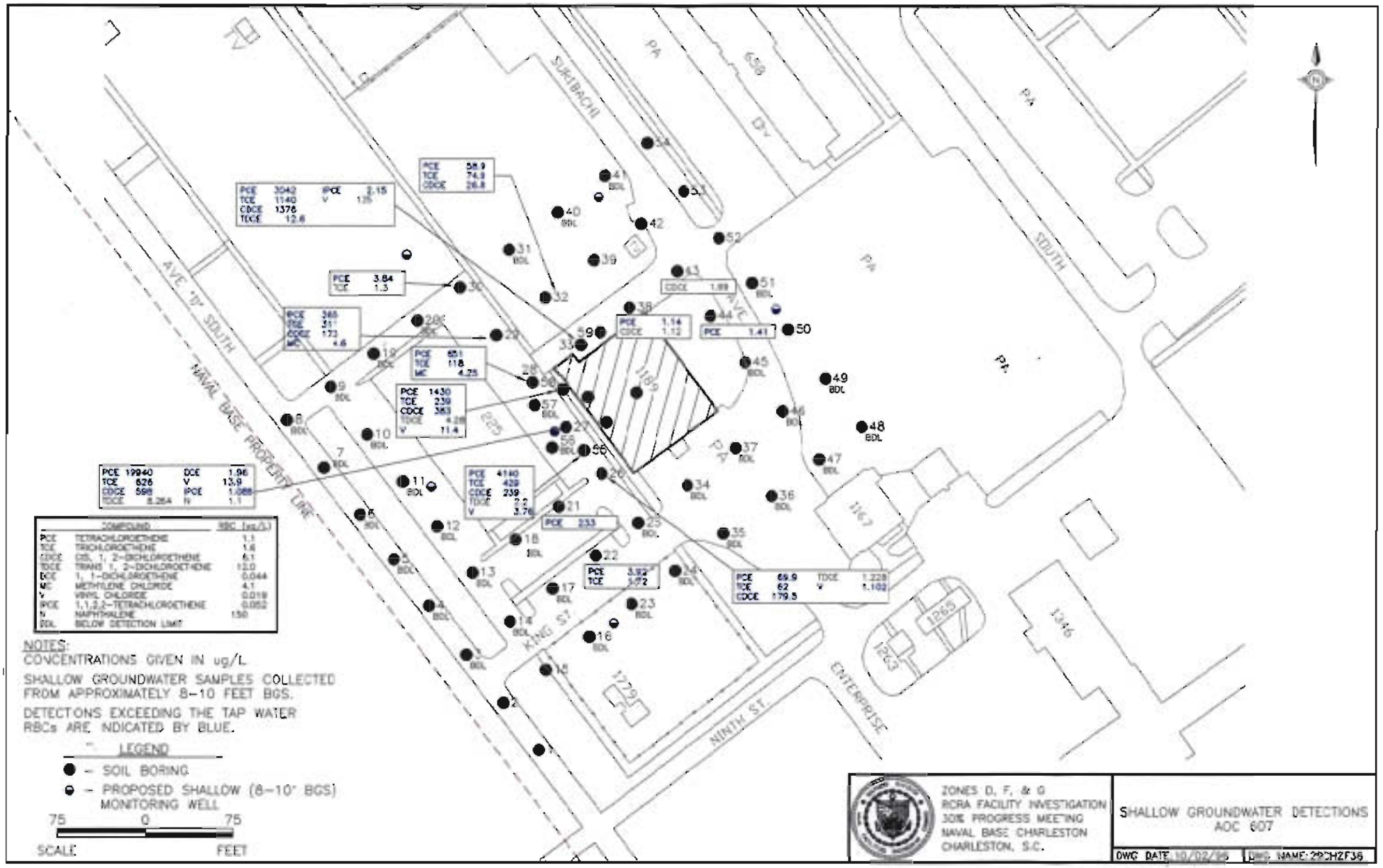
ZONES D, F, & G
RCRA FACILITY INVESTIGATION
30% PROGRESS MEETING
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

FIRST INTERVAL SOIL DETECTIONS
AOC 607

DWG DATE 10/02/96 | DWG NAME: 29CHZF57


AVE "D" SOUTH
NAVAL BASE PROPERTY LINE
SURIBACH
AVE.
DR.
SOUTH
KING ST.
NINTH ST.
ENTERPRISE
PA
225
1167
1265
1263
1346
1729
PCE 15.5 TCE 1.6
TCE 143 V 18.9
CDCE 235
CDCE 2.63
PCE 1.85
CDCE 227
TCE 8.30
V 33.7
BB 1.44
V 2.23
COMPOUND RBC (ug/kg)
BB SEC-BUTYLBENZENE 78000
N NAPHTHALENE 310000
PCE TETRACHLOROETHENE 12000
TCE TRICHLOROETHANE 56000
CDCE CIS 1, 2-DICHLOROETHENE 78000
TDCE TRANS 1, 2-DICHLOROETHENE 160000
V VINYL CHLORIDE 340
BDL BELOW DETECTION LIMITS
NOTES:
CONCENTRATIONS GIVEN IN ug/kg.
NO DETECTIONS EXCEED THE RESIDENTIAL RBCs.
LEGEND
● – SOIL BORING
□ – PROPOSED CONFIRMATORY SOIL BORING
75 0 75
SCALE FEET
ZONES D, F, & G
RCRA FACILITY INVESTIGATION
30% PROGRESS MEETING
NAVAL BASE CHARLESTON
CHARLESTON, S.C.
SECOND INTERVAL SOIL DETECTIONS
AOC 607
DWG DATE:10/02/96
DWG NAME:28CHZF38


AVE "D" SOUTH
NAVAL BASE PROPERTY LINE
SURIBACH
658
Dr
PA
SOUTH
AVE
KING ST
NINTH ST.
ENTERPRISE
225
1165
1779
1167
1263
1263
1346
PCE 27.1
TCE 10.5
CDCE 1.98
PCE 58.9
TCE 74.9
CDCE 26.8
COMPOUND RBC (ug/L)
PCE TETRACHLOROETHENE 1.1
TCE TRICHLOROETHENE 1.6
CDCE CIS 1, 2-DICHLOROETHENE 61
NS NO SAMPLE COLLECTED
BDL BELOW DETECTION LIMITS
NOTES:
CONCENTRATIONS GIVEN IN ug/L.
INTERMEDIATE DEPTH GROUNDWATER SAMPLES COLLECTED FROM APPROXIMATELY 18-20 FEET BGs.
DETECTIONS EXCEEDING THE TAP WATER RBCs ARE INDICATED IN BLUE.
LEGEND
● – SOIL BORING
– PROPOSED INTERMEDIATE (18-20 BGS) MONITORING WELL
75 0 75
SCALE FEET
ZONES D, F, & G
RCRA FACILITY INVESTIGATION
30% PROGRESS MEETING
NAVAL BASE CHARLESTON
CHARLESTON, S.C.
INTERMEDIATE GROUNDWATER DETECTIONS
AOC 607
DWG DATE: 10/01/96
DWG NAME: 29CHZF39




| COMPOUND | | RBC (ug/L) |
|---|---|---|
| PCE | TETRACHLOROETHENE | 1.1 |
| TCE | TRICHLOROETHENE | 1.6 |
| CDCE | CIS, 1, 2-DICHLOROETHENE | 61 |
| TDCE | TRANS 1, 2-DICHLOROETHENE | 12.0 |
| DCE | 1, 1-DICHLOROETHENE | 0.044 |
| MC | METHYLENE CHLORIDE | 4.1 |
| V | VINYL CHLORIDE | 0.019 |
| iPCE | 1,1,2,2-TETRACHLOROETHENE | 0.052 |
| N | NAPHTHALENE | 150 |
| BDL | BELOW DETECTION LIMIT | |

NOTES:
CONCENTRATIONS GIVEN IN ug/L.
SHALLOW GROUNDWATER SAMPLES COLLECTED FROM APPROXIMATELY 8-10 FEET BGS.
DETECTIONS EXCEEDING THE TAP WATER RBCs ARE INDICATED BY BLUE.

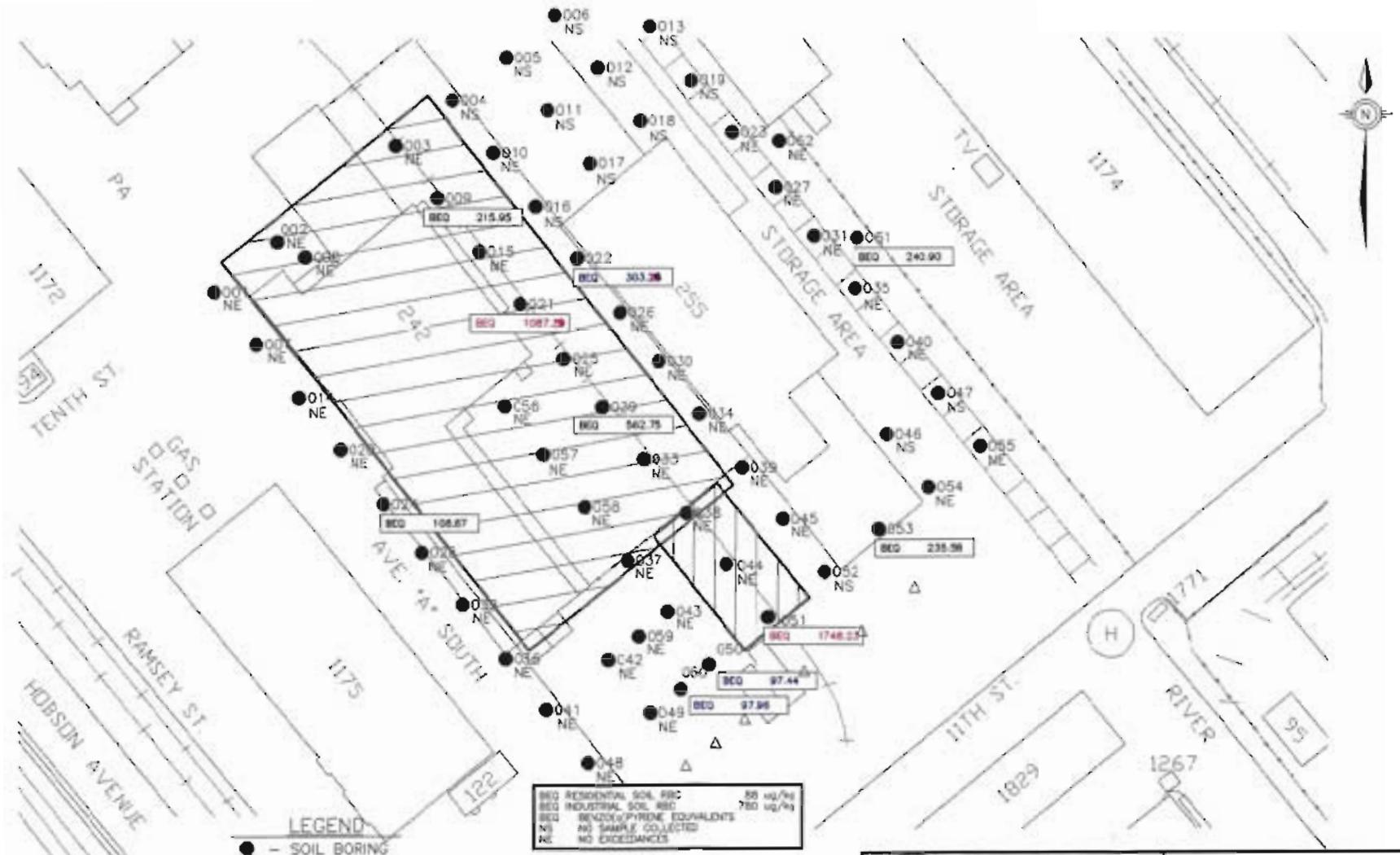
LEGEND
● - SOIL BORING
● - PROPOSED SHALLOW (8-10' BGS) MONITORING WELL

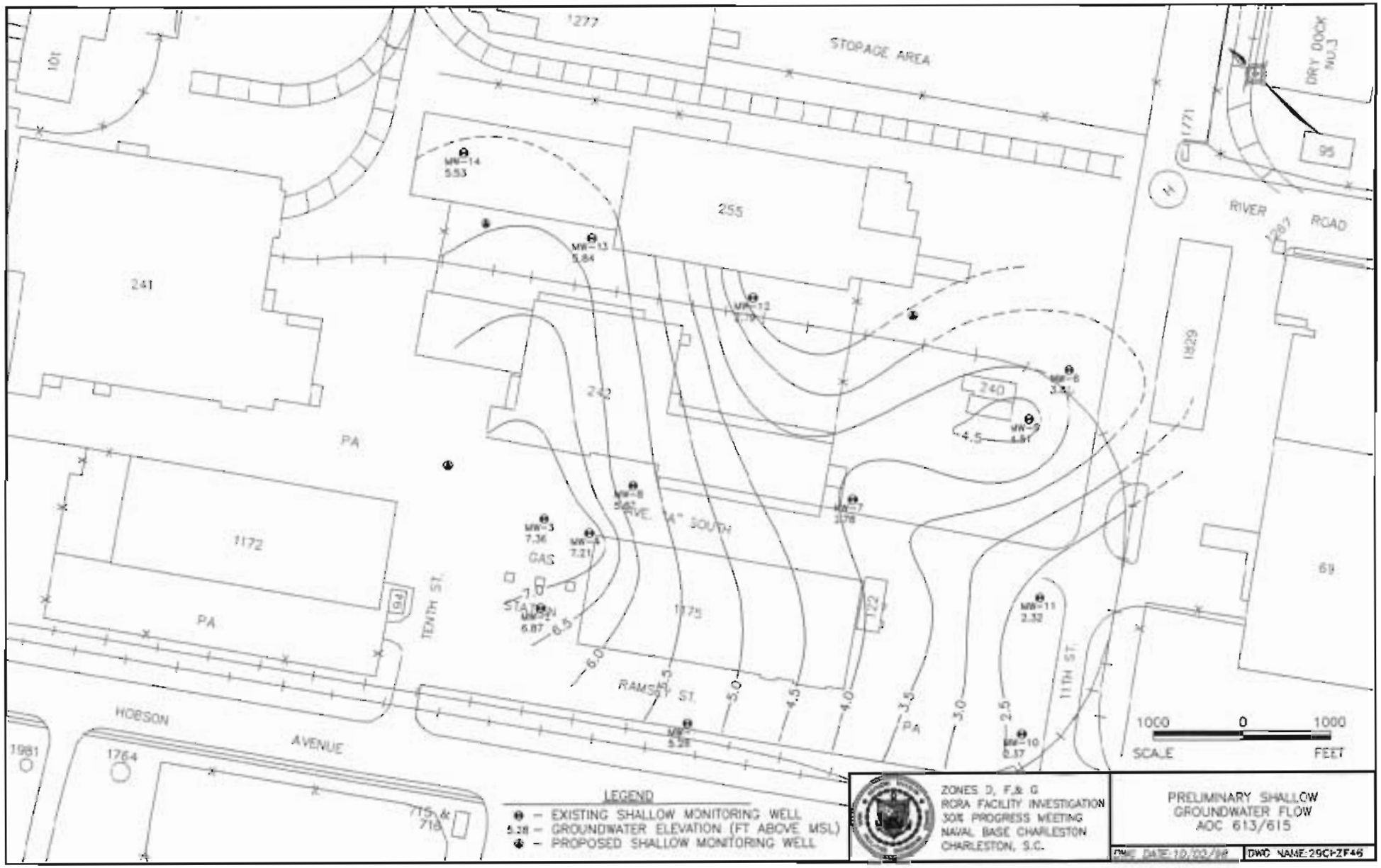
75 0 75
SCALE FEET

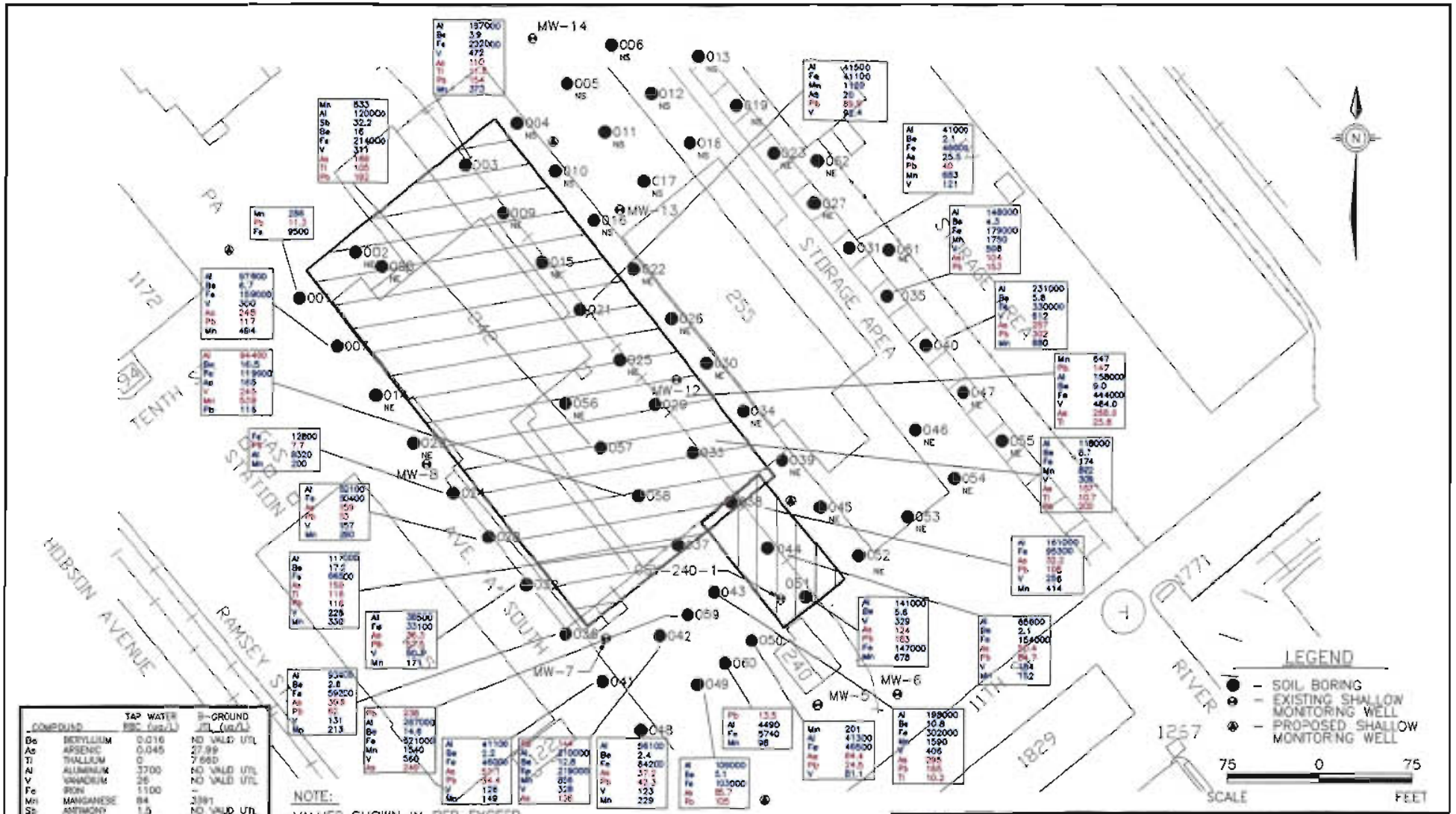
ZONES D, F, & G
RCRA FACILITY INVESTIGATION
30% PROGRESS MEETING
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

SHALLOW GROUNDWATER DETECTIONS
AOC 607

DWG DATE 10/02/96 DWG NAME: 29CHZF36


STORAGE AREA
STORAGE AREA
TV
1174
1172
PA
TENTH ST.
GAS STATION
AVE. "A" SOUTH
RAMSEY ST.
HOBSON AVENUE
1175
122
242
255
11TH ST.
RIVER
1829
1267
1771
95
BEQ 215.95
BEQ 303.26
BEQ 1087.79
BEQ 240.90
BEQ 542.75
BEQ 108.67
BEQ 235.58
BEQ 1746.03
BEQ 97.44
BEQ 97.96
LEGEND
● – SOIL BORING
Δ – PROPOSED ADDITIONAL SCREENING SAMPLES
75 0 75
SCALE FEET
BEQ RESIDENTIAL SOIL RBC 88 ug/kg
BEQ INDUSTRIAL SOIL RBC 780 ug/kg
BEQ BENZO(a)PYRENE EQUIVALENTS
NS NO SAMPLE COLLECTED
NE NO EXCEEDANCES
NOTES:
CONCENTRATIONS GIVE IN ug/kg.
VALUES SHOWN IN RED EXCEED BOTH RESIDENTIAL AND INDUSTRIAL RBCs.
VALUES SHOWN IN BLUE EXCEED RESIDENTIAL RBCs ONLY.
ZONES D, F, & G
RCRA FACILITY INVESTIGATION
30% PROGRESS MEETING
NAVAL BASE CHARLESTON
CHARLESTON, S.C.
SEMIVOLATILE SOIL EXCEEDANCES
AOC 613/615
DWG DATE:10/01/96
DWG NAME:29CHZF44


STORAGE AREA
DRY DOCK NO.3
RIVER ROAD
TENTH ST.
RAMSAY ST.
AVE. "A" SOUTH
HOBSON AVENUE
GAS STATION
PA
241
242
255
240
1172
1175
1829
69
95
1277
1171
1981
1764
MW-14 5.53
MW-13 5.84
MW-12
MW-6 3.3
MW-9 4.61
MW-8 5.61
MW-7 3.78
MW-3 7.36
MW-4 7.21
MW-2 6.87
MW-5 5.28
MW-11 2.32
MW-10 2.37
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
1000 0 1000
SCALE FEET
LEGEND
EXISTING SHALLOW MONITORING WELL
5.28 – GROUNDWATER ELEVATION (FT ABOVE MSL)
PROPOSED SHALLOW MONITORING WELL
ZONES D, F & G
RCRA FACILITY INVESTIGATION
30% PROGRESS MEETING
NAVAL BASE CHARLESTON
CHARLESTON, S.C.
PRELIMINARY SHALLOW
GROUNDWATER FLOW
AOC 613/615
DWG NAME: 29CPZF46




| COMPOUND | | TAP WATER RBC (ug/L) | B-GROUND UTL (ug/L) |
|---|---|---|---|
| Be | BERYLLIUM | 0.016 | NO VALID UTL |
| As | ARSENIC | 0.045 | 27.99 |
| Tl | THALLIUM | 0 | 7.660 |
| Al | ALUMINUM | 3700 | NO VALID UTL |
| V | VANADIUM | 26 | NO VALID UTL |
| Fe | IRON | 1100 | - |
| Mn | MANGANESE | 84 | 3391 |
| Sb | ANTIMONY | 1.5 | NO VALID UTL |
| Pb | LEAD | 1.5* | 4.697 |
| NE | NO EXCEEDANCES | | |
| NS | NO SAMPLE COLLECTED | | |
| UTL | UPPER TOLERANCE LIMIT | | |

*NOTE: LEAD VALUE IS THE EPA TREATMENT TECHNIQUE-BASED ACTION LEVEL.

NOTE:

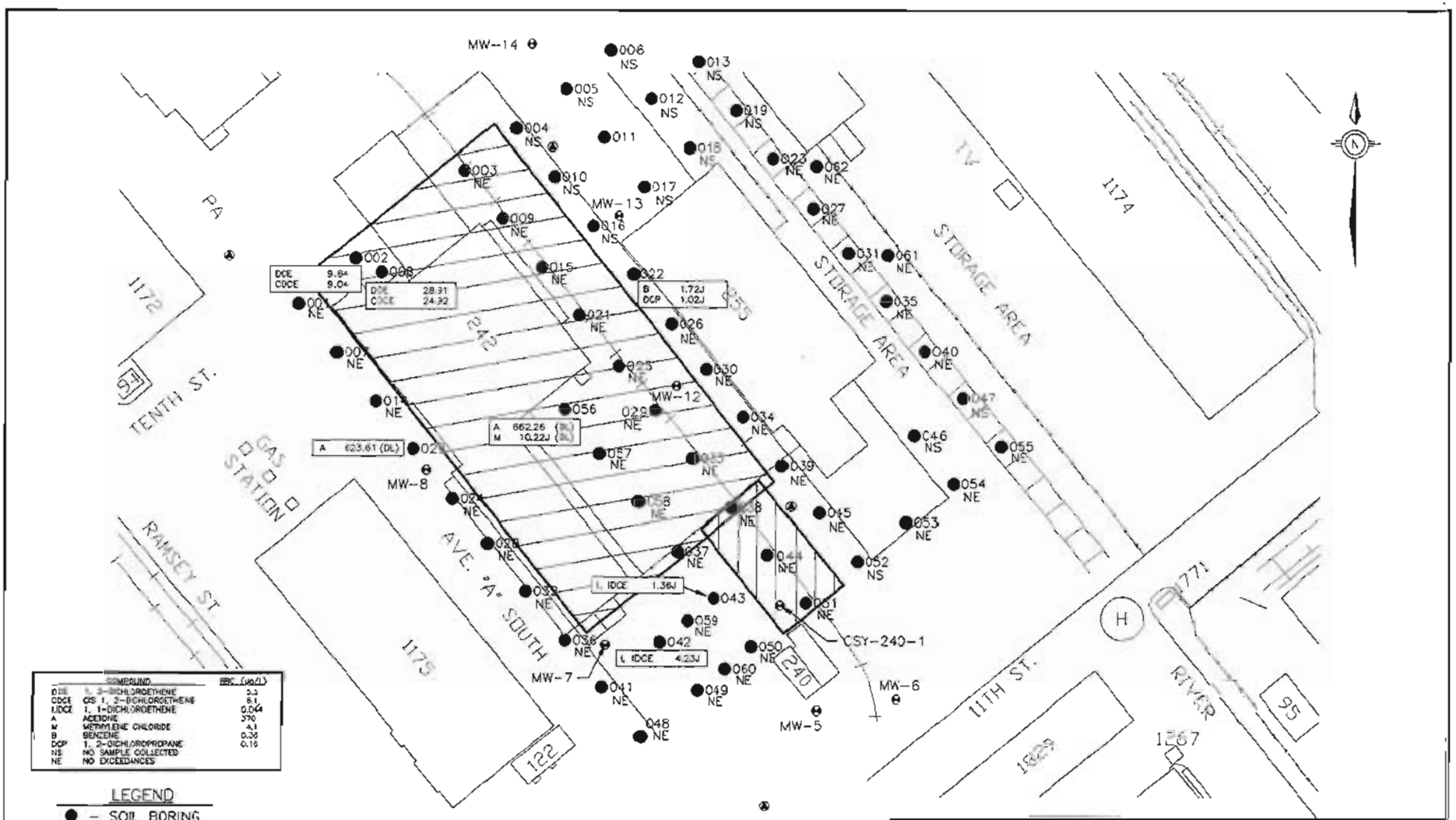
VALUES SHOWN IN RED EXCEED BOTH TAP WATER RBCs AND B-GROUND UTLS.

VALUES SHOWN IN BLUE EXCEED TAP WATER RBCs ONLY.

ZONES D, F, & G
RCRA FACILITY INVESTIGATION
30% PROGRESS MEETING
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

METALS
GROUNDWATER EXCEEDANCES
AOC 613/615

DWG DATE: 10/02/96 | DWG NAME: 28CHF47




| COMPOUND | | PRC (ug/L) |
|---|---|---|
| DCE | 1, 2-DICHLOROETHENE | 5.3 |
| CDCE | CIS 1, 2-DICHLOROETHENE | 6.1 |
| 1,1DCE | 1, 1-DICHLOROETHENE | 0.064 |
| A | ACETONE | 370 |
| M | METHYLENE CHLORIDE | 4.1 |
| B | BENZENE | 0.36 |
| DCP | 1, 2-DICHLOROPROPANE | 0.16 |
| NS | NO SAMPLE COLLECTED | |
| NE | NO EXCEEDANCES | |

LEGEND

- SOIL BORING
- EXISTING SHALLOW MONITORING WELL
- PROPOSED SHALLOW MONITORING WELL

75 0 75

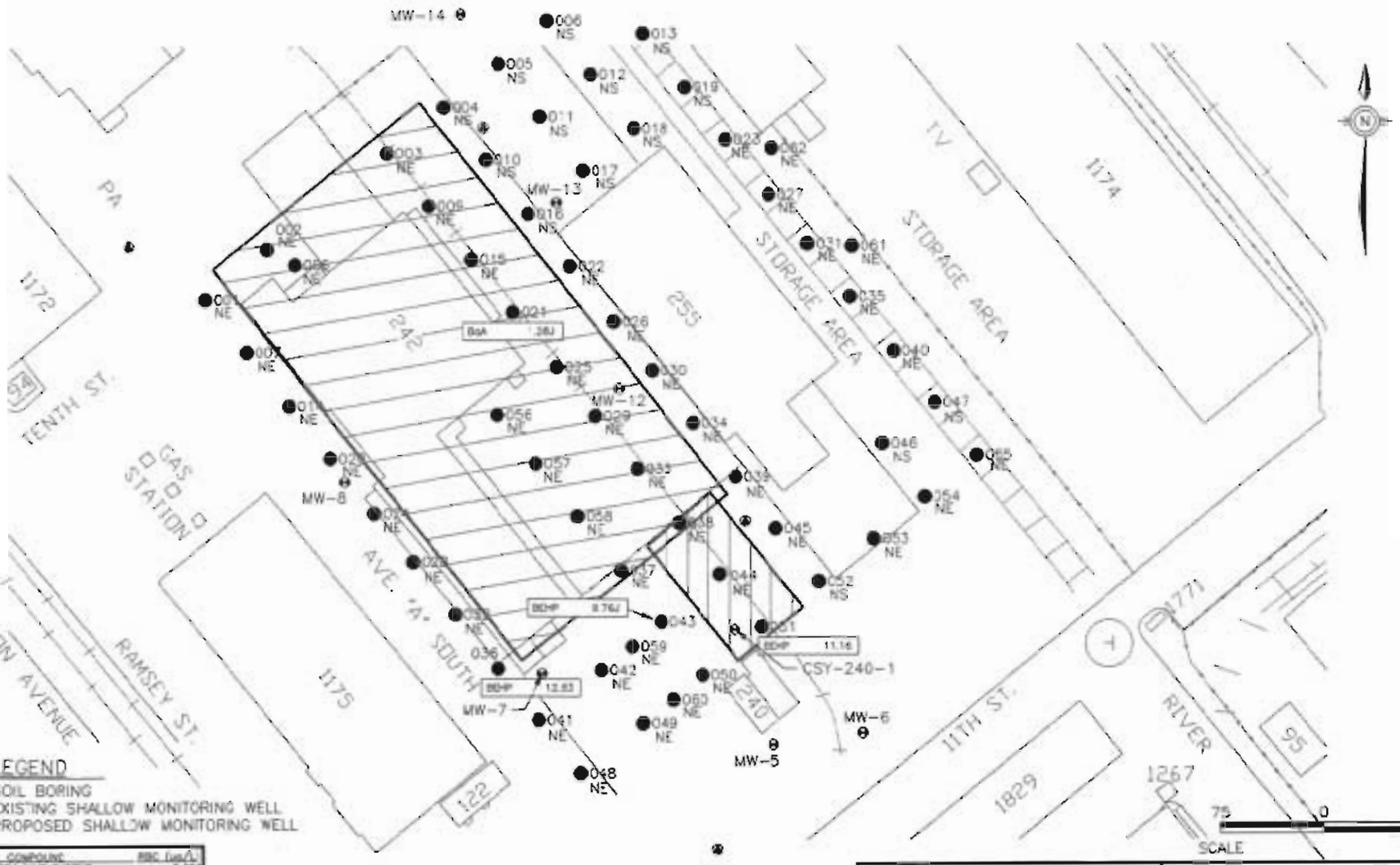
SCALE FEET

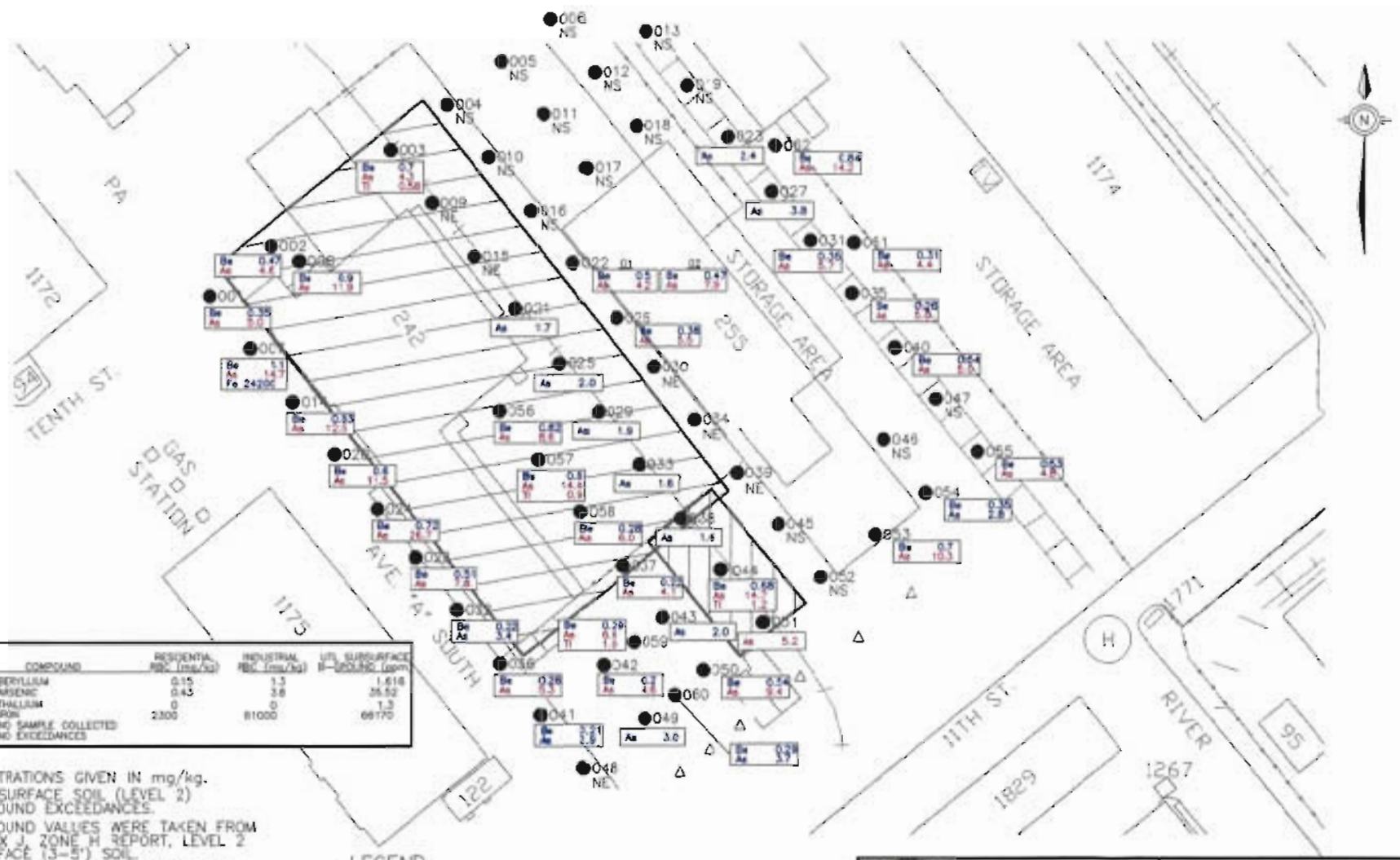
NOTES:
CONCENTRATIONS GIVEN IN ug/L.

ZONES D, F, & G
RCRA FACILITY INVESTIGATION
30% PROGRESS MEETING
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

VOLATILE GROUNDWATER EXCEEDANCES
AOC 613/615

DWG DATE:10/02/96 | DWG NAME:2SCHZF41


MW-14
MW-13
MW-12
MW-11
MW-8
MW-7
MW-6
MW-5
CSY-240-1
BaA 1.26J
BDHP 9.76J
BDHP 11.16
BDHP 12.83
242
255
240
STORAGE AREA
STORAGE AREA
IV
1174
1172
PA
TENTH ST.
GAS STATION
1175
122
AVE. "A" SOUTH
HOBSON AVENUE
RAMSEY ST.
11TH ST.
RIVER
1771
1267
1829
95
LEGEND
● - SOIL BORING
⊖ - EXISTING SHALLOW MONITORING WELL
⊕ - PROPOSED SHALLOW MONITORING WELL
COMPOUND RBC (ug/L)
BaA BENZO(a)ANTHRACENE 0.092
BDHP BIS(2-ETHYLHEXYL)PHTHALATE 4.8
NE NO EXCEEDANCES
NS NO SAMPLE COLLECTED
NOTES:
CONCENTRATIONS GIVEN IN ug/L.
75 0 75
SCALE FEET
ZONES D, F, & G
RCRA FACILITY INVESTIGATION
30% PROGRESS MEETING
NAVAL BASE CHARLESTON
CHARLESTON, S.C.
SEMIVOLATILE
GROUNDWATER EXCEEDANCES
AOC 613/515
DWG DATE 10/01/96
DWG NAME:2SCH6740




| | COMPOUND | RESIDENTIAL RBC (mg/kg) | INDUSTRIAL RBC (mg/kg) | UTL SUBSURFACE BACKGROUND (ppm) |
|---|---|---|---|---|
| Be | BERYLLIUM | 0.15 | 1.3 | 1.618 |
| As | ARSENIC | 0.43 | 3.8 | 35.52 |
| Tl | THALLIUM | 0 | 0 | 1.3 |
| Fe | IRON | 2300 | 81000 | 68170 |
| NS | NO SAMPLE COLLECTED | | | |
| NE | NO EXCEEDANCES | | | |

NOTES:
CONCENTRATIONS GIVEN IN mg/kg.
NO SUBSURFACE SOIL (LEVEL 2) BACKGROUND EXCEEDANCES.
BACKGROUND VALUES WERE TAKEN FROM APPENDIX J, ZONE H REPORT, LEVEL 2 SUBSURFACE (3-5') SOIL.
VALUES SHOWN IN RED EXCEED BOTH RESIDENTIAL AND INDUSTRIAL RBCs.
VALUES SHOWN IN BLUE EXCEED RESIDENTIAL RBCs ONLY.

LEGEND
● - SOIL BORING
△ - PROPOSED ADDITIONAL SCREENING SAMPLES

75 0 75
SCALE FEET

ZONES D, F, & G
RCRA FACILITY INVESTIGATION
30% PROGRESS MEETING
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

METALS SOIL EXCEEDANCES
AOC 613/615

DWG DATE:10/01/90 | DWG NAME:29CHZF43

| | COMPOUND | RESIDENTIAL RBC (ug/kg) | INDUSTRIAL RBC (ug/kg) |
|---|---|---|---|
| BDCM | BROMODICHLOROMETHANE | 10 | 52 |
| TCA | 1, 1, 2-TRICHLOROETHANE | 11 | 100 |
| PCA | 1,1,2,2-TETRACHLOROETHANE | 3.3 | 19 |
| NS | NO SAMPLE COLLECTED | | |
| NE | NO EXCEEDANCES | | |

NOTES:
CONCENTRATIONS GIVEN IN ug/kg.
VALUES WHICH EXCEED INDUSTRIAL RBCs ARE SHOWN IN RED.
VALUES WHICH EXCEED RESIDENTIAL RBCs ARE SHOWN IN BLUE.

ZONES D, F, & G
RCRA FACILITY INVESTIGATION
30% PROGRESS MEETING
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

VOLATILE SOIL EXCEEDANCES
AOC 613/615

DWG DATE: 10/02/96 | DWG NAME: 29CHZF42

# GROUNDWATER MONITORING PROJECT

This project samples groundwater wells segregated in nine (9) zones throughout the Naval Base to analyze for hazardous materials that have leached into the water table. Ensafe is contracted by the Navy to establish the monitoring plan and to monitor all wells quarterly for a total of four quarters. Ensafe will accomplish the initial sampling cycle (1st quarter) in each zone and the detachment will perform the remaining follow-up sampling cycles. Currently the detachment has been funded and authorized to complete sampling Zones A,B,C,E,H and I. Funding and authorization for Zones D,F, and G is expected to be awarded to the detachment.

| ZONE | SCHED START | SCHED COMP | ESD/[ASD] | ECD/[ACD] | % COMP | # WELLS |
|---|---|---|---|---|---|---|
| A (QTR. II) | 03/04/96 | 06/04/96 | [04/22/96] | [04/29/96] | 100% | 26 |
| (QTR. III) | 06/04/96 | 09/04/96 | [06/19/96] | [06/26/96] | 100% | |
| (QTR IV) | 09/04/96 | 12/04/96 | 10/09/96 | 10/21/96 | 0% | |
| B (QTR. II) | 03/04/96 | 06/04/96 | [04/22/96] | [05/02/96] | 100% | 6 |
| (QTR. III) | 06/04/96 | 09/04/96 | [06/19/96] | [06/26/96] | 100% | |
| (QTR IV) | 09/04/96 | 12/04/96 | 10/09/96 | 10/21/96 | 0% | |
| C (QTR. III) | 03/04/96 | 06/04/96 | [05/06/96] | [05/15/96] | 100% | 30 |
| (QTR. IV) | 06/04/96 | 09/04/96 | [06/07/96] | [06/17/96] | 100% | |
| E (QTR. II) | 06/19/96 | 09/19/96 | [07/01/96] | [08/19/96] | 100% | 175 |
| (QTR. III) | 09/19/96 | 12/19/96 | 10/22/96 | 12/18/96 | 0% | |
| (QTR IV) | 12/19/96 | 03/19/97 | 01/02/97 | 03/03/97 | 0% | |
| H (QTR IV) | 07/10/95 | 10/10/95 | [03/08/96] | [04/17/96] | 100% | 97 |
| I (QTR. III) | 03/04/96 | 06/04/96 | [05/15/96] | [06/05/96] | 100% | 55 |
| (QTR. IV) | 06/04/96 | 09/04/96 | [08/19/96] | [09/13/96] | 100% | |

**ESD = Estimated Start Date** **[ASD]= Actual Start Date**
**ECD = Estimated Completion Date** **[ACD ]= Actual Completion Date**

Durations for each Zone in working days

| | | |
|---|---|---|
| Zones A&B | 8 days | [4 men] |
| Zone C | 8 days | [4 men] |
| Zone E | 41 days | [QII = 7/1 - 8/23 6 men/day ; QIII & IV = 4 men/day] |
| Zone H | 26 days | [4 men] |
| Zone I | 15 days | [4 men] |

BENCHMARK = 21 (21.5) WELLS PER WEEK WITH 4 MEN 9/25/96 11:15 AM

**NAVAL BASE CHARLESTON**
**RESTORATION ADVISORY BOARD (RAB)**
**Minutes of 10 September 1996**

1. Introduction of the RAB Members and Guests

Mr. Daryle Fontenot, Co-chair of the Restoration Advisory Board, welcomed everyone to the RAB meeting and asked that the RAB members introduce themselves. Mr. Fontenot made a request to the RAB members and audience that the informal meeting which precedes the RAB meeting be held from 6:00 p.m. until 6:30 p.m. instead of 5:30 p.m. to 6:30 p.m.

2. RAB Members Attending

Mr. Oliver Addison
Mr. Doyle Brittain
Mr. James Conner
LCDR Paul Rose
Mr. Bobby Dearhart
Mr. Daryle Fontenot
Mr. Wilburn Gilliard
Ms. Gussie Greene
Mr. Tom Fressilli
Mr. Virgil Johnston
Mr. Ralph Laney
Ms. Wannetta Mallette
Mr. Odell Price
Mr. Louis Mintz
Mr. Arthur Pinckney
Ms. Ann Ragan
Ms. Jeri Johnson

3. Guests Attending

| | |
|---|---|
| Mr. Brian Stockmaster | NAVFAC, SouthDiv |
| Ms. Kim Reavis | NAVFAC, SouthDiv |
| Mr. Richard Garcia | GEL |
| Mr. Johnny Tapia | SCDHEC |
| Mr. Paul M. Bergstrand | SCDHEC |
| Mr. Gene Eaton | Atlantic Drilling Corp. |
| Mrs. June M. Brittain | Concerned Citizen |
| Mr. James E. Watson, Sr. | EnSafe/Allen&Hoshall |
| Mr. Todd Haverkost | EnSafe/Allen&Hoshall |
| Mr. Dave Backus | EnSafe/Allen&Hoshall |
| Mr. Jim Speakman | EnSafe/Allen&Hoshall |
| Mr. Larry Bowers | EnSafe/Allen&Hoshall |
| Mr. Craig R. Smith | EnSafe/Allen&Hoshall |
| Ms. Amy L. Stehlin | EnSafe/Allen&Hoshall |
| Ms. Susan Dunn | Grassroots Coalition |
| Mr. Kevin Tunstall | Detachment |
| Mr. J.T. Amey | Detachment |
| Mr. Mike Reubish | Detachment |

4. Administrative Remarks and Comments on Minutes

Mr. Fontenot asked for comments on last month's minutes. No comments or changes were made.

5. RAB Member Concerns

Mr. Fontenot asked the RAB members to briefly speak about any concerns they may have. Some topics of concern were the Chicora Tank Farm, the RAB playing a stronger role in the investigation/remediation actions performed at the Base, the schedule of the investigation/remediation actions, and the issue of not being able to contact Naval public relations personnel within a reasonable time.

After all members spoke, Mr. Fontenot welcomed Channel 2 News to the meeting.

6. Subcommittee Reports

*Community Relations*

The Community Relations Subcommittee did not meet this month. Mr. Fontenot announced that the next meeting will be on October 8, 1996 at 3:30 p.m.

*Shipyard Detachment*

Mr. Arthur Pinckney provided a brief update on the activities of the Shipyard Detachment. Mr. Pinckney expressed concern about the lack of equipment the Shipyard Detachment is encountering.

*Finance*

The Finance Subcommittee did not have anything to report.

7. RDA Update

Ms. Jeri Johnson provided the Redevelopment Authority update. She compiled a list of action items as a result of the RDA meeting held earlier in the afternoon.

The authority signed a lease with the Charleston County School District for Cochrane Hall for a temporary location for the magnet school. This is a five year lease.

A lease agreement with Braswell Shipbuilders is under negotiations for Pier A and a large warehouse near the viaduct gate entrance.

A lease agreement with SCE&G is under negotiation for the lease of a former gas station, a warehouse, and a small office building.

Ms. Johnson briefly spoke about the issue of allowing the McKinney Act agencies to occupy the facilities that they have requested.

8. Environmental Cleanup Progress Report

*Chicora Tank Farm*

Ms. Ann Ragan provided an update on the Chicora Tank Farm. She discussed the options that were presented at the last meeting on how to handle the tank closures. As explained before, four options were explored:

1) Fill the tanks with sand ($2.5 million).
2) Partial demolition of the tanks and fill the rest in with sand.
3) Knock in the tops, push in the walls, fill with some type of cover and regrade ($3.5 million).
4) Totally remove the tanks and fill the void ($8 million).

South Carolina Department of Health and Environmental Control (DHEC) is strongly considering option number three. Mr. Mintz expressed his concern that the tanks are hazardous waste and the Navy said they would not leave hazardous waste behind. He also recommended that additional testing be performed on the tanks and underneath them. Ms. Ragan assured Mr. Mintz that the following steps will be performed during the closure process:

1) The inside of the tanks will be steam cleaned.
2) The level of petroleum products impregnated in the concrete will be tested and must pass a certain clearance level.
3) After steps one and two are taken, then action on option number three can take place.

Again, Mr. Mintz was concerned about contamination. Other members of the RAB had questions about the condition and cost of closing the tanks. Mr. Fontenot explained that tests were taken at the tank farm and no contamination was discovered. A cost estimate for closing these tanks is being developed by Southern Division. Another RAB member recommended reusing the tanks and leasing them. Another issue voiced by some of the board members was community awareness of the upcoming closure process on the tanks.

*Project Status*

Mr. Fontenot reported on environmental project status at Naval Base Charleston. He made comments concerning the following programs:

Base Realignment and Closure (BRAC) - Property Lease/Transfer

1. Environmental Baseline Survey for Lease/Finding of Suitability to Lease (EBSL/FOSL) for McKinney Act (20 facilities) - awaiting SOUTHDIV CO signature.
2. EBSL/FOSL for 233 facilities is in draft for review.
3. EBSL/FOSL for Naval Station Annex (19 facilities) - awaiting SOUTHDIV CO signature.
4. Environmental Baseline Survey for Transfer (EBST) Clouter Island (transfer to Corps of Engineers, 2 facilities) - awaiting SOUTHDIV CO signature.

5. EBST Naval Station Annex (transfer to Marine Corps, 6 facilities) - awaiting SOUTHDIV CO signature.
6. Environmental condition of the property will determine what changes can be made. This will be discussed at the September Project Team meeting.
7. Environmental Baseline Survey is under EPA/SCDHEC review.

National Environmental Policy Act (NEPA)

1. Environmental Assessment of the South Annex - Water & Air Research Inc. will provide a Draft Environmental Impact Statement.

Resource Conservation and Recovery Act (RCRA) Compliance

1. The Caretaker Site Office (CSO) will submit a Part B application.
2. Generator ID - Naval Annex - CSO awaiting action from MOMAG-11 personnel on change submittal.

Underground Storage Tank (UST)

1. Tank Management Plan- Comments received, responses prepared, in review cycle for submittal to the Navy.
2. Petroleum Remediation Plan- Shipyard Detachment is preparing a plan of action.
3. Bioremediation demonstration project- Shipyard Detachment is preparing a plan, facility floor is being prepared.
4. Removals - 51 tanks to be removed.
5. Chicora Tank Farm- Navy re-evaluating cost on closure option.

Asbestos

1. Building 32 remediation- scope being revised.
2. Building 1171 remediation in progress, notification to State required.
3. Building 1601- Shipyard Detachment is preparing to start work.

*RCRA Corrective Action*

Todd Haverkost of EnSafe/Allen&Hoshall presented the RCRA Facility Investigation (RFI) progress report in Mr. Tony Hunt's absence. Mr. Haverkost spoke about the following areas:

1. Comprehensive RFI Work Plan revision- approval letter received dated 9/4/96; E/A&H arranging distribution of clean copies.
2. Zone A RFI report - pre-submittal review completed 9/3, report to be submitted 9/16/96.
3. Zone A field work in progress, additional work on several sites.
4. Zone B RFI report in SCDHEC re-review, 90% progress copy reviewed versus draft.
5. Zone C RFI report in EPA/SCDHEC review.
6. Zones D, F, & G field work in progress - joint effort between E/A&H and the Shipyard Detachment. Work consists of soil sampling, Direct Push Technology (DPT), and well installations.

7. Zone E RFI field work in progress, next progress meeting (90%) is scheduled for 11/22/96.
8. Zone H RFI report resubmitted 7/8/96. Currently in EPA/SCDHEC review.
9. Zone I RFI report in EPA/SCDHEC review.
10. Zone J RFI Work Plan - Major issues reviewed 9/3/96 - work plan submitted 9/6/96.
11. Zone K RFI Work Plan - Response to comments reviewed briefly on 9/3, work plan to be resubmitted 9/11/96.
12. Zone L RFI Work Plan resubmitted 7/29/96 - currently in EPA/SCDHEC review.
13. RCRA Facility Assessment (RFA) additions - final copies ready for distribution, Navy preparing cover letter.

Mr. Haverkost spoke about Solid Waste Management Unit (SWMU) #39 with the use of a map as a visual aide. Free product was discovered in some of the wells. Wells located near building 1604 indicated petroleum and chlorinated solvent contamination. Members of the RAB were concerned about the contamination spreading to the nearby community. Mr. Haverkost informed them that additional monitoring wells must be installed beyond the Navy property line in order to determine if the contamination migrated to that area. RAB members were concerned about property damage to area residences' lawns if groundwater monitoring wells are installed. Mr. Haverkost informed them of an alternative method of sampling called Direct Push Technology (DPT). This method is being utilized in Zones G & F.

Many of the RAB members were concerned about the residents' response to seeing field personnel in tyvek suits. Mr. Doyle Brittain stated that the RAB members need to cooperate with the regulators in informing the community about the situation on the base, and that it is the RAB's responsibility to assist in the efforts of creating community awareness. Ms. Gussie Greene responded to Mr. Brittain's statement that the community needs assurance. Mr. Brittain replied that the RAB plays an important role in informing the community and getting the community involved. One RAB member suggested getting community leaders involved. Other members of the RAB suggested a fact sheet be generated and distributed to the community. The Channel 2 reporter made a suggestion that a press conference be held in order to eliminate repeated questions by the public and media.

The issue regarding the concern over protective clothing was reintroduced. Mr. Brittain repeated to the members of the RAB that protective clothing is a federal regulation that must be followed when personnel are exposed to an unknown environment. He made a comparison of a doctor wearing gloves and a mask while performing an examination.

*Interim Measures*

Mr. Brian Stockmaster reported on the interim measures being performed on the base. The following was reported:

1. SWMU #54 & SWMU #34 are 99% complete.
2. SWMU #83 (Building 9)- cleanup is complete.
3. SWMU #25 (Building 44 Annex)- may require future demolition.
4. Areas of Concern (AOC) 500, 501, & 502 [Unexploded Ordnance Sites (UXO)] - Naval ordnance specialist will assist in locating and extracting these UXOs.

9. Remaining Questions and Comments

Mr. Fontenot asked for any remaining comments and questions. He thanked everyone for attending and informed everyone that the next month's meeting will be on October 8, 1996 at a downtown location to be announced later. If a downtown location is not feasible, an alternate location in the North Charleston area will be announced.

10. Adjournment

**Action Items**

- **Change pre-RAB meeting Open House to 6:00 - 6:30.**

Attachments to Minutes

(1) Tuesday September 10, 1996 RAB Meeting Agenda
(2) Naval Base Charleston Project Status - 9/10/96
(3) RFI Progress Report for August 1996

Minutes recorded by: James Watson, EnSafe/Allen&Hoshall

Minutes approved by:

| | |
|---|---|
| Daryle Fontenot<br>Navy Co-Chair | Don Harbert<br>Community Co-Chair |

**DEPARTMENT OF THE NAVY**
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
P.O. BOX 190010
2155 EAGLE DRIVE
NORTH CHARLESTON, S.C. 29419-9010

5090/11
Code 1877
15 November 1996

Mr. G. Randall Thompson
Director, Division of Hazardous and Infectious Waste Management
Bureau of Solid and Hazardous Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201

Subj: SUBMITTAL OF THE RCRA FACILITY INVESTIGATION PROGRESS REPORT FOR OCTOBER 1996

Dear Mr. Thompson,

The purpose of this letter is to submit the Monthly RCRA Facility Investigation (RFI) Progress Report for Naval Base Charleston. This report is submitted voluntarily to provide an update on the progress of the RFI to members of the NAVBASE BRAC Cleanup Team (BCT) which includes representatives of the Navy, the Environmental Protection Agency and the South Carolina Department of Health and Environmental Control.

Enclosure (1) is the Monthly Report which contains the activity for the month of October 1996. If you should have any questions, please contact Gary Crawford or me at (803) 743-9985 and (803) 820-5525 respectively.

Sincerely,

Matthew A. Hunt

MATTHEW A. HUNT
Remedial Project Manager
Naval Base Charleston

Encl:
(1) Monthly RFI Progress Report - October 1996

Copy to (w/encl):
SCDHEC (Bergstrand, Tapia), USEPA (3)(Brittain)
SOUTHNAVFACENGCOM (Hunt, Stockmaster)
CSO Naval Base Charleston (Crawford, Fontenot)

**NAVBASE CHARLESTON**
**RFI STATUS REPORT**
**PERIOD: SUMMARY OF**
**01 October 1996 To 31 October 1996**

## I. INTRODUCTION

The following status report has been prepared to satisfy condition II.E.3.a of the Part B Permit Renewal dated 5 December 1994 for Naval Base Charleston (NAVBASE). The requirements of this condition are in effect since the total elapsed time to complete the RCRA Facility Investigation (RFI) is projected to be greater than 180 calendar days from the approval date of the *Final Comprehensive RFI Work Plan* as indicated in the Corrective Action Management Plan (CAMP).

In lieu of submitting quarterly reports, NAVBASE is voluntarily submitting monthly reports to provide an update on the progress of the RFI to members of the NAVBASE BRAC Cleanup Team (BCT) in a more timely manner. The content of the monthly reports includes information intended to satisfy condition II.E.3.a of the Part B Permit. Consequently, this report only addresses activities which occurred during the month of October 1996.

## II. PORTION OF THE RFI COMPLETED

- Final copies of revisions 01 and 02 to the *Comprehensive RFI Work Plan* were distributed 15 October 1996.

- The *Final RCRA Facility Assessment, Addendums II and III* were distributed on 24 October 1996.

- Seven additional groundwater monitoring wells were installed in Zone A as part of the on going SWMU 39 investigation. The locations were selected based on results of the direct push screening work completed in September.

- Comments on the *Draft Zone B RFI Report* were received on 21 October 1996. Revisions to the report are underway.

- Well development was initiated in Zones D, F, and G. Also, 19 wells were installed at AOC 607 and 5 wells were installed at AOC 619. The well locations were selected based on the results of direct push screening.

- Regulatory approval of the *Final Zone K RFI Work Plan* was granted on 16 October 1996.

- The schedule of the groundwater monitoring activities is included as Attachment A.

## III. SUMMARIES OF FINDINGS

On 30 October 1996 a meeting was held between representatives of the Navy, SCDHEC, and E/A&H to review the results of the ecological risk assessments for Zones A, B, C, H, and I. All parties agreed that Phases I and II of the ecological risk assessments for the zones were adequately completed with one exception and that no Phase III is warranted. The exception was SWMU 44, the coal storage area, where a limited number of additional soil sampling points are required before a decision can be made. As a result of the Zone H and I assessment, it was determined sufficient evidence exists to refer portions of the ecological studies in Shipyard Creek on to Zone J for further assessment.

## IV. DEVIATIONS FROM APPROVED WORK PLANS THIS REPORTING PERIOD

There were no known deviations from the approved RFI Work Plans for this reporting period.

## V. SUMMARY OF CONTACTS WITH LOCAL COMMUNITY PUBLIC INTEREST GROUPS OR STATE GOVERNMENT

As indicated in the January 1995 Quarterly Status Report, the Navy has established a Restoration Advisory Board (RAB) to involve the public in the decisions regarding the investigation and remediation of contaminated sites at Naval Base Charleston. The meetings are held monthly and are open to the public. The minutes of the special RAB meeting held 26 September 1996 and the regular October 1996 meeting are provided as Attachment B.

## VI. SUMMARY OF PROBLEMS OR POTENTIAL PROBLEMS AND ACTION TAKEN TO RECTIFY PROBLEMS

There were no problems identified during the current reporting period.

## VII. KEY PROJECT PERSONNEL

The status report for March 1996 reflected numerous changes in key Navy personnel for the NAVBASE Charleston RFI resulting from the closure of Charleston Naval Shipyard. No additional changes occurred during the current reporting period.

## VIII. PROJECTED WORK FOR THE NEXT REPORTING PERIOD

**Document Preparation and Data Evaluation:**

- The ecological risk assessment sections of the Zone A and H RFI reports are to be revised and resubmitted to the regulatory agencies by 22 November 1996.
- The *Final Zone B RFI Report* is due to be submitted the regulatory agencies by 21 November 1996.
- The 60% progress meeting for Zones D and the 90% progress meeting for Zone E will be held in conjunction with the November project team meeting.
- The *Final Zone J RFI Work Plan* document approval meeting is scheduled to be held in conjunction with the November project team meeting. Subsequent to the meeting, distribution of the document is scheduled for 27 November 1996.

**Field Activities:**

- Installation of off site monitoring wells near SWMU 39 is likely.
- Field activities in Zones D, F, and G will continue.
- The field work in Zone K is tentatively scheduled to begin 18 November 1996.

## IX. COPIES OF DAILY REPORTS, INSPECTION REPORTS, LABORATORY DATA

Daily activities are recorded in accordance with the Data Management Plan included as Section 14 of the Final Comprehensive Sampling and Analysis Plan. Photocopies of these daily records have not been included with this status report; however, this information is available for review upon request.

Per agreement with SCDHEC and EPA, hard copies of the analytical data are not being submitted. A copy of the data is maintained at the EnSafe/Allen & Hoshall office in Charleston and is available for review.

# GROUNDWATER MONITORING PROJECT

This project samples groundwater wells segregated in nine (9) zones throughout the Naval Base to analyze for hazardous materials that have leached into the water table. EnSafe is contracted by the Navy to establish the monitoring plan and to monitor all wells quarterly for a total of four quarters. EnSafe will accomplish the initial sampling cycle (1st quarter) in each zone and the detachment will perform the remaining follow-up sampling cycles. Currently the detachment has been funded and authorized to complete sampling Zones A, B, C, E, H, and I. Funding and authorization for Zones D, F, and G is expected to be awarded to the detachment.

| ZONE | SCHED START | SCHED COMP | ESD/[ASD] | ECD/[ACD] | % COMP | # WELLS |
|---|---|---|---|---|---|---|
| A (QTR. II) | 03/04/96 | 06/04/96 | [04/22/96] | [04/29/96] | 100% | 26 |
| (QTR. III) | 06/04/96 | 09/04/96 | [06/19/96] | [06/26/96] | 100% | |
| (QTR IV) | 09/04/96 | 12/04/96 | [10/04/96] | [10/18/96] | 100% | |
| A ADDENDUM 1 | | | | | | |
| (QTR I) | | | [10/10/96] | [10/16/96] | 100% | 11 |
| (QTR II) | 01/17/97 | 04/16/97 | 01/22/97 | 01/26/96 | 0% | |
| (QTR III) | 04/17/97 | 07/16/97 | 04/21/97 | 04/24/97 | 0% | |
| (QTR IV) | 07/17/97 | 10/16/97 | 07/21/97 | 07/25/97 | 0% | |
| B (QTR. II) | 03/04/96 | 06/04/96 | [04/22/96] | [05/02/96] | 100% | 6 |
| (QTR. III) | 06/04/96 | 09/04/96 | [06/19/96] | [06/26/96] | 100% | |
| (QTR IV) | 09/04/96 | 12/04/96 | [10/04/96] | [10/18/96] | 100% | |
| C (QTR. III) | 03/04/96 | 06/04/96 | [05/06/96] | [05/15/96] | 100% | 30 |
| (QTR. IV) | 06/04/96 | 09/04/96 | [06/07/96] | [06/17/96] | 100% | |
| E (QTR. II) | 06/19/96 | 09/19/96 | [07/01/96] | [08/19/96] | 100% | 175 |
| (QTR. III) | 09/19/96 | 12/19/96 | [10/28/96] | 12/19/96 | 0% | |
| (QTR IV) | 12/19/96 | 03/19/97 | 01/02/97 | 03/03/97 | 0% | |
| H (QTR IV) | 07/10/95 | 10/10/95 | [03/08/96] | [04/17/96] | 100% | 97 |
| I (QTR. III) | 03/04/96 | 06/04/96 | [05/15/96] | [06/05/96] | 100% | 55 |
| (QTR. IV) | 06/04/96 | **09/04/96** | [08/19/96] | **[09/13/96]** | 100% | |

**ESD = Estimated Start Date**
**ECD = Estimated Completion Date**

**[ASD] = Actual Start Date**
**[ACD] = Actual Completion Date**

# NAVY NEWS RELEASE

Public Affairs Office
Naval Facilities Engineering Command, Southern Division
P.O. Box 190010
North Charleston, SC 29419

***Preliminary Sampling Results Presented***

*For Publication by Tuesday, November 12*

*For more information, contact:*
Jim Beltz (803) 820-5771

*North Charleston* –Preliminary sampling results from the environmental investigations will be presented at the next meeting of the Naval Base Charleston Restoration Advisory Board (RAB). This meeting will be held on Tuesday, November 12, 1996 from 6 to 7 p.m. at the Charleston County School District Building at 75 Calhoun St., on the 1st floor in the School Board Chambers. Navy staff and environmental specialists will be available after the meeting for informal discussion and to answer questions. The meeting is open to the public and all are encouraged to attend.

The RAB is a group of community members, Navy representatives, and federal, state, and local organizations and agencies that gather monthly to discuss the progress of environmental cleanup and property reuse at Naval Base Charleston. Meetings are held on the second Tuesday of every month in alternating locations to accommodate the local communities most significantly affected by the Base closure.

The feature topic of this meeting is the preliminary sampling results from Zones C and I (Zone C includes office and warehouse space and is located in the west, northwest section of the Base, and Zone I is the southern end of the base including waterfront and dredge material area). Prior to the meeting, from 5 - 6 p.m. there will be a special presentation on Risk Assessment. A basic understanding of Risk Assessment will help in understanding the results of the environmental investigations that will be discussed during the meeting from 6 -7 p.m. All are welcome to attend.

For more information on the upcoming meeting, call Jim Beltz at the Public Affairs Office at Naval Facilities Engineering Command, Southern Division, (803) 820-5771.

# Come to the Next Meeting

**of the Naval Base Charleston**
**Restoration Advisory Board (RAB)**

Date ..... Tuesday, November 12, 1996
Time ..... Special Risk Assessment Presentation: 5 - 6 p.m.
Meeting: 6 - 7 p.m.
Location... Charleston County School District Building
Downtown Charleston - 75 Calhoun St.
1st Floor - School Board Chambers

(Parking available at the adjoining Gaillard Parking Garage.)

The RAB is a forum where community members meet with representatives from the Navy, State and Federal environmental agencies, and other groups to discuss the environmental program under way at Naval Base Charleston.

This month's meeting will feature a presentation on the preliminary sampling results from the environmental investigations in Zones C and I.

## For More Information:

Call Jim Beltz
at the Public Affairs Office
Naval Facilities Engineering Command
Southern Division (803) 820-5771


# Come to the Next Meeting

**of the Naval Base Charleston**
**Restoration Advisory Board (RAB)**

Date ..... Tuesday, November 12, 1996
Time ..... Special Risk Assessment Presentation: 5 - 6 p.m.
Meeting: 6 - 7 p.m.
Location... Charleston County School District Building
Downtown Charleston - 75 Calhoun St.
1st Floor - School Board Chambers

(Parking available at the adjoining Gaillard Parking Garage.)

The RAB is a forum where community members meet with representatives from the Navy, State and Federal environmental agencies, and other groups to discuss the environmental program under way at Naval Base Charleston.

This month's meeting will feature a presentation on the preliminary sampling results from the environmental investigations in Zones C and I.

## For More Information:

Call Jim Beltz
at the Public Affairs Office
Naval Facilities Engineering Command
Southern Division (803) 820-5771

For your new Community Co-Chair.

RAB community members will meet immediately after the November 12, 1996 meeting to select a new Community Co-chair.

Show your support by attending the meeting and participating in the selection process.

For your new Community Co-Chair.

RAB community members will meet immediately after the November 12, 1996 meeting to select a new Community Co-chair.

Show your support by attending the meeting and participating in the selection process.

NAVAL BASE CHARLESTON
RESTORATION ADVISORY BOARD (RAB)
Minutes of 8 October 1996

1. Introduction of the RAB Members and Guests

Mr. Daryle Fontenot, Navy Co-chair, welcomed everyone to the RAB meeting. He reiterated that the RAB is the community outlet for sharing information about the environmental activities at Naval Base Charleston. Mr. Fontenot announced that Mr. Steve Best and Mr. Arthur Pinckney sent their regrets that they would not be able to attend this meeting.

2. RAB Members Attending

Mr. Oliver Addison
Mr. Doyle Brittain
Mr. James Conner
Mr. Bobby Dearhart
Mr. Daryle Fontenot
Mr. Tom Fressilli
Mr. Wilburn Gilliard
Ms. Gussie Greene
Mr. Donald Harbert
Ms. Jeri Johnson
Mr. Ralph Laney
Ms. Wannetta Mallette
Mr. Louis Mintz
Ms. Ann Ragan
LDCR Paul Rose
Ms. Fouche'na Sheppard
Mr. Bob Veronee
Ms. Priscilla Wendt

3. Guests Attending

| | |
|---|---|
| Mr. Tony Hunt | NAVFAC, SouthDiv |
| Mr. Brian Stockmaster | NAVFAC, SouthDiv |
| Mr. Gabriel Magwood | NAVFAC, SouthDiv |
| Mr. Jim Beltz | NAVFAC, SouthDiv |
| Mr. Kevin Tunstall | Detachment |
| Mr. Mike Reubish | Detachment |
| Mr. Johnny Tapia | SCDHEC |
| Mr. Paul M. Bergstrand | SCDHEC |
| Mr. Jim Kotti | $H_2O$ Environmental, Inc. |
| Mrs. June M. Brittain | Concerned Citizen |
| Ms. Diane Cutler | EnSafe/Allen&Hoshall |
| Mr. Lawson Anderson | EnSafe/Allen&Hoshall |
| Dr. Jim Speakman | EnSafe/Allen&Hoshall |
| Ms. Amy Stehlin | EnSafe/Allen&Hoshall |
| Mr. Craig Smith | EnSafe/Allen&Hoshall |
| Mr. Toby Blasingame | EnSafe/Allen&Hoshall |
| Mr. Dave Backus | EnSafe/Allen&Hoshall |
| Mr. Todd Haverkost | EnSafe/Allen&Hoshall |
| Mr. Mark Hancher | EnSafe/Allen&Hoshall |
| Ms. Sandy Reagan | EnSafe/Allen&Hoshall |

4. Administrative Remarks and Comments on Minutes

Mr. Fontenot noted that there were two sets of meeting minutes on the distribution table - one from the September 10 meeting, and the other from the September 26 Special meeting - and asked for comments on them. Comments were already provided to him regarding incorrect SWMU numbers reported in the September 10 minutes. The appropriate corrections will be made. No additional comments or changes were made.

5. RAB Member Items of Interest

At the September 10 meeting, Mr. Fontenot asked the RAB members to share their concerns or areas of interest regarding the environmental investigations and cleanup of the Naval Base. As a result of that exercise, Mr. Fontenot produced a handout that addresses each concern, and briefly reviewed the concerns and responses. A copy of the handout is included as an attachment to the minutes.

Mr. Ralph Laney commented on item of interest #6 which is "RAB presentation on each Corrective Measures Study. Review along with Regulators." Mr. Laney clarified by saying that the RAB would basically like to have a pre-submittal briefing of what each Zone Corrective Measures will recommend.

Item of interest #11 is "Technical training for RAB." Mr. Fontenot wanted to reiterate that the RCRA Facility Investigation (RFI) results for Zones C and I will be presented at next month's RAB meeting. An understanding of the risk assessment process will be helpful in understanding the results. To help RAB members understand the risk assessment process, a training session on risk assessment will be held immediately prior to the November RAB meeting from 5 to 6 p.m. All new RAB members (those who joined after January 1996) would benefit from this training, and even those who were at the January 1996 meeting where risk assessment was discussed in depth, would benefit from a review.

Mr. Fontenot asked if there were any questions on the responses, or any other items of concern that need to be addressed. There were no questions or additions. He added that this agenda item will be brought up periodically so issues can be addressed in a timely fashion.

6. Federal Register Notice Regarding RABs

Mr. Doyle Brittain announced that a notice regarding RABs was recently published in the Federal Register. He stated that the Department of Defense is very interested in getting RABs involved with closing bases. Mr. Brittain asked that each RAB member pick up a copy of the notice, and read it to see if they are satisfied with what is currently defined as the role of the RAB. Comments can be sent in any form to the address provided in the notice. All comments must be submitted on or before November 4, 1996.

7. Subcommittee Reports

*Community Relations*
The Community Relations Subcommittee met prior to the RAB meeting, and Mr. Lou Mintz provided the update. One item the subcommittee is working on is material to support a Speakers Bureau. RAB members will advertise and make themselves available to go out to the community and speak at lunches or other group functions about the RAB. The subcommittee is pulling together an outline and an evaluation form. When speakers are requested, a package of information including fact sheets, minutes from the most recent RAB meeting (which will also include the monthly progress update), and a flyer advertising the next meeting will be pulled together for the audience.

Mr. Mintz also announced that the Community Relations Subcommittee is looking for another member or members to take the place of Susan Floyd. Anyone interested should contact Daryle Fontenot. The subcommittee meets at 3:30 p.m. at the Caretaker Site Office on Base on the day of RAB meetings.

The next RAB meeting is scheduled for downtown at the Charleston County School District Bldg. at 75 Calhoun Street.

The subcommittee also discussed changing the format of the monthly meetings. First of all, instead of holding the informal questions and answer hour before the meeting, hold it afterwards so issues that are brought up during the meeting can be discussed at further length immediately afterwards. Next, reduce the length of the meeting from 2 hours to 1 hour to make the meeting more attractive to both members and guests.

Mr. Fontenot added that the next meeting will not exactly conform to this schedule because of the previously scheduled Risk Assessment training and C & I RFI Results Presentation. There will be a Risk Assessment training from 5 - 6 p.m. followed by the meeting from 6- 7 p.m. and anyone who wants to stay and ask questions afterwards can do so.

*Shipyard Detachment*
Mr. Arthur Pinckney was not present to give a subcommittee report.

*Finance*
Mr. Mintz said that the Finance Subcommittee had nothing to report.

8. RDA Update

Ms. Jeri Johnson provided the Redevelopment Authority update. She reported that the RDA had their monthly meeting in the afternoon prior to the RAB. Last month the RDA signed the first long-term lease with Carolina Marine Containers for three large warehouses on base. Ms. Gussie Greene asked if the workers will be mostly skilled laborers. Ms. Johnson replied that they would be mostly welders.

As a result of the earlier meeting, a number of leases were authorized to be signed including the remaining floor of building 400. Building 400 is the new building just inside McMillan gate. A lease with Springs Industry was approved for Building 1197 for a dry cleaning and laundry operation. The last lease for authorization was with Braswell Services Group for Pier Alpha and some of the warehouses that were vacated by DRMO.

Ms. Johnson also announced that the RDA did get the $1.8 million EDA grant for utility upgrades in the shipyard area and they're ready to start design.

Ms. Wannetta Mallette pointed out that one tenant conducted their own environmental assessment and asked if this is going to become a trend. Ms. Johnson responded that some of the tenants choose to do their own and that it all depends on how nervous they are about what they're getting into. Ms. Mallette continued by asking if the Navy is confident in their findings, and if there is a conflict in what's being found by the Navy and private companies. Mr. Brittain responded by saying that lending institutions do not like to lend money to businesses which have been involved in the handling of materials that may in some way be associated with Superfund sites. This is because they have lost out in the past. Lending institutions want documentation about the environmental condition of the property before they approve a loan. When the Navy began their investigations, they made the assumption that someone would be coming along that would double check what they did. Mr. Brittain stated that there shouldn't be any surprises if someone comes along and double-checks their work. In fact, he would be surprised if anything different was found.

9. Environmental Cleanup Progress Report

*Chicora Tank Farm*
The meeting that was scheduled between the Navy, DHEC, EPA, and the contractor doing the design work has been rescheduled for some time after October 11.

*Environmental Cleanup Progress Report*
Mr. Fontenot provided an update on the following environmental programs: Base Realignment and Closure (BRAC), National Environmental Policy Act (NEPA), Resource Conservation and Recovery Act (RCRA) Compliance and Corrective Action, Underground Storage Tank (UST), and Asbestos. A handout which provides a brief update on each of these programs is attached.

*Progress Report for September*
Mr. Tony Hunt presented the status of the RCRA Facility Investigation (RFI) including funding status, progress for the month of September, a Zone by Zone update, and projected activity for October. A handout describing each topic is attached to these minutes.

Mr. Hunt provided an update on the activities at SWMU 39 during his update for Zone A. Initially, sampling around building 1604 determined that traces of chlorinated solvents were found reaching out to the Base boundary. Groundwater flow direction showed a potential for off-site migration so the Navy determined that sampling off base was necessary to determine the extent of migration. The Special RAB meeting on September 26th was held to explain the off-site

sampling strategy. At that meeting, two issues were addressed, 1) chlorinated solvents potentially migrating off-site, and 2) petroleum products that were found in a sampling well in the northwest corner of the base. Based on the results, the Navy did not find any chlorinated compounds in any of the off site samples. So, the Navy has concluded that there is not a significant off-site migration problem. However, they did find a sampling well that contained BTEX (Benzene/ Toluene/Ethyl benzene/Xylene) which are components of gasoline. In addition, there was an odor of gasoline from the well that was installed at the Virginia Avenue gate. The next step is to install permanent groundwater monitoring wells which is a standard practice.

The source of the chlorinated solvents can be established between buildings 1604 and 1605, but the source of the off-base petroleum contamination still has not been verified. Hess also sampled the well in the northwest corner of the base and will get in touch with Mr. Fontenot when they get results.

*Interim Measures*
Mr. Brian Stockmaster provided an update on the status of Interim Measures. Since taking another tour of Interim Measures sites was one of the RAB members items of interest, he asked the RAB about dates and times that would be good for them. He also added that the site tour can include sites other than Interim Measure sites. After discussion, it was decided that the next site tour will be held on Tuesday 10/29 at 1 p.m. and anyone interested should meet at the McMillan gate. Ms. Mallette stated that she would like to have SWMU 39 included in the tour. Approximately six RAB members indicated that they were interested in joining the tour.

10. RAB Membership Update

In response to an executive meeting of the RAB a few months earlier regarding RAB membership, Mr. Fontenot tallied up the attendance of each RAB member over the past year. Out of 24 members, the most that ever came to one meeting was 18, and the fewest, 13. Approximately 6 months ago, each member was contacted and asked if they were still interested in being a member of the RAB. With one exception, everyone said they were, yet many of those people still are not attending. Mr. Fontenot will be mailing out a letter to those who have not been attending asking them to confirm their commitment to the RAB or provide an excusable reason for their frequent absences.

In addition, Don Harbert has been Community Co-chair for a year which means it is time to nominate a new Co-chair. Mr. Fontenot suggested a vote be taken at the next RAB meeting. Mr. Conner pointed out that the community members get to nominate and choose their Co-chair. Ms. Ann Ragan added that all the members should be given the opportunity to be involved in the selection process. RAB members agreed, so, at the next RAB meeting, community members will select their new Community Co-chair.

Mr. Conner agreed with Mr. Harbert's suggestion that all community members present gather after the meeting to discuss qualifications. He also reiterated that being a RAB member is a big responsibility and very time-consuming, especially for the Co-chair.

11. Remaining Questions and Comments

Mr. Fontenot reiterated that the next meeting will include:

- Risk Assessment training from 5 - 6 p.m.
- Regular meeting from 6 - 7 p.m. which will include a presentation on the investigative results of Zones C and I. Navy representatives and regulators will be available to answer questions after the meeting.
- Selection of Community Co-chair by community members immediately following the meeting.

The meeting will be held downtown at the Charleston County School District Building at 75 Calhoun Street on the 1st floor in the School Board Chambers.

12. Adjournment

**Summary of Action Item**

- RAB Members read and comment, if interested, on Federal Register notice by November 4.
- Contact Daryle Fontenot to volunteer for the Community Relations Subcommittee.
- Mr. Fontenot will draft a letter to RAB members who have frequently been absent.
- Site tour is scheduled for October 29 at 1 p.m.
- Community members will select their new Co-chair at the close of the November meeting.
- Beginning in December, meetings will be held from 6 - 7 p.m. Navy personnel and regulators will be available from 7 - 8 to answer questions.

Attachments to Minutes
(1) Tuesday October 8, 1996 RAB Meeting Agenda
(2) Responses to RAB Members' Items of Interest
(3) Naval Base Charleston Project Status - 9/10/96 with List of Acronyms
(4) RFI Progress Report for September 1996

Minutes recorded by: Diane Cutler, EnSafe/Allen&Hoshall

Minutes approved by: _____ _____

Daryle Fontenot
Co-Chairman

Don Harbert
Co-Chairman

Tuesday, October 8, 1996

Charleston Naval Base

RESTORATION ADVISORY BOARD MEETING AGENDA

6:00 P.M. Location: North Charleston City Hall (City Council Chambers)
4900 LaCrosse Road, North Charleston, SC

RAB Members, BRAC Cleanup Team, and interested citizens informally talk about what's going on from 6:00 p.m. to 6:30 p.m.

6:30 P.M. RAB MEETING

A. Introduction of the RAB Members and Guests

B. Administrative Remarks, comments on the minutes of the last meeting

C. RAB Member Items of Interest

D. Subcommittee Reports

| | | |
|---|---|---|
| Community Relations | - | Daryle Fontenot |
| Shipyard Detachment | - | Arthur Pinckney |
| Finance | - | Lou Mintz |

E. RDA Update

F. Environmental Cleanup Progress Report - Cleanup Team

Status of the Environmental Programs

G. RAB Membership - Daryle Fontenot

H. Remaining Questions and Comments from Visitors

I. Agenda for next meeting.

Please mark your calendar. Our next meeting is **Tuesday, November 12, 1996**. Time and location to be determined.

08 OCT 96

# RESPONSES TO RAB MEMBERS' ITEMS OF INTEREST

Below are items of interest expressed by RAB members at the 10 September 96 RAB meeting and responses to those items of interest. The responses are not all meant as final answers to all the items of interest, but as a status of what is going on with those items. If more information is needed or the response does not completely answer the item of interest, please let the Navy Co-Chair of the RAB know and he will try to get the necessary information to answer your question.

1. RAB involved in the cleanup of the base and have an opportunity to provide input.

   **Response**: This is the purpose for the RAB. The RAB will continue to get an opportunity to provide input into the cleanup process. More opportunities are coming up soon, but a few you have provided input on recently are Chicora Tank Farm and SWMU 39.

2. Interim Measures tour . Look at sites before we accept or approve.

   **Response**: Another environmental sites tour will be setup. This tour will include sites visited the first time and new interim measure sites. Tentative date for the next tour is in late October 1996. The tour of environmental sites will provide RAB members with information that will help you in your providing of input into the cleanup decisions for the base.

3. RAB more interactive process.

   **Response**: The purpose of reviewing the RAB's roles and responsibilities was to get back to what we were setup to do. The interactive part will come with time as we continue to work together as a group. The RAB was setup to be interactive, we as RAB members must make it interactive.

4. Chicora Tank Farm - School at location. Area cleaned up for parade ground for military school.

   **Response**: This item is related to the method of closure for the tank farm. The decision on how to close the tank farm has not been made at this time, but your concerns about the future reuse of the tank farm property has been heard and are being considered in the decision on how to close the tank farm. More information will be provided at the next RAB meeting on the Chicora Tank Farm closure.

5. RDA - When will base be cleaned by parcel to lease and transfer.

   **Response**: FOSLs have been prepared and are still being prepared to support reuse of the base in the form of leasing. We are working toward the transfer of property by removing

USTs, abating asbestos and lead based paint, performing interim measures, and accomplishing the RFI investigations. All the information generated on the environmental condition of the property from the above mentioned actions is being reviewed to see if clean parcels can be identified and transfer procedures initiated. As clean parcels are identified they will be made available to the community through the RDA.

6. RAB presentation on each Corrective Measures Study. Review along with regulators.

   **Response**: The presentation on Corrective Measures Studies (CMS) is being worked on by the Project Team and will be presented to the RAB in the near future. The RAB can and is invited to review all documents sent to the regulators for review.

7. Chicora Tank Farm.

   **Response**: See the response to Item of Interest No. 4.

8. More community involvement. How to get more involvement of the community.

   **Response**: It is the responsibility of community members of the RAB to help in getting the community involved in the cleanup at the base. We, the RAB, must work together to get information to the community. A Speakers Bureau has been proposed by the RAB's community Relations Subcommittee as a means of getting the word out on the environmental cleanup activities underway at the base. The Speakers Bureau is seen as means of spreading the word to the community.

9. Discipline into system. Meet milestones and schedules. Behind schedule.

   **Response**: The project team is working hard on accomplish task in their allotted time (CAMP schedule) so the base can be cleaned up and transferred to the community for reuse.

10. Conduit for information to the community by RAB members.

    **Response**: This is one of the responsibilities of the community members of the RAB. The Speakers Bureau concept will also help the community RAB member be a conduit of information for the community.

11. Technical training for RAB.

    **Response**: The Project Team is working on putting together training for the RAB covering the technical aspects of the environmental cleanup underway at the base. The RFI investigation results for Zones C and I will be presented at next month's RAB meeting. An understanding of the risk assessment process is helpful in understanding these investigation results. To help RAB members understand the risk assessment process, a training session on risk assessment will be held just before the November RAB meeting from 5:30 to 6:30 p.m. All interested RAB members should plan to attend.

12. Get media involved in RAB activities.

**Response**: We seem to have the attention of the media at the present time due to the Focus show and the SWMU 39 activity. How long this will last, we do not know. All we can do is present the opportunity to the media, we can not make them cover out activities.

13. Who is responsible for what. List of who is responsible for what in cleanup process. Hard to contact people at Southern Division. Hard time getting in contact with public relations at Southern Division.

**Response**: The issue with contacting persons at Southern Division has been investigated and should not occur in the future. To determine the appropriate resource concerning the Naval Base Charleston environmental investigation, please contact Daryle Fontenot at either 820-5607 or 743-9985, ext. 15 or Jim Beltz at 820-5771.

14. Equipment for the Detachment.

**Response:** This is an item that will have to be taken up with the RDA. The Detachment has approached the RDA with a list of needed equipment to efficiently and economically conduct environmental cleanup operations, but have not received all of the requested equipment felt necessary to accomplish their task as intended.

Naval Charleston
Project Status
9/10/96

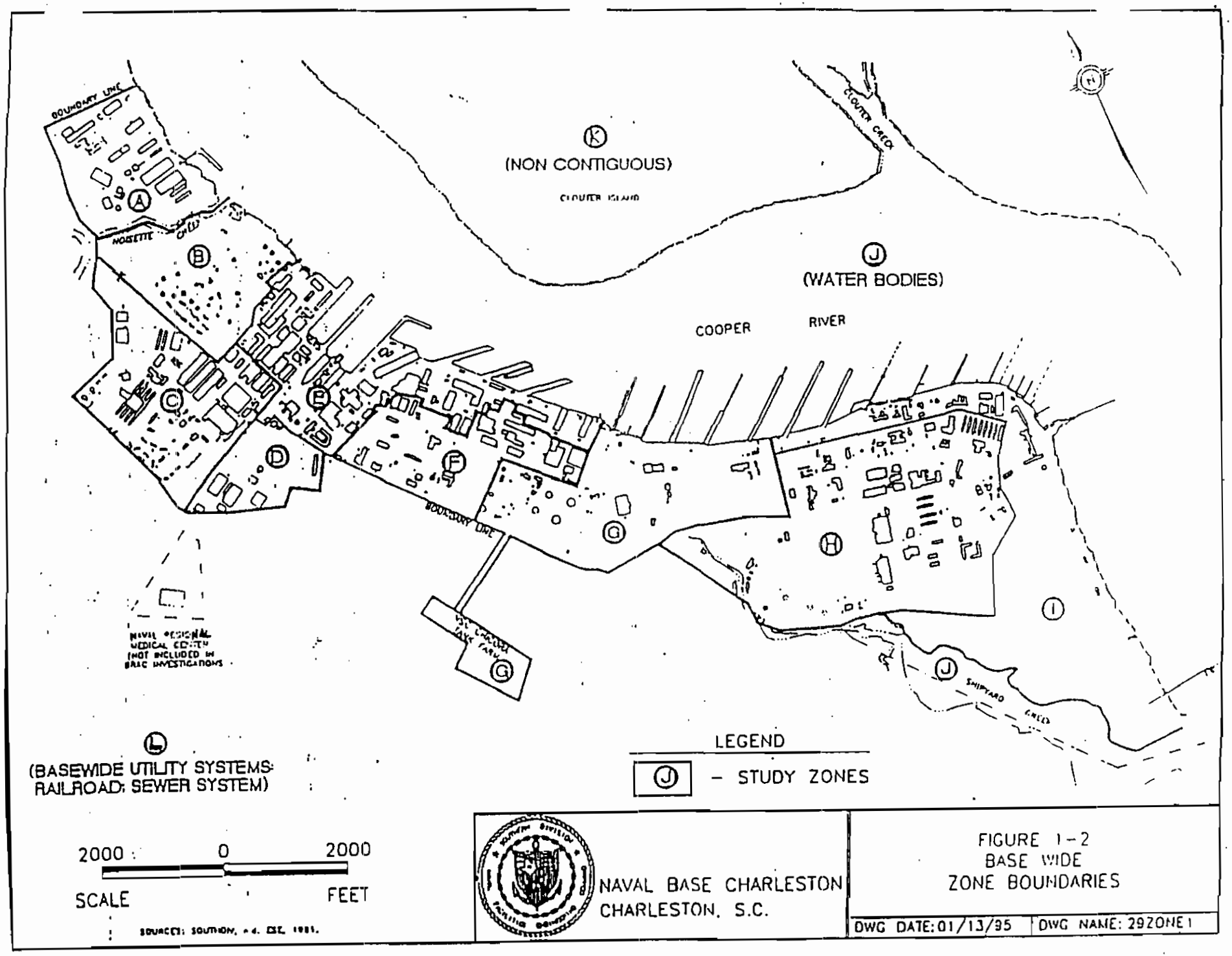
| PROGRAM | PROJECT DESCRIPTION | ACTION REQUIRED | ECD |
|---|---|---|---|
| BRAC - Property Lease/Transfer | | | |
| | EBSL/FOSL for McKinney Act (20 fac.) | Awaiting SOUTHDIV CO signature | 9/13/96 |
| | EBSL/FOSL for 233 facilities | Draft in review | 9/17/96 |
| | EBSL/FOSL for NS Annex (19 fac.) | Awaiting SOUTHDIV CO signature | 9/6/96 |
| | EBST Clouter Island (Transfer to COE, 2 fac.) | Awaiting SOUTHDIV CO signature | |
| | EBST NS Annex (Transfer to MC, 6 fac.) | Awaiting SOUTHDIV CO signature | |
| | Environmental Condition of Property map | Determine what changes can be made, to be discussed at September Project meeting | 9/11/96 |
| | Environmental Baseline Survey | Incorporating EPA/SCDHEC comments | |
| | | | |
| NEPA | | | |
| | Environmental Assessment of South Annex | Water & Air Research Inc. provide Draft Environmental Assessment to Navy | 11/1/96 |
| | | | |
| RCRA Compliance | | | |
| | Part B permit application | CSO submit Part B application | 10/13/96 |
| | Generator ID-Naval Annex | CSO submitted letter requesting change in owner 9/24/96 | Complete |
| | | | |
| RCRA Corrective Action (priority) | | | |
| | Comprehensive RFI WP Revision | Approval letter received dated 9/4/96, Ensafe making distribution of clean copies | 10/11/96 |
| | Zone A RFI report | Report submitted 9/16/96 | |
| | Zone A field work | In progress, additional work on several sites | |
| | Zone B RFI report (5) | In SCDHEC rereview, 90% progress copy reviewed versus draft | 10/18/96 |
| | Zone C RFI report (3) | In EPA/SCDHEC review | |
| | Zone D, F & G field work | In progress, next progress meeting (30%) is 10/23 | 10/8/96 |
| | Zone E RFI field work | In progress, next progress meeting (90%) is 11/22 | 11/22/96 |
| | Zone H RFI report (2) | Resubmitted 7/8/96, in EPA/SCDHEC review | |
| | Zone I RFI report (4) | In EPA/SCDHEC review | |
| | Zone J RFI WP | Work Plan resubmitted 9/10/96 | |
| | Zone K RFI WP (1) | Work Plan resubmitted 9/9/96 | |
| | Zone L RFI WP | Work Plan resubmitted 7/29, in EPA/SCDHEC review | |
| | RFA additions | Final copies ready for distribution, Navy prepare cover letter | 10/15/96 |
| | | | |
| | Miscellaneous issues | | |
| | Groundwater Model | USGS preparing draft regional and local report | 10/15/96 |
| | Transfer of IR sites to UST program | Approval letter received dated 9/4/96, the Part B permit application will be modified accordingly | |
| | GRAM survey of DRMO | Survey complete, data in review | 10/17/96 |
| | Support services | | |
| | IDW Management | Navy preparing letter for submittal to State and EPA on background organics | 10/15/96 |
| | Groundwater Monitoring | Zone A & B 4th qtr in progress, Zone H, C, I complete through 4 quarters | |
| | Surveying | Detachment to preparen PEP | |
| | | | |
| Underground Storage Tank | | | |
| | Tank Management Plan | SOUTHDIV reviewing response to regulatory comments | 10/11/96 |
| | Petroleum Remediation Plan | Det preparing plan of action | |

Naval Base Charleston
Project Status
9/10/96

| PROGRAM | PROJECT DESCRIPTION | ACTION REQUIRED | ECD |
|---|---|---|---|
| | Bioremediation demonstration project | Facility being prepared, more detailed plan prepared for SOUTHDIV | 9/12/96 |
| | Removals | 53 tanks to be removed, 45 tanks have been removed | |
| | Chicora Tank Farm | Navy reevaluating cost on closure option | Mid Oct |
| Asbestos | | | |
| | Building 32 remediation | Notice to proceed given to Detachment | 6/30/97 |
| | Building 1171 remediation | Work in progress | 1/30/97 |
| | Building 1601 | Scope of work being defined | 12/30/96 |

Acronym List

EBSL - Environmental Baseline Survey for Lease
FOSL - Finding of Suitability for Lease
BEC - BRAC Environmental Coordinator
NS - Naval Station
COE - Army Corps of Engineers
EBST - Environmental Baseline Survey for Transfer
MC - Marine Corps
fac. - facility
EA - Environmental Assessment
RCRA - Resource, Conservation and Recovery Act
SCDHEC - South Carolina Department of Health and Environmental Control
LCDR - Leutenant Commander
OIC - Officer in Charge
RFI - RCRA Facility Investigation
WP - Work Plan
EPA - Environmental Protection Agency
RTC - Response to Comments
RFA - RCRA Facility Assessment
SWMU - Solid Waste Management Unit
IM - Interim Measures
AOC - Area of Concern
IR - Installation Restoration
UST - Underground Storage Tank
DRMO - Defense Reutilization and Marketing Office
IDW - Investigative Derived Waste
USGS - United States Geological Survey
CSO - Caretaker Site Office
PEP - Project Execution Package
GRAM - General Radioactive Material
Det. - Shipyard Detachment
SOW - Statement of Work
ASB - Asbestos
ECD - Estimated Completion Date


(NON CONTIGUOUS)
(WATER BODIES)
COOPER RIVER
BOUNDARY LINE
NOISETTE CREEK
CLOUTER CREEK
NAVAL REGIONAL MEDICAL CENTER (NOT INCLUDED IN BASE INVESTIGATIONS)
SHIPYARD CREEK
(BASEWIDE UTILITY SYSTEMS: RAILROAD; SEWER SYSTEM)
LEGEND
- STUDY ZONES
2000 0 2000
SCALE FEET
SOUTHERN DIVISION
NAVAL BASE CHARLESTON
CHARLESTON, S.C.
FIGURE 1-2
BASE WIDE
ZONE BOUNDARIES
DWG DATE: 01/13/95
DWG NAME: 29ZONE1

**Naval Base Charleston**
**RCRA Facility Investigation (RFI)**
**PROGRESS REPORT FOR SEPTEMBER 1996**

INVESTIGATIVE ZONES

A. Warehousing and scrap metal yard
B. Golf course and residential
C. Office space and warehouse (NH-45, Navbase HQ)
D. Parking lot, warehouses
E. Shipyard
F. Recreational areas and public works shops
G. Fuel farm and transfer facility
H. Southern end of the base excluding waterfront
I. Southern end of the base including waterfront and dredge material area
J. Waterbodies
K. Non-contiguous areas
L. Sewer systems and railroad system

FUNDING

- Funding status; Funds available when negotiated: Zones J and L yet to be negotiated

PROGRESS FOR SEPTEMBER

- Revisions to the Comprehensive RFI Work Plan were approved by the regulatory agencies on 5 September.
- Members of the Project Team met September 3rd to conduct a presubmittal review on three documents, Zone J RFI Work Plan, Zone K RFI Work Plan, and Draft Zone A RFI Report. These documents were revised based on this meeting and submitted to the regulatory agencies for review.
- Field Work Progress

Zone A

SWMU 39 - Building 1604, Petroleum, Oil and Lubricant storage

Results of off base sampling
No chlorinated compounds detected in any samples
BTEX components found in one sample, petroleum odors in another
Detections are preliminary, confirmation samples to follow
Source of both compounds is undefined

SWMU 1 and 2 - Field work to begin following GRAM survey (beginning of December)

SWMU 38 - Miscellaneous Storage north of Building 1605
Detections in soil of pesticides and PCBs
Groundwater detections of same compounds
Very localized area, IM planned for soils, CMS will address groundwater

SWMU 42 - Former Asphalt Plant
Soil detections of BEQs, lead and aroclor-1260
Traces of chlorinated solvent in groundwater
Localized area, IM planned for soils, CMS will address groundwater

SWMU 43 - Publications and Printing Plant, Building 1628
No further action

AOC 506 - Building 1629, Flammable Storage Shelter
No further action

ZONE D, F and G

Field work just began, preliminary results have found localized areas of soil and groundwater contamination. The assessment of these areas will continue as the field work progresses. Nothing unusual or unexpected. The field work is approximately 30% complete.

ZONE E

A total of 77 sites were investigated in the former shipyard area. Field work is approximately 80% complete. The results of the field work and discussions on preparation of the report are scheduled in November. In general, soil contamination included inorganics (Arsenic, Chromium, Lead, Magnesium, Manganese) and Semi-Volatile Organics (Benzo-a-pyrene equivalents). A total of 175 deep and shallow groundwater wells were installed as part of the work plan and 13 additional installed based on results of initial sampling. In general, inorganic constituents were detected (Arsenic, Beryllium, Cadmium, Copper, Lead, Manganese, Iron and Antimony), organics (pesticides, herbicides, chlorinated solvents and degradation products). These are compounds we would expect from industrial operations or industrialized areas, again nothing unusual or unexpected.

PROJECTED ACTIVITY FOR OCTOBER

- Continue field work in Zones A, D, F, G and E.

# Community Relations Subcommittee Meeting October 8, 1996

**Time:** 3:30 p.m.

**Attendees:** Daryle Fontenot, Louis Mintz, Wannetta Mallette, Diane Cutler

## DISCUSSION ITEMS

**Susan Floyd Replacement** Discussed the need for a replacement for Susan Floyd. Will request volunteers at the RAB meeting.

**November RAB Meeting** The location of the November meeting is scheduled for downtown Charleston. Suggested locations include the School Board building or Chamber of Commerce. Having meetings at the Base was also discussed. It would be up to the RDA to decide if space was available at the Base.

**Speakers Bureau** The Subcommittee revisited the topic of a Speakers Bureau. At the August meeting, nobody opposed having a Speakers Bureau, (although nobody specifically volunteered either), so the subcommittee will move ahead with preparing the appropriate material.

An advertisement will be distributed through miscellaneous channels announcing the availability of speakers. Once an engagement is set up, a package of material will be collected including: fact sheets, most recent RAB meeting minutes, a base map, and the next meeting flyer. The speaker will present a short, 10 to 15 minute presentation, and allow time for questions. Either a Navy representative can accompany the speaker to assist with technical questions, or a follow-up appearance can be made by a Navy representative. No overheads will be used. Developing an evaluation form was suggested so it can be used to determine how to improve the presentation.

Diane will prepare 1) an outline using the already existing script, and will add some general information regarding the investigation, 2) an evaluation form, and 3) a flyer for advertising the availability of the Speakers Bureau.

**Corrective Measures Study** Lou recommended informing people of the upcoming activities associated with the Corrective Measures Study. Although public comment periods and meetings will be advertised in the newspaper and other media, Lou said that he would like to inform people in plenty of time rather than let them know when the time to comment is on top of them. One suggestion was to create a special fact sheet about the next step in the investigation - the Corrective Measures Study - and let people know that there is a public comment period associated with it. Other suggestions included sending announcements about the public comment period as a bill stuffer in utility bills, and sending announcement letters to local officials, Chamber of Commerce, and other groups and organizations.

**Meeting Format** A recommendation was made to shorten the length of RAB meetings from two hours to one hour. This may make it more attractive to people, and hence increase attendance. This recommendation also includes holding the question and answer time after the meeting rather than before. This will give attendees the opportunity to ask questions regarding what was just discussed. Meetings will be held from 6 - 7 p.m. with informal question and answer session from 7 - 8 p.m.

**Meeting Format (continued)**

It was discussed that the monthly presentation material would have to be scaled back in order to fit everything into one hour. Members shared that they didn't want handout material to be read to them. Handout material should be accompanied by a short, concise, managerial type overview.

## ACTION ITEMS

**Speakers Bureau** Diane will provide an outline with general facts about the base and investigation, an evaluation form, and a flyer announcing the availability of the Speakers Bureau.

**Subcommittee Report to RAB** Lou Mintz will provide the Subcommittee Report to the RAB which will include the following topics:

- New Meeting Format
- Replacement Member for Community Relations Subcommittee
- Speakers Bureau
- November Meeting Location

## NEXT MEETING

**Subcommittee Meeting** The next Subcommittee meeting will be held on November 12, 1996 at 3:30.

RAB COMMUNITY PRESENTATION
CHECKLIST

Before Presentation:

- ☐ Identify contact person, meeting facility, and arrival time (see Action Report)
- ☐ Check with facility for overhead projector and screen (if needed)
- ☐ Get directions to facility (if needed)
- ☐ Schedule alternate (recommend another RAB member who would also be able to talk about the RAB in discussions before or after the presentation.)
- ☐ Practice

Date of Presentation:

- ☐ Check all materials needed
  - ☐ Outline (and overheads)
  - ☐ Action Report
  - ☐ Mailing List sheet and pen for additions to mailing list
  - ☐ Handouts?
    - ☐ Upcoming RAB meeting announcement/flyer
    - ☐ Upcoming meeting agenda (if available)
    - ☐ Previous month's RAB minutes
    - ☐ Fact Sheets, suggested:
      - #1 - *Restoration Advisory Board*
      - #2 - *Most Commonly Asked Questions About Base Cleanup*
      - #3 - *Typical Site Cleanup*
      - #4 - *NEPA/RCRA* (Regulations)
      - #5 - *Environmental Basis for Leasing Property*
      - #6 - *Zone H: Environmental Investigation Results*
      - #7 - *Solid Waste Management Unit (SWMU) 39*

After Presentation:

- ☐ Collect extra handouts, names for mailing list, and any other materials
- ☐ Complete After Action Report, mail or fax to Jim Beltz
- ☐ Advise Jim Beltz by telephone (803/820-5771) if individuals were directed to his office for further information.

## Restoration Advisory Board Member Presentation
## Outline

### I. Introduction

Welcome to this [morning/afternoon/evening]'s presentation on the Naval Base, Charleston Restoration Advisory Board.

[Name]
[Background, occupation, interests, ...]
[How you became involved with the RAB]

Purpose of this presentation is:
- to explain what the Restoration Advisory Board is all about
- to spark some interest in the efforts we support

Hopefully, this presentation will help you understand:
- the Restoration Advisory Board (what we call the 'RAB')
- its impact on the community
- its importance in the environmental program at the base.

### II. What is the Restoration Advisory Board?

Group of community members & citizens, local, state and federal governmental organizations, including the Navy.

Established to help the local community communicate with various local, state, and federal agencies during the Navy's fast track cleanup process at the base.

Works to help decision makers coordinate their efforts in environmental cleanup with the wishes and concerns of the community.

Helps community members understand cleanup process.

Formed by charter in February 1994
First meeting on March 9 the same year.

### III. RAB Membership

25 total members; representing the community, Navy, and local, state and federal agencies.
- 12 community members
  - Intended to reflect the diverse interests within the local community.
- 5 Navy members
- One representative each:
  - US Environmental Protection Agency (EPA)
  - South Carolina Department of Health and Environmental Control (DHEC)

Other groups and agencies:

City of North Charleston (2)
US Department of the Interior (1)
SC Department of Natural Resources (1)
SC Coastal Council (1)
Charleston Naval Complex Redevelopment Authority (1)

## IV. RAB Role and Responsibilities

Supports the Navy Commander the Base Cleanup Team by advising on environmental priorities and concerns, from community point of view.
Basically, our board is the community oversight team for cleanup procedures and activities.
We don't make decisions, but our input is used by the Navy, EPA and DHEC in making the decisions that affect our community.

Also a forum for information exchange between the community, the Redevelopment Authority, and the Base Cleanup Team.
(Base Cleanup Team - decision-makers - is Navy, USEPA, & DHEC)
We bring community concerns and interests to the attention of the Navy and regulators.

In addition, RAB members take the information discussed at the meetings back to constituents, maybe the North Charleston City Council or a small community group or club.
Methods of getting information out include short printed updates (fact sheets) or informal presentations like this one.
Review, evaluate and comment on materials related to base cleanup and conversion.

## V. RAB Topics/Subcommittees

A wide range of topics are typically covered during the monthly RAB meetings:

- Milestones, such as completion of environmental investigations, are discussed.
- Monthly progress report is provided that details how much sampling/cleanup has been completed and how much money has been obligated by the Navy.
- Usually an update from the Redevelopment Authority, and
- Every month, priority issues or special agenda items are included. A few examples:
  1) sampling demonstration,
  2) review and comparison of environmental regulations,
  3) community concerns about the Chicora Tank Farm, and
  4) financial issues.

Several subcommittees:

The Community Relations Subcommittee meets monthly.

recommends ways to improve or address the community's needs for information about the environmental cleanup.

help produce the material needed to get information out, including:

1) Fact Sheets: like mini-newsletters that explain a particular topic in easy to understand language.

2) This presentation is part of the RAB's public awareness campaign.

Also Finance and Shipyard Detachment subcommittees have been established.

## VI. Meetings

Once a month, on the second Tuesday of each month

From 6:00 - 7:00 p.m.

An informal question/answer session is held after the meeting

Navy representatives and environmental officials are available to answer questions.

Meetings are advertised in the newspaper, and announcements are sent to all the major radio and television stations.

## VII. Closing Remarks

Thank attendees

Thank facility/organization

Next meeting:

[*date/time/location*]

[invite everyone, and encourage them to come].

Mailing list:

If interested in receiving updates, provide information on the sign-in sheet.

Be sure to check the mailing list box

If anyone has questions, I am happy to try to answer them.

| NAME | AFFILIATION (Organization or Agency) | TELEPHONE |
|---|---|---|
| ADDRESS | CITY, STATE | ZIP |
| Check here if you would like to join our mailing list ☐ | | |

| NAME | AFFILIATION (Organization or Agency) | TELEPHONE |
|---|---|---|
| ADDRESS | CITY, STATE | ZIP |
| Check here if you would like to join our mailing list ☐ | | |

| NAME | AFFILIATION (Organization or Agency) | TELEPHONE |
|---|---|---|
| ADDRESS | CITY, STATE | ZIP |
| Check here if you would like to join our mailing list ☐ | | |

| NAME | AFFILIATION (Organization or Agency) | TELEPHONE |
|---|---|---|
| ADDRESS | CITY, STATE | ZIP |
| Check here if you would like to join our mailing list ☐ | | |

| NAME | AFFILIATION (Organization or Agency) | TELEPHONE |
|---|---|---|
| ADDRESS | CITY, STATE | ZIP |
| Check here if you would like to join our mailing list ☐ | | |

| NAME | AFFILIATION (Organization or Agency) | TELEPHONE |
|---|---|---|
| ADDRESS | CITY, STATE | ZIP |
| Check here if you would like to join our mailing list ☐ | | |

| NAME | AFFILIATION (Organization or Agency) | TELEPHONE |
|---|---|---|
| ADDRESS | CITY, STATE | ZIP |
| Check here if you would like to join our mailing list ☐ | | |

| NAME | AFFILIATION (Organization or Agency) | TELEPHONE |
|---|---|---|
| ADDRESS | CITY, STATE | ZIP |
| Check here if you would like to join our mailing list ☐ | | |

Presenter: _____

RAB COMMUNITY PRESENTATION
AFTER ACTION REPORT

Group Addressed: _____

Date and Time: _____

Facility Address: _____

Contact Person: _____

Telephone: _____

# of attendees (actual or estimated):

Specific Concerns or Questions that should be focused on or addressed in the community:

Additional people/groups interested in this presentation, to be contacted:

Followup action: Please provide details on type of followup (presentation, telephone call, letter, ...) and information desired. Include contact name or other relevant information.

*Please send this completed form to:*
Jim Beltz, Public Affairs Office
SOUTHNAVFACENGCOM, Code OOP
PO Box 190010
N. Charleston, SC 29419-9010

# Restoration Advisory Board Presentation
# DRAFT Evaluation

① Was this presentation useful?

YES NO

If NO, please explain: _____

_____

_____

② Will you attend a RAB meeting, or join the mailing list, because of this presentation?

YES NO

③ Do you know of another group interested in this information? Please provide details (especially name and phone number)_____

_____

_____

④ The RAB works with the Navy on environmental issues related to property transition. Do you have any environmental issues or concerns that you would like to see discussed at future RAB meetings? ____

_____

_____

_____

_____

⑤ Do you have any general comments or recommendations to improve future presentations?

_____

_____

_____

_____

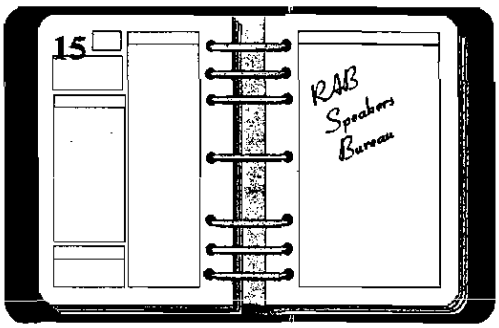
*Thank you.*

# Are you a member of a group or organization?

## Are you interested in learning about the Community's voice in the environmental cleanup of Naval Base Charleston?

The Naval Base Charleston Restoration Advisory Board (RAB) has speakers available to business, education, and community groups in the Charleston area.

Next time your group needs an informative speaker for a meeting or special presentation contact Mr. Daryle Fontenot, base Environmental Coordinator, (803) 820-5607.




Community members of the RAB are available to inform fellow residents and businesses about the environmental activities that are ongoing at Naval Base Charleston. This Speakers Bureau was developed to help spread the word about the RAB's efforts and spark interest in the environmental activities at the Base.

**NAVAL BASE CHARLESTON**
**RESTORATION ADVISORY BOARD (RAB)**
**Minutes of Special Meeting - 26 September 1996**

1. Introduction

Mr. Daryle Fontenot, Navy Co-chair of the Restoration Advisory Board, welcomed everyone to the Special RAB meeting concerning Solid Waste Management Unit (SWMU) 39. The meeting is being sponsored in conjunction with the Navy and the City of North Charleston.

2. RAB Members Attending

| | |
|---|---|
| Mr. James Conner | Mr. Virgil Johnston |
| Mr. Bobby Dearhart | Mr. Louis Mintz |
| Mr. Daryle Fontenot | Mr. Odell Price |
| Ms. Gussie Greene | Ms. Ann Ragan |
| Mr. Don Harbert | LCDR Paul Rose |

3. Guests Attending

| | |
|---|---|
| Mr. Tony Hunt | NAVFAC, SouthDiv |
| Ms. Thuane Fielding | NAVFAC, SouthDiv |
| Mr. Brian Stockmaster | NAVFAC, SouthDiv |
| Ms. Kim Reavis | NAVFAC, SouthDiv |
| Mr. Jim Beltz | NAVFAC, SouthDiv |
| Mr. Gabriel Magwood | NAVFAC, SouthDiv |
| Mayor Keith Summey | Mayor of North Charleston |
| Mr. John Bourne | Former Mayor of North Charleston |
| Mr. Kurt Taylor | Old N. Charleston Neighborhood Council |
| Ms. Christine Coker | SCDHEC - Trident |
| Mr. Copes Wannamaker | N. Charleston Resident |
| Ms. June E. Mirecki | College of Charleston |
| Mr. Kevin Tunstall | Detachment |
| Mr. Gene Eaton | Atlantic Drilling Corp. |
| Ms. Diane Cutler | EnSafe/Allen&Hoshall |
| Mr. Todd Haverkost | EnSafe/Allen&Hoshall |
| Mr. Lawson Anderson | EnSafe/Allen&Hoshall |

4. Purpose of the Special RAB Meeting

The purpose of the Special RAB meeting is to relay information to the Restoration Advisory Board and the public concerning the investigations at SWMU 39. The investigation at SWMU 39 has reached a point where the Navy needs to sample off-base to determine if substances have migrated off-base, and if so, to what extent. The Navy wants to assure the public that they are taking

measures to quickly assess the extent of possible off-base groundwater contamination. The Navy is conducting their investigation in cooperation with Federal, State, and City officials and community representatives. There are no known or suspected health risks at this time.

5. Introduction of RAB Members

For those in the audience that may not be familiar with the RAB, Mr. Fontenot explained that the RAB is the community outlet regarding the environmental cleanup at Naval Base Charleston. Mr. Fontenot asked that each RAB member introduce him/herself. He also introduced Mr. Jim Beltz, Public Affairs Officer, and Mr. Tony Hunt, who will be providing the technical presentation. Both are from Southern Division.

6. Remarks from the Mayor of North Charleston

Mayor Summey stated that the City wanted to get this meeting together when they were informed by the Navy about contamination at the base that could potentially affect property off-site. The City wanted to have some sampling done off-base so they could ascertain if any contamination was present, and if so, where it was coming from and what should be done about it. The Mayor continued by stating that the City appreciates all the agencies working together with them to make sure there isn't a problem for the community. This meeting provides the opportunity for community members to learn about what is going on, and to stay informed.

7. Technical Presentation Concerning SWMU 39

Mr. Tony Hunt introduced himself as an environmental engineer with the Navy. He is also a Project Manager for the environmental work that is ongoing at the Navy Base. EnSafe/Allen&Hoshall is the Navy's environmental contractor for the investigation, and Stratigraphics is the firm that is conducting the direct push sampling off-base.

The Navy is conducting environmental investigations on the Base in accordance with their Resource Conservation and Recovery Act (RCRA) permit. They are working in cooperation, and with oversight by the South Carolina Department of Health and Environmental Control and the U.S. Environmental Protection Agency. A Solid Waste Management Unit (SWMU) is a place where wastes or recycled materials were used, stored, or treated. The site being discussed tonight is SWMU 39. SWMU 39 was an area where the Defense Reutilization Marketing Office (DRMO) stored waste/recycled material.

SWMU 39 is located in Zone A which is the northwestern section of the Base. (The Base is divided into 12 Zones for management purposes). SWMU 39 was the former petroleum, lubricant, and oil storage area. Originally, the Navy was only investigating Building 1604 and the area immediately adjacent to it, but later expanded the investigation once it was discovered that storage had occurred on the adjacent gravel area.

Mr. Hunt used a map to show the sampling points for soil and groundwater for the SWMU 39 investigation. Sampling results found petroleum contamination in the soil and traces of chlorinated solvents in the groundwater. Chlorinated solvents were found in highest concentrations immediately adjacent to the former storage site. Traces of these solvents were found at the facility boundary. Sample results at the facility border showed levels slightly above water quality criteria which is why the Navy decided to sample off-site.

The Navy also installed a monitoring well in an upstream or "upgradient" direction to see if there was any chlorinated solvent coming from another direction. No chlorinated solvents were found in the well, but seven to eight inches of petroleum product was found which chemically resembles gasoline. That was the only well in which petroleum products were found. Because these substances were found in concentrations that people would not come in contact with on or off-base, there are no suspected health risks. The Navy conducted a search of DHEC's well records and found that there are no drinking water wells in the area. In addition, the public water supply is not affected by anything in the groundwater in the area.

The Navy has proposed sampling to determine the extent of the substances in the groundwater along Virginia Avenue and O'Hear Avenue, and three neighborhood streets: Bethany, Alamo, and Buist. The Navy will take the samples along the rights-of-way. Sampling has already begun. Once this sampling is completed, the Navy will evaluate the results and will determine if sampling on private property is necessary. After the results are gathered, the information will be used to determine corrective actions. An update on the results will be provided at the next RAB meeting.

Mr. Hunt presented a slide show on SWMU 39 and off-base direct push sampling. Mr. Hunt summed up that there are no known or suspected health risks. The Navy is taking action to quickly assess the extent of any off-site migration, and is cooperating with State and Federal regulators, local officials, and the community Restoration Advisory Board (and the public through that media). Mr. Hunt also reiterated that the Navy is committed to cleaning up any contamination that may occur as a result of their activities and sharing information with the community about the cleanup. Mr. Hunt added that the Navy is confident in the contractor supporting the cleanup, and that the Navy will continue to update the public on the cleanup at monthly RAB meetings.

8. Questions and Answers Concerning SWMU 39

Mr. Lou Mintz stated that it appears that some of the adjacent property is swampy, and it seems that the contamination would float to the surface making it easy to detect and sample. He asked if the Navy is planning on sampling that area. Mr. Hunt answered that this is just the first phase of the off-site sampling and that they have started by choosing the areas with easiest access. If further sampling is required, the Navy will look into sampling the railroad and private property first, then make their way out toward the swampy area.

Mr. John Bourne asked if it's possible that the petroleum contamination could be coming from the oil storage tanks north of the Base, and moving onto the Base. Mr. Hunt said they don't know the source of the petroleum product found in the one well, and that is part of the reason they are taking samples along Virginia Avenue - to help determine the source and extent of the contamination.

Mr. Bourne continued by asking what would be the course of action if contamination was moving from an off-site source onto the Base. Mr. Fontenot answered that the Navy, the regulators, and those responsible for the contamination would work together in determining action and responsibility.

Mr. Mintz asked if there are any tests that can be done to determine if the petroleum product is commercial or industrial grade to help determine its source. Mr. Hunt noted that Mr. Mintz made a good point and that there are such tests called fingerprinting. However, results found off-base during the current sampling will help to determine the next step.

Mr. Bourne asked if any contamination has been found off base. Mr. Hunt replied that sampling just began on Wednesday 9/25/96 and it generally takes 10 days for sampling results to come back. The Navy hopes to have results back by the next RAB meeting.

Ms. Gussie Greene requested that the results of the sampling be provided in writing. Mr. Fontenot replied that they will be provided in writing to the City through local officials. Mr. Fontenot added that additional information regarding the environmental cleanup can be found in the information repository at the Dorchester Road Regional Library at 6325 Dorchester Road.

Mr. Copes Wannamaker stated that he is a resident who lives in the vicinity of the current off-base sampling and that he has a shallow well on his property. He asked what recommendations the Navy has regarding the well. Mr. Hunt reiterated that there is not a human health risk, but if Mr. Wannamaker has a concern about the water quality of the well, the Navy will be glad to take a sample of it.

9. Wrap Up

Mr. Fontenot wrapped up by summarizing the purpose of the meeting: To inform the city and the community about the off-base sampling due to the findings at SWMU 39. He reiterated that the Navy is working on quickly assessing the situation and already has a sampling team in the field pulling samples. The Navy is working in cooperation with local officials and state and federal regulators. At this time there are no known or suspected health risks.

The next RAB meeting will be held on Tuesday, October 8 at North Charleston City Hall in city council chambers from 6:30 - 8:30 p.m. The project team will be available from 6:00 - 6:30 for informal discussions and to answer any questions.

10. Adjournment

Attachments to Minutes

(1) Thursday September 26, 1996 Special RAB Meeting Agenda

Minutes recorded by: Diane Cutler, EnSafe/Allen&Hoshall

Minutes approved by:

| | |
|---|---|
| Daryle Fontenot<br>Navy Co-Chair | Don Harbert<br>Community Co-Chair |

Thursday, September 26, 1996

CHARLESTON NAVAL BASE

## SPECIAL RESTORATION ADVISORY BOARD MEETING CONCERNING THE INVESTIGATION OF SOLID WASTE MANAGEMENT UNIT (SWMU) 39

6:00 P.M. Location: North Charleston United Methodist Church, Davis Fellowship Hall, 1125 Montague Avenue, North Charleston, SC

MEETING AGENDA

| | |
|---|---|
| A. WELCOME | Daryle Fontenot |
| B. PURPOSE OF THE SPECIAL RAB MEETING | Daryle Fontenot |
| C. INTRODUCTION OF THE RAB MEMBERS | Daryle Fontenot |
| D. REMARKS FROM THE MAYOR OF NORTH CHARLESTON | Mayor Summey |
| E. TECHNICAL PRESENTATION CONCERNING SWMU 39 | Tony Hunt |
| F. QUESTIONS AND ANSWERS CONCERNING SWMU 39 | Daryle Fontenot |
| G. WRAP UP | Daryle Fontenot |

**Please mark your calendar. The next RAB meeting is TUESDAY OCTOBER 8, 1996 at the North Charleston City Hall, City Council Chambers at 6:30 P.M.**

**DEPARTMENT OF THE NAVY**
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
PO BOX 190010
2155 EAGLE DRIVE
NORTH CHARLESTON, S.C. 29419-9010

5090/11
Code 1877
10 December 1996

Mr. G. Randall Thompson
Director, Division of Hazardous and Infectious Waste Management
Bureau of Solid and Hazardous Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201

Subj: SUBMITTAL OF THE MONTHLY RCRA FACILITY INVESTIGATION PROGRESS REPORT

Dear Mr. Thompson,

The purpose of this letter is to submit the Monthly RCRA Facility Investigation (RFI) Progress Report for Naval Base Charleston. This report is submitted voluntarily to provide an update on the progress of the RFI to members of the NAVBASE Project Team which includes representatives of the Environmental Protection Agency and the South Carolina Department of Health and Environmental Control.

Enclosure (1) is the Monthly Report which contains the activity for the month of November, 1996. If you have any questions, please contact Gary Crawford or me at (803) 743-9985 (Ext. 32) and (803) 820-5525 respectively.

Sincerely,

Matthew A. Hunt

MATTHEW A. HUNT
Environmental Engineer
Installation Restoration III
By direction

Encl:
(1) Quarterly RFI Progress Report - November 1996
Copy to (w/encl):
SCDHEC (Tapia, Bergstrand)
USEPA (3) (Brittain)
SOUTHNAVFACENGCOM (Hunt)
CSO Naval Base Charleston (Crawford, Fontenot)

**NAVBASE CHARLESTON**
**RFI STATUS REPORT**
**PERIOD: SUMMARY OF**
**01 November 1996 To 30 November 1996**

## I. INTRODUCTION

The following status report has been prepared to satisfy condition II.E.3.a of the Part B Permit Renewal dated 5 December 1994 for Naval Base Charleston (NAVBASE). The requirements of this condition are in effect since the total elapsed time to complete the RCRA Facility Investigation (RFI) is projected to be greater than 180 calendar days from the approval date of the *Final Comprehensive RFI Work Plan* as indicated in the Corrective Action Management Plan (CAMP).

In lieu of submitting quarterly reports, NAVBASE is voluntarily submitting monthly reports to provide an update on the progress of the RFI to members of the NAVBASE BRAC Cleanup Team (BCT) in a more timely manner. The content of the monthly reports includes information intended to satisfy condition II.E.3.a of the Part B Permit. Consequently, this report only addresses activities which occurred during the month of November 1996.

## II. PORTION OF THE RFI COMPLETED

- Per the 30 October 1996 meeting in Atlanta regarding ecological risk assessments, revisions to the ecological risk assessment sections for the Zone A and H RFI reports were submitted to the regulatory agencies. The submittals were made on 22 November 1996.

- The *Final Zone B RFI Report* was submitted to the regulatory agencies for approval on 22 November 1996.

- Revisions to the *Final Zone J RFI Work Plan* were submitted to the regulatory agencies for approval on 21 November 1996.

- Implementation of RFI field work in Zone K occurred 18 November 1996.

- Comments on the draft version of the *Final Zone L RFI Work Plan* were received from the regulatory agencies on 25 November 1996.

- The schedule of the groundwater monitoring activities is included as Attachment A.

## III. SUMMARIES OF FINDINGS

In preparation for the upcoming 60% progress meeting for Zones F and G, the data generated to date has been compiled for review by the Project Team. Attachment B contains the summary of findings to date for those two zones.

## IV. DEVIATIONS FROM APPROVED WORK PLANS THIS REPORTING PERIOD

There were no known deviations from the approved RFI Work Plans for this reporting period.

## V. SUMMARY OF CONTACTS WITH LOCAL COMMUNITY PUBLIC INTEREST GROUPS OR STATE GOVERNMENT

As indicated in the January 1995 Quarterly Status Report, the Navy has established a Restoration Advisory Board (RAB) to involve the public in the decisions regarding the investigation and remediation of contaminated sites at Naval Base Charleston. The meetings are held monthly and are open to the public. The minutes of the special RAB meeting held 26 September 1996 and the regular November 1996 meeting are provided as Attachment C.

## VI. SUMMARY OF PROBLEMS OR POTENTIAL PROBLEMS AND ACTION TAKEN TO RECTIFY PROBLEMS

The installation of two monitoring wells near the Virginia Avenue gate has been temporarily delayed due to the installation of a water main through the area where the wells are proposed. Relocation of the wells to a nearby location suitable for monitoring the desired area is not feasible due to other underground obstructions. It is hoped that the water main construction will be completed by mid-December so installation of the wells can be completed.

## VII. KEY PROJECT PERSONNEL

The status report for March 1996 reflected numerous changes in key Navy personnel for the NAVBASE Charleston RFI resulting from the closure of Charleston Naval Shipyard. No additional changes occurred during the current reporting period.

## VIII. PROJECTED WORK FOR THE NEXT REPORTING PERIOD

**Document Preparation and Data Evaluation:**

- The final RFI report for Zone H is scheduled to be submitted by 27 December 1996.
- The 90% progress meeting for Zones D and the 60% progress meeting for Zones F and G will be held in conjunction with the December project team meeting.
- The final RFI work plans for Zones J and L are scheduled to be submitted during the month of December 1996.

**Field Activities:**

- Installation of off site monitoring wells near SWMU 39 is likely.
- Field activities in Zones F, G, and K will continue.
- Groundwater monitoring will continue in accordance with the schedule submitted as Attachment A.

## IX. COPIES OF DAILY REPORTS, INSPECTION REPORTS, LABORATORY DATA

Daily activities are recorded in accordance with the Data Management Plan included as Section 14 of the Final Comprehensive Sampling and Analysis Plan. Photocopies of these daily records have not been included with this status report; however, this information is available for review upon request.

Per agreement with SCDHEC and EPA, hard copies of the analytical data are not being submitted. A copy of the data is maintained at the EnSafe/Allen & Hoshall office in Charleston and is available for review.

## GROUNDWATER MONITORING PROJECT

This project samples groundwater wells segregated in nine (9) zones throughout the Naval Base to analyze for hazardous materials that have leached into the water table. EnSafe is contracted by the Navy to establish the monitoring plan and to monitor all wells quarterly for a total of four quarters. EnSafe will accomplish the initial sampling cycle (1st quarter) in each zone and the detachment will perform the remaining follow-up sampling cycles. Currently the detachment has been funded and authorized to complete sampling Zones A, B, C, E, H, and I. Funding and authorization for Zones D, F, and G is expected to be awarded to the detachment.

| ZONE | SCHED START | SCHED COMP | ESD/[ASD] | ECD/[ACD] | % COMP | # WELLS |
|---|---|---|---|---|---|---|
| A (QTR. II) | 03/04/96 | 06/04/96 | [04/22/96] | [04/29/96] | 100% | 26 |
| (QTR. III) | 06/04/96 | 09/04/96 | [06/19/96] | [06/26/96] | 100% | |
| (QTR IV) | 09/04/96 | 12/04/96 | [10/04/96] | [10/18/96] | 100% | |
| A - ADDENDUM 1 | | | | | | |
| (QTR I) | | | [10/10/96] | [10/16/96] | 100% | 11 |
| (QTR II) | 01/17/97 | 04/16/97 | 01/22/97 | 01/26/96 | 0% | |
| (QTR III) | 04/17/97 | 07/16/97 | 04/21/97 | 04/24/97 | 0% | |
| (QTR IV) | 07/17/97 | 10/16/97 | 07/21/97 | 07/25/97 | 0% | |
| B (QTR. II) | 03/04/96 | 06/04/96 | [04/22/96] | [05/02/96] | 100% | 6 |
| (QTR. III) | 06/04/96 | 09/04/96 | [06/19/96] | [06/26/96] | 100% | |
| (QTR IV) | 09/04/96 | 12/04/96 | [10/04/96] | [10/18/96] | 100% | |
| C (QTR. III) | 03/04/96 | 06/04/96 | [05/06/96] | [05/15/96] | 100% | 30 |
| (QTR. IV) | 06/04/96 | 09/04/96 | [06/07/96] | [06/17/96] | 100% | |
| E (QTR. II) | 06/19/96 | 09/19/96 | [07/01/96] | [08/19/96] | 100% | 175 |
| (QTR. III) | 09/19/96 | 12/19/96 | [10/28/96] | 12/19/96 | 74% | 171 |
| (QTR IV) | 12/19/96 | 03/19/97 | 01/02/97 | 03/03/97 | 0% | |
| H (QTR IV) | 07/10/95 | 10/10/95 | [03/08/96] | [04/17/96] | 100% | 97 |
| I (QTR. III) | 03/04/96 | 06/04/96 | [05/15/96] | [06/05/96] | 100% | 55 |
| (QTR. IV) | 06/04/96 | **09/04/96** | [08/19/96] | **[09/13/96]** | 100% | |

**ESD = Estimated Start Date** **[ASD] = Actual Start Date**
**ECD = Estimated Completion Date** **[ACD] = Actual Completion Date**

# EnSafe / Allen & Hoshall

a joint venture for professional services

*Program Management Office*
Shelby Oaks Plaza
5909 Shelby Oaks Dr.
Suite 201
Memphis, TN 38134
Phone (901) 383-9115
Fax (901) 383-1743

*EnSafe/Allen & Hoshall Branch Offices:*

**Charleston**
935 Houston Northcutt Blvd.
Suite 113
Mt. Pleasant, SC 29464
Phone (803) 884-0029
Fax (803) 856-0107

**Cincinnati**
400 TechneCenter Dr.
Suite 301
Milford, OH 45150
P' (513) 248-8449
F 3) 248-8447

**Pensacola**
2114 Airport Blvd.
Suite 1150
Pensacola, FL 32504
Phone (904) 479-4595
Fax (904) 479-9120

**Norfolk**
303 Butler Farm Road
Suite 113
Hampton, VA 23666
Phone (804) 766-9556
Fax (804) 766-9558

**Raleigh**
5540 Centerview Drive
Suite 205
Raleigh, NC 27606
Phone (919) 851-1886
Fax (919) 851-4043

**Nashville**
311 Plus Park Blvd.
Suite 130
Nashville, TN 37217
Phone (615) 399-8800
Fax (615) 399-7467

**Dallas**
4 ller Drive
S o
Irving, TX 75038
Phone (214) 791-3222
Fax (214) 791-0405

December 2, 1996

Mr. Todd Haverkost
EnSafe/Allen & Hoshall
935 Houston Northcutt Blvd., Suite 113
Mt. Pleasant, SC 29464

RE: Interim Analytical Data in support of the 60 percent Progress Meeting for Zones F and G RFI, NAVBASE Charleston, Charleston, South Carolina. Contract N62467-89-D-0318, Comprehensive Long-Term Environmental Action Navy (CLEAN); CTO-029

Dear Sir:

EnSafe/Allen & Hoshall is pleased to submit the interim soil and sediment analytical results and recommendations for additional assessment of soil for AOCs and SWMUs associated with Zones F and G. Please review this information prior to the December Project Team meeting. The results and recommendations for further assessment will be presented and discussed at this meeting. Sites not included in this information package do not require decisions from the Team at this time. The progress of these sites will also be presented at the meeting.

If you have any questions or require additional information, please contact me or Amy Stehlin at (904) 479-4595. Thank you for your continued support in the investigation of these sites.

Sincerely,

EnSafe/Allen & Hoshall

Craig R. Smith
Task Order Manager

Enclosures

**Table**
**Background Reference Values for Soils in Zones D, F, and G**
**Charleston Naval Shipyard**

| | Zone D (n = 6) | | Zone F (n = 6) | | Zone G (n = 6) | | Residential RBC* | SSL* |
|---|---|---|---|---|---|---|---|---|
| Inorganics | Surface Soil | Subsurface Soil | Surface Soil | Subsurface Soil | Surface Soil | Subsurface Soil | Surface Soil | Subsurface Soil |
| Aluminum | 8700 | 10260 | 18500 | 17100 | 20100 | 26800 | 7800 | 7800 |
| Antimony | 1.03 | 0.62 | 0.80 | ND | 3.28 | ND | 3.1 | 5.42 |
| Arsenic | 5.55 | 4.08 | 26.7 | 18.2 | 24.6 | 25.5 | 0.43 | 29.2 |
| Barium | 30.1 | 29.8 | 61.5 | 51.8 | 110 | 55.2 | 550 | 1648 |
| Beryllium | 0.38 | 0.85 | 1.05 | 1.25 | 1.25 | 2.0 | 0.15 | 63.22 |
| Cadmium | 0.07 | 0.38 | 0.26 | 0.09 | 1.0 | 0.57 | 3.9 | 7.52 |
| Chromium[a] | 12.4 | 22.3 | 34.5 | 32.2 | 43.2 | 68.9 | 39 | 38.4 |
| Cobalt | 9.46 | 2.89 | 15.1 | 6.85 | 6.33 | 9.3 | 470 | 470 |
| Copper | 42.6 | 4.25 | 48.2 | 22.2 | 269 | 40.5 | 310 | 310 |
| Cyanide | 0.21 | 0.19 | 0.29 | 0.24 | 0.67 | 0.83 | 160 | 160 |
| Lead | 18.8 | 7.87 | 180 | 51.7 | 193 | 66.7 | [400] | [400] |
| Manganese | 28.6 | 29.9 | 307 | 469 | 321 | 268 | 180 | 180 |
| Mercury | 0.05 | 0.05 | 0.63 | 0.23 | 1.21 | 0.25 | 2.3 | 2.09 |
| Nickel | 4.68 | 6.76 | 13.7 | 9.63 | 19.6 | 23.6 | 160 | 130.4 |
| Selenium | 0.91 | 1.46 | 1.15 | 1.24 | 1.42 | 1.7 | 39 | 5.20 |
| Silver | 0.43 | 0.36 | 1.85 | ND | ND | ND | 39 | 30.60 |
| Thallium | ND | 0.57 | ND | 1.24 | 0.87 | 0.86 | 0.63 | 0.71 |
| Tin | 3.76 | 2.11 | 11.0 | 3.43 | 13.3 | 4.75 | 4700 | 4700 |
| Vanadium | 9.73 | 15.1 | 48.9 | 49.4 | 61.0 | 79.9 | 55 | 55 |

**Table**
**Background Reference Values for Soils in Zones D, F, and G**
**Charleston Naval Shipyard**

| | Zone D (n = 6) | | Zone F (n = 6) | | Zone G (n = 6) | | Residential RBC* | SSL* |
|---|---|---|---|---|---|---|---|---|
| Inorganics | Surface Soil | Subsurface Soil | Surface Soil | Subsurface Soil | Surface Soil | Subsurface Soil | Surface Soil | Subsurface Soil |
| Vanadium | 9.73 | 15.1 | 48.9 | 49.4 | 61.0 | 79.9 | 55 | 55 |
| Zinc | 26.9 | 30.7 | 198 | 85.6 | 555 | 162 | 2300 | 13684 |

**Notes:**

All concentrations given in mg/kg.

* = Since USEPA risk-based concentrations (RBCs) are based on soil ingestion, they apply only to surface soil. Published RBCs for noncarcinogens have been divided by 10 to allow for effects of multiple constituents.

a = Zone G background values for chromium are shown as higher than chromium's RBC. While the RBC for hexavalent chromium is 39 mg/kg, RBC for the trivalent form is 7800 mg/kg. There were no hexachrome detections in the 17 Zone G soil samples (14 surface soil, 3 subsurface) that were analyzed for hexachrome. The chromium analysis that is performed as part of the standard SW-846 metals analysis is for total chromium, which includes both trivalent and hexavalent forms, if present.

[ ] = The EPA Office of Solid Waste has released a detailed directive on risk assessment and cleanup of residential soil lead recommending that soil lead levels less than 400 ppm be considered safe for residential use. Above that level, the document suggests collecting certain types of data and modeling children's blood lead with the IEUBK model.

Background values for soils in Zones D, F, and G, are twice the means of the grid sample concentrations rather than statistical measures such as upper tolerance limits (UTLs). Calculations are based on lab-reported results that are largely unvalidated as of 11/22/96.

**AOC 619/SWMU 4**

- Surficial Soil
  - BEQs exceed residential but far below industrial RBCs.
  - One dieldrin detection equal to residential RBC (SB014).

- Subsurface Soil
  - Metals at or slightly above SSLs/background.
  - Some VOCs slightly over SSLs (SB001, SB004).

- Sediment
  - DDE, DDT slightly exceeds SSV.

**RECOMMENDATIONS**

- Industrial RBCs should be applied due to location, site features and probable site reuse.
- No additional soil sampling at this time, wait on groundwater data to assess metals and VOCs soil to groundwater pathway.
- Pesticide in sediment to be addressed in Zone L investigation.

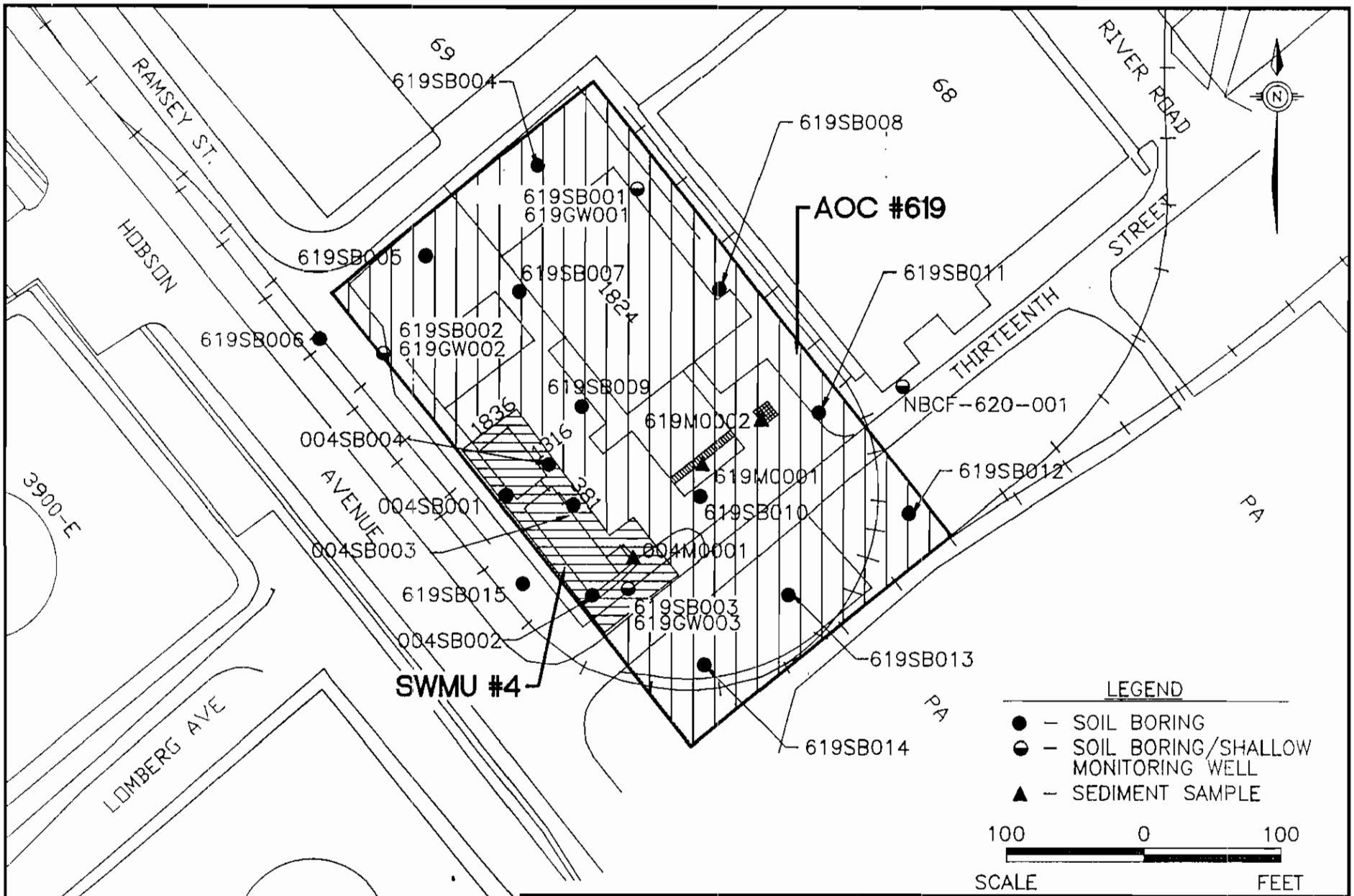

69
68
RAMSEY ST.
HOBSON
AVENUE
RIVER ROAD
STREET
THIRTEENTH
PA
PA
3900-E
LOMBERG AVE
SLAB
DIKE
619SB004
619SB008
619SB001
619GW001
AOC #619
619SB005
619SB007
619SB011
1824
619SB002
619GW002
619SB006
619SB009
NBCF-620-001
619MOOO2
1836
004SB004
1816
619MO001
619SB012
004SB001
381
619SB010
004SB003
004MO001
619SB015
619SB003
619GW003
004SB002
619SB013
SWMU #4
619SB014
LEGEND
● – SOIL BORING
◒ – SOIL BORING/SHALLOW MONITORING WELL
▲ – SEDIMENT SAMPLE
100 0 100
SCALE FEET
ZONE F
RCRA FACILITY INVESTIGATION
60% PROGRESS MEETING
NAVAL BASE CHARLESTON
CHARLESTON, S.C.
SAMPLING LOCATIONS
AOC #619 FORMER OIL STORAGE YARD
SWMU #4 PESTICIDE STORAGE BUILDING
DWG DATE: 11/26/96
DWG NAME CHZG06

**Table**
**Exceeded Preliminary Remediation Goals (PRGs) for Soil Contaminants**
**Charleston Zone F Soil (Only)**

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background Zone F |
|---|---|---|---|---|---|---|---|---|
| | | | SWMU 4 | | | | | |
| **Volatiles (μg/kg)** | | | | | | | | |
| Methylene chloride | 004-S-B003-02 | 09/17/96 | 22.00 | B | NV | 19.00 | USEPA-SSL | NA |
| | 004-S-B004-02 | 09/17/96 | 32.00 | B | NV | 19.00 | USEPA-SSL | NA |
| **Inorganics (mg/kg)** | | | | | | | | |
| Aluminum (Al) | 004-S-B002-02 | 09/17/96 | 18800.00 | | NV | 17100.00 | Zone F Bkgd | 17100.00 |
| | 004-S-B003-02 | 09/17/96 | 24700.00 | | NV | 17100.00 | Zone F Bkgd | 17100.00 |
| Arsenic (As) | 004-S-B001-01 | 09/17/96 | 10.50 | | NV | 0.43 | USEPA-RBC | 26.70 |
| | 004-S-B002-01 | 09/17/96 | 6.80 | | NV | 0.43 | USEPA-RBC | 26.70 |
| | 004-S-B003-01 | 09/17/96 | 1.20 | B | NV | 0.43 | USEPA-RBC | 26.70 |
| | 004-S-B004-01 | 09/17/96 | 1.50 | | NV | 0.43 | USEPA-RBC | 26.70 |
| Beryllium (Be) | 004-S-B001-01 | 09/17/96 | 0.41 | | NV | 0.15 | USEPA-RBC | 1.05 |
| | 004-S-B002-01 | 09/17/96 | 0.29 | | NV | 0.15 | USEPA-RBC | 1.05 |
| | 004-S-B003-01 | 09/17/96 | 0.17 | B | NV | 0.15 | USEPA-RBC | 1.05 |
| Cobalt (Co) | 004-S-B002-02 | 09/17/96 | 6.90 | | NV | 6.85 | Zone F Bkgd | 6.85 |
| Copper (Cu) | 004-S-B002-02 | 09/17/96 | 26.30 | | NV | 22.20 | Zone F Bkgd | 22.20 |
| | 004-S-B003-02 | 09/17/96 | 26.50 | | NV | 22.20 | Zone F Bkgd | 22.20 |
| Iron (Fe) | 004-S-B001-01 | 09/17/96 | 6470.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 004-S-B002-01 | 09/17/96 | 6190.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 004-S-B003-01 | 09/17/96 | 3080.00 | | NV | 2300.00 | USEPA-RBC | NA |
| Manganese (Mn) | 004-S-B002-02 | 09/17/96 | 701.00 | | NV | 469.00 | Zone F Bkgd | 469.00 |
| Vanadium (V) | 004-S-B002-02 | 09/17/96 | 65.20 | | NV | 49.40 | Zone F Bkgd | 49.40 |
| | 004-S-B003-02 | 09/17/96 | 58.70 | | NV | 49.40 | Zone F Bkgd | 49.40 |

Notes:

| | | |
|---|---|---|
| VAL | = | Validation is complete. |
| NV | = | Needs validation. |
| RBC | = | Risk Based Concentration. |
| SSL | = | Soil Screening Level - Transfers from soil to groundwater. |
| BKGD | = | Background |
| NA | = | Not available. |
| B | = | For inorganics, the reported value was obtained from a reading less than the CRDL but greater than the IDL. For organics, the analyte detected in the sample is also found in the associated method blank. |
| J | = | Indicates an estimated value for organics. |
| * | = | Indicates that the duplicate was not within control limits for inorganics. |
| P | = | Indicates that there was at least a 25% difference between the readings of the two GC columns. |
| D | = | Indicates an analysis at a secondary dilution factor. |
| E | = | For inorganics, the value is estimated because of the presence of interference. For organics, the concentration exceeded the calibration range of the instrument. |

Table
Exceeded Preliminary Remediation Goals (PRGs) for Soil Contaminants
Charleston Zone F Soil (Only)

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background Zone F |
|---|---|---|---|---|---|---|---|---|
| | | | AOC 619 | | | | | |
| **Volatiles (µg/kg)** | | | | | | | | |
| Benzene | 619-S-B001-02 | 08/26/96 | 62.00 | | VAL | 34.00 | USEPA-SSL | NA |
| Chlorobenzene | 619-S-B001-02 | 08/26/96 | 64.00 | | VAL | 51.00 | USEPA-SSL | NA |
| Trichloroethene | 619-S-B001-02 | 08/26/96 | 62.00 | | VAL | 57.00 | USEPA-SSL | NA |
| Methylene chloride | 619-S-B004-02 | 09/09/96 | 98.00 | | VAL | 19.00 | USEPA-SSL | NA |
| | 619-S-B015-02 | 09/17/96 | 22.00 | B | NV | 19.00 | USEPA-SSL | NA |
| **Semivolatiles (µg/kg)** | | | | | | | | |
| Benzo(a)pyrene | 619-S-B001-01 | 08/26/96 | 220.00 | J | VAL | 88.00 | USEPA-RBC | NA |
| | 619-S-B004-01 | 09/09/96 | 410.00 | | VAL | 88.00 | USEPA-RBC | NA |
| | 619-S-B005-01 | 09/09/96 | 110.00 | J | VAL | 88.00 | USEPA-RBC | NA |
| | 619-S-B006-01 | 09/18/96 | 240.00 | J | NV | 88.00 | USEPA-RBC | NA |
| | 619-S-B007-01 | 09/12/96 | 120.00 | J | VAL | 88.00 | USEPA-RBC | NA |
| | 619-S-B009-01 | 09/09/96 | 190.00 | J | VAL | 88.00 | USEPA-RBC | NA |
| | 619-S-B011-01 | 09/10/96 | 140.00 | J | VAL | 88.00 | USEPA-RBC | NA |
| | 619-S-B013-01 | 09/17/96 | 140.00 | J | NV | 88.00 | USEPA-RBC | NA |
| | 619-S-B015-01 | 09/17/96 | 170.00 | J | NV | 88.00 | USEPA-RBC | NA |
| **Inorganics (mg/kg)** | | | | | | | | |
| Aluminum (Al) | 619-S-B001-01 | 08/26/96 | 8400.00 | | VAL | 7800.00 | USEPA-RBC | 18500.00 |
| | 619-S-B004-01 | 09/09/96 | 12100.00 | | VAL | 7800.00 | USEPA-RBC | 18500.00 |
| | 619-S-B004-02 | 09/09/96 | 24500.00 | | VAL | 17100.00 | Zone F Bkgd | 17100.00 |
| | 619-S-B007-01 | 09/12/96 | 12600.00 | | VAL | 7800.00 | USEPA-RBC | 18500.00 |
| | 619-S-B009-02 | 09/09/96 | 24600.00 | | VAL | 17100.00 | Zone F Bkgd | 17100.00 |
| | 619-S-B010-02 | 09/17/96 | 25200.00 | | VAL | 17100.00 | Zone F Bkgd | 17100.00 |
| | 619-S-B015-01 | 09/17/96 | 9790.00 | | VAL | 7800.00 | USEPA-RBC | 18500.00 |
| Arsenic (As) | 619-S-B001-01 | 08/26/96 | 8.10 | | VAL | 0.43 | USEPA-RBC | 26.70 |
| | 619-S-B002-01 | 08/27/96 | 11.20 | | VAL | 0.43 | USEPA-RBC | 26.70 |
| | 619-S-B004-01 | 09/09/96 | 7.60 | J | VAL | 0.43 | USEPA-RBC | 26.70 |
| | 619-S-B005-01 | 09/09/96 | 3.00 | J | VAL | 0.43 | USEPA-RBC | 26.70 |
| | 619-S-B006-01 | 09/18/96 | 1.40 | | NV | 0.43 | USEPA-RBC | 26.70 |
| | 619-S-B007-01 | 09/12/96 | 11.50 | J | VAL | 0.43 | USEPA-RBC | 26.70 |
| | 619-S-B008-01 | 09/10/96 | 8.90 | J | VAL | 0.43 | USEPA-RBC | 26.70 |
| | 619-S-B009-01 | 09/09/96 | 3.40 | J | VAL | 0.43 | USEPA-RBC | 26.70 |
| | 619-S-B010-01 | 09/17/96 | 2.50 | | NV | 0.43 | USEPA-RBC | 26.70 |

Table
Exceeded Preliminary Remediation Goals (PRGs) for Soil Contaminants
Charleston Zone F Soil (Only)

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background Zone F |
|---|---|---|---|---|---|---|---|---|
| | 619-S-B011-01 | 09/10/96 | 8.80 | J | VAL | 0.43 | USEPA-RBC | 26.70 |
| | 619-S-B012-01 | 09/17/96 | 3.50 | | NV | 0.43 | USEPA-RBC | 26.70 |
| | 619-S-B013-01 | 09/17/96 | 9.90 | | NV | 0.43 | USEPA-RBC | 26.70 |
| | 619-S-B014-01 | 10/22/96 | 2.30 | | NV | 0.43 | USEPA-RBC | 26.70 |
| | 619-S-B015-01 | 09/17/96 | 17.80 | | NV | 0.43 | USEPA-RBC | 26.70 |
| Beryllium (Be) | 619-S-B001-01 | 08/26/96 | 0.57 | | VAL | 0.15 | USEPA-RBC | 1.05 |
| | 619-S-B002-01 | 08/27/96 | 0.55 | | VAL | 0.15 | USEPA-RBC | 1.05 |
| | 619-S-B004-01 | 09/09/96 | 0.53 | | VAL | 0.15 | USEPA-RBC | 1.05 |
| | 619-S-B005-01 | 09/09/96 | 0.29 | | VAL | 0.15 | USEPA-RBC | 1.05 |
| | 619-S-B007-01 | 09/12/96 | 0.61 | | VAL | 0.15 | USEPA-RBC | 1.05 |
| | 619-S-B009-01 | 09/09/96 | 0.24 | | VAL | 0.15 | USEPA-RBC | 1.05 |
| | 619-S-B010-01 | 09/17/96 | 0.29 | | NV | 0.15 | USEPA-RBC | 1.05 |
| | 619-S-B012-01 | 09/17/96 | 0.28 | | NV | 0.15 | USEPA-RBC | 1.05 |
| | 619-S-B013-01 | 09/17/96 | 0.50 | | NV | 0.15 | USEPA-RBC | 1.05 |
| | 619-S-B014-01 | 10/22/96 | 0.27 | | NV | 0.15 | USEPA-RBC | 1.05 |
| | 619-S-B015-01 | 09/17/96 | 0.93 | | NV | 0.15 | USEPA-RBC | 1.05 |
| Cobalt (Co) | 619-S-B004-02 | 09/09/96 | 7.60 | | VAL | 6.85 | Zone F Bkgd | 6.85 |
| | 619-S-B009-02 | 09/09/96 | 7.80 | | VAL | 6.85 | Zone F Bkgd | 6.85 |
| | 619-S-B010-02 | 09/17/96 | 7.80 | | NV | 6.85 | Zone F Bkgd | 6.85 |
| Copper (Cu) | 619-S-B004-02 | 09/09/96 | 28.40 | | VAL | 22.20 | Zone F Bkgd | 22.20 |
| | 619-S-B009-02 | 09/09/96 | 29.90 | | VAL | 22.20 | Zone F Bkgd | 22.20 |
| | 619-S-B010-02 | 09/17/96 | 32.30 | | NV | 22.20 | Zone F Bkgd | 22.20 |
| | 619-S-B013-02 | 09/17/96 | 44.10 | | NV | 22.20 | Zone F Bkgd | 22.20 |
| | 619-S-B014-02 | 10/22/96 | 43.70 | | NV | 22.20 | Zone F Bkgd | 22.20 |
| | 619-S-B015-02 | 09/17/96 | 23.60 | | NV | 22.20 | Zone F Bkgd | 22.20 |
| Lead (Pb) | 619-S-B004-02 | 09/09/96 | 54.90 | J | VAL | 51.70 | Zone F Bkgd | 51.70 |
| | 619-S-B013-02 | 09/17/96 | 214.00 | | NV | 51.70 | Zone F Bkgd | 51.70 |
| | 619-S-B014-02 | 10/22/96 | 60.80 | | NV | 51.70 | Zone F Bkgd | 51.70 |
| Iron (Fe) | 619-S-B001-01 | 08/26/96 | 11800.00 | | VAL | 2300.00 | USEPA-RBC | NA |
| | 619-S-B002-01 | 08/27/96 | 15000.00 | | VAL | 2300.00 | USEPA-RBC | NA |
| | 619-S-B004-01 | 09/09/96 | 14000.00 | | VAL | 2300.00 | USEPA-RBC | NA |
| | 619-S-B005-01 | 09/09/96 | 4640.00 | | VAL | 2300.00 | USEPA-RBC | NA |
| | 619-S-B007-01 | 09/12/96 | 15500.00 | | VAL | 2300.00 | USEPA-RBC | NA |
| | 619-S-B008-01 | 09/10/96 | 6300.00 | | VAL | 2300.00 | USEPA-RBC | NA |

**Table**
**Exceeded Preliminary Remediation Goals (PRGs) for Soil Contaminants**
**Charleston Zone F Soil (Only)**

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background Zone F |
|---|---|---|---|---|---|---|---|---|
| | 619-S-B009-01 | 09/09/96 | 5400.00 | | VAL | 2300.00 | USEPA-RBC | NA |
| | 619-S-B010-01 | 09/17/96 | 5240.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 619-S-B011-01 | 09/10/96 | 7800.00 | | VAL | 2300.00 | USEPA-RBC | NA |
| | 619-S-B013-01 | 09/17/96 | 9360.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 619-S-B015-01 | 09/17/96 | 18900.00 | | NV | 2300.00 | USEPA-RBC | NA |
| Manganese (Mn) | 619-S-B004-01 | 09/09/96 | 283.00 | J | VAL | 180.00 | USEPA-RBC | 307.00 |
| | 619-S-B004-02 | 09/09/96 | 556.00 | J | VAL | 469.00 | Zone F Bkgd | 469.00 |
| | 619-S-B007-01 | 09/12/96 | 216.00 | J | VAL | 180.00 | USEPA-RBC | 307.00 |
| | 619-S-B009-02 | 09/09/96 | 567.00 | J | VAL | 469.00 | Zone F Bkgd | 469.00 |
| | 619-S-B012-01 | 09/17/96 | 243.00 | | NV | 180.00 | USEPA-RBC | 307.00 |
| | 619-S-B015-01 | 09/17/96 | 320.00 | | NV | 180.00 | USEPA-RBC | 307.00 |
| | 619-S-B015-02 | 09/17/96 | 474.00 | | NV | 469.00 | Zone F Bkgd | 469.00 |
| Thallium (Tl) | 619-S-B009-02 | 09/09/96 | 1.40 | J | VAL | 0.71 | Zone F Bkgd | 0.71 |
| Tin (Sn) | 619-S-B010-02 | 09/17/96 | 3.70 | B | NV | 3.43 | Zone F Bkgd | 3.43 |
| | 619-S-B013-02 | 09/17/96 | 5.40 | B | NV | 3.43 | Zone F Bkgd | 3.43 |
| | 619-S-B014-02 | 10/22/96 | 4.70 | B | NV | 3.43 | Zone F Bkgd | 3.43 |
| Vanadium (V) | 619-S-B004-02 | 09/09/96 | 67.10 | J | VAL | 49.40 | Zone F Bkgd | 49.40 |
| | 619-S-B009-02 | 09/09/96 | 71.70 | J | VAL | 49.40 | Zone F Bkgd | 49.40 |
| | 619-S-B010-02 | 09/17/96 | 72.50 | | NV | 49.40 | Zone F Bkgd | 49.40 |
| | 619-S-B015-02 | 09/17/96 | 54.80 | | NV | 49.40 | Zone F Bkgd | 49.40 |
| **Pesticides/PCBs (µg/kg)** | | | | | | | | |
| Dieldrin | 619-S-B014-02 | 10/22/96 | 3.60 | P | NV | 3.60 | USEPA-RBC | NA |
| **Benzo(a)Pyrene Equivalents (BEQs)** | | | | | | | | |
| | 619-S-B001-01 | 08/26/96 | 272.08 | | | 88.00 | USEPA-BEQ-RBC | |
| | 619-S-B004-01 | 09/09/96 | 540.18 | | | 88.00 | USEPA-BEQ-RBC | |
| | 619-S-B005-01 | 09/09/96 | 140.02 | | | 88.00 | USEPA-BEQ-RBC | |
| | 619-S-B006-01 | 09/09/96 | 244.33 | | | 88.00 | USEPA-BEQ-RBC | |
| | 619-S-B007-01 | 09/12/96 | 152.74 | | | 88.00 | USEPA-BEQ-RBC | |
| | 619-S-B009-01 | 09/09/96 | 247.36 | | | 88.00 | USEPA-BEQ-RBC | |
| | 619-S-B011-01 | 09/10/96 | 176.36 | | | 88.00 | USEPA-BEQ-RBC | |
| | 619-S-B013-01 | 09/17/96 | 190.98 | | | 88.00 | USEPA-BEQ-RBC | |
| | 619-S-B015-01 | 09/17/96 | 214.77 | | | 88.00 | USEPA-BEQ-RBC | |

**Notes:**

| | | |
|---|---|---|
| VAL | = | Validation is complete. |
| NV | = | Needs validation. |
| RBC | = | Risk Based Concentration. |
| SSL | = | Soil Screening Level - Transfers from soil to groundwater. |
| BKGD | = | Background |
| NA | = | Not available. |
| B | = | For inorganics, the reported value was obtained from a reading less than the CRDL but greater than the IDL. For organics, the analyte detected in the sample is also found in the associated method blank. |
| J | = | Indicates an estimated value for organics. |
| * | = | Indicates that the duplicate was not within control limits for inorganics. |
| P | = | Indicates that there was at least a 25% difference between the readings of the two GC columns. |
| D | = | Indicates an analysis at a secondary dilution factor. |
| E | = | For inorganics, the value is estimated because of the presence of interference. For organics, the concentration exceeded the calibration range of the instrument. |

Table
Exceeded Preliminary Remediation Goals (PRGs) for Sediment Contaminants
Charleston Zone F Sediment

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded |
|---|---|---|---|---|---|---|---|
| | | | AOC 619 | | | | |
| **Semivolatiles (μg/mg)** | | | | | | | |
| bis(2-Ethylhexyl)phthalate (BEHP) | 619-M-0001 | 09/27/96 | 410.00 | J | NV | 182.00 | USEPA-SSV |
| **Inorganics (mg/kg)** | | | | | | | |
| Zinc (Zn) | 619-M-0001 | 09/27/96 | 563.00 | N | NV | 124.00 | USEPA-SSV |
| **Pesticides/PCBs (μg/mg)** | | | | | | | |
| 4,4'-DDE | 619-M-0001 | 09/27/96 | 6.70 | | NV | 3.30 | USEPA-SSV |
| 4,4'-DDT | 619-M-0001 | 09/27/96 | 7.60 | | NV | 3.30 | USEPA-SSV |

**Notes:**

VAL = Validation is complete.
NV = Needs validation.
RBC = Risk Based Concentration.
SSL = Soil Screening Level - Transfers from soil to groundwater.
J = Indicates an estimated value for organics.

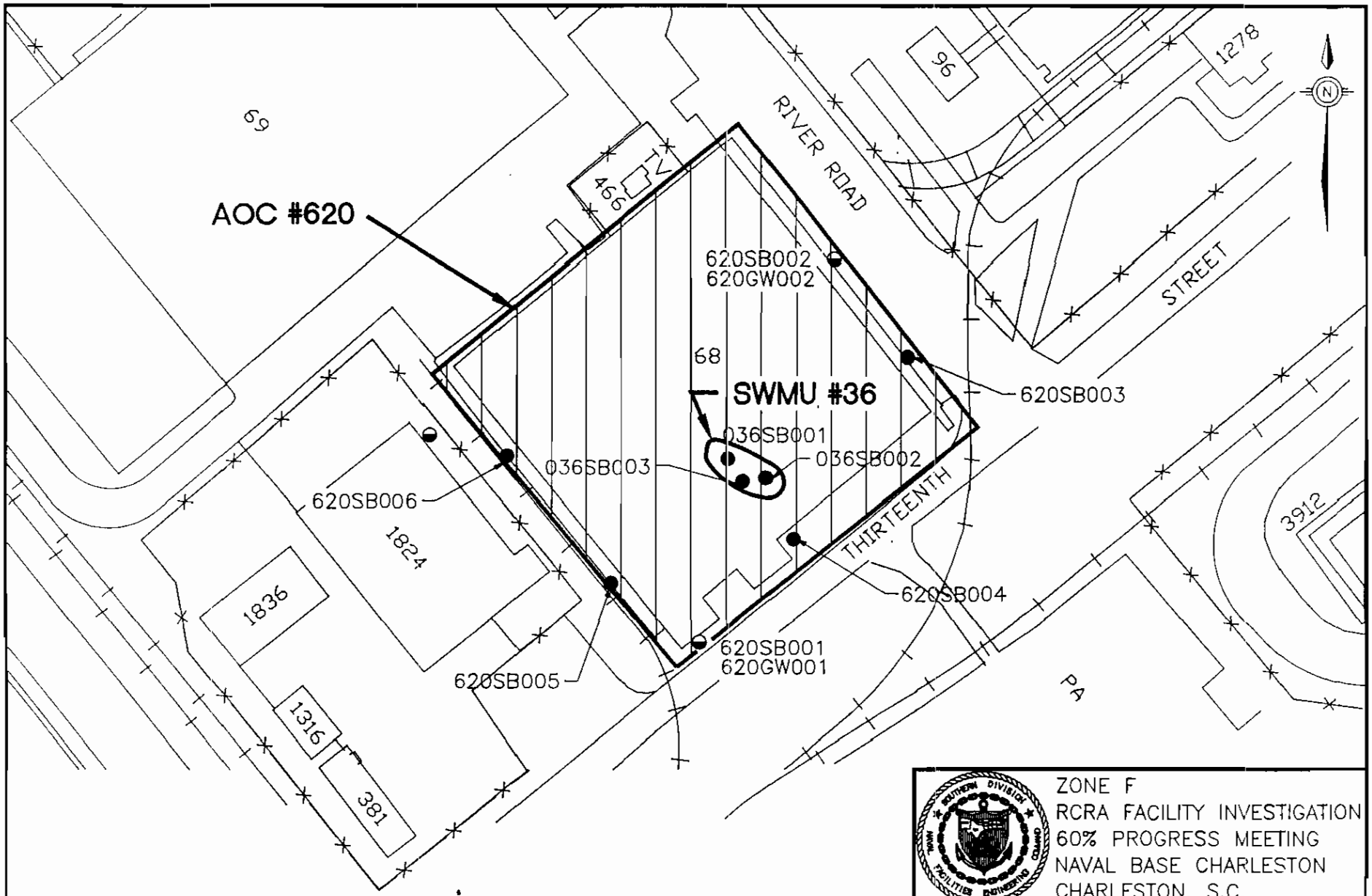
**SWMU 36/AOC 620**

- Surficial Soil
  - Metals (lead, aluminum) significantly above background and RBCs (036SB001 under building 68).
  - BEQs exceed residential but far below industrial RBC.
  - Lead and Aroclors exceed RBCs and background (620SB004 outside building).

- Subsurface Soil
  - Aluminum exceeds SSL and background (036SB001 under building 68).
  - 4-methylphenol significantly exceeds SSL (036SB001).

**RECOMMENDATIONS**

- Industrial RBCs should be applied due to location, site features and probable site reuse.
- SWMU 36 - no additional soil sampling at this time, wait on groundwater data to evaluate soil to groundwater pathway.
- AOC 620 - Three soil samples to delineate lead and PCBs at SB004. Analyze additional samples for metals, SVOC and PCB only.




LEGEND

● – SOIL BORING

◒ – SOIL BORING/SHALLOW MONITORING WELL

100 0 100

SCALE FEET

ZONE F
RCRA FACILITY INVESTIGATION
60% PROGRESS MEETING
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

SAMPLING LOCATIONS
SWMU #36 BUILDING 68, BATTERY SHOP
AND AOC #620 BATTERY SHOP,
BUILDING 68

DWG DATE: 11/26/96 | DWG NAME: 29CHZG18

Table
Exceeded Preliminary Remediation Goals (PRGs) for Soil Contaminants
Charleston Zone F Soil (Only)

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background Zone F |
|---|---|---|---|---|---|---|---|---|
| | | | SWMU 36 | | | | | |
| **Semivolatiles (μg/kg)** | | | | | | | | |
| Benzo(a)pyrene | 036-S-B001-01 | 10/09/96 | 400.00 | J | NV | 88.00 | USEPA-RBC | NA |
| | 036-S-B002-01 | 10/08/96 | 140.00 | J | NV | 88.00 | USEPA-RBC | NA |
| | 036-S-B003-01 | 10/09/96 | 220.00 | J | NV | 88.00 | USEPA-RBC | NA |
| Dibenz(a,h)anthracene | 036-S-B001-01 | 10/09/96 | 160.00 | J | NV | 88.00 | USEPA-RBC | NA |
| | 036-S-B003-01 | 10/09/96 | 90.00 | J | NV | 88.00 | USEPA-RBC | NA |
| 4-Methylphenol(p-Cresol) | 036-S-B001-02 | 10/09/96 | 2200.00 | | NV | 110.00 | USEPA-SSL | NA |
| **Inorgenics (mg/kg)** | | | | | | | | |
| Aluminum (Al) | 036-S-B001-02 | 10/09/96 | 33000.00 | | NV | 17100.00 | Zone F Bkgd | 17100.00 |
| Arsenic (As) | 036-S-B001-01 | 10/09/96 | 2.30 | N* | NV | 0.43 | USEPA-RBC | 26.70 |
| | 036-S-B002-01 | 10/08/96 | 1.30 | BN* | NV | 0.43 | USEPA-RBC | 26.70 |
| Cobalt (Co) | 036-S-B001-02 | 10/09/96 | 7.10 | | NV | 6.85 | Zone F Bkgd | 6.85 |
| Copper (Cu) | 036-S-B001-02 | 10/09/96 | 22.70 | N | NV | 22.20 | Zone F Bkgd | 22.20 |
| Lead (Pb) | 036-S-B001-01 | 10/09/96 | 1600.00 | * | NV | 400.00 | USEPA-RBC | 180.00 |
| | 036-S-B001-02 | 10/09/96 | 127.00 | * | NV | 51.70 | Zone F Bkgd | 51.70 |
| Vanadium (V) | 036-S-B001-02 | 10/09/96 | 82.00 | | NV | 49.40 | Zone F Bkgd | 49.40 |
| **Benzo(a)Pyrene Equivalents (BEQs)** | | | | | | | | |
| | 036-S-B001-01 | 10/09/96 | 660.99 | | | 88.00 | USEPA-BEQ-RBC | |
| | 036-S-B002-01 | 10/08/96 | 164.54 | | | 88.00 | USEPA-BEQ-RBC | |
| | 036-S-B003-01 | 10/09/96 | 357.08 | | | 88.00 | USEPA-BEQ-RBC | |

**Notes:**

| | | |
|---|---|---|
| VAL | = | Validation is complete. |
| NV | = | Needs validation. |
| RBC | = | Risk Based Concentration. |
| SSL | = | Soil Screening Level - Transfers from soil to groundwater. |
| BKGD | = | Background |
| NA | = | Not available. |
| B | = | For inorganics, the reported value was obtained from a reading less than the CRDL but greater than the IDL. For organics, the analyte detected in the sample is also found in the associated method blank. |
| J | = | Indicates an estimated value for organics. |
| * | = | Indicates that the duplicate was not within control limits for inorganics. |
| P | = | Indicates that there was at least a 25% difference between the readings of the two GC columns. |
| D | = | Indicates an analysis at a secondary dilution factor. |
| E | = | For inorganics, the value is estimated because of the presence of interference. For organics, the concentration exceeded the calibration range of the instrument. |

Table
Exceeded Preliminary Remediation Goals (PRGs) for Soil Contaminants
Charleston Zone F Soil (Only)

| Name | Sample ID | Sample Data | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background Zone F |
|---|---|---|---|---|---|---|---|---|
| | | | AOC 620 | | | | | |
| **Semivolatiles (μg/mg)** | | | | | | | | |
| Benzo(a)pyrene | 620-S-B003-01 | 09/16/96 | 200.00 | J | VAL | 88.00 | USEPA-RBC | NA |
| | 620-S-B004-01 | 09/10/96 | 260.00 | J | VAL | 88.00 | USEPA-RBC | NA |
| **Inorganics (mg/kg)** | | | | | | | | |
| Aluminum (Al) | 620-S-B005-01 | 09/16/96 | 8420.00 | | VAL | 7800.00 | USEPA-RBC | 18500.00 |
| Arsenic (As) | 620-S-B001-01 | 09/16/96 | 7.20 | J | VAL | 0.43 | USEPA-RBC | 26.70 |
| | 620-S-B002-01 | 08/27/96 | 2.30 | | VAL | 0.43 | USEPA-RBC | 26.70 |
| | 620-S-B003-01 | 09/16/96 | 13.10 | J | VAL | 0.43 | USEPA-RBC | 26.70 |
| | 620-S-B004-01 | 09/10/96 | 15.90 | J | VAL | 0.43 | USEPA-RBC | 26.70 |
| | 620-S-B005-01 | 09/16/96 | 15.20 | J | VAL | 0.43 | USEPA-RBC | 26.70 |
| | 620-S-B006-01 | 10/04/96 | 8.80 | | NV | 0.43 | USEPA-RBC | 26.70 |
| Beryllium (Be) | 620-S-B001-01 | 09/16/96 | 0.42 | | VAL | 0.15 | USEPA-RBC | 1.05 |
| | 620-S-B002-01 | 08/27/96 | 0.21 | J | VAL | 0.15 | USEPA-RBC | 1.05 |
| | 620-S-B003-01 | 09/16/96 | 0.38 | | VAL | 0.15 | USEPA-RBC | 1.05 |
| | 620-S-B004-01 | 09/10/96 | 0.54 | | VAL | 0.15 | USEPA-RBC | 1.05 |
| | 620-S-B005-01 | 09/16/96 | 0.77 | | VAL | 0.15 | USEPA-RBC | 1.05 |
| | 620-S-B006-01 | 10/04/96 | 0.17 | B | NV | 0.15 | USEPA-RBC | 1.05 |
| Copper (Cu) | 620-S-B005-02 | 09/16/96 | 27.90 | | VAL | 22.20 | Zone F Bkgd | 22.20 |
| Iron (Fe) | 620-S-B001-01 | 09/16/96 | 6630.00 | | VAL | 2300.00 | USEPA-RBC | NA |
| | 620-S-B002-01 | 08/27/96 | 2890.00 | | VAL | 2300.00 | USEPA-RBC | NA |
| | 620-S-B003-01 | 09/16/96 | 10600.00 | | VAL | 2300.00 | USEPA-RBC | NA |
| | 620-S-B004-01 | 09/10/96 | 12500.00 | | VAL | 2300.00 | USEPA-RBC | NA |
| | 620-S-B005-01 | 09/16/96 | 16200.00 | | VAL | 2300.00 | USEPA-RBC | NA |
| | 620-S-B006-01 | 10/04/96 | 11800.00 | • | NV | 2300.00 | USEPA-RBC | NA |
| Lead (Pb) | 620-S-B004-01 | 09/10/96 | 4250.00 | | VAL | 400.00 | USEPA-RBC | 180.00 |
| | 620-S-B005-02 | 09/16/96 | 58.30 | | VAL | 51.70 | Zone F Bkgd | 51.70 |
| Manganese (Mn) | 620-S-B005-01 | 09/16/96 | 239.00 | J | VAL | 180.00 | USEPA-RBC | 307.00 |
| Vanadium (V) | 620-S-B005-02 | 09/16/96 | 61.00 | | VAL | 49.40 | Zone F Bkgd | 49.40 |
| **Pesticides/PCBs (μg/mg)** | | | | | | | | |
| Aroclor-1254 | 620-S-B004-01 | 09/10/96 | 350.00 | | VAL | 320.00 | USEPA-RBC | NA |
| Aroclor-1260 | 620-S-B004-01 | 09/10/96 | 510.00 | | VAL | 320.00 | USEPA-RBC | NA |

**Table**
**Exceeded Preliminary Remediation Goals (PRGs) for Soil Contaminants**
**Charlaston Zone F Soil (Only)**

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background Zone F |
|---|---|---|---|---|---|---|---|---|
| **Benzo(a)Pyrene Equivalents (BEQs)** | | | | | | | | |
| | 620-S-B003-01 | 09/16/96 | 261.13 | | | 88.00 | USEPA-BEQ RBC | |
| | 620-S-B004-01 | 09/10/96 | 385.31 | | | 88.00 | USEPA-BEQ RBC | |

**Notes:**

| | | |
|---|---|---|
| VAL | = | Validation is complete. |
| NV | = | Needs validation. |
| RBC | = | Risk Based Concentration. |
| SSL | = | Soil Screening Level - Transfers from soil to groundwater. |
| BKGD | = | Background |
| NA | = | Not available. |
| B | = | For inorganics, the reported value was obtained from a reading less than the CRDL but greater than the IDL. For organics, the analyte detected in the sample is also found in the associated method blank. |
| J | = | Indicates an estimated value for organics. |
| * | = | Indicates that the duplicate was not within control limits for inorganics. |
| P | = | Indicates that there was at least a 25% difference between the readings of the two GC columns. |
| D | = | Indicates an analysis at a secondary dilution factor. |
| E | = | For inorganics, the value is estimated because of the presence of interference. For organics, the concentration exceeded the calibration range of the instrument. |

**SWMU 109**

- Surficial Soil
  - Arsenic, manganese, vanadium detected above residential but far below industrial RBCs (SB003, SB004, SB005).
  - BEQ (one sample) above residential RBC but below industrial (SB004).

- Subsurface Soil
  - No exceedances.

- Sediment
  - Arsenic, chromium, copper, lead, nickel, zinc, and BEHP exceed SSVs. These exceedance will be addressed in the Zone L investigation.

**RECOMMENDATIONS**

- Industrial RBCs should be applied due to location, site features and probable site reuse.
- No additional soil sampling.

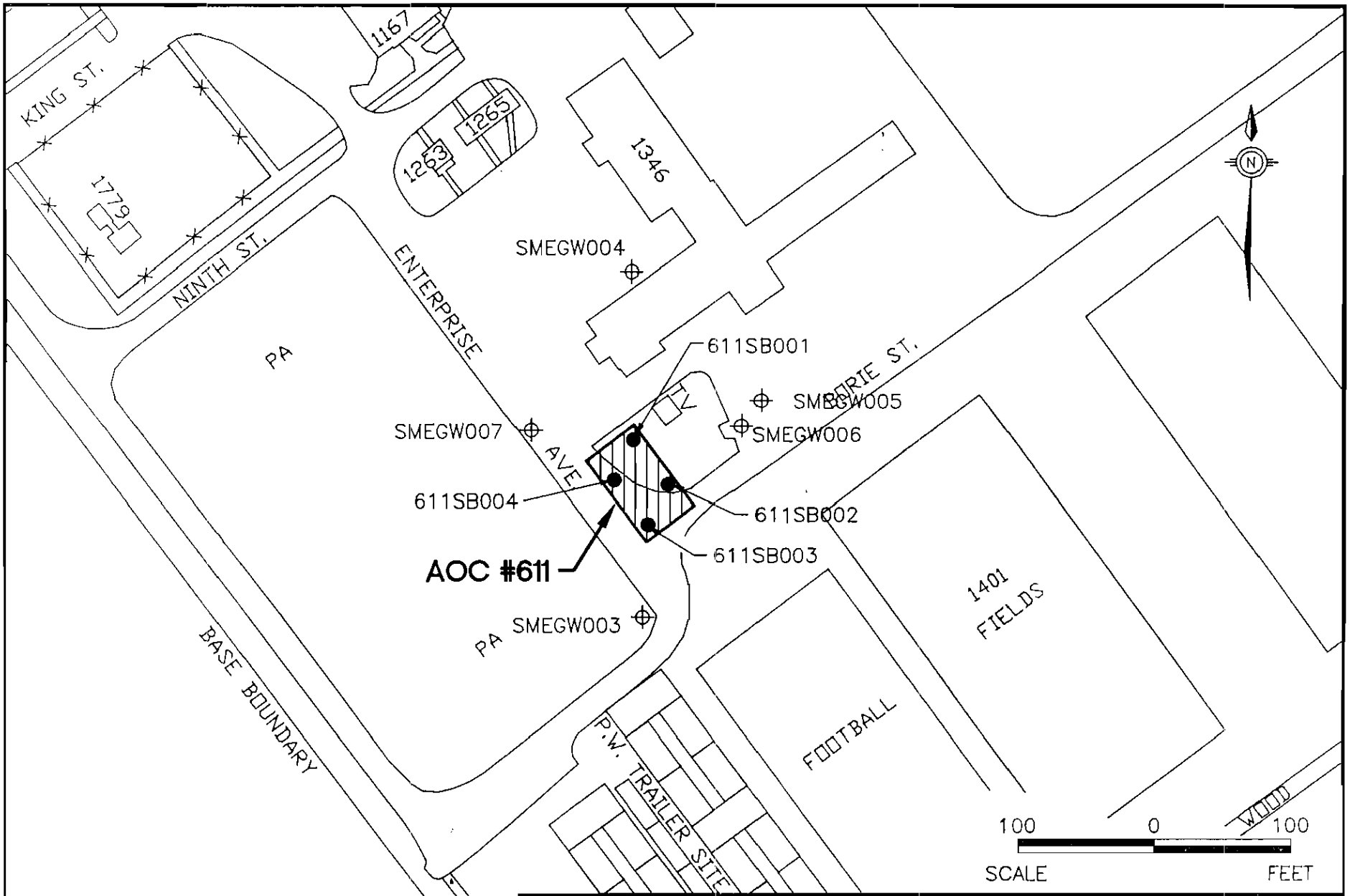
## AOC 611

- Surficial Soil
  - Mercury, arsenic, copper significantly exceed residential RBC and background (SB002).
  - BEQ exceeds residential RBC (SB002).

- Subsurface Soil
  - Mercury, arsenic, copper, lead exceed SSL/background (SB002).

## RECOMMENDATIONS

- Three additional soil samples to delineate metals and BEQ near SB002.
- Analyze additional soil samples for metals and SVOC only.




LEGEND

● – SOIL BORING

⊕ – EXISTING MONITORING WELL LOCATION

ZONE F
RCRA FACILITY INVESTIGATION
60% PROGRESS MEETING
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

SAMPLING LOCATIONS
AOC #611
GREASE RACK AND HOBBY SHOP
BUILDING 1264

DWG DATE: 11/26/96 | DWG NAME: 29CHZG01

**Table**
**Exceeds Preliminary Remediation Goals (PRGs) for Soil Contaminants**
**Charleston Zone G Soil (Only)**

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background |
|---|---|---|---|---|---|---|---|---|
| | | | AOC 706 | | | | | |
| **Semivolatiles (µg/kg)** | | | | | | | | |
| 4-Methylphenol (Cresol) | 706-S-B006-02 | 09/03/96 | 120.00 | | NV | 110.00 | USEPA-SSL | NA |
| Pentachlorophenol | 706-S-B004-02 | 09/03/96 | 62.00 | | NV | 28.00 | USEPA-SSL | NA |
| **Inorganics (mg/kg)** | | | | | | | | |
| Aluminum (Al) | 706-S-B001-01 | 08/30/96 | 8170.00 | | VAL | 7800.00 | USEPA-RBC | 20100.00 |
| | 706-S-B002-01 | 08/30/96 | 9810.00 | | VAL | 7800.00 | USEPA-RBC | 20100.00 |
| | 706-S-B007-02 | 09/03/96 | 28800.00 | | VNV | 26800.00 | Zone G Bkgd | 26800.00 |
| Antimony (Sb) | 706-S-B001-02 | 08/30/96 | 33.80 | J | VAL | 5.42 | USEPA-SSL | 25.50 |
| | 706-S-B004-02 | 09/03/96 | 82.40 | | NV | 5.42 | USEPA-SSL | 25.50 |
| | 706-S-B006-02 | 09/03/96 | 49.90 | | NV | 5.42 | USEPA-SSL | 25.50 |
| Arsenic (As) | 706-S-B007-01 | 09/03/96 | 1.20 | J | NV | 0.43 | USEPA-RBC | 24.60 |
| | 706-S-B002-01 | 08/30/96 | 2.80 | J | VAL | 0.43 | USEPA-RBC | 24.60 |
| | 706-S-B006-01 | 09/03/96 | 0.75 | J | NV | 0.43 | USEPA-RBC | 24.60 |
| | 706-S-B005-01 | 09/20/96 | 1.60 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 706-S-B003-01 | 09/09/96 | 1.00 | J | NV | 0.43 | USEPA-RBC | 24.60 |
| | 706-S-B001-01 | 08/30/96 | 2.40 | J | VAL | 0.43 | USEPA-RBC | 24.60 |
| | 706-S-B010-01 | 09/04/96 | 10.80 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 706-S-B009-01 | 09/09/96 | 0.63 | J | NV | 0.43 | USEPA-RBC | 24.60 |
| | 706-S-B008-01 | 09/04/96 | 0.49 | J | NV | 0.43 | USEPA-RBC | 24.60 |
| | 706-S-B004-01 | 09/03/96 | 1.30 | | NV | 0.43 | USEPA-RBC | 24.60 |
| Beryllium (Be) | 706-S-B005-01 | 09/20/96 | 0.16 | B | NV | 0.15 | USEPA-RBC | 1.25 |
| | 706-S-B004-01 | 09/03/96 | 0.17 | J | NV | 0.15 | USEPA-RBC | 1.25 |
| | 706-S-B007-01 | 09/03/96 | 0.22 | J | NV | 0.15 | USEPA-RBC | 1.25 |
| | 706-S-B009-01 | 09/09/96 | 0.16 | J | NV | 0.15 | USEPA-RBC | 1.25 |
| | 706-S-B010-01 | 09/04/96 | 0.44 | | NV | 0.15 | USEPA-RBC | 1.25 |
| Cadmium (Cd) | 706-S-B002-01 | 08/30/96 | 9.30 | | VAL | 3.90 | USEPA-RBC | 1.00 |
| Iron (Fe) | 706-S-B001-01 | 08/30/96 | 3640.00 | | VAL | 2300.00 | USEPA-RBC | NA |
| | 706-S-B005-01 | 09/20/96 | 2400.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 706-S-B002-01 | 08/30/96 | 4880.00 | | VAL | 2300.00 | USEPA-RBC | NA |
| | 706-S-B010-01 | 09/04/96 | 11000.00 | | NV | 2300.00 | USEPA-RBC | NA |
| Lead (Pb) | 706-S-B001-02 | 08/30/96 | 631.00 | J | VAL | 66.70 | Zone G Bkgd | 66.70 |
| | 706-S-B002-02 | 08/30/96 | 68.80 | J | VAL | 66.70 | Zone G Bkgd | 66.70 |
| | 706-S-B004-02 | 08/30/96 | 905.00 | | NV | 66.70 | Zone G Bkgd | 66.70 |

Table
Exceeds Preliminary Remediation Goals (PRGs) for Soil Contaminants
Charleston Zone G Soil (Only)

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background |
|---|---|---|---|---|---|---|---|---|
| | 706-S-B006-02 | 09/03/96 | 406.00 | | NV | 66.70 | Zone G Bkgd | 66.70 |
| | 706-S-B009-02 | 09/03/96 | 112.00 | | NV | 66.70 | Zone G Bkgd | 66.70 |
| Manganese (Mn) | 706-S-B001-02 | 08/30/96 | 551.00 | J | VAL | 268.00 | Zone G Bkgd | 268.00 |
| | 706-S-B002-02 | 08/30/96 | 322.00 | J | VAL | 268.00 | Zone G Bkgd | 268.00 |
| | 706-S-B006-02 | 09/03/96 | 447.00 | | NV | 268.00 | Zone G Bkgd | 268.00 |
| | 706-S-B007-02 | 09/03/96 | 463.00 | | NV | 268.00 | Zone G Bkgd | 268.00 |
| Mercury (Hg) | 706-S-B004-02 | 09/03/96 | 2.40 | | NV | 2.09 | USEPA-SSL | 1.21 |
| Thallium (Tl) | 706-S-B009-02 | 09/09/96 | 1.20 | J | NV | 0.71 | USEPA-SSL | 0.86 |
| | 706-S-B002-02 | 08/30/96 | 0.98 | J | VAL | 0.71 | USEPA-SSL | 0.86 |
| | 706-S-B006-02 | 09/03/96 | 0.98 | J | NV | 0.71 | USEPA-SSL | 0.86 |
| | 706-S-B001-02 | 08/30/96 | 1.60 | J | VAL | 0.71 | USEPA-SSL | 0.86 |
| Tin (Sn) | 706-S-B001-02 | 08/30/96 | 57.20 | | NV | 4.75 | Zone G Bkgd | 4.75 |
| | 706-S-B004-02 | 09/03/96 | 182.00 | | NV | 4.75 | Zone G Bkgd | 4.75 |
| | 706-S-B006-02 | 09/03/96 | 27.70 | | NV | 4.75 | Zone G Bkgd | 4.75 |
| **Pesticides/PCBs (µg/kg)** | | | | | | | | |
| Aroclor-1260 | 706-S-B004-02 | 09/03/96 | 1100.00 | J | NV | 1000.00 | USEPA-SSL | NA |

**Notes:**

| | | |
|---|---|---|
| VAL | = | Validation is complete. |
| NV | = | Needs validation. |
| RBC | = | Risk Based Concentration. |
| SSL | = | Soil Screening Level - Transfers from soil to groundwater. |
| BKGD | = | Background |
| NA | = | Not available. |
| B | = | For inorganics, the reported value was obtained from a reading less than the CRDL but greater than the IDL. For organics, the analyte detected in the sample is also found in the associated method blank. |
| J | = | Indicates an estimated value for organics. |
| * | = | Indicates that the duplicate was not within control limits for inorganics. |
| P | = | Indicates that there was at least a 25% difference between the readings of the two GC columns. |
| D | = | Indicates an analysis at a secondary dilution factor. |
| E | = | For inorganics, the value is estimated because of the presence of interference. For organics, the concentration exceeded the calibration range of the instrument. |

Table
Exceeded Preliminary Remediation Goals (PRGs) for Soil Contaminants
Charleston Zone F Soil (Only)

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background Zone F |
|---|---|---|---|---|---|---|---|---|
| | | | VOC 611 | | | | | |
| **Semivolatiles (µg/kg)** | | | | | | | | |
| Benzo(a)pyrene | 611-S-B002-01 | 09/24/96 | 110.00 | J | NV | 88.00 | USEPA-RBC | NA |
| **Inorganics (mg/kg)** | | | | | | | | |
| Aluminum (Al) | 611-S-B001-01 | 09/24/96 | 11500.00 | | NV | 7800.00 | USEPA-RBC | 18500.00 |
| | 611-S-B003-01 | 09/24/96 | 11500.00 | | NV | 7800.00 | USEPA-RBC | 18500.00 |
| | 611-S-B004-01 | 09/24/96 | 8980.00 | | NV | 7800.00 | USEPA-RBC | 18500.00 |
| Arsenic (As) | 611-S-B001-01 | 09/24/96 | 7.90 | | NV | 0.43 | USEPA-RBC | 26.70 |
| | 611-S-B002-01 | 09/24/96 | 145.00 | | NV | 0.43 | USEPA-RBC | 26.70 |
| | 611-S-B002-02 | 09/24/96 | 34.70 | | NV | 29.20 | USEPA-SSL | 18.20 |
| | 611-S-B003-01 | 09/24/96 | 5.30 | | NV | 0.43 | USEPA-RBC | 26.70 |
| | 611-S-B004-01 | 09/24/96 | 5.90 | | NV | 0.43 | USEPA-RBC | 26.70 |
| Beryllium (Be) | 611-S-B001-01 | 09/24/96 | 0.37 | | NV | 0.15 | USEPA-RBC | 1.05 |
| | 611-S-B002-01 | 09/24/96 | 0.49 | | NV | 0.15 | USEPA-RBC | 1.05 |
| | 611-S-B003-01 | 09/24/96 | 0.42 | | NV | 0.15 | USEPA-RBC | 1.05 |
| | 611-S-B004-01 | 09/24/96 | 0.21 | B | NV | 0.15 | USEPA-RBC | 1.05 |
| Cadmium (Cd) | 611-S-B002-01 | 09/24/96 | 4.90 | | NV | 3.90 | USEPA-RBC | 0.26 |
| Copper (Cu) | 611-S-B002-01 | 09/24/96 | 746.00 | | NV | 310.00 | USEPA-RBC | 48.20 |
| | 611-S-B002-02 | 09/24/96 | 156.00 | | NV | 22.20 | Zone F Bkgd | 22.20 |
| Iron (Fe) | 611-S-B001-01 | 09/24/96 | 15100.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 611-S-B002-01 | 09/24/96 | 17600.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 611-S-B003-01 | 09/24/96 | 13900.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 611-S-B004-01 | 09/24/96 | 12400.00 | | NV | 2300.00 | USEPA-RBC | NA |
| Lead (Pb) | 611-S-B002-01 | 09/24/96 | 400.00 | | NV | 400.00 | USEPA-RBC | 180.00 |
| | 611-S-B002-02 | 09/24/96 | 70.80 | | NV | 51.70 | Zone F Bkgd | 51.70 |
| Mercury (Hg) | 611-S-B001-01 | 09/24/96 | 2.30 | | NV | 2.30 | USEPA-RBC | 0.63 |
| | 611-S-B002-01 | 09/24/96 | 16.70 | | NV | 2.30 | USEPA-RBC | 0.63 |
| | 611-S-B002-02 | 09/24/96 | 6.70 | | NV | 2.09 | USEPA-SSL | 0.63 |
| **pH** | | | | | | | | |
| | 611-S-B001-01 | 09/24/96 | 7.42 | | NV | | | |
| | 611-S-B001-02 | 09/24/96 | 4.80 | | NV | | | |
| | 611-S-B002-01 | 09/24/96 | 7.79 | | NV | | | |
| | 611-S-B002-02 | 09/24/96 | 7.84 | | NV | | | |
| | 611-S-B003-01 | 09/24/96 | 6.59 | | NV | | | |

**Table**
**Exceeded Preliminary Remediation Goals (PRGs) for Soil Contaminants**
**Charlaston Zone F Soil (Only)**

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Rasult | PRG Exceeded | Background Zone F |
|---|---|---|---|---|---|---|---|---|
| | 611-S-B003-02 | 09/24/96 | 5.01 | | NV | | | |
| | 611-S-B004-01 | 09/24/96 | 5.39 | | NV | | | |
| | 611-S-B004-02 | 09/24/96 | 4.47 | | NV | | | |
| **Benzo(a)Pyrene Equivalents** | | | | | | | | |
| | 611-S-B002-01 | 09/24/96 | 191.15 | | | 88.00 | USEPA-BEQ-RBC | |

**Notes:**

| | | |
|---|---|---|
| VAL | = | Validation is complete. |
| NV | = | Needs validation. |
| RBC | = | Risk Based Concentration. |
| SSL | = | Soil Screening Level - Transfers from soil to groundwater. |
| BKGD | = | Background |
| NA | = | Not available. |
| B | = | For inorganics, the reported value was obtained from a reading less than the CRDL but greater than the IDL. For organics, the analyte detected in the sample is also found in the associated method blank. |
| J | = | Indicates an estimated value for organics. |
| * | = | Indicates that the duplicate was not within control limits for inorganics. |
| P | = | Indicates that there was at least a 25% difference between the readings of the two GC columns. |
| D | = | Indicates an analysis at a secondary dilution factor. |
| E | = | For inorganics, the value is estimated because of the presence of interference. For organics, the concentration exceeded the calibration range of the instrument. |

**AOC 616**

- Surficial Soil
  - No exceedances, antimony detected equal to RBC (SB002).

- Subsurface Soil
  - Dibenzofuran exceeds SSL (SB002).

**RECOMMENDATIONS**

- No additional soil sampling proposed. The groundwater data from AOC 617 will be evaluated for potential leaching of SVOCs.

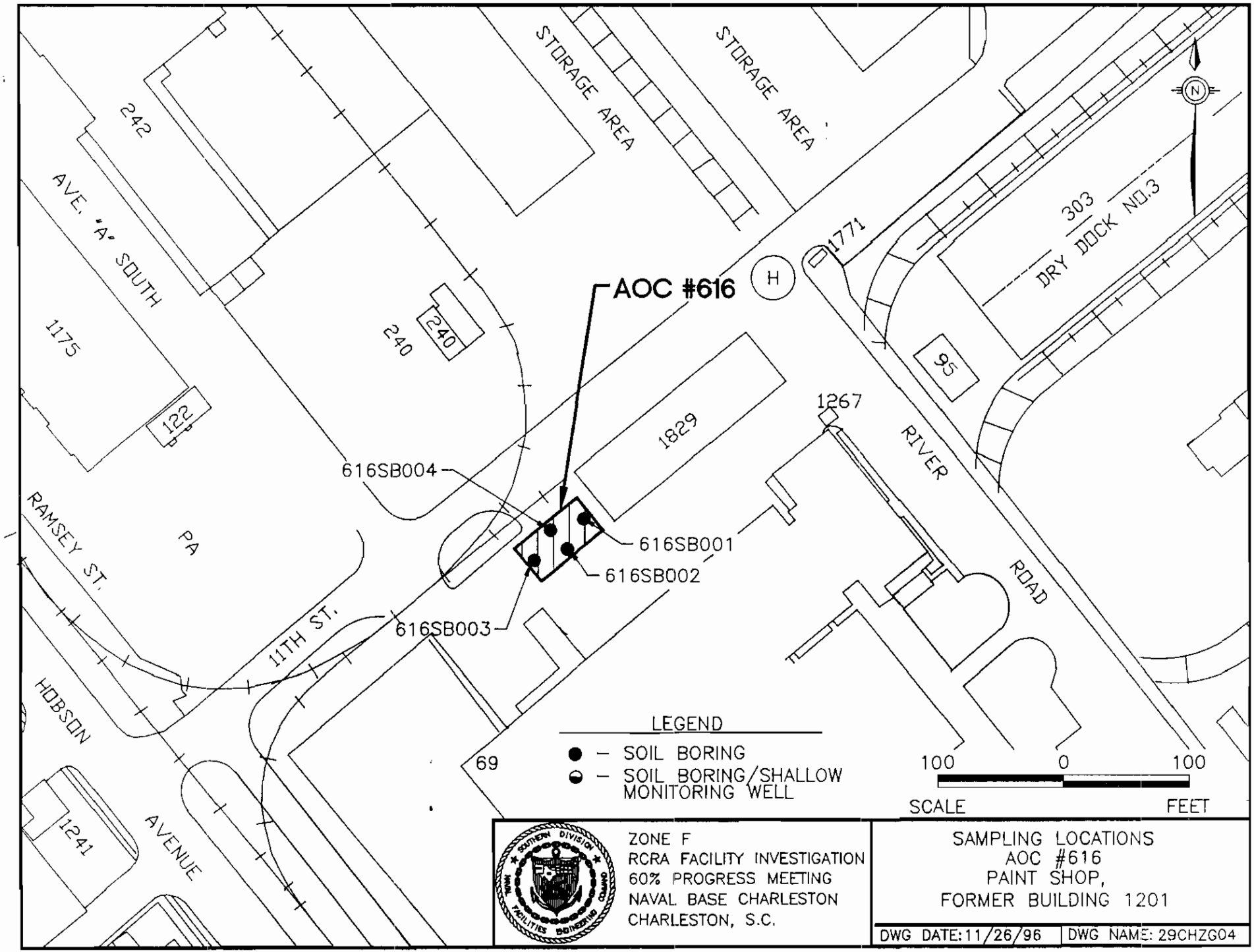

STORAGE AREA
STORAGE AREA
242
AVE. "A" SOUTH
175
122
240
240
AOC #616
H
1771
303
DRY DOCK NO.3
95
1267
1829
RIVER
ROAD
616SB004
616SB001
616SB002
616SB003
RAMSEY ST.
PA
11TH ST.
HOBSON
AVENUE
1241
69
LEGEND
● – SOIL BORING
◒ – SOIL BORING/SHALLOW MONITORING WELL
100 0 100
SCALE FEET
ZONE F
RCRA FACILITY INVESTIGATION
60% PROGRESS MEETING
NAVAL BASE CHARLESTON
CHARLESTON, S.C.
SAMPLING LOCATIONS
AOC #616
PAINT SHOP,
FORMER BUILDING 1201
DWG DATE: 11/26/96
DWG NAME: 29CHZG04

**Table**
**Exceeded Preliminary Remediation Goals (PRGs) for Soil Contaminants**
**Charleston Zone F Soil (Only)**

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background Zone F |
|---|---|---|---|---|---|---|---|---|
| | | | **AOC 616** | | | | | |
| **Semivolatiles (μg/kg)** | | | | | | | | |
| Dibenzofuran | 616-S-B002-02 | 09/03/96 | 180.00 | J | VAL | 60.00 | USEPA-SSL | NA |
| **Inorganics (mg/kg)** | | | | | | | | |
| Aluminum (Al) | 616-S-B002-01 | 09/03/96 | 14400.00 | | VAL | 7800.00 | USEPA-RBC | 18500.00 |
| Antimony (Sb) | 616-S-B002-01 | 09/03/96 | 3.10 | J | VAL | 3.10 | USEPA-RBC | 0.80 |
| Arsenic (As) | 616-S-B001-01 | 09/03/96 | 0.86 | J | VAL | 0.43 | USEPA-RBC | 26.70 |
| | 616-S-B002-01 | 09/03/96 | 12.40 | J | VAL | 0.43 | USEPA-RBC | 26.70 |
| | 616-S-B003-01 | 09/03/96 | 2.00 | J | VAL | 0.43 | USEPA-RBC | 26.70 |
| | 616-S-B004-01 | 09/04/96 | 1.70 | J | VAL | 0.43 | USEPA-RBC | 26.70 |
| Beryllium (Be) | 616-S-B002-01 | 09/03/96 | 0.75 | | VAL | 0.15 | USEPA-RBC | 1.05 |
| | 616-S-B003-01 | 09/03/96 | 0.19 | J | VAL | 0.15 | USEPA-RBC | 1.05 |
| Iron (Fe) | 616-S-B002-01 | 09/03/96 | 17900.00 | | VAL | 2300.00 | USEPA-RBC | NA |
| | 616-S-B003-01 | 09/03/96 | 2830.00 | | VAL | 2300.00 | USEPA-RBC | NA |

**Notes:**

| | | |
|---|---|---|
| VAL | = | Validation is complete. |
| NV | = | Needs validation. |
| RBC | = | Risk Based Concentration. |
| SSL | = | Soil Screening Level - Transfers from soil to groundwater. |
| BKGD | = | Background |
| NA | = | Not available. |
| B | = | For inorganics, the reported value was obtained from a reading less than the CRDL but greater than the IDL. For organics, the analyte detected in the sample is also found in the associated method blank. |
| J | = | Indicates an estimated value for organics. |
| * | = | Indicates that the duplicate was not within control limits for inorganics. |
| P | = | Indicates that there was at least a 25% difference between the readings of the two GC columns. |
| D | = | Indicates an analysis at a secondary dilution factor. |
| E | = | For inorganics, the value is estimated because of the presence of interference. For organics, the concentration exceeded the calibration range of the instrument. |

**Notes:**

| | | |
|---|---|---|
| VAL | = | Validation is complete. |
| NV | = | Needs validation. |
| RBC | = | Risk Based Concentration. |
| SSL | = | Soil Screening Level - Transfers from soil to groundwater. |
| BKGD | = | Background |
| NA | = | Not available. |
| B | = | For inorganics, the reported value was obtained from a reading less than the CRDL but greater than the IDL. For organics, the analyte detected in the sample is also found in the associated method blank. |
| J | = | Indicates an estimated value for organics. |
| * | = | Indicates that the duplicate was not within control limits for inorganics. |
| P | = | Indicates that there was at least a 25% difference between the readings of the two GC columns. |
| D | = | Indicates an analysis at a secondary dilution factor. |
| E | = | For inorganics, the value is estimated because of the presence of interference. For organics, the concentration exceeded the calibration range of the instrument. |

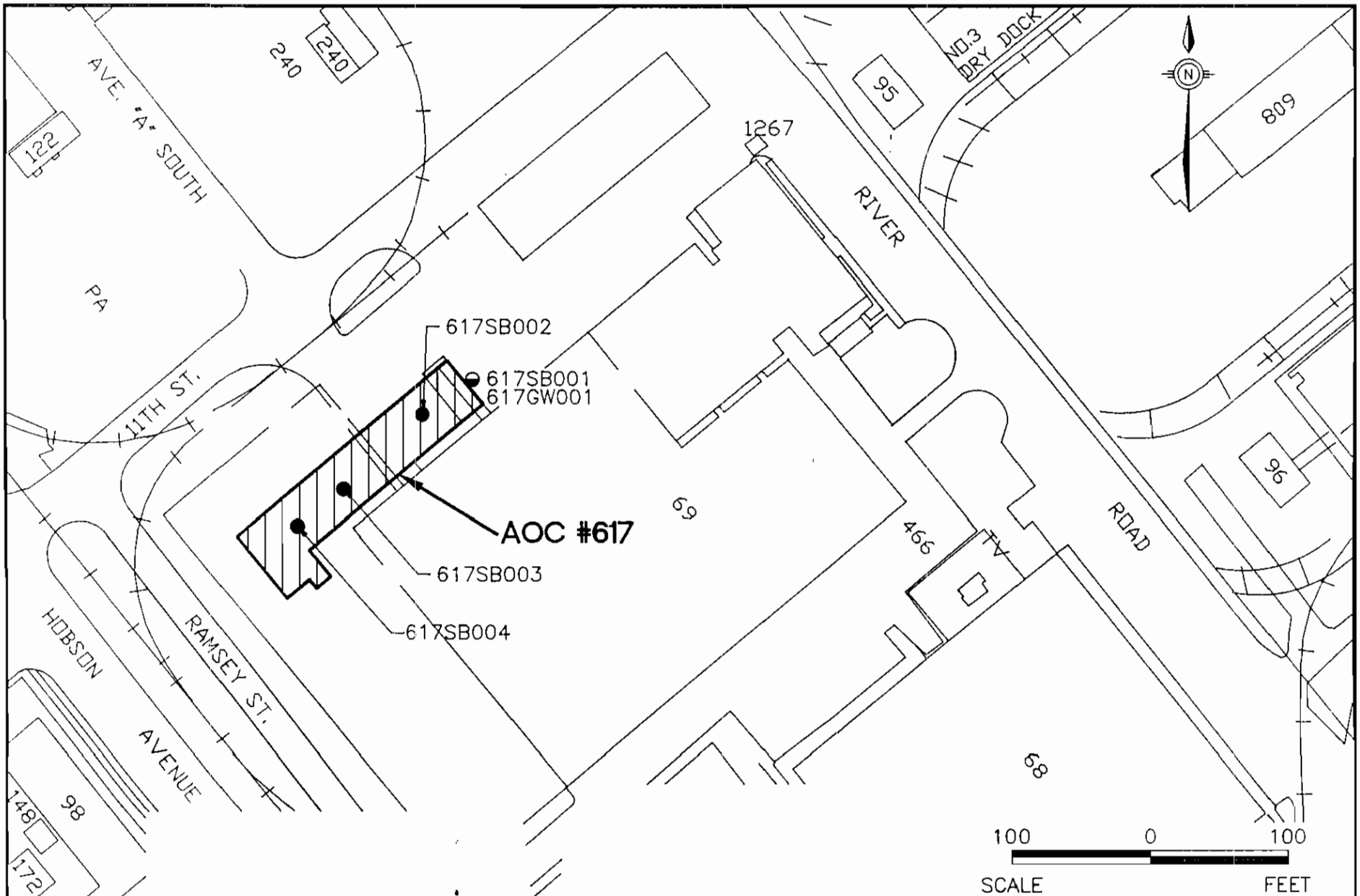
**AOC 617**

- Surficial Soil
  - BEQs exceed residential RBC, but far below industrial.

- Subsurface Soil
  - Antimony, copper, lead, and tin exceed SSL and background in borings SB002, SB003, SB004.
  - Benzo(a)anthracene significantly exceeds SSL in SB003, SB004.
  - Aroclor 1260 significantly exceeds SSL in SB003.
  - Dibenzofuran significantly exceeds SSL in SB003, SB004.

**RECOMMENDATIONS**

- Industrial RBCs should be applied due to location, site features and probable site reuse.
- No additional soil sampling at this time, wait on groundwater analytical and flow data to determine need for additional sampling - possibly five additional soils to delineate area around SB003, SB004 metals, SVOC, PCB.




LEGEND

● – SOIL BORING

◒ – SOIL BORING/SHALLOW MONITORING WELL

ZONE F
RCRA FACILITY INVESTIGATION
60% PROGRESS MEETING
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

SAMPLING LOCATIONS
AOC #617
GALVANIZING PLANT,
FORMER BUILDING 1176

DWG DATE: 11/26/96 | DWG NAME: [illegible]HZG32

Table
Exceeded Preliminary Remediation Goals (PRGs) for Soil Contaminants
Charleston Zone F Soil (Only)

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background Zone F |
|---|---|---|---|---|---|---|---|---|
| | | | AOC 617 | | | | | |
| **Semivolatiles (μg/kg)** | | | | | | | | |
| Benzo(a)anthracene | 617-S-B003-02 | 08/30/96 | 5900.00 | D | VAL | 1470.00 | USEPA-SSL | NA |
| | 617-S-B004-02 | 08/30/96 | 5700.00 | | VAL | 1470.00 | USEPA-SSL | NA |
| Benzo(a)pyrene | 617-S-B004-01 | 08/30/96 | 130.00 | J | VAL | 88.00 | USEPA-RBC | NA |
| Dibenz(a,h)anthracene | 617-S-B003-02 | 08/30/96 | 1600.00 | | VAL | 1400.00 | USEPA-SSL | NA |
| Dibenzofuran | 617-S-B003-02 | 08/30/96 | 510.00 | | VAL | 60.00 | USEPA-SSL | NA |
| | 617-S-B004-02 | 08/30/96 | 1200.00 | | VAL | 60.00 | USEPA-SSL | NA |
| **Inorganics (mg/kg)** | | | | | | | | |
| Antimony (Sb) | 617-S-B003-02 | 08/30/96 | 10.70 | | VAL | 5.42 | USEPA-SSL | 0.80 |
| | 617-S-B004-02 | 08/30/96 | 5.50 | | VAL | 5.42 | USEPA-SSL | 0.80 |
| Arsenic (As) | 617-S-B001-01 | 08/29/96 | 1.30 | | VAL | 0.43 | USEPA-RBC | 26.70 |
| | 617-S-B002-01 | 08/30/96 | 1.80 | | VAL | 0.43 | USEPA-RBC | 26.70 |
| | 617-S-B003-01 | 08/30/96 | 0.97 | J | VAL | 0.43 | USEPA-RBC | 26.70 |
| | 617-S-B004-01 | 08/30/96 | 2.60 | | VAL | 0.43 | USEPA-RBC | 26.70 |
| Beryllium (Be) | 617-S-B002-01 | 08/30/96 | 0.17 | J | VAL | 0.15 | USEPA-RBC | 1.05 |
| | 617-S-B004-01 | 08/30/96 | 0.21 | J | VAL | 0.15 | USEPA-RBC | 1.05 |
| Copper (Cu) | 617-S-B003-02 | 08/30/96 | 33.20 | | VAL | 22.20 | Zone F Bkgd | 22.20 |
| Iron (Fe) | 617-S-B001-01 | 08/29/96 | 2B40.00 | | VAL | 2300.00 | USEPA-RBC | NA |
| | 617-S-B002-01 | 08/30/96 | 2610.00 | | VAL | 2300.00 | USEPA-RBC | NA |
| | 617-S-B004-01 | 08/30/96 | 3B30.00 | | VAL | 2300.00 | USEPA-RBC | NA |
| Lead (Pb) | 617-S-B002-02 | 08/30/96 | 52.80 | | VAL | 51.70 | Zone F Bkgd | 51.70 |
| | 617-S-B003-02 | 08/30/96 | 274.00 | | VAL | 51.70 | Zone F Bkgd | 51.70 |
| | 617-S-B004-02 | 08/30/96 | 121.00 | | VAL | 51.70 | Zone F Bkgd | 51.70 |
| Tin (Sn) | 617-S-B003-02 | 08/30/96 | 33.90 | | VAL | 3.43 | Zone F Bkgd | 3.43 |
| | 617-S-B004-02 | 08/30/96 | 11.50 | | VAL | 3.43 | Zone F Bkgd | 3.43 |
| **pH** | | | | | | | | |
| | 617-S-B001-01 | 08/29/96 | 7.72 | | VAL | | | |
| | 617-S-B001-02 | 08/29/96 | 7.39 | | VAL | | | |
| | 617-S-B002-01 | 08/30/96 | 7.55 | | VAL | | | |
| | 617-S-B002-02 | 08/30/96 | 7.97 | | VAL | | | |
| | 617-S-B003-01 | 08/30/96 | 7.45 | | VAL | | | |
| | 617-S-B003-02 | 08/30/96 | 7.10 | | VAL | | | |
| | 617-S-B004-01 | 08/30/96 | 7.49 | | VAL | | | |

Table
Exceeded Preliminary Remediation Goals (PRGs) for Soil Contaminants
Charleston Zone F Soil (Only)

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background Zone F |
|---|---|---|---|---|---|---|---|---|
| | 617-S-B004-02 | 08/30/96 | 7.33 | | VAL | | | |

**Notes:**

| | | |
|---|---|---|
| VAL | = | Validation is complete. |
| NV | = | Needs validation. |
| RBC | = | Risk Based Concentration. |
| SSL | = | Soil Screening Level - Transfers from soil to groundwater. |
| BKGD | = | Background |
| NA | = | Not available. |
| B | = | For inorganics, the reported value was obtained from a reading less than the CRDL but greater than the IDL. For organics, the analyte detected in the sample is also found in the associated method blank. |
| J | = | Indicates an estimated value for organics. |
| * | = | Indicates that the duplicate was not within control limits for inorganics. |
| P | = | Indicetes that there was at least a 25% difference between the readings of the two GC columns. |
| D | = | Indicates an analysis at a secondary dilution factor. |
| E | = | For inorganics, the value is estimated because of the presence of interference. For organics, the concentration exceeded the calibretion range of the instrument. |

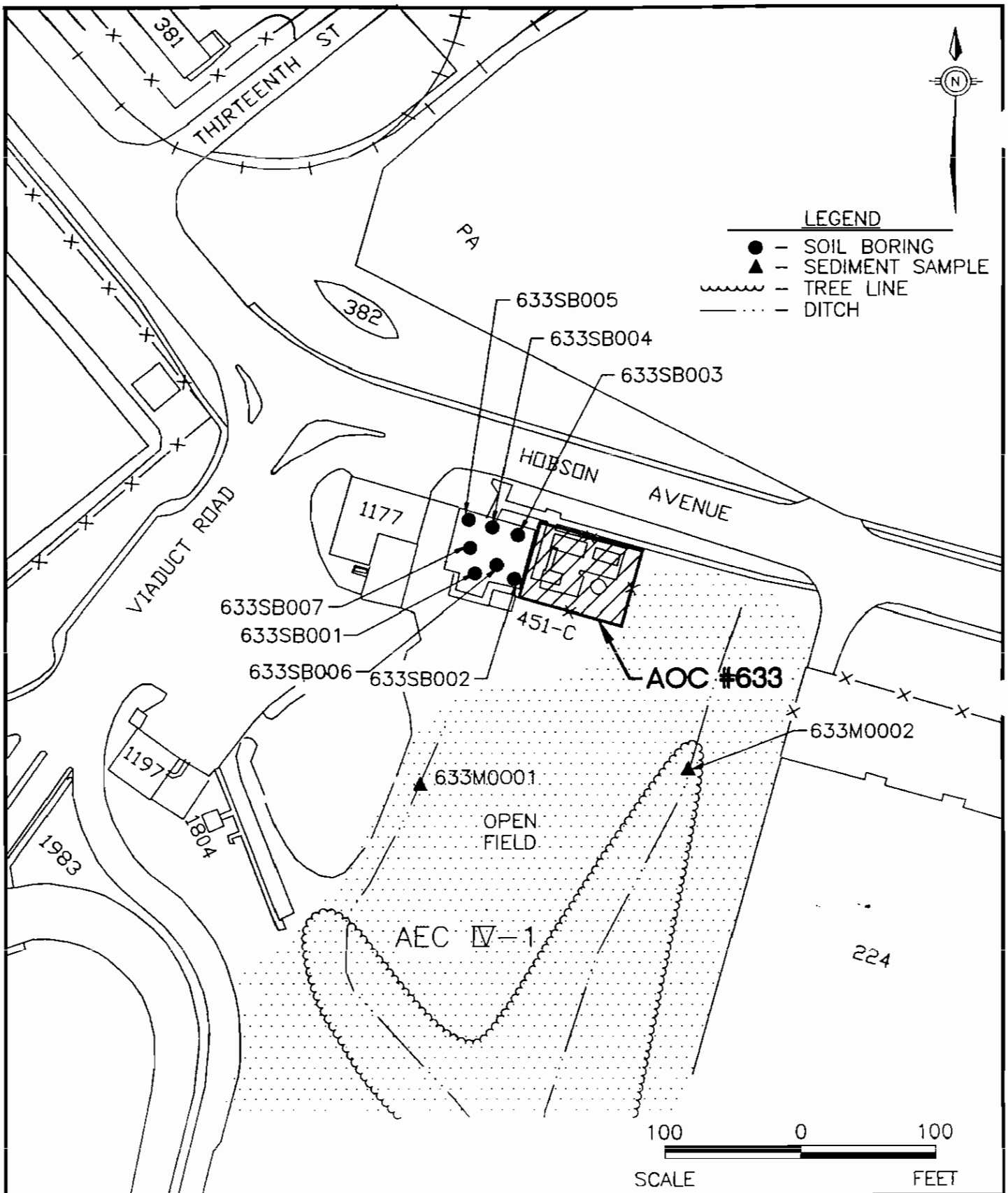
**AOC 633**

- Surficial Soil
  - Aroclor 1260 exceeds residential RBCs (SB001)

- Sediment (in AEC IV-1)
  - DDE, DDT, DDD, chlordane, SVOC, MEK metals exceed SSVs not related to AOC 633. Preliminary review indicates no significant risk to ecologic concerns.

**RECOMMENDATIONS**

- Three additional soil samples to delineate extent - PCB only.




ZONE G
RCRA FACILITY INVESTIGATION
60% PROGRESS MEETING
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

SAMPLING LOCATIONS
AOC #633 SUBSTATION
BUILDING 451-C

DWG DATE: 11/25/96 | DWG NAME: 29CHZG10

**Table**
**Exceeds Preliminary Remediation Goals (PRGs) for Soil Contaminants**
**Charleston Zone G Soil (Only)**

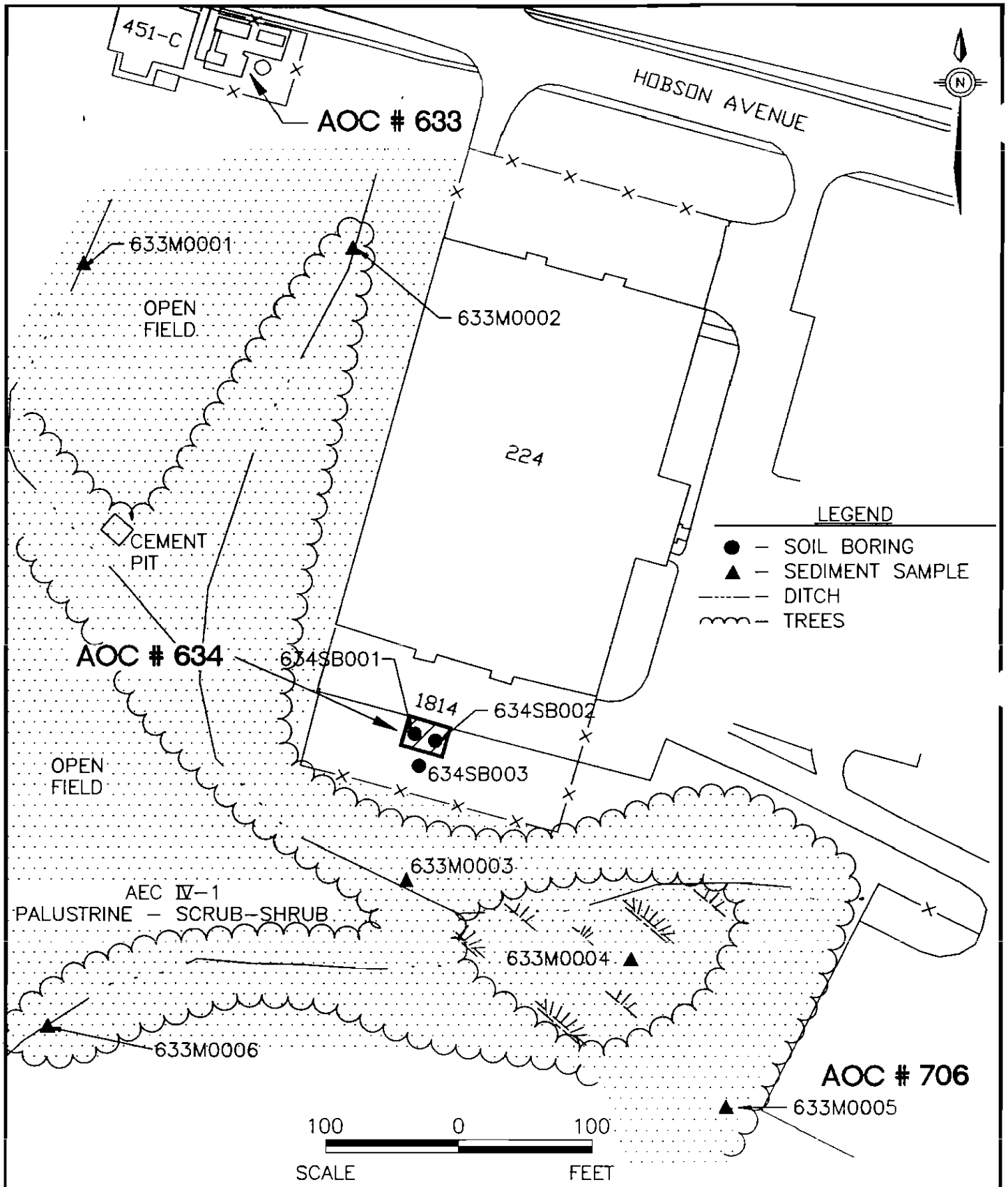
| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background |
|---|---|---|---|---|---|---|---|---|
| | | | **AOC 633** | | | | | |
| **Pesticides/PCBs (μg/kg)** | | | | | | | | |
| Aroclor-1260 | 633-S-B001-01 | 10/02/96 | 480.00 | | NV | 320.00 | USEPA-RBC | NA |
| | 633-S-B007-02 | 10/02/96 | 17000.00 | E | NV | 1000.00 | USEPA-SSL | NA |

**Notes:**

| | | |
|---|---|---|
| VAL | = | Validation is complete. |
| NV | = | Needs validation. |
| RBC | = | Risk Based Concentration. |
| SSL | = | Soil Screening Level - Transfers from soil to groundwater. |
| BKGD | = | Background |
| NA | = | Not available. |
| B | = | For inorganics, the reported value was obtained from a reading less than the CRDL but greater than the IDL. For organics, the analyte detected in the sample is also found in the associated method blank. |
| J | = | Indicates an estimated value for organics. |
| * | = | Indicates that the duplicate was not within control limits for inorganics. |
| P | = | Indicates that there was at least a 25% difference between the readings of the two GC columns. |
| D | = | Indicates an analysis at a secondary dilution factor. |
| E | = | For inorganics, the value is estimated because of the presence of interference. For organics, the concentration exceeded the calibration range of the instrument. |

**Table**
**Exceeded Preliminary Remediation Goals (PRGs) for Sediment Contaminants**
**Charleston Zone G Sediment**

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded |
|---|---|---|---|---|---|---|---|
| | | | AOC 633 | | | | |
| **Semivolatiles (μg/mg)** | | | | | | | |
| Fluoranthene | 633-M-0002 | 09/26/96 | 410.00 | J | NV | 330.00 | USEPA-SSV |
| Pyrene | 633-M-0002 | 09/26/96 | 400.00 | J | NV | 330.00 | USEPA-SSV |
| | 633-M-0003 | 09/26/96 | 360.00 | J | NV | 330.00 | USEPA-SSV |
| bis(2-Ethylhexyl)phthalate (BEHP) | 633-M-0003 | 09/26/96 | 3400.00 | | NV | 182.00 | USEPA-SSV |
| **Inorganics (mg/kg)** | | | | | | | |
| Antimony (Sb) | 633-M-0005 | 09/26/96 | 23.50 | | NV | 12.00 | USEPA-SSV |
| Arsenic (As) | 633-M-0006 | 09/26/96 | 9.20 | | NV | 7.24 | USEPA-SSV |
| | 633-M-0003 | 09/26/96 | 22.70 | | NV | 7.24 | USEPA-SSV |
| | 633-M-0002 | 09/26/96 | 13.30 | | NV | 7.24 | USEPA-SSV |
| | 633-M-0004 | 09/26/96 | 25.30 | | NV | 7.24 | USEPA-SSV |
| | 633-M-0005 | 09/26/96 | 19.20 | | NV | 7.24 | USEPA-SSV |
| Cadmium (Cd) | 633-M-0002 | 09/26/96 | 1.10 | | NV | 1.00 | USEPA-SSV |
| | 633-M-0003 | 09/26/96 | 1.30 | B | NV | 1.00 | USEPA-SSV |
| | 633-M-0005 | 09/26/96 | 4.90 | | NV | 1.00 | USEPA-SSV |
| Chromium (Cr) | 633-M-0005 | 09/26/96 | 61.70 | | NV | 52.30 | USEPA-SSV |
| | 633-M-0004 | 09/26/96 | 54.10 | | NV | 52.30 | USEPA-SSV |
| | 633-M-0003 | 09/26/96 | 57.20 | | NV | 52.30 | USEPA-SSV |
| Copper (Cu) | 633-M-0006 | 09/26/96 | 143.00 | | NV | 18.70 | USEPA-SSV |
| | 633-M-0005 | 09/26/96 | 1220.00 | | NV | 18.70 | USEPA-SSV |
| | 633-M-0004 | 09/26/96 | 34.40 | | NV | 18.70 | USEPA-SSV |
| | 633-M-0002 | 09/26/96 | 120.00 | | NV | 18.70 | USEPA-SSV |
| | 633-M-0003 | 09/26/96 | 80.70 | | NV | 18.70 | USEPA-SSV |
| Lead (Pb) | 633-M-0005 | 09/26/96 | 393.00 | | NV | 30.20 | USEPA-SSV |
| | 633-M-0003 | 09/26/96 | 203.00 | | NV | 30.20 | USEPA-SSV |
| | 633-M-0002 | 09/26/96 | 182.00 | | NV | 30.20 | USEPA-SSV |
| | 633-M-0006 | 09/26/96 | 75.60 | | NV | 30.20 | USEPA-SSV |
| | 633-M-0004 | 09/26/96 | 57.70 | | NV | 30.20 | USEPA-SSV |
| Mercury (Hg) | 633-M-0005 | 09/26/96 | 1.00 | | NV | 0.13 | USEPA-SSV |
| | 633-M-0003 | 09/26/96 | 0.37 | | NV | 0.13 | USEPA-SSV |
| | 633-M-0004 | 09/26/96 | 0.27 | | NV | 0.13 | USEPA-SSV |
| | 633-M-0002 | 09/26/96 | 0.57 | | NV | 0.13 | USEPA-SSV |
| | 633-M-0006 | 09/26/96 | 0.34 | | NV | 0.13 | USEPA-SSV |




ZONE G
RCRA FACILITY INVESTIGATION
60% PROGRESS MEETING
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

SAMPLING LOCATIONS
AOC #634
FLAMMABLE MATERIAL STORAGE
BUILDING 1814

DWG DATE: 11/25/96 | DWG NAME: 29CHZG08

**Table**
**Exceeded Preliminary Remediation Goals (PRGs) for Sediment Contaminants**
**Charleston Zone G Sediment**

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded |
|---|---|---|---|---|---|---|---|
| Nickel (Ni) | 633-M-0003 | 09/26/96 | 21.50 | | NV | 15.90 | USEPA-SSV |
| | 633-M-0006 | 09/26/96 | 17.20 | | NV | 15.90 | USEPA-SSV |
| | 633-M-0005 | 09/26/96 | 47.60 | | NV | 15.90 | USEPA-SSV |
| | 633-M-0002 | 09/26/96 | 17.10 | | NV | 15.90 | USEPA-SSV |
| | 633-M-0004 | 09/26/96 | 20.40 | | NV | 15.90 | USEPA-SSV |
| Zinc (Zn) | 633-M-0005 | 09/26/96 | 3260.00 | | NV | 124.00 | USEPA-SSV |
| | 633-M-0006 | 09/26/96 | 167.00 | | NV | 124.00 | USEPA-SSV |
| | 633-M-0002 | 09/26/96 | 312.00 | | NV | 124.00 | USEPA-SSV |
| | 633-M-0004 | 09/26/96 | 140.00 | | NV | 124.00 | USEPA-SSV |
| | 633-M-0003 | 09/26/96 | 279.00 | | NV | 124.00 | USEPA-SSV |
| **Pesticides/PCBs (μg/mg)** | | | | | | | |
| 4,4'-DDD | 633-M-0006 | 09/26/96 | 14.00 | | NV | 3.30 | USEPA-SSV |
| | 633-M-0002 | 09/26/96 | 18.00 | P | NV | 3.30 | USEPA-SSV |
| | 633-M-0005 | 09/26/96 | 12.00 | | NV | 3.30 | USEPA-SSV |
| 4,4'-DDE | 633-M-0005 | 09/26/96 | 8.10 | | NV | 3.30 | USEPA-SSV |
| | 633-M-0003 | 09/26/96 | 13.00 | | NV | 3.30 | USEPA-SSV |
| | 633-M-0002 | 09/26/96 | 29.00 | | NV | 3.30 | USEPA-SSV |
| | 633-M-0006 | 09/26/96 | 34.00 | | NV | 3.30 | USEPA-SSV |
| 4,4'-DDT | 633-M-0002 | 09/26/96 | 10.00 | P | NV | 3.30 | USEPA-SSV |
| | 633-M-0006 | 09/26/96 | 9.80 | P | NV | 3.30 | USEPA-SSV |
| | 633-M-0005 | 09/26/96 | 16.00 | | NV | 3.30 | USEPA-SSV |

**Notes:**

VAL = Validation is complete.
NV = Needs validation.
RBC = Risk Based Concentration.
SSV = Sediment Screening Value
J = Indicates an estimated value for organics.
B = For inorganics, the reported value was obtained from a reading less than the CRDL but greater than the IDL. For organics, the analyte detected in the sample is also found in the associated method blank.
P = Indicates that there was at least a 25% difference between the readings of the two GC columns.

**AOC 634**

- Surficial Soil
  - No exceedances

- Subsurface Soil
  - Methylene chloride slightly exceeds SSL (SB001).

**RECOMMENDATIONS**

- No additional soil sampling is proposed at this time.

Table
Exceeds Preliminary Remediation Goals (PRGs) for Soil Contaminants
Charleston Zone G Soil (Only)

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background |
|---|---|---|---|---|---|---|---|---|
| | | | AOC 634 | | | | | |
| **Volatiles (μg/kg)** | | | | | | | | |
| Methylene chloride | 634-S-B001-02 | 10/03/96 | 19.00 | B | NV | 10.00 | USEPA-SSL | NA |
| **Inorganics (mg/kg)** | | | | | | | | |
| Arsenic (As) | 634-S-B002-01 | 10/03/96 | 4.50 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 634-S-B003-01 | 10/03/96 | 1.70 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 634-S-B001-01 | 10/03/96 | 2.10 | | NV | 0.43 | USEPA-RBC | 24.60 |
| Beryllium (Be) | 634-S-B003-01 | 10/03/96 | 0.15 | B | NV | 0.15 | USEPA-RBC | 1.25 |
| | 634-S-B001-01 | 10/03/96 | 0.16 | B | NV | 0.15 | USEPA-RBC | 1.25 |
| | 634-S-B002-01 | 10/03/96 | 0.32 | | NV | 0.15 | USEPA-RBC | 1.25 |
| Iron (Fe) | 634-S-B003-01 | 10/03/96 | 4570.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 634-S-B001-01 | 10/03/96 | 4380.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 634-S-B002-01 | 10/03/96 | 5390.00 | | NV | 2300.00 | USEPA-RBC | NA |

Notes:

| | | |
|---|---|---|
| VAL | = | Validation is complete. |
| NV | = | Needs validation. |
| RBC | = | Risk Based Concentration. |
| SSL | = | Soil Screening Level - Transfers from soil to groundwater. |
| BKGD | = | Background |
| NA | = | Not available. |
| B | = | For inorganics, the reported value was obtained from a reading less than the CRDL but greater than the IDL. For organics, the analyte detected in the sample is also found in the associated method blank. |
| J | = | Indicates an estimated value for organics. |
| * | = | Indicates that the duplicate was not within control limits for inorganics. |
| P | = | Indicates that there was at least a 25% difference between the readings of the two GC columns. |
| D | = | Indicates an analysis at a secondary dilution factor. |
| E | = | For inorganics, the value is estimated because of the presence of interference. For organics, the concentration exceeded the calibration range of the instrument. |

**AOC 638**

- Surficial Soil
  - Copper exceeds residential RBC and background (SB001).

- Subsurface Soil
  - Aluminum, copper, lead, manganese and tin exceed SSL and background (SB003, SB004).

**RECOMMENDATIONS**

- No additional soil sampling at this time.

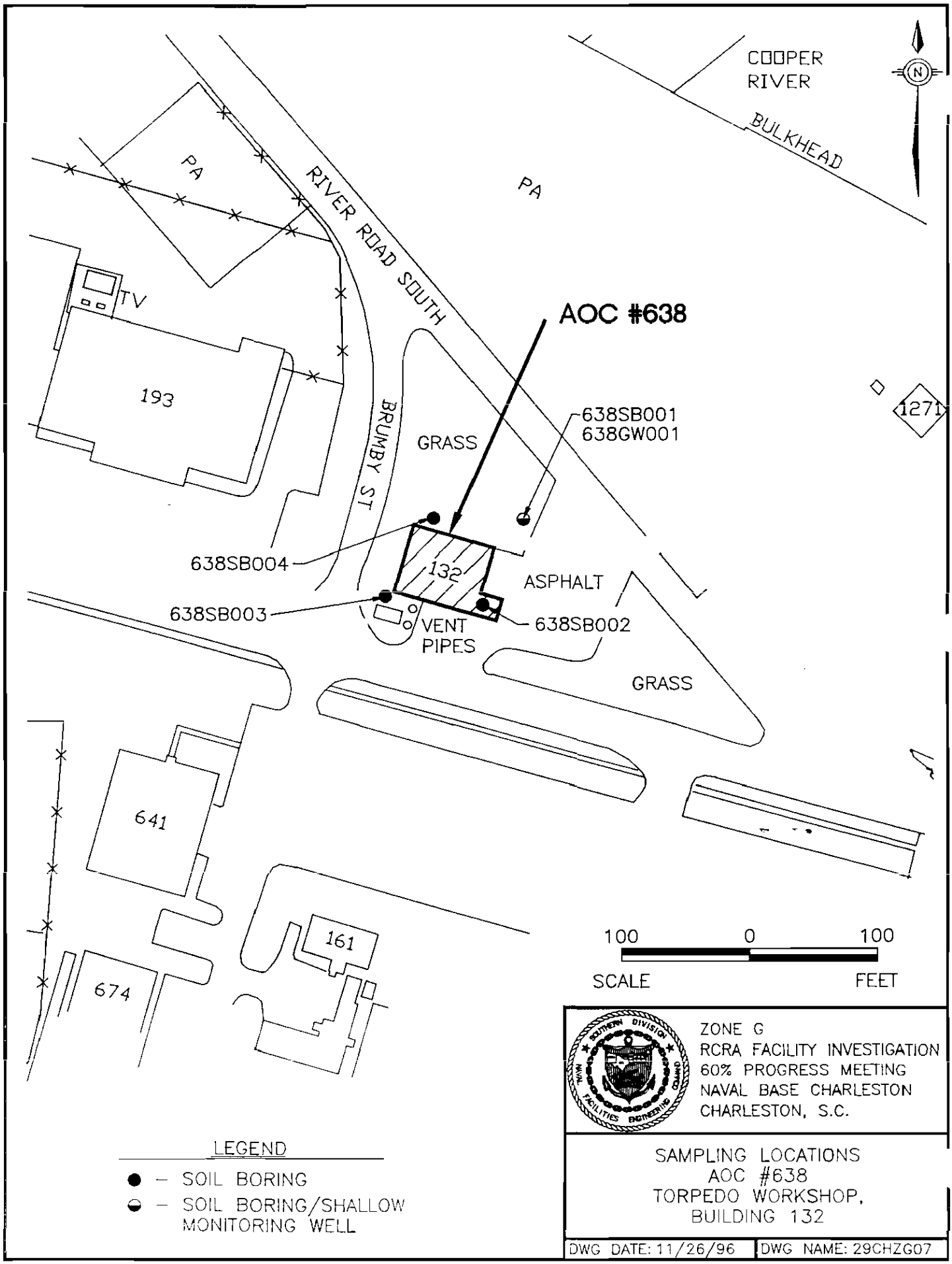

COOPER RIVER
BULKHEAD
N
PA
PA
RIVER ROAD SOUTH
TV
193
AOC #638
BRUMBY ST
GRASS
638SB001
638GW001
1271
638SB004
132
ASPHALT
638SB003
VENT PIPES
638SB002
GRASS
641
161
674
100 0 100
SCALE FEET
LEGEND
● – SOIL BORING
◒ – SOIL BORING/SHALLOW MONITORING WELL
ZONE G
RCRA FACILITY INVESTIGATION
60% PROGRESS MEETING
NAVAL BASE CHARLESTON
CHARLESTON, S.C.
SAMPLING LOCATIONS
AOC #638
TORPEDO WORKSHOP,
BUILDING 132
DWG DATE: 11/26/96
DWG NAME: 29CHZG07

Table
Exceeds Preliminary Remediation Goals (PRGs) for Soil Contaminants
Charleston Zone G Soil (Only)

| Name | Sample ID | Sample Date | Rasult | VQUAL | Validation | PRG Rasult | PRG Exceeded | Background |
|---|---|---|---|---|---|---|---|---|
| | | | AOC 638 | | | | | |
| **Inorganics (mg/kg)** | | | | | | | | |
| Aluminum (Al) | 638-S-8002-01 | 10/10/96 | 9400.00 | | NV | 7800.00 | USEPA-RBC | 20100.00 |
| | 638-S-B004-02 | 09/19/96 | 30900.00 | | NV | 26800.00 | Zone G Bkgd | 26800.00 |
| Arsenic (As) | 638-S-B002-01 | 10/10/96 | 13.00 | N* | NV | 0.43 | USEPA-RBC | 24.60 |
| | 638-S-B003-01 | 09/19/96 | 6.90 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 638-S-B004-01 | 09/19/96 | 6.00 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 638-S-B001-01 | 09/10/96 | 10.60 | N* | NV | 0.43 | USEPA-RBC | 24.60 |
| Beryllium (Be) | 638-S-B002-01 | 10/10/96 | 0.50 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 638-S-B003-01 | 09/19/96 | 0.36 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 638-S-B004-01 | 09/19/96 | 0.30 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 638-S-B001-01 | 09/10/96 | 0.55 | | NV | 0.15 | USEPA-RBC | 1.25 |
| Copper (Cu) | 638-S-B001-01 | 09/10/96 | 428.00 | * | NV | 310.00 | USEPA-RBC | 269.00 |
| | 638-S-B003-02 | 09/19/96 | 141.00 | | NV | 40.50 | Zone G Bkgd | 40.50 |
| Iron (Fe) | 638-S-B004-01 | 09/19/96 | 7600.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 638-S-B001-01 | 09/10/96 | 9250.00 | * | NV | 2300.00 | USEPA-RBC | NA |
| | 638-S-B002-01 | 10/10/96 | 14900.00 | * | NV | 2300.00 | USEPA-RBC | NA |
| | 638-S-B003-01 | 09/19/96 | 4980.00 | | NV | 2300.00 | USEPA-RBC | NA |
| Lead (Pb) | 638-S-B003-02 | 09/19/96 | 76.10 | | NV | 66.70 | Zone G Bkgd | 66.70 |
| Manganese (Mn) | 638-S-B004-02 | 09/19/96 | 459.00 | | NV | 268.00 | Zone G Bkgd | 268.00 |
| Tin (Sn) | 638-S-B003-02 | 09/19/96 | 10.60 | | NV | 4.75 | Zone G Bkgd | 4.75 |
| | 638-S-B004-02 | 09/19/96 | 11.10 | | NV | 4.75 | Zone G Bkgd | 4.75 |

**Notes:**

| | | |
|---|---|---|
| VAL | = | Validation is complete. |
| NV | = | Needs validation. |
| RBC | = | Risk Based Concentration. |
| SSL | = | Soil Screening Level - Transfers from soil to groundwater. |
| BKGD | = | Background |
| NA | = | Not available. |
| B | = | For inorganics, the reported value was obtained from a reading less than the CRDL but greater than the IDL. For organics, the analyte detected in the sample is also found in the associated method blank. |
| J | = | Indicates an estimated value for organics. |
| * | = | Indicates that the duplicate was not within control limits for inorganics. |
| P | = | Indicates that there was at least a 25% difference between the readings of the two GC columns. |
| D | = | Indicates an analysis at a secondary dilution factor. |
| E | = | For inorganics, the value is estimated because of the presence of interference. For organics, the concentration exceeded the calibration range of the instrument. |

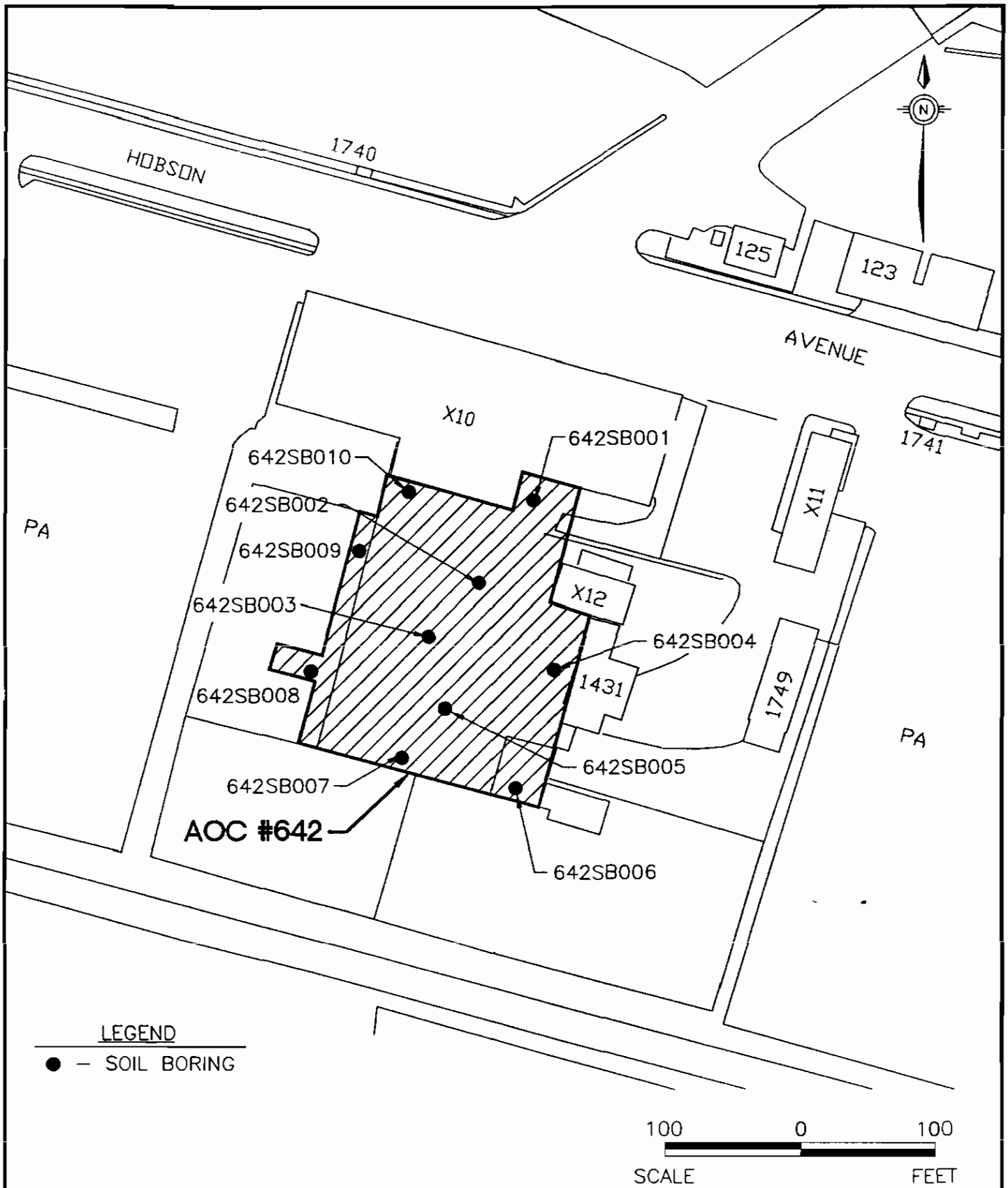
**AOC 642**

- Surficial Soil
  - Nickel exceeds residential RBC and background (SB007).
  - Arsenic, thallium, manganese slightly exceed RBCs and background (SB004, SB006, SB007, SB009)

- Subsurface Soil
  - No exceedances.

**RECOMMENDATIONS**

- No additional soil sampling at this time. The site is paved and no exposure pathway exists.




ZONE G
RCRA FACILITY INVESTIGATION
60% PROGRESS MEETING
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

SAMPLING LOCATIONS
AOC #642
FORMER PISTOL RANGE,
PRESENT PARKING LOT

DWG DATE: 11/25/96 | DWG NAME: 29CHZG13

Table
Exceeds Preliminary Remediation Goals (PRGs) for Soil Contaminents
Charleston Zone G Soil (Only)

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background |
|---|---|---|---|---|---|---|---|---|
| | | | AOC 642 | | | | | |
| Inorganics (mg/kg) | | | | | | | | |
| Arsenic (As) | 642-S-B004-01 | 09/18/96 | 31.70 | J | NV | 0.43 | USEPA-RBC | 24.60 |
| | 642-S-B009-01 | 09/18/96 | 6.40 | J | NV | 0.43 | USEPA-RBC | 24.60 |
| | 642-S-B010-01 | 09/18/96 | 13.50 | J | NV | 0.43 | USEPA-RBC | 24.60 |
| | 642-S-B003-01 | 09/18/96 | 19.40 | J | NV | 0.43 | USEPA-RBC | 24.60 |
| | 642-S-B008-01 | 09/18/96 | 5.00 | J | NV | 0.43 | USEPA-RBC | 24.60 |
| | 642-S-B007-01 | 09/18/96 | 30.70 | J | NV | 0.43 | USEPA-RBC | 24.60 |
| | 642-S-B005-01 | 09/18/96 | 8.90 | J | NV | 0.43 | USEPA-RBC | 24.60 |
| | 642-S-B006-01 | 09/18/96 | 82.00 | J | NV | 0.43 | USEPA-RBC | 24.60 |
| | 642-S-B001-01 | 09/18/96 | 5.20 | J | NV | 0.43 | USEPA-RBC | 24.60 |
| | 642-S-B002-01 | 09/18/96 | 4.50 | J | NV | 0.43 | USEPA-RBC | 24.60 |
| Beryllium (Be) | 642-S-B006-01 | 09/18/96 | 1.20 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 642-S-B005-01 | 09/18/96 | 0.40 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 642-S-B008-01 | 09/18/96 | 0.32 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 642-S-B007-01 | 09/18/96 | 0.58 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 642-S-B002-01 | 09/18/96 | 0.24 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 642-S-B004-01 | 09/18/96 | 0.46 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 642-S-B010-01 | 09/18/96 | 0.43 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 642-S-B003-01 | 09/18/96 | 0.75 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 642-S-B009-01 | 09/18/96 | 0.41 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 642-S-B001-01 | 09/18/96 | 0.24 | | NV | 0.15 | USEPA-RBC | 1.25 |
| Iron (Fe) | 642-S-B009-01 | 09/18/96 | 5500.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 642-S-B010-01 | 09/18/96 | 5970.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 642-S-B008-01 | 09/18/96 | 5360.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 642-S-B007-01 | 09/18/96 | 12800.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 642-S-B004-01 | 09/18/96 | 12400.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 642-S-B001-01 | 09/18/96 | 8150.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 642-S-B002-01 | 09/18/96 | 3080.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 642-S-B003-01 | 09/18/96 | 13400.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 642-S-B005-01 | 09/18/96 | 4900.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 642-S-B006-01 | 09/18/96 | 11800.00 | | NV | 2300.00 | USEPA-RBC | NA |
| Manganese (Mn) | 642-S-B009-01 | 09/18/96 | 350.00 | J | NV | 180.00 | USEPA-RBC | 321.00 |
| | 642-S-B007-01 | 09/18/96 | 205.00 | J | NV | 180.00 | USEPA-RBC | 321.00 |

**Table**
**Exceeds Preliminary Remediation Goals (PRGs) for Soil Contaminants**
**Charleston Zone G Soil (Only)**

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background |
|---|---|---|---|---|---|---|---|---|
| Nickel (Ni) | 642-S-B007-01 | 09/18/96 | 253.00 | J | NV | 160.00 | USEPA-RBC | 19.60 |
| Thallium (Tl) | 642-S-B006-01 | 09/18/96 | 0.87 | J | NV | 0.63 | USEPA-RBC | 0.87 |
| | 642-S-B004-01 | 09/18/96 | 1.00 | J | NV | 0.63 | USEPA-RBC | 0.87 |

**Notes:**

| | | |
|---|---|---|
| VAL | = | Validation is complete. |
| NV | = | Needs validation. |
| RBC | = | Risk Based Concentration. |
| SSL | = | Soil Screening Level - Transfers from soil to groundwater. |
| BKGD | = | Background |
| NA | = | Not available. |
| B | = | For inorganics, the reported value was obtained from a reading less than the CRDL but greater than the IDL. For organics, the analyte detected in the sample is also found in the associated method blank. |
| J | = | Indicates an estimated value for organics. |
| * | = | Indicates that the duplicate was not within control limits for inorganics. |
| P | = | Indicates that there was at least a 25% difference between the readings of the two GC columns. |
| D | = | Indicates an analysis at a secondary dilution factor. |
| E | = | For inorganics, the value is estimated because of the presence of interference. For organics, the concentration exceeded the calibration range of the instrument. |

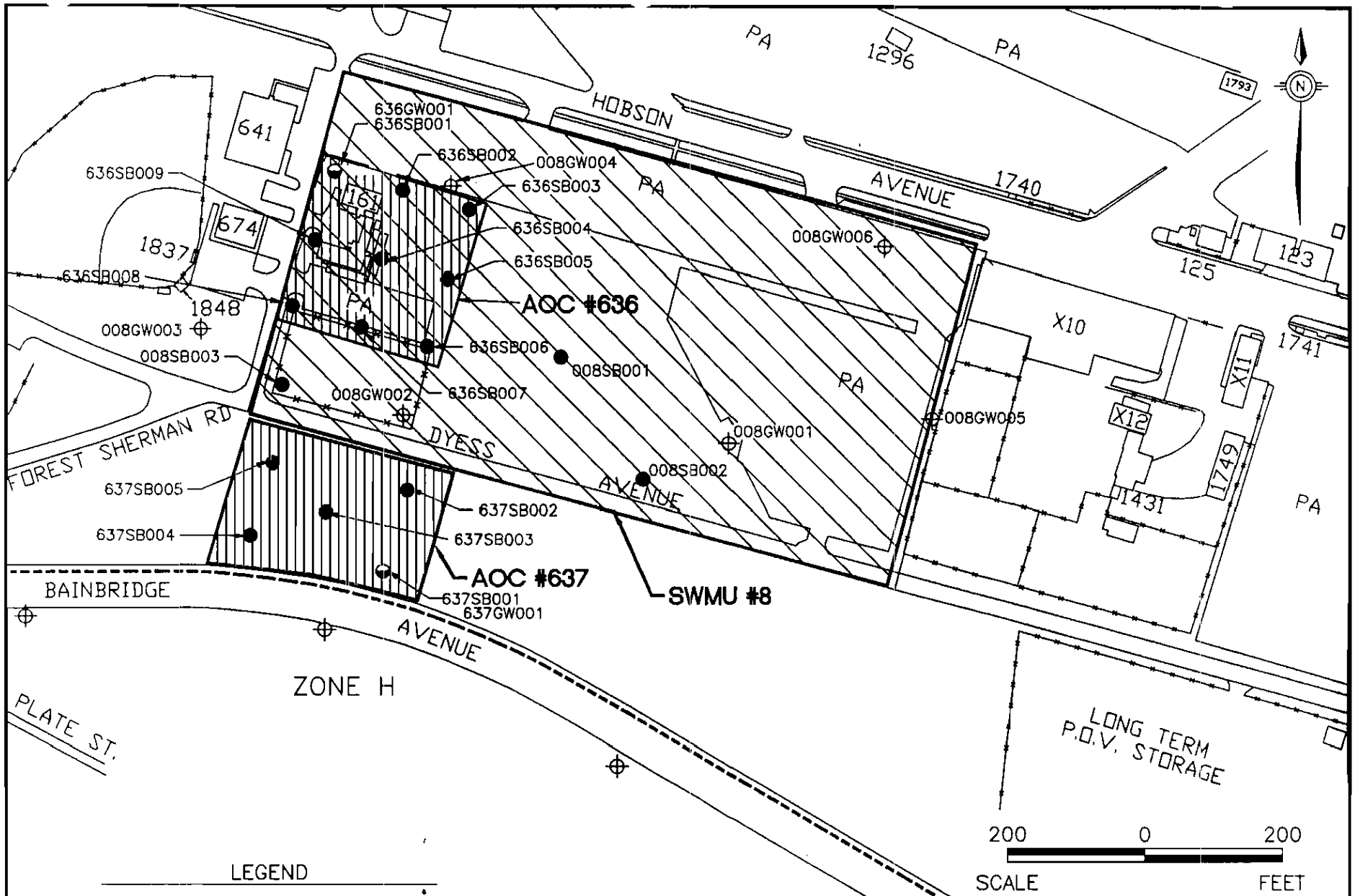
**SWMU 8/AOC 636/AOC 637**

- Surficial Soil
  - Copper and lead significantly exceed the RBC and background (SB001, SB002).
  - Other metals (aluminum, cobalt, manganese, thallium, vanadium) concentrations elevated but not significant.
  - Aroclor 1260 detected in three samples (SB005, SB007, SB008) equal to and up to three times the residential RBC.
  - BEQs exceed RBC in approximately half of samples collected.

- Subsurface Soil
  - Copper, lead, manganese significantly above SSL/background.

**RECOMMENDATIONS**

- Seven additional soil sample locations are proposed to delineate metals, PCBs and SVOCs around AOC 636 and 637.
- SWMU 8 results confirmed previous findings.




LEGEND

- ● – SOIL BORING
- ◒ – SOIL BORING/SHALLOW MONITORING WELL
- ⊕ – EXISTING WELL
- ----- – ZONE BOUNDARY

ZONE G
RCRA FACILITY INVESTIGATION
60% PROGRESS MEETING
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

SAMPLING LOCATIONS
SWMU #8 OIL SLUDGE PIT
AOC #637 DUMP AREA
AOC #636 TORPEDO MAGAZINE
BUILDING 161 AREA

DWG DATE: 11/25/96 | DWG NAME: 29CHZG21

**Table**
**Exceeds Preliminary Remediation Goals (PRGs) for Soil Contaminants**
**Charleston Zone G Soil (Only)**

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background |
|---|---|---|---|---|---|---|---|---|
| | | | **SWMU 8** | | | | | |
| **Semivolatiles (μg/kg)** | | | | | | | | |
| Benzo(a)anthracene | 008-S-B003-01 | 09/13/96 | 940.00 | | NV | B80.00 | USEPA-RBC | NA |
| Benzo(a)pyrene | 008-S-B003-01 | 09/13/96 | 730.00 | | NV | 88.00 | USEPA-RBC | NA |
| **Inorganics (mg/kg)** | | | | | | | | |
| Arsenic (As) | 008-S-B002-01 | 09/16/96 | 1.50 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 008-S-B003-01 | 09/13/96 | 6.70 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 008-S-B001-01 | 09/12/96 | 12.70 | | VAL | 0.43 | USEPA-RBC | 24.60 |
| Beryllium (Be) | 008-S-B003-01 | 09/13/96 | 0.35 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 008-S-B001-01 | 09/12/96 | 0.23 | B | VAL | 0.15 | USEPA-RBC | 1.25 |
| Iron (Fe) | 008-S-B003-01 | 09/13/96 | 6760.00 | | NV | 2300.00 | USEPA-RBC | NA |
| Thallium (Tl) | 008-S-B003-01 | 09/13/96 | 0.65 | B | NV | 0.63 | USEPA-RBC | 0.87 |
| **Benzo(a)Pyrene Equivalents (BEQs)** | | | | | | | | |
| | 008-S-B003-01 | 09/13/96 | 942.40 | | NV | 88.00 | USEPA-BEQ-RBC | NA |

**Notes:**

| | | |
|---|---|---|
| VAL | = | Validation is complete. |
| NV | = | Needs validation. |
| RBC | = | Risk Based Concentration. |
| SSL | = | Soil Screening Level - Transfers from soil to groundwater. |
| BKGD | = | Background |
| NA | = | Not available. |
| B | = | For inorganics, the reported value was obtained from a reading less than the CRDL but greater than the IDL. For organics, the analyte detected in the sample is also found in the associated method blank. |
| J | = | Indicates an estimated value for organics. |
| * | = | Indicates that the duplicate was not within control limits for inorganics. |
| P | = | Indicates that there was at least a 25% difference between the readings of the two GC columns. |
| D | = | Indicates an analysis at a secondary dilution factor. |
| E | = | For inorganics, the value is estimated because of the presence of interference. For organics, the concentration exceeded the calibration range of the instrument. |

Table
Exceeds Preliminary Remediation Goals (PRGs) for Soil Contaminants
Charleston Zone G Soil (Only)

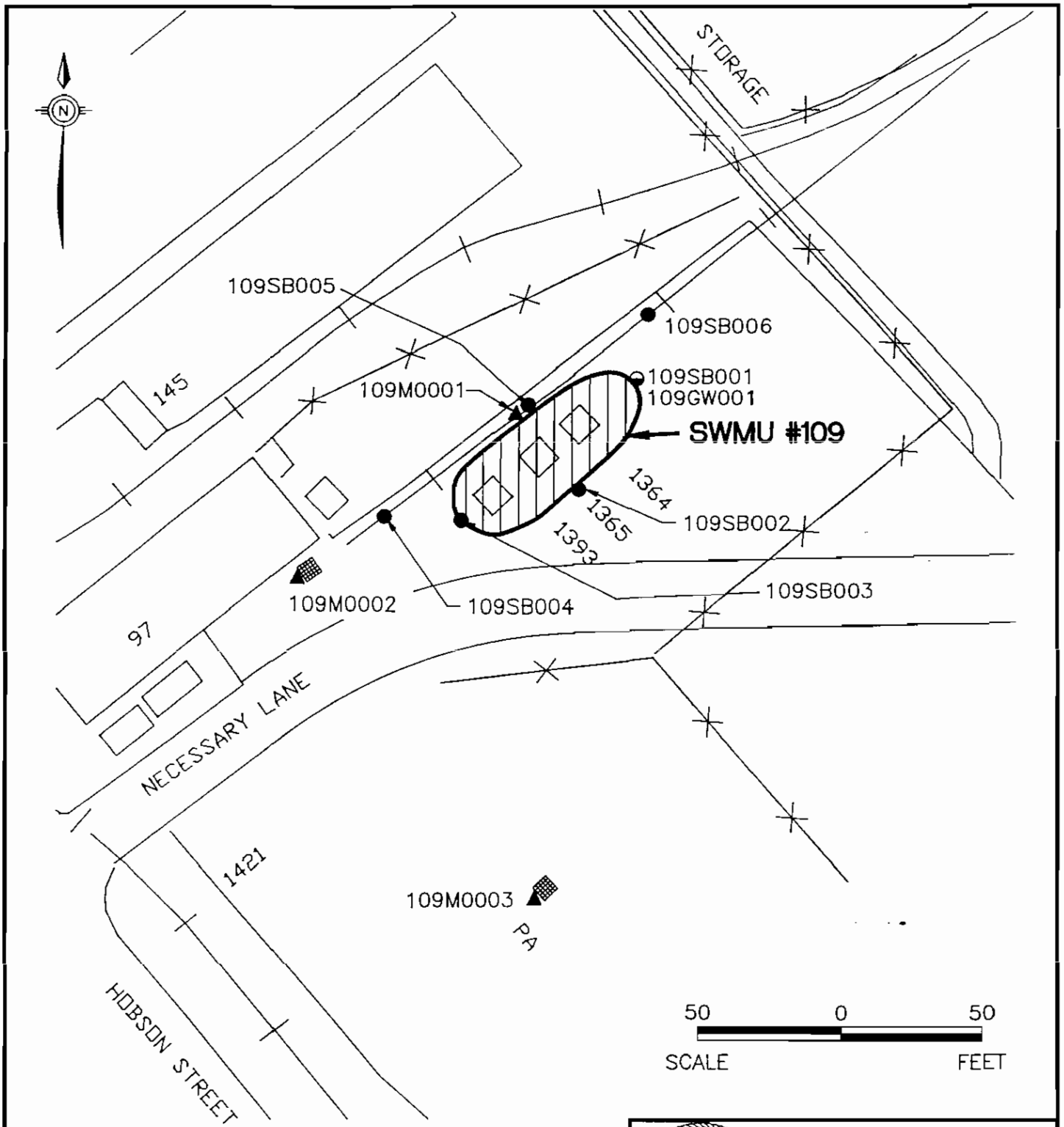
| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background |
|---|---|---|---|---|---|---|---|---|
| | | | AOC 636 | | | | | |
| **Volatiles (μ/kg)** | | | | | | | | |
| 1,1,2,2-Tetrachloroethane | 636-S-B009-02 | 09/12/96 | 10.00 | J | VAL | 0.40 | USEPA-SSL | NA |
| **Semivolatiles (μg/kg)** | | | | | | | | |
| Benzo(a)pyrene | 636-S-B001-01 | 09/11/96 | 200.00 | J | NV | 88.00 | USEPA-RBC | NA |
| | 636-S-B003-01 | 09/11/96 | 360.00 | J | NV | 88.00 | USEPA-R8C | NA |
| | 636-S-B007-01 | 09/12/96 | 98.00 | J | VAL | 88.00 | USEPA-R8C | NA |
| | 636-S-B008-01 | 09/12/96 | 190.00 | J | VAL | 88.00 | USEPA-RBC | NA |
| **Inorganics (mg/kg)** | | | | | | | | |
| Aluminum (Al) | 636-S-B003-01 | 09/11/96 | 12100.00 | * | NV | 7800.00 | USEPA-RBC | 20100.00 |
| | 636-S-B008-01 | 09/12/96 | 10100.00 | | NV | 7800.00 | USEPA-RBC | 20100.00 |
| | 636-S-B009-02 | 09/12/96 | 36500.00 | | VAL | 26800.00 | Zone G Bkgd | 26800.00 |
| Antimony (Sb) | 636-S-B009-01 | 09/12/96 | 6.40 | B | VAL | 3.10 | USEPA-RBC | 3.28 |
| Arsenic (As) | 636-S-B007-01 | 09/12/96 | 5.10 | | VAL | 0.43 | USEPA-RBC | 24.60 |
| | 636-S-B006-01 | 09/12/96 | 2.30 | | VAL | 0.43 | USEPA-RBC | 24.60 |
| | 636-S-B004-01 | 09/11/96 | 2.70 | N* | NV | 0.43 | USEPA-RBC | 24.60 |
| | 636-S-B003-01 | 09/11/96 | 11.40 | N* | NV | 0.43 | USEPA-RBC | 24.60 |
| | 636-S-B005-01 | 09/11/96 | 22.80 | N* | NV | 0.43 | USEPA-RBC | 24.60 |
| | 636-S-B002-01 | 09/11/96 | 8.60 | N* | NV | 0.43 | USEPA-RBC | 24.60 |
| | 636-S-B001-01 | 09/11/96 | 7.10 | N* | NV | 0.43 | USEPA-RBC | 24.60 |
| | 636-S-B008-01 | 09/12/96 | 6.70 | | VAL | 0.43 | USEPA-RBC | 24.60 |
| | 636-S-B009-01 | 09/12/96 | 5.50 | | VAL | 0.43 | USEPA-RBC | 24.60 |
| Beryllium (Be) | 636-S-B002-01 | 09/11/96 | 0.42 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 636-S-B007-01 | 09/12/96 | 0.35 | | VAL | 0.15 | USEPA-RBC | 1.25 |
| | 636-S-B005-01 | 09/11/96 | 0.51 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 636-S-B006-01 | 09/12/96 | 0.18 | B | VAL | 0.15 | USEPA-RBC | 1.25 |
| | 636-S-B009-01 | 09/12/96 | 1.00 | | VAL | 0.15 | USEPA-RBC | 1.25 |
| | 636-S-B008-01 | 09/12/96 | 0.48 | | VAL | 0.15 | USEPA-RBC | 1.25 |
| | 636-S-B001-01 | 09/11/96 | 0.38 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 636-S-B004-01 | 09/11/96 | 0.25 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 636-S-B003-01 | 09/11/96 | 0.66 | | NV | 0.15 | USEPA-RBC | 1.25 |
| Cobalt (Co) | 636-S-B009-02 | 09/12/96 | 9.40 | | VAL | 9.30 | Zone G Bkgd | 9.30 |
| Copper (Cu) | 636-S-B001-01 | 09/11/96 | 1330.00 | * | NV | 310.00 | USEPA-RBC | 269.00 |
| | 636-S-B004-02 | 09/11/96 | 109.00 | * | NV | 40.50 | Zone G Bkgd | 40.50 |

**Table**
**Exceeds Preliminary Remediation Goals (PRGs) for Soil Contaminants**
**Charleston Zone G Soil (Only)**

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background |
|---|---|---|---|---|---|---|---|---|
| | 636-S-B005-02 | 09/11/96 | 134.00 | * | NV | 40.50 | Zone G Bkgd | 40.50 |
| | 636-S-B007-01 | 09/12/96 | 515.00 | | VAL | 310.00 | USEPA-RBC | 269.00 |
| Iron (Fe) | 636-S-B001-01 | 09/11/96 | 7560.00 | * | NV | 2300.00 | USEPA-RBC | NA |
| | 636-S-B007-01 | 09/12/96 | 8600.00 | | VAL | 2300.00 | USEPA-RBC | NA |
| | 636-S-B003-01 | 09/11/96 | 14600.00 | * | NV | 2300.00 | USEPA-RBC | NA |
| | 636-S-B008-01 | 09/12/96 | 10500.00 | | VAL | 2300.00 | USEPA-RBC | NA |
| | 636-S-B004-01 | 09/11/96 | 3460.00 | * | NV | 2300.00 | USEPA-RBC | NA |
| | 636-S-B006-01 | 09/12/96 | 2770.00 | | VAL | 2300.00 | USEPA-RBC | NA |
| | 636-S-B002-01 | 09/11/96 | 6330.00 | * | NV | 2300.00 | USEPA-RBC | NA |
| | 636-S-B005-01 | 09/11/96 | 4470.00 | * | NV | 2300.00 | USEPA-RBC | NA |
| | 636-S-B009-01 | 09/12/96 | 12200.00 | | VAL | 2300.00 | USEPA-RBC | NA |
| Lead (Pb) | 636-S-B002-01 | 09/11/96 | 630.00 | * | NV | 400.00 | USEPA-RBC | 193.00 |
| | 636-S-B004-02 | 09/11/96 | 93.20 | * | NV | 66.70 | Zone G Bkgd | 66.70 |
| Manganese (Mn) | 636-S-B003-01 | 09/11/96 | 253.00 | N* | NV | 180.00 | USEPA-RBC | 321.00 |
| | 636-S-B005-02 | 09/11/96 | 425.00 | N* | NV | 268.00 | Zone G Bkgd | 268.00 |
| | 636-S-B009-02 | 09/12/96 | 706.00 | | VAL | 268.00 | Zone G Bkgd | 268.00 |
| Thallium (Tl) | 636-S-B009-02 | 09/12/96 | 1.00 | B | VAL | 0.71 | USEPA-SSL | 0.86 |
| | 636-S-B003-01 | 09/11/96 | 0.92 | BN | NV | 0.63 | USEPA-RBC | 0.87 |
| | 636-S-B009-01 | 09/12/96 | 0.73 | B | VAL | 0.63 | USEPA-RBC | 0.87 |
| | 636-S-B005-02 | 09/11/96 | 0.88 | BN | NV | 0.71 | USEPA-SSL | 0.86 |
| | 636-S-B001-01 | 09/11/96 | 0.82 | BN | NV | 0.63 | USEPA-RBC | 0.87 |
| Vanadium (V) | 636-S-B009-02 | 09/12/96 | 82.00 | | VAL | 79.90 | Zone G Bkgd | 79.90 |
| **Pesticides/PCBs (μg/kg)** | | | | | | | | |
| Aroclor-1260 | 636-S-B005-01 | 09/11/96 | 320.00 | | NV | 320.00 | USEPA-RBC | NA |
| | 636-S-B007-01 | 09/12/96 | 350.00 | | VAL | 320.00 | USEPA-RBC | NA |
| | 636-S-B008-01 | 09/12/96 | 920.00 | | VAL | 320.00 | USEPA-RBC | NA |
| **Benzo(a)Pyrene Equivalents (BEQs)** | | | | | | | | |
| | 636-S-B001-01 | 08/30/96 | 296.78 | | NV | 88.00 | USEPA-BEQ-RBC | NA |
| | 636-S-B003-01 | 09/09/96 | 509.06 | | NV | 88.00 | USEPA-BEQ-RBC | NA |
| | 636-S-B007-01 | 09/03/96 | 127.62 | | NV | 88.00 | USEPA-BEQ-RBC | NA |
| | 636-S-B008-01 | 09/04/96 | 273.79 | | NV | 88.00 | USEPA-BEQ-RBC | NA |

Notes:

| | | |
|---|---|---|
| VAL | = | Validation is complete. |
| NV | = | Needs validation. |
| RBC | = | Risk Based Concentration. |
| SSL | = | Soil Screening Level - Transfers from soil to groundwater. |
| BKGD | = | Background |
| NA | = | Not available. |
| B | = | For inorganics, the reported value was obtained from a reading less than the CRDL but greater than the IDL. For organics, the analyte detected in the sample is also found in the associated method blank. |
| J | = | Indicates an estimated value for organics. |
| * | = | Indicates that the duplicate was not within control limits for inorganics. |
| P | = | Indicates that there was at least a 25% difference between the reedings of the two GC columns. |
| D | = | Indicates an analysis at a secondary dilution factor. |
| E | = | For inorganics, the value is estimated because of the presence of interference. For organics, the concentration exceeded the calibration range of the instrument. |




LEGEND

- ● – SOIL BORING
- ◒ – SOIL BORING/SHALLOW MONITORING WELL
- ▲ – SEDIMENT SAMPLE
- ▩ -- CATCH BASIN

ZONE F
RCRA FACILITY INVESTIGATION
60% PROGRESS MEETING
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

SAMPLING LOCATIONS
SWMU #109
ABRASIVE BLAST MEDIA STORAGE AREA

DWG DATE: 11/26/96 | DWG NAME: 29CHZG15

Table
Exceeded Preliminary Remediation Goals (PRGs) for Soil Contaminents
Charleston Zone F Soil (Only)

| Name | Sample ID | Sample Date | Result | VQUAL | Velidation | PRG Result | PRG Exceeded | Beckground Zone F |
|---|---|---|---|---|---|---|---|---|
| | | | SWMU 109 | | | | | |
| **Semivolatiles (µg/mg)** | | | | | | | | |
| Benzo(a)pyrene | 109-S-B004-01 | 09/23/96 | 450.00 | J | NV | 88.00 | USEPA-RBC | NA |
| Dibenz(a,h)anthracene | 109-S-B004-01 | 09/23/96 | 120.00 | J | NV | 88.00 | USEPA-RBC | NA |
| **Inorganics (mg/kg)** | | | | | | | | |
| Aluminum (Al) | 109-S-B003-01 | 09/23/96 | 10900.00 | N* | NV | 7800.00 | USEPA-RBC | 18500.00 |
| | 109-S-B004-01 | 09/23/96 | 11300.00 | N* | NV | 7800.00 | USEPA-RBC | 18500.00 |
| | 109-S-B005-01 | 09/23/96 | 16000.00 | N* | NV | 7800.00 | USEPA-RBC | 18500.00 |
| Arsenic (As) | 109-S-B001-01 | 08/27/96 | 4.00 | | VAL | 0.43 | USEPA-RBC | 26.70 |
| | 109-S-B002-01 | 09/23/96 | 1.40 | | NV | 0.43 | USEPA-RBC | 26.70 |
| | 109-S-B003-01 | 09/23/96 | 11.30 | | NV | 0.43 | USEPA-RBC | 26.70 |
| | 109-S-B004-01 | 09/23/96 | 134.00 | | NV | 0.43 | USEPA-RBC | 26.70 |
| | 109-S-B005-01 | 09/23/96 | 20.20 | | NV | 0.43 | USEPA-RBC | 26.70 |
| | 109-S-B006-01 | 09/23/96 | 6.10 | | NV | 0.43 | USEPA-RBC | 26.70 |
| Beryllium (Be) | 109-S-B001-01 | 08/27/96 | 0.28 | | VAL | 0.15 | USEPA-RBC | 1.05 |
| | 109-S-B002-01 | 09/23/96 | 0.17 | B | NV | 0.15 | USEPA-RBC | 1.05 |
| | 109-S-B003-01 | 09/23/96 | 0.68 | | NV | 0.15 | USEPA-RBC | 1.05 |
| | 109-S-B004-01 | 09/23/96 | 0.85 | | NV | 0.15 | USEPA-RBC | 1.05 |
| | 109-S-B005-01 | 09/23/96 | 1.30 | | NV | 0.15 | USEPA-RBC | 1.05 |
| | 109-S-B006-01 | 09/23/96 | 0.19 | B | NV | 0.15 | USEPA-RBC | 1.05 |
| Iron (Fe) | 109-S-B001-01 | 08/27/96 | 4820.00 | | VAL | 2300.00 | USEPA-RBC | NA |
| | 109-S-B003-01 | 09/23/96 | 13800.00 | * | NV | 2300.00 | USEPA-RBC | NA |
| | 109-S-B004-01 | 09/23/96 | 29500.00 | * | NV | 2300.00 | USEPA-RBC | NA |
| | 109-S-B005-01 | 09/23/96 | 28000.00 | * | NV | 2300.00 | USEPA-RBC | NA |
| Manganese (Mn) | 109-S-B003-01 | 09/23/96 | 207.00 | N* | NV | 180.00 | USEPA-RBC | 307.00 |
| | 109-S-B004-01 | 09/23/96 | 427.00 | N* | NV | 180.00 | USEPA-RBC | 307.00 |
| | 109-S-B005-01 | 09/23/96 | 274.00 | N* | NV | 180.00 | USEPA-RBC | 307.00 |
| Vanadium (V) | 109-S-B005-01 | 09/23/96 | 64.50 | E | NV | 55.00 | USEPA-RBC | 48.90 |
| **Benzo(a)Pyrene Equivalents (BEQs)** | | | | | | | | |
| | 109-S-B004-01 | 09/23/96 | 637.44 | | | 88.00 | USEPA-BEQ-RBC | |

**Notes:**

| | | |
|---|---|---|
| VAL | = | Validation is complete. |
| NV | = | Needs validation. |
| RBC | = | Risk Based Concentration. |
| SSL | = | Soil Screening Level - Transfers from soil to groundwater. |
| BKGD | = | Background |
| NA | = | Not available. |
| B | = | For inorganics, the reported value was obtained from a reading less than the CRDL but greater than the IDL. For organics, the analyte detected in the sample is also found in the associated method blank. |
| J | = | Indicates an estimated value for organics. |
| * | = | Indicates that the duplicate was not within control limits for inorganics. |
| P | = | Indicates that there was at least a 25% difference between the readings of the two GC columns. |
| D | = | Indicates an analysis at a secondary dilution factor. |
| E | = | For inorganics, the value is estimated because of the presence of interference. For organics, the concentration exceeded the calibration range of the instrument. |

**Table**
**Exceeded Preliminary Remediation Goals (PRGs) for Sediment Contaminants**
**Charleston Zone F Sediment**

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded |
|---|---|---|---|---|---|---|---|
| | | | AOC 109 | | | | |
| **Semivoletiles (μg/kg)** | | | | | | | |
| bis(2-Ethylhexyl)phthalate (BEHP) | 109-M-0001 | 10/01/96 | 420.00 | * | NV | 182.00 | USEPA-SSV |
| **Inorganics (mg/kg)** | | | | | | | |
| Arsenic (As) | 109-M-0003 | 10/01/96 | 9.00 | | NV | 7.24 | USEPA-SSV |
| Chromium (Cr) | 109-M-0003 | 10/01/96 | 120.00 | N* | NV | 52.30 | USEPA-SSV |
| Copper (Cu) | 109-M-0001 | 10/01/96 | 31.10 | EN* | NV | 18.70 | USEPA-SSV |
| | 109-M-0003 | 10/01/96 | 3930.00 | EN* | NV | 18.70 | USEPA-SSV |
| Lead (Pb) | 109-M-0001 | 10/01/96 | 76.30 | * | NV | 30.20 | USEPA-SSV |
| | 109-M-0003 | 10/01/96 | 1150.00 | * | NV | 30.20 | USEPA-SSV |
| Nickel (Ni) | 109-M-0003 | 10/01/96 | 326.00 | * | NV | 15.90 | USEPA-SSV |
| Zinc (Zn) | 109-M-0001 | 10/01/96 | 258.00 | * | NV | 124.00 | USEPA-SSV |
| | 109-M-0003 | 10/01/96 | 1650.00 | * | NV | 124.00 | USEPA-SSV |

**Notes:**

| | | |
|---|---|---|
| VAL | = | Validation is complete. |
| NV | = | Needs validation. |
| RBC | = | Risk Based Concentration. |
| SSL | = | Soil Screening Level - Transfers from soil to groundwater. |
| * | = | Indicates that the duplicate was not within control limits for inorganics. |
| E | = | For inorganics, the value is estimated because of the presence of interference. For organics, the concentration exceeded the calibration range of the instrument. |

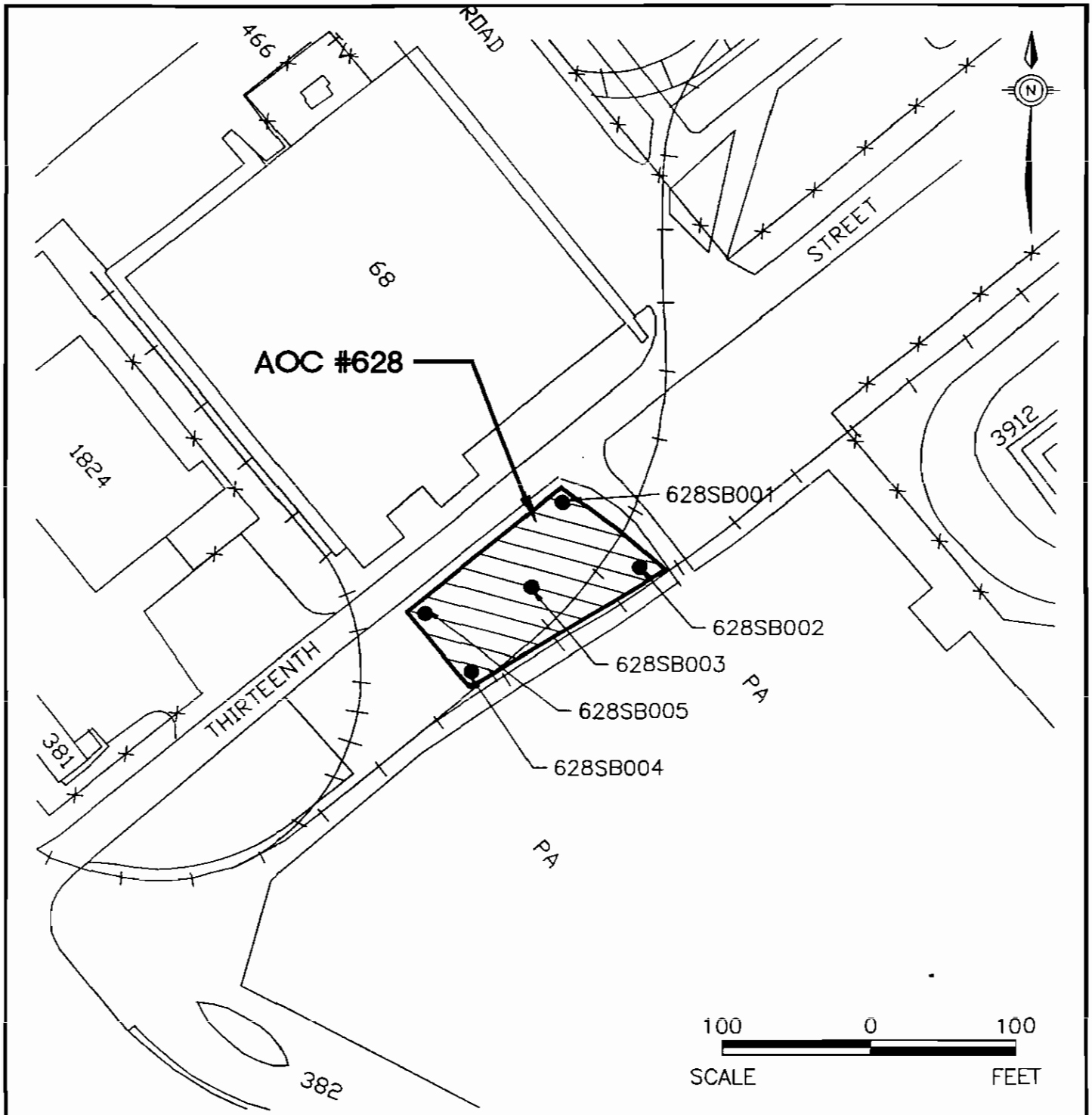
## AOC 628

- Surficial Soil
  - BEQs exceed residential but below industrial RBC.

- Subsurface Soil
  - Lead and manganese exceed SSLs/background.

## RECOMMENDATION

- Industrial RBCs should be applied due to location, site features and probable site reuse.
- No additional soil samples are proposed at this time, wait on groundwater data (AOC 620/SWMU 36) to evaluate soil to groundwater pathway.




LEGEND

● – SOIL BORING

ZONE G
RCRA FACILITY INVESTIGATION
60% PROGRESS MEETING
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

SAMPLING LOCATIONS
AOC #628
SANDBLASTING AREA,
SOUTHEAST OF BUILDING 68

DWG DATE: 11/25/96 | DWG NAME: 29CHZG09

Table
Exceeds Preliminary Remediation Goals (PRGs) for Soil Contaminants
Charleston Zone G Soil (Only)

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background |
|---|---|---|---|---|---|---|---|---|
| | | | AOC 628 | | | | | |
| **Volatiles (μg/kg)** | | | | | | | | |
| Methylene chloride | 628-S-B001-02 | 10/01/96 | 32.00 | B | NV | 19.00 | USEPA-SSL | NA |
| | 628-S-B005-02 | 10/01/96 | 20.00 | J8 | NV | 19.00 | USEPA-SSL | NA |
| **Semivolatiles (μg/kg)** | | | | | | | | |
| Benzo(a)pyrene | 628-S-B001-01 | 10/01/96 | 270.00 | J | NV | 88.00 | USEPA-RBC | NA |
| | 628-S-B003-01 | 10/01/96 | 210.00 | J | NV | 88.00 | USEPA-RBC | NA |
| | 628-S-B004-01 | 10/01/96 | 150.00 | J | NV | 88.00 | USEPA-RBC | NA |
| | 628-S-B005-01 | 10/01/96 | 200.00 | J | NV | 88.00 | USEPA-RBC | NA |
| Dibenz(a,h)anthracene | 628-S-B001-01 | 10/01/96 | 120.00 | J | NV | 88.00 | USEPA-RBC | NA |
| **Inorganics (mg/kg)** | | | | | | | | |
| Aluminum (Al) | 628-S-B004-01 | 10/01/96 | 10600.00 | | NV | 7800.00 | USEPA-RBC | 20100.00 |
| Arsenic (As) | 628-S-B004-01 | 10/01/96 | 21.00 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 628-S-B005-01 | 10/01/96 | 6.40 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 628-S-B003-01 | 10/01/96 | 6.20 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 628-S-B001-01 | 10/01/96 | 7.40 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 628-S-B002-01 | 10/01/96 | 1.40 | | NV | 0.43 | USEPA-RBC | 24.60 |
| Beryllium (Be) | 628-S-B004-01 | 10/01/96 | 0.48 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 628-S-B001-01 | 10/01/96 | 0.36 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 628-S-B002-01 | 10/01/96 | 0.18 | B | NV | 0.15 | USEPA-RBC | 1.25 |
| | 628-S-B003-01 | 10/01/96 | 0.37 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 628-S-B005-01 | 10/01/96 | 0.31 | | NV | 0.15 | USEPA-RBC | 1.25 |
| Iron (Fe) | 628-S-B005-01 | 10/01/96 | 6640.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 628-S-B004-01 | 10/01/96 | 23900.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 628-S-B002-01 | 10/01/96 | 2780.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 628-S-B001-01 | 10/01/96 | 8090.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 628-S-B003-01 | 10/01/96 | 7040.00 | | NV | 2300.00 | USEPA-RBC | NA |
| Lead (Pb) | 628-S-B002-02 | 10/01/96 | 76.50 | | NV | 66.70 | Zone G Bkgd | 66.70 |
| | 628-S-B003-02 | 10/01/96 | 98.00 | | NV | 66.70 | Zone G Bkgd | 66.70 |
| Manganese (Mn) | 628-S-B005-02 | 10/01/96 | 655.00 | | NV | 268.00 | Zone G Bkgd | 268.00 |
| **Benzo(a)Pyrene Equivalents (BEQs)** | | | | | | | | |
| | 628-S-B001-01 | 10/01/96 | 453.55 | | | 88.00 | USEPA-BEQ-RBC | |
| | 628-S-B003-01 | 10/01/96 | 325.80 | | | 88.00 | USEPA-BEQ-RBC | |
| | 628-S-B004-01 | 10/01/96 | 259.15 | | | 88.00 | USEPA-BEQ-RBC | |
| | 628-S-B005-01 | 10/01/96 | 336.18 | | | 88.00 | USEPA-BEQ-RBC | |

**Notes:**

| | | |
|---|---|---|
| VAL | = | Validation is complete. |
| NV | = | Needs validation. |
| RBC | = | Risk Based Concentration. |
| SSL | = | Soil Screening Level - Transfers from soil to groundwater. |
| BKGD | = | Background |
| NA | = | Not available. |
| B | = | For inorganics, the reported value was obtained from a reading less than the CRDL but greater than tha IDL. For organics, the analyte detected in the sample is also found in the associated method blank. |
| J | = | Indicates an estimated value for organics. |
| * | = | Indicates that the duplicate was not within control limits for inorganics. |
| P | = | Indicates that there was at least a 25% difference between the readings of the two GC columns. |
| D | = | Indicates an analysis at a secondary dilution factor. |
| E | = | For inorganics, the value is estimated because of the presence of interference. For organics, the concentration exceeded the calibration range of the instrument. |

**SWMU 175/AOC 613, 615**

Screening results presented 10/9/96 at 30% meeting.

- Sediment
  - SVOC and metals exceed SSVs in sediment.

**RECOMMENDATIONS**

- Industrial RBC should be applied due to locations, site features, and probable site reuse.
- No additional soil sampling at this time.
- Wait on groundwater data and evaluate soil to groundwater pathway.

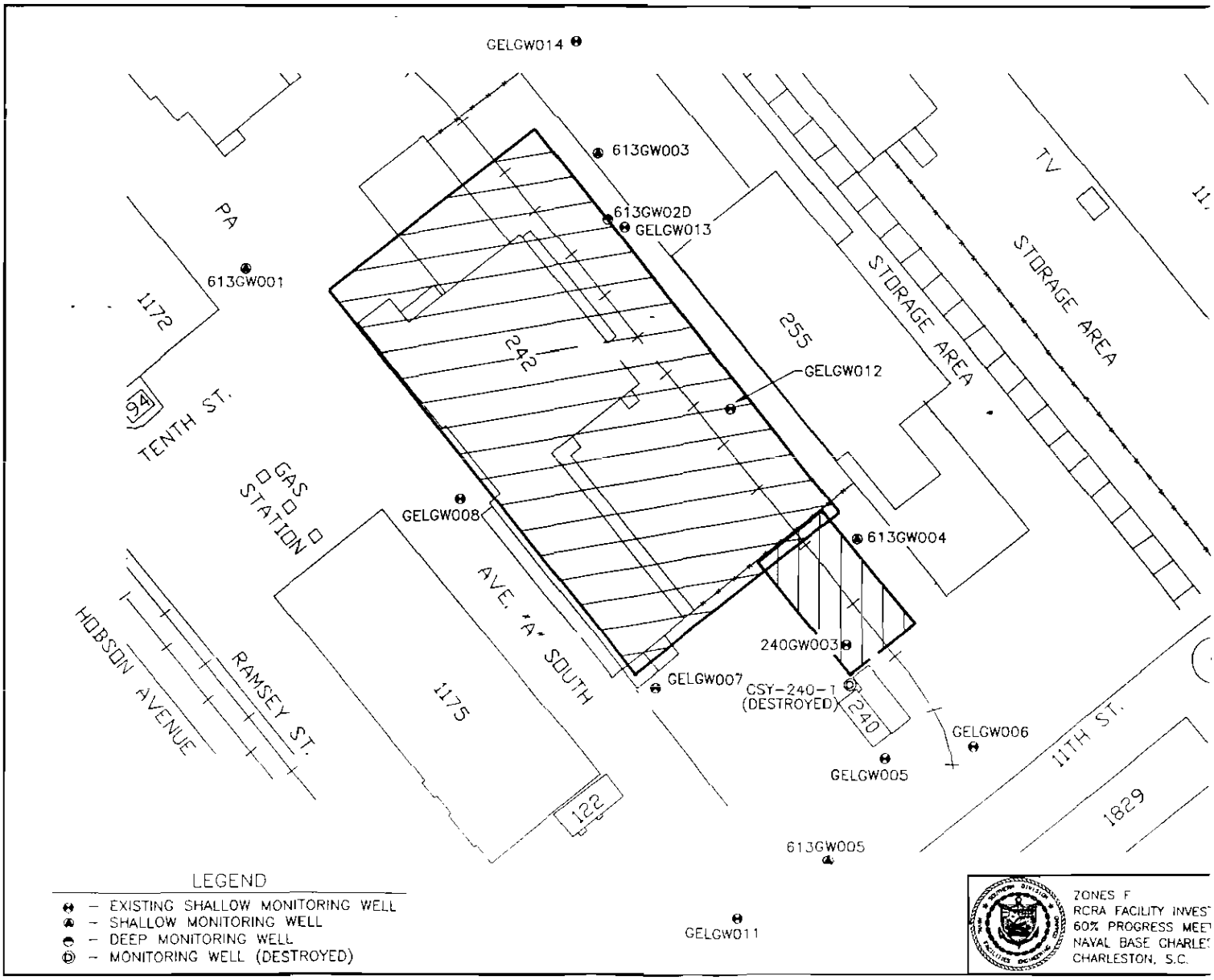

GELGW014
613GW003
613GW02D
GELGW013
613GW001
PA
1172
242
255
STORAGE AREA
STORAGE AREA
TV
GELGW012
94
TENTH ST.
GAS STATION
GELGW008
613GW004
AVE. "A" SOUTH
HOBSON AVENUE
RAMSEY ST.
1175
240GW003
GELGW007
CSY-240-1 (DESTROYED)
240
GELGW006
GELGW005
11TH ST.
1829
122
613GW005
GELGW011
LEGEND
– EXISTING SHALLOW MONITORING WELL
– SHALLOW MONITORING WELL
– DEEP MONITORING WELL
– MONITORING WELL (DESTROYED)
ZONES F
RCRA FACILITY INVES
60% PROGRESS MEE
NAVAL BASE CHARLE
CHARLESTON, S.C.

**Table**
**Exceeded Preliminary Remediation Goals (PRGs) for Sediment Contaminants**
**Charleston Zone F Sediment**

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded |
|---|---|---|---|---|---|---|---|
| | | | AOC 613 | | | | |
| **Semivolatiles (μg/kg)** | | | | | | | |
| Benzo(a)anthracene | 613-M-0002 | 09/27/96 | 410.00 | J | NV | 330.00 | USEPA-SSV |
| Benzo(a)pyrene | 613-M-0002 | 09/27/96 | 390.00 | J | NV | 330.00 | USEPA-SSV |
| Chrysene | 613-M-0002 | 09/27/96 | 470.00 | J | NV | 330.00 | USEPA-SSV |
| Fluoranthene | 613-M-0002 | 09/27/96 | 1000.00 | | NV | 330.00 | USEPA-SSV |
| Phenanthrene | 613-M-0002 | 09/27/96 | 520.00 | J | NV | 330.00 | USEPA-SSV |
| Pyrene | 613-M-0002 | 09/27/96 | 880.00 | | NV | 330.00 | USEPA-SSV |
| bis(2-Ethylhexyl)phthalate (BEHP) | 613-M-0002 | 09/27/96 | 570.00 | J | NV | 182.00 | USEPA-SSV |
| **Inorganics (mg/kg)** | | | | | | | |
| Arsenic (As) | 613-M-0002 | 09/27/96 | 11.70 | N | NV | 7.24 | USEPA-SSV |
| Cadmium (Cd)) | 613-M0001 | 09/27/96 | 1.20 | N | NV | 1.00 | USEPA-SSV |
| Copper (Cu) | 613-M-0002 | 09/27/96 | 36.70 | N* | NV | 18.70 | USEPA-SSV |
| | 613-M-0001 | 09/27/96 | 35.10 | N* | NV | 18.70 | USEPA-SSV |
| Lead (Pb) | 613-M-0002 | 09/27/96 | 30.40 | N* | NV | 30.20 | USEPA-SSV |
| Nickel (Ni) | 613-M-0002 | 09/27/96 | 41.30 | E | NV | 15.90 | USEPA-SSV |

**Notes:**

| | | |
|---|---|---|
| VAL | = | Validation is complete. |
| NV | = | Needs validation. |
| RBC | = | Risk Based Concentration. |
| SSL | = | Soil Screening Level - Transfers from soil to groundwater. |
| J | = | Indicates an estimated value for organics. |
| * | = | Indicates that the duplicate was not within control limits for inorganics. |
| E | = | For inorganics, the value is estimated because of the presence of interference. For organics, the concentration exceeded the calibration range of the instrument. |

**AOC 607**

Soil and groundwater screening results presented at 30% meeting.
15 wells installed as proposed.

- Sediment
  - SVOC and metal concentrations exceed SSVs in sediment.

**RECOMMENDATIONS**

- No additional soil sampling proposed, metals and SVOC to be addressed in the Zone L investigation.
- Wait on results of groundwater data and evaluate.

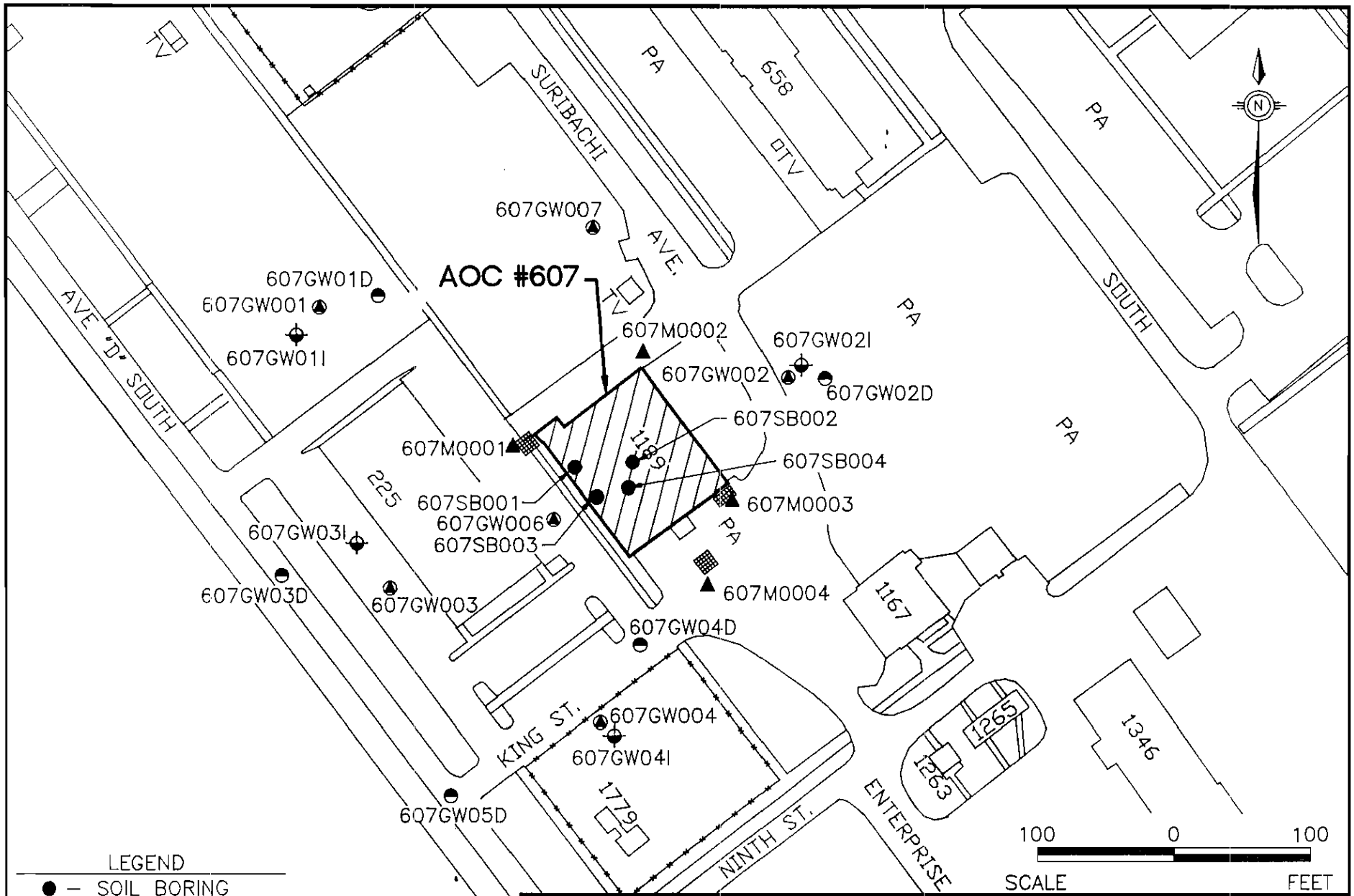

AOC #607
607GW007
607GW01D
607GW001
607GW01I
607M0002
607GW02I
607GW002
607GW02D
607SB002
607M0001
607SB004
607SB001
607GW006
607SB003
607M0003
607GW03I
607GW03D
607GW003
607M0004
607GW04D
607GW004
607GW04I
607GW05D
SURIBACHI AVE.
AVE "D" SOUTH
KING ST.
NINTH ST.
ENTERPRISE
SOUTH
PA
658
DTV
TV
225
1189
1167
1265
1263
1346
1779
N
100 0 100
SCALE FEET
LEGEND
● – SOIL BORING
▦ – CATCH BASIN
▲ – SEDIMENT SAMPLE
◓ – DEEP MONITORING WELL
◭ – SHALLOW MONITORING WELL
⌖ – INTERMEDIATE MONITORING WELL
SOUTHERN DIVISION NAVAL FACILITIES ENGINEERING COMMAND
ZONE F
RCRA FACILITY INVESTIGATION
60% PROGRESS MEETING
NAVAL BASE CHARLESTON
CHARLESTON, S.C.
SAMPLING LOCATIONS
AOC #607
DRY CLEANING,
BUILDING 1189
DWG DATE: 11/26/96
DWG NAME: 29CZF607

**Table**
**Exceeded Preliminary Remediation Goals (PRGs) for Soil Contaminants**
**Charleston Zone F Soil (Only)**

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background Zone F |
|---|---|---|---|---|---|---|---|---|
| | | | AOC 607 | | | | | |
| **Volatiles (μg/kg)** | | | | | | | | |
| Tetrachloroethene | 607-S-B004-02 | 09/25/96 | 720.00 | E | NV | 58.00 | USEPA-SSL | NA |
| **Inorganics (mg/kg)** | | | | | | | | |
| Aluminum (Al) | 607-S-B003-01 | 09/25/96 | 8590.00 | | NV | 7800.00 | USEPA-R8C | 18500.00 |
| | 607-S-B006-01 | 10/22/96 | 9020.00 | | NV | 7B00.00 | USEPA-RBC | 18500.00 |
| | 607-S-B008-01 | 10/22/96 | 18600.00 | | NV | 7B00.00 | USEPA-R8C | 18500.00 |
| Arsenic (As) | 607-S-B001-01 | 09/25/96 | 2.60 | | NV | 0.43 | USEPA-RBC | 26.70 |
| | 607-S-B002-01 | 09/25/96 | 1.20 | | NV | 0.43 | USEPA-RBC | 26.70 |
| | 607-S-B003-01 | 09/25/96 | 2.B0 | | NV | 0.43 | USEPA-RBC | 26.70 |
| | 607-S-B004-01 | 09/25/96 | 3.90 | | NV | 0.43 | USEPA-RBC | 26.70 |
| | 607-S-B005-01 | 10/22/96 | 3.30 | | NV | 0.43 | USEPA-RBC | 26.70 |
| | 607-S-B006-01 | 10/22/96 | 3.50 | | NV | 0.43 | USEPA-RBC | 26.70 |
| | 607-S-B007-01 | 10/22/96 | 2.60 | | NV | 0.43 | USEPA-RBC | 26.70 |
| | 607-S-B008-01 | 10/22/96 | 8.70 | | NV | 0.43 | USEPA-RBC | 26.70 |
| | 607-S-B009-01 | 10/22/96 | 2.80 | | NV | 0.43 | USEPA-RBC | 26.70 |
| | 607-S-B010-01 | 10/22/96 | 1.20 | | NV | 0.43 | USEPA-RBC | 26.70 |
| Beryllium (Be) | 607-S-B001-01 | 09/25/96 | 0.31 | | NV | 0.15 | USEPA-RBC | 1.05 |
| | 607-S-B004-01 | 09/25/96 | 0.28 | | NV | 0.15 | USEPA-RBC | 1.05 |
| | 607-S-B006-01 | 10/22/96 | 0.21 | B | NV | 0.15 | USEPA-RBC | 1.05 |
| | 607-S-B007-01 | 10/22/96 | 0.19 | B | NV | 0.15 | USEPA-RBC | 1.05 |
| | 607-S-B008-01 | 10/22/96 | 0.92 | | NV | 0.15 | USEPA-R8C | 1.05 |
| | 607-S-B009-01 | 10/22/96 | 0.71 | | NV | 0.15 | USEPA-RBC | 1.05 |
| Iron (Fe) | 607-S-B001-01 | 09/25/96 | 4050.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 607-S-B003-01 | 09/25/96 | 7390.00 | | NV | 2300.00 | USEPA-R8C | NA |
| | 607-S-B004-01 | 09/25/96 | 6060.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 607-S-B005-01 | 10/22/96 | 4250.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 607-S-B006-01 | 10/22/96 | 9240.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 607-S-B007-01 | 10/22/96 | 3860.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 607-S-B008-01 | 10/22/96 | 20000.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 607-S-B009-01 | 10/22/96 | 5810.00 | | NV | 2300.00 | USEPA-RBC | NA |
| Manganese (Mn) | 607-S-B00B-01 | 10/22/96 | 279.00 | | NV | 1B0.00 | USEPA-RBC | 307.00 |

**Notes:**

| | | |
|---|---|---|
| VAL | = | Validation is complete. |
| NV | = | Needs validation. |
| RBC | = | Risk Based Concentration. |
| SSL | = | Soil Screening Level - Transfers from soil to groundwater. |
| BKGD | = | Background |
| NA | = | Not available. |
| B | = | For inorganics, the reported value was obtained from a reading less than the CRDL but greater than the IDL. For organics, the analyte detected in the sample is also found in the associated method blank. |
| J | = | Indicates an estimated value for organics. |
| * | = | Indicates that the duplicate was not within control limits for inorganics. |
| P | = | Indicates that there was at least a 25% difference between the readings of the two GC columns. |
| D | = | Indicates an analysis at a secondary dilution factor. |
| E | = | For inorganics, the value is estimated because of the presence of interference. For organics, the concentration exceeded the calibration range of the instrument. |

Table
Exceeded Preliminery Remediation Goals (PRGs) for Sediment Contaminants
Charleston Zone F Sediment

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded |
|---|---|---|---|---|---|---|---|
| | | | AOC 607 | | | | |
| **Semivolatiles (μg/kg)** | | | | | | | |
| 2-Methylnaphthalene | 607-M-0003 | 10/01/96 | 3800.00 | | NV | 330.00 | USEPA-SSV |
| Acenaphthene | 607-M-0002 | 10/01/96 | 550.00 | | NV | 330.00 | USEPA-SSV |
| | 607-M-0004 | 10/01/96 | 1700.00 | | NV | 330.00 | USEPA-SSV |
| | 607-M-0003 | 10/01/96 | 13000.00 | E | NV | 330.00 | USEPA-SSV |
| Anthracene | 607-M-0002 | 10/01/96 | 860.00 | | NV | 330.00 | USEPA-SSV |
| | 607-M-0003 | 10/01/96 | 2000.00 | | NV | 330.00 | USEPA-SSV |
| | 607-M-0004 | 10/01/96 | 2700.00 | | NV | 330.00 | USEPA-SSV |
| Benzo(a)anthracene | 607-M-0004 | 10/01/96 | 7200.00 | E | NV | 330.00 | USEPA-SSV |
| | 607-M-0003 | 10/01/96 | 70000.00 | E | NV | 330.00 | USEPA-SSV |
| | 607-M-0002 | 10/01/96 | 2100.00 | | NV | 330.00 | USEPA-SSV |
| Benzo(a)pyrene | 607-M-0003 | 10/01/96 | 51000.00 | E | NV | 330.00 | USEPA-SSV |
| | 607-M-0004 | 10/01/96 | 6200.00 | | NV | 330.00 | USEPA-SSV |
| | 607-M-0002 | 10/01/96 | 1800.00 | | NV | 330.00 | USEPA-SSV |
| Chrysene | 607-M-0003 | 10/01/96 | 44000.00 | E | NV | 330.00 | USEPA-SSV |
| | 607-M-0004 | 10/01/96 | 7700.00 | E | NV | 330.00 | USEPA-SSV |
| | 607-M-0002 | 10/01/96 | 2500.00 | | NV | 330.00 | USEPA-SSV |
| Dibenz(a,h)anthracene | 607-M-0003 | 10/01/96 | 19000.00 | E | NV | 330.00 | USEPA-SSV |
| | 607-M-0004 | 10/01/96 | 1800.00 | | NV | 330.00 | USEPA-SSV |
| Fluorene | 607-M-0002 | 10/01/96 | 3600.00 | | NV | 330.00 | USEPA-SSV |
| | 607-M-0004 | 10/01/96 | 7600.00 | E | NV | 330.00 | USEPA-SSV |
| | 607-M-0003 | 10/01/96 | 49000.00 | E | NV | 330.00 | USEPA-SSV |
| Fluorene | 607-M-0002 | 10/01/96 | 540.00 | | NV | 330.00 | USEPA-SSV |
| | 607-M-0004 | 10/01/96 | 1700.00 | | NV | 330.00 | USEPA-SSV |
| | 607-M-0003 | 10/01/96 | 12000.00 | E | NV | 330.00 | USEPA-SSV |
| Naphthalene | 607-M-0003 | 10/01/96 | 5900.00 | | NV | 330.00 | USEPA-SSV |
| | 607-M-0004 | 10/01/96 | 640.00 | | NV | 330.00 | USEPA-SSV |
| Phenanthrene | 607-M-0004 | 10/01/96 | 6800.00 | E | NV | 330.00 | USEPA-SSV |
| | 607-M-0002 | 10/01/96 | 3200.00 | | NV | 330.00 | USEPA-SSV |
| | 607-M-0003 | 10/01/96 | 66000.00 | E | NV | 330.00 | USEPA-SSV |
| Pyrene | 607-M-0003 | 10/01/96 | 87000.00 | E | NV | 330.00 | USEPA-SSV |
| | 607-M-0004 | 10/01/96 | 11000.00 | E | NV | 330.00 | USEPA-SSV |
| | 607-M-0002 | 10/01/96 | 5300.00 | | NV | 330.00 | USEPA-SSV |

**Table**
**Exceeded Preliminary Remediation Goals (PRGs) for Sediment Contaminants**
**Charleston Zone F Sediment**

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded |
|---|---|---|---|---|---|---|---|
| bis(2-Ethylhexyl)phthalate (BEHP) | 607-M-0004 | 10/01/96 | 2800.00 | | NV | 182.00 | USEPA-SSV |
| | 607-M-0003 | 10/01/96 | 980.00 | | NV | 182.00 | USEPA-SSV |
| | 607-M-0004 | 10/01/96 | 1600.00 | JD | NV | 182.00 | USEPA-SSV |
| | 607-M-0002 | 10/01/96 | 3200.00 | | NV | 182.00 | USEPA-SSV |
| **Inorganics (mg/kg)** | | | | | | | |
| Arsenic (As) | 607-M-0003 | 10/01/96 | 10.60 | * | NV | 7.24 | USEPA-SSV |
| Cadmium (Cd) | 607-M-0003 | 10/01/96 | 1.80 | | NV | 1.00 | USEPA-SSV |
| Copper (Cu) | 607-M-0002 | 10/01/96 | 45.90 | EN* | NV | 18.70 | USEPA-SSV |
| | 607-M-0003 | 10/01/96 | 167.00 | EN* | NV | 18.70 | USEPA-SSV |
| Lead (Pb) | 607-M-0004 | 10/01/96 | 111.00 | * | NV | 30.20 | USEPA-SSV |
| | 607-M-0002 | 10/01/96 | 70.90 | * | NV | 30.20 | USEPA-SSV |
| | 607-M-0003 | 10/01/96 | 626.00 | * | NV | 30.20 | USEPA-SSV |
| Mercury (Hg) | 607-M-0002 | 10/01/96 | 0.14 | | NV | 0.13 | USEPA-SSV |
| | 607-M-0004 | 10/01/96 | 0.19 | | NV | 0.13 | USEPA-SSV |
| | 607-M-0003 | 10/01/96 | 0.27 | | NV | 0.13 | USEPA-SSV |
| Nickel (Ni) | 607-M-0003 | 10/01/96 | 19.70 | * | NV | 15.90 | USEPA-SSV |
| | 607-M-0002 | 10/01/96 | 21.40 | * | NV | 15.90 | USEPA-SSV |
| Zinc (Zn) | 607-M-0002 | 10/01/96 | 255.00 | * | NV | 124.00 | USEPA-SSV |
| | 607-M-0003 | 10/21/96 | 1380.00 | * | NV | 124.00 | USEPA-SSV |

**Notes:**

| | | |
|---|---|---|
| VAL | = | Validation is complete. |
| NV | = | Needs validation. |
| RBC | = | Risk Based Concentration. |
| SSL | = | Soil Screening Level - Transfers from soil to groundwater. |
| J | = | Indicates an estimated value for organics. |
| * | = | Indicates that the duplicate was not within control limits for inorganics. |
| D | = | Indicates an analysis at a secondary dilution factor. |
| E | = | For inorganics, the value is estimated because of the presence of interference. For organics, the concentration exceeded the calibration range of the instrument. |

**AOC 609**

- Surficial Soil
  - Antimony, arsenic, beryllium, manganese, thallium slightly exceed residential RBCs and background (SB001, SB002).
  - BEQ exceeds residential RBC at one location (SB001).

**RECOMMENDATIONS**

- No additional soil sampling at this time, paved, no exposure pathway.
- Wait on groundwater data to evaluate soil to groundwater pathway.

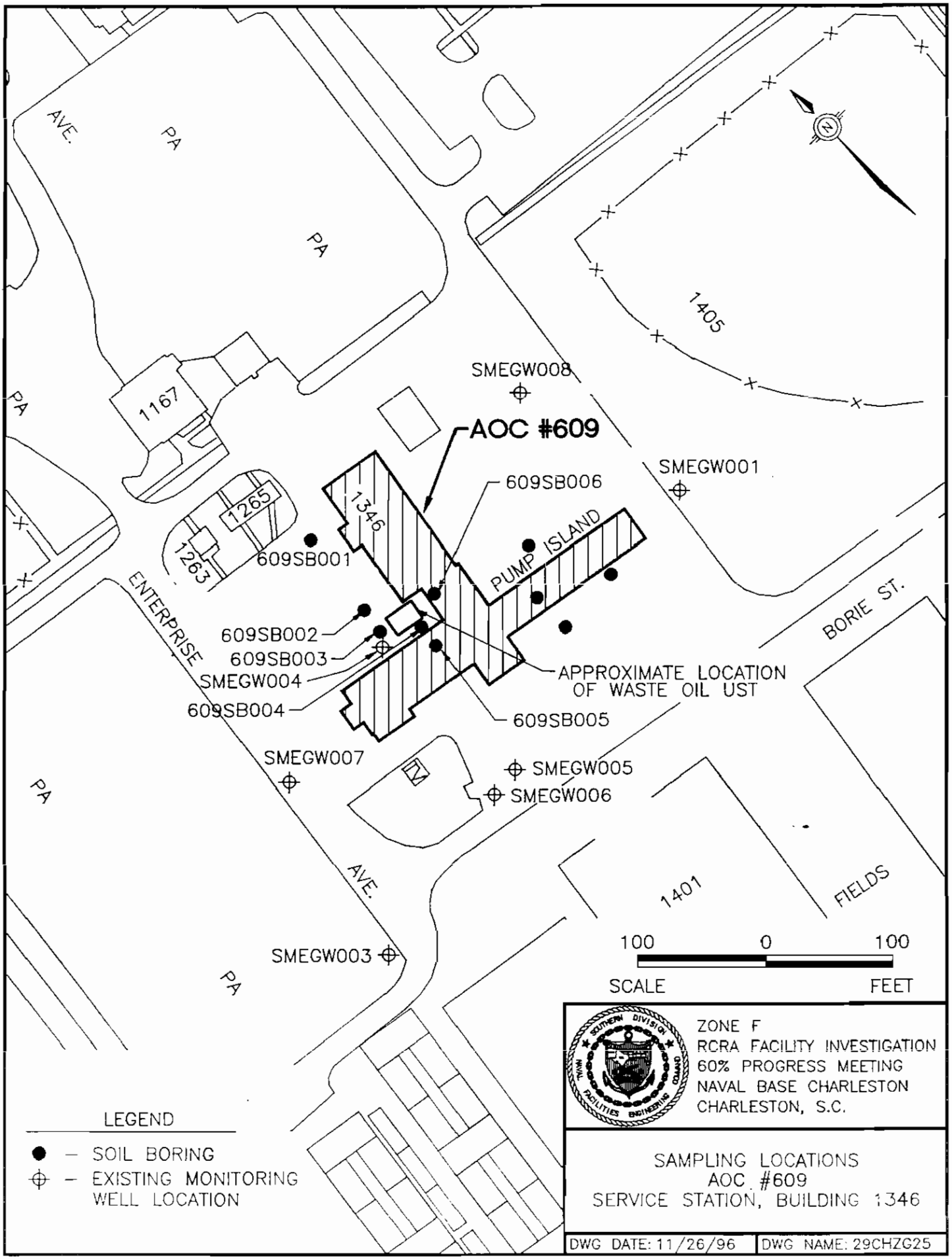

AVE.
PA
PA
PA
PA
PA
1167
1265
1263
1346
1405
1401
SMEGW008
AOC #609
SMEGW001
609SB006
PUMP ISLAND
609SB001
ENTERPRISE
609SB002
609SB003
SMEGW004
609SB004
APPROXIMATE LOCATION
OF WASTE OIL UST
609SB005
BORIE ST.
SMEGW007
SMEGW005
SMEGW006
AVE.
FIELDS
SMEGW003
100
0
100
SCALE
FEET
LEGEND
● – SOIL BORING
⊕ – EXISTING MONITORING WELL LOCATION
ZONE F
RCRA FACILITY INVESTIGATION
60% PROGRESS MEETING
NAVAL BASE CHARLESTON
CHARLESTON, S.C.
SAMPLING LOCATIONS
AOC #609
SERVICE STATION, BUILDING 1346
DWG DATE: 11/26/96
DWG NAME: 29CHZG25

**Table**
**Exceeded Preliminary Remediation Goals (PRGs) for Soil Contaminants**
**Charleston Zone F Soil (Only)**

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background Zone F |
|---|---|---|---|---|---|---|---|---|
| | | | VOC 609 | | | | | |
| **Semivolatiles (μg/kg)** | | | | | | | | |
| Benzo(a)pyrene | 609-S-B001-01 | 09/27/96 | 120.00 | J | NV | 88.00 | USEPA-RBC | NA |
| **Inorganics (mg/kg)** | | | | | | | | |
| Aluminum (Al) | 609-S-B001-01 | 09/27/96 | 12200.00 | * | NV | 7800.00 | USEPA-RBC | 18500.00 |
| | 609-S-B002-01 | 09/27/96 | 15400.00 | * | NV | 7800.00 | USEPA-RBC | 18500.00 |
| | 609-S-B004-01 | 09/30/96 | 8450.00 | * | NV | 7800.00 | USEPA-RBC | 18500.00 |
| | 609-S-B005-01 | 09/30/96 | 7940.00 | * | NV | 7800.00 | USEPA-RBC | 18500.00 |
| | 609-S-B006-01 | 09/30/96 | 8900.00 | * | NV | 7800.00 | USEPA-RBC | 18500.00 |
| Antimony (Sb) | 609-S-B002-01 | 09/27/96 | 3.50 | BN* | NV | 3.10 | USEPA-RBC | 0.80 |
| Arsenic (As) | 609-S-B001-01 | 09/27/96 | 13.60 | N | NV | 0.43 | USEPA-RBC | 26.70 |
| | 609-S-B002-01 | 09/27/96 | 67.60 | N | NV | 0.43 | USEPA-RBC | 26.70 |
| | 609-S-B003-01 | 09/27/96 | 2.50 | N | NV | 0.43 | USEPA-RBC | 26.70 |
| | 609-S-B004-01 | 09/30/96 | 7.20 | N | NV | 0.43 | USEPA-RBC | 26.70 |
| | 609-S-B005-01 | 09/30/96 | 7.40 | N | NV | 0.43 | USEPA-RBC | 26.70 |
| | 609-S-B006-01 | 09/30/96 | 8.60 | N | NV | 0.43 | USEPA-RBC | 26.70 |
| Beryllium (Be) | 609-S-B001-01 | 09/27/96 | 0.87 | | NV | 0.15 | USEPA-RBC | 1.05 |
| | 609-S-B002-01 | 09/27/96 | 1.30 | | NV | 0.15 | USEPA-RBC | 1.05 |
| | 609-S-B003-01 | 09/27/96 | 0.44 | | NV | 0.15 | USEPA-RBC | 1.05 |
| | 609-S-B004-01 | 09/30/96 | 0.58 | | NV | 0.15 | USEPA-RBC | 1.05 |
| | 609-S-B005-01 | 09/30/96 | 0.37 | | NV | 0.15 | USEPA-RBC | 1.05 |
| | 609-S-B006-01 | 09/30/96 | 0.72 | | NV | 0.15 | USEPA-RBC | 1.05 |
| Iron (Fe) | 609-S-B001-01 | 09/27/96 | 19600.00 | * | | 2300.00 | USEPA-RBC | NA |
| | 609-S-B002-01 | 09/27/96 | 24500.00 | * | | 2300.00 | USEPA-RBC | NA |
| | 609-S-B003-01 | 09/27/96 | 2900.00 | * | | 2300.00 | USEPA-RBC | NA |
| | 609-S-B004-01 | 09/30/96 | 11300.00 | * | | 2300.00 | USEPA-RBC | NA |
| | 609-S-B005-01 | 09/30/96 | 11500.00 | * | | 2300.00 | USEPA-RBC | NA |
| | 609-S-B006-01 | 09/30/96 | 11000.00 | * | | 2300.00 | USEPA-RBC | NA |
| Manganese (Mn) | 609-S-B001-01 | 09/27/96 | 401.00 | N | | 180.00 | USEPA-RBC | 307.00 |
| | 609-S-B002-01 | 09/27/96 | 391.00 | N | | 180.00 | USEPA-RBC | 307.00 |
| | 609-S-B004-01 | 09/30/96 | 181.00 | N | | 180.00 | USEPA-RBC | 307.00 |
| Thallium (Tl) | 609-S-B002-01 | 09/27/96 | 1.10 | BN | | 0.63 | USEPA-RBC | NA |
| **Benzo(a)Pyrene Equivalents (BEQs)** | | | | | | | | |
| | 609-S-B001-01 | 09/27/96 | 152.03 | | | 88.00 | USEPA-BEQ-RBC | |

**Notes:**

| | | |
|---|---|---|
| VAL | = | Validation is complete. |
| NV | = | Needs validation. |
| RBC | = | Risk Based Concentration. |
| SSL | = | Soil Screening Level - Transfers from soil to groundwater. |
| BKGD | = | Background |
| NA | = | Not available. |
| B | = | For inorganics, the reported value was obtained from a reading less than the CRDL but greater than the IDL. For organics, the analyte detected in the sample is also found in the associated method blank. |
| J | = | Indicates an estimated value for organics. |
| * | = | Indicates that the duplicate was not within control limits for inorganics. |
| P | = | Indicates that there was at least a 25% difference between the readings of the two GC columns. |
| D | = | Indicates an analysis at a secondary dilution factor. |
| E | = | For inorganics, the value is estimated becausa of the presence of interference. For organics, the concantration exceeded the calibration range of the instrument. |

Table
Exceeds Preliminary Remediation Goals (PRGs) for Soil Contaminants
Charleston Zone G Soil (Only)

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background |
|---|---|---|---|---|---|---|---|---|
| | | | AOC 637 | | | | | |
| **Semivoletiles (µg/kg)** | | | | | | | | |
| Benzo(a)anthracene | 637-S-B001-01 | 09/13/96 | 1000.00 | | NV | 880.00 | USEPA-RBC | NA |
| Benzo(a)pyrene | 637-S-B001-01 | 09/13/96 | 930.00 | | NV | 88.00 | USEPA-RBC | NA |
| | 637-S-B003-01 | 09/13/96 | 680.00 | | NV | 88.00 | USEPA-RBC | NA |
| Dibenz(a,h)anthracene | 637-S-B001-01 | 09/13/96 | 310.00 | J | NV | 88.00 | USEPA-RBC | NA |
| **Inorganics (mg/kg)** | | | | | | | | |
| Arsenic (As) | 637-S-B003-01 | 09/13/96 | 6.80 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 637-S-B002-01 | 09/13/96 | 6.90 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 637-S-B005-01 | 09/13/96 | 9.80 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 637-S-B004-01 | 09/13/96 | 4.20 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 637-S-B001-01 | 09/13/96 | 7.30 | | NV | 0.43 | USEPA-RBC | 24.60 |
| Beryllium (Be) | 637-S-B003-01 | 09/13/96 | 0.45 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 637-S-B004-01 | 09/13/96 | 0.27 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 637-S-B002-01 | 09/13/96 | 0.45 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 637-S-B001-01 | 09/13/96 | 0.38 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 637-S-B005-01 | 09/13/96 | 0.60 | | NV | 0.15 | USEPA-RBC | 1.25 |
| Copper (Cu) | 637-S-B003-02 | 09/13/96 | 144.00 | | NV | 40.50 | Zone G Bkgd | 40.50 |
| Iron (Fe) | 637-S-B005-01 | 09/13/96 | 8430.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 637-S-B004-01 | 09/13/96 | 4030.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 637-S-B002-01 | 09/13/96 | 7770.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 637-S-B001-01 | 09/13/96 | 5840.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 637-S-B003-01 | 09/13/96 | 8240.00 | | NV | 2300.00 | USEPA-RBC | NA |
| Lead (Pb) | 637-S-B003-02 | 09/13/96 | 340.00 | | NV | 66.70 | Zone G Bkgd | 66.70 |
| Thallium (Tl) | 637-S-B002-01 | 09/13/96 | 0.82 | B | NV | 0.63 | USEPA-RBC | 0.87 |
| **Benzo(a)Pyrene Equivalents (BEQs)** | | | | | | | | |
| | 637-S-B003-01 | 09/13/96 | 874.60 | | NV | 88.00 | USEPA-BEQ-RBC | NA |

**SWMU 11**

- Surficial Soil
  - Lead exceeding RBC and background (SB001).
  - pH normal range for Zone G.

- Subsurface Soil
  - Thallium and tin concentrations slightly exceeding SSL and background.
  - pH, 4.9 (SB003), 4.6 (SP001), 5.2 (SP003), 4.9 (SP004), 12.6 (SP006), 9.99 (SP008).

- Sediment
  - Mercury exceeds the SSV (M001).
  - pH 12 (M001)

**RECOMMENDATIONS**

- No additional soil sampling is proposed at this time, wait until groundwater data is available and re-evaluate.

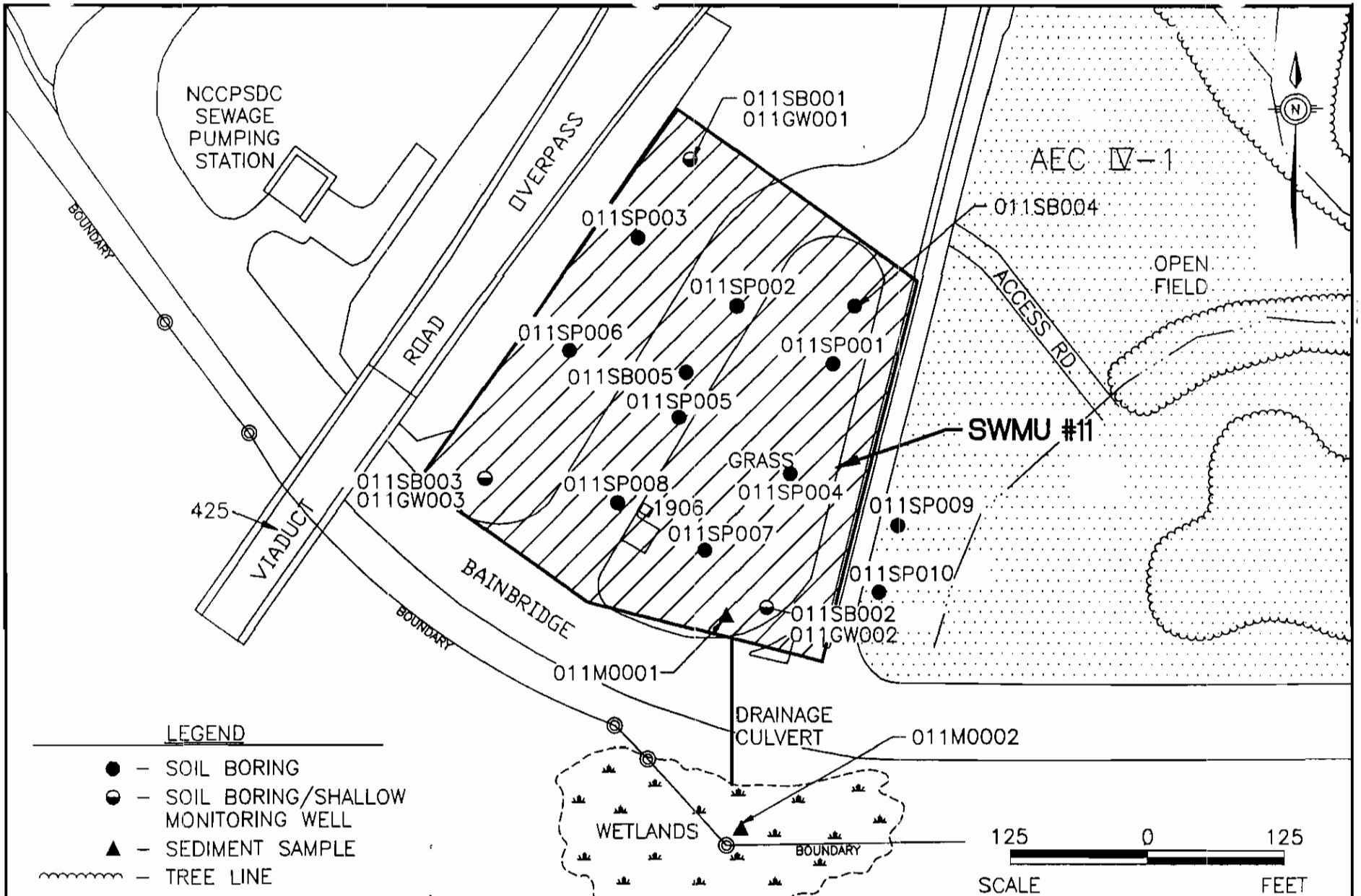

NCCPSDC
SEWAGE
PUMPING
STATION
BOUNDARY
OVERPASS
ROAD
VIADUCT
425
BAINBRIDGE
BOUNDARY
011SB001
011GW001
011SP003
011SP002
011SP006
011SP001
011SB005
011SP005
011SB003
011GW003
011SP008
1906
011SP007
GRASS
011SP004
011SP009
011SP010
011SB002
011GW002
011M0001
011SB004
AEC IV-1
OPEN
FIELD
ACCESS RD
SWMU #11
DRAINAGE
CULVERT
011M0002
WETLANDS
BOUNDARY
N
LEGEND
● – SOIL BORING
◒ – SOIL BORING/SHALLOW MONITORING WELL
▲ – SEDIMENT SAMPLE
– TREE LINE
– DITCH
125 0 125
SCALE FEET
ZONE G
RCRA FACILITY INVESTIGATION
60% PROGRESS MEETING
NAVAL BASE CHARLESTON
CHARLESTON, S.C.
SAMPLING LOCATIONS
SWMU #11
CAUSTIC POND
DWG DATE: 11/25/96
DWG NAME: 29CHZG14

Table
Exceeds Preliminary Remediation Goals (PRGs) for Soil Contaminants
Charleston Zone G Soil (Only)

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background |
|---|---|---|---|---|---|---|---|---|
| | | | SWMU 11 | | | | | |
| Inorganics (mg/kg) | | | | | | | | |
| Aluminum (Al) | 011-S-P001-01 | 10/16/96 | 9610.00 | | NV | 7800.00 | USEPA-RBC | 20100.00 |
| | 011-S-P002-01 | 10/16/96 | 11400.00 | | NV | 7800.00 | USEPA-RBC | 20100.00 |
| | 011-S-P004-01 | 10/16/96 | 10400.00 | | NV | 7800.00 | USEPA-RBC | 20100.00 |
| | 011-S-P006-01 | 10/17/96 | 11100.00 | | NV | 7800.00 | USEPA-RBC | 20100.00 |
| | 011-S-P008-01 | 10/17/96 | 10600.00 | | NV | 7800.00 | USEPA-RBC | 20100.00 |
| Arsenic (As) | 011-S-B002-01 | 08/28/96 | 1.00 | J | VAL | 0.43 | USEPA-RBC | 24.60 |
| | 011-S-B005-01 | 09/20/96 | 2.70 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 011-S-B004-01 | 09/20/96 | 5.10 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 011-S-B003-01 | 08/28/96 | 4.10 | | VAL | 0.43 | USEPA-RBC | 24.60 |
| | 011-S-B001-01 | 08/28/96 | 4.30 | | VAL | 0.43 | USEPA-RBC | 24.60 |
| | 011-S-P001-01 | 10/16/96 | 1.60 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 011-S-P002-01 | 10/16/96 | 11.70 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 011-S-P003-01 | 10/16/96 | 2.10 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 011-S-P004-01 | 10/16/96 | 4.10 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 011-S-P005-01 | 10/17/96 | 3.70 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 011-S-P006-01 | 10/17/96 | 5.10 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 011-S-P007-01 | 10/16/96 | 3.20 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 011-S-P008-01 | 10/17/96 | 4.00 | | NV | 0.43 | USEPA-RBC | 24.60 |
| Beryllium (Be) | 011-S-B003-01 | 08/28/96 | 0.29 | | VAL | 0.15 | USEPA-RBC | 1.25 |
| | 011-S-B004-01 | 09/20/96 | 0.47 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 011-S-B001-01 | 08/28/96 | 0.35 | | VAL | 0.15 | USEPA-RBC | 1.25 |
| | 011-S-B005-01 | 09/20/96 | 0.24 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 011-S-B002-01 | 08/28/96 | 0.18 | J | VAL | 0.15 | USEPA-RBC | 1.25 |
| | 011-S-P001-01 | 10/16/96 | 0.21 | B | NV | 0.15 | USEPA-R8C | 1.25 |
| | 011-S-P002-01 | 10/16/96 | 0.58 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 011-S-P004-01 | 10/16/96 | 0.31 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 011-S-P005-01 | 10/17/96 | 0.33 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 011-S-P006-01 | 10/17/96 | 0.66 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 011-S-P007-01 | 10/16/96 | 0.26 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 011-S-P008-01 | 10/17/96 | 0.46 | | NV | 0.15 | USEPA-R8C | 1.25 |
| Iron (Fe) | 011-S-B005-01 | 09/20/96 | 4160.00 | * | NV | 2300.00 | USEPA-RBC | NA |
| | 011-S-B004-01 | 09/20/96 | 9530.00 | * | NV | 2300.00 | USEPA-RBC | NA |

**Table**
**Exceeds Preliminary Remediation Goals (PRGs) for Soil Contaminants**
**Charleston Zone G Soil (Only)**

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background |
|---|---|---|---|---|---|---|---|---|
| | 011-S-B001-01 | 08/28/96 | 7100.00 | | VAL | 2300.00 | USEPA-RBC | NA |
| | 011-S-B003-01 | 08/28/96 | 3900.00 | | VAL | 2300.00 | USEPA-RBC | NA |
| | 011-S-B002-01 | 08/28/96 | 2660.00 | | VAL | 2300.00 | USEPA-RBC | NA |
| | 011-S-P001-01 | 10/16/96 | 8580.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 011-S-P002-01 | 10/16/96 | 26100.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 011-S-P003-01 | 10/16/96 | 3660.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 011-S-P004-01 | 10/16/96 | 13500.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 011-S-P005-01 | 10/17/96 | 4760.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 011-S-P006-01 | 10/17/96 | 13900.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 011-S-P007-01 | 10/16/96 | 4500.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 011-S-P008-01 | 10/17/96 | 13000.00 | | NV | 2300.00 | USEPA-RBC | NA |
| Lead (Pb) | 011-S-B001-01 | 08/28/96 | 1100.00 | | VAL | 400.00 | USEPA-RBC | 193.00 |
| | 011-S-P002-02 | 10/16/96 | 71.90 | E | NV | 66.70 | Zone G Bkgd | 66.70 |
| Thallium (Tl) | 011-S-P001-02 | 10/16/96 | 0.74 | B | NV | 0.71 | USEPA-SSL | 0.86 |
| | 011-S-P002-01 | 10/16/96 | 1.00 | B | NV | 0.63 | USEPA-RBC | 0.87 |
| | 011-S-P004-01 | 10/16/96 | 0.76 | B | NV | 0.63 | USEPA-RBC | 0.87 |
| | 011-S-P006-01 | 10/17/96 | 0.70 | B | NV | 0.63 | USEPA-RBC | 0.87 |
| | 011-S-P008-01 | 10/17/96 | 0.75 | B | NV | 0.63 | USEPA-RBC | 0.87 |
| Tin (Sn) | 011-S-B005-02 | 09/20/96 | 6.80 | B | NV | 4.75 | Zone G Bkgd | 4.75 |
| **pH** | | | | | | | | |
| | 011-S-B001-01 | 08\28\96 | 7.85 | | VAL | | | |
| | 011-S-B001-02 | 08/28/96 | 6.30 | | VAL | | | |
| | 011-S-B002-01 | 08/28/96 | 7.87 | | VAL | | | |
| | 011-S-B003-01 | 08/28/86 | 7.50 | | VAL | | | |
| | 011-S-B003-02 | 08/28/96 | 4.93 | | VAL | | | |
| | 011-S-B004-01 | 09/20/96 | 7.94 | | NV | | | |
| | 011-S-B005-01 | 09/20/96 | 8.09 | | NV | | | |
| | 011-S-B005-02 | 09/20/96 | 8.21 | | NV | | | |
| | 011-S-P001-01 | 10/16/96 | 7.01 | | NV | | | |
| | 011-S-P001-02 | 10/16/96 | 4.63 | | NV | | | |
| | 011-S-P001-03 | 10/16/96 | 7.21 | | NV | | | |
| | 011-S-P002-01 | 10/16/96 | 7.95 | | NV | | | |
| | 011-S-P002-02 | 10/16/96 | 7.89 | | NV | | | |

Table
Exceeds Preliminary Remediation Goals (PRGs) for Soil Contaminants
Charleston Zone G Soil (Only)

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background |
|---|---|---|---|---|---|---|---|---|
| | 011-S-P002-01 | 10/16/96 | 7.98 | | NV | | | |
| | 011-S-P003-02 | 10/16/96 | 5.22 | | NV | | | |
| | 011-S-P004-01 | 10/16/96 | 4.94 | | NV | | | |
| | 011-S-P005-01 | 10/17/96 | 8.40 | | NV | | | |
| | 011-S-P005-02 | 10/17/96 | 8.23 | | NV | | | |
| | 011-S-P006-01 | 10/17/96 | 8.60 | | NV | | | |
| | 011-S-P006-02 | 10/17/96 | 12.60 | | NV | | | |
| | 011-S-P006-03 | 10/17/96 | 11.70 | | NV | | | |
| | 011-S-P007-01 | 10/16/96 | 8.17 | | NV | | | |
| | 011-S-P007-02 | 10/16/96 | 9.75 | | NV | | | |
| | 011-S-P008-01 | 10/17/96 | 9.99 | | NV | | | |

**Notes:**

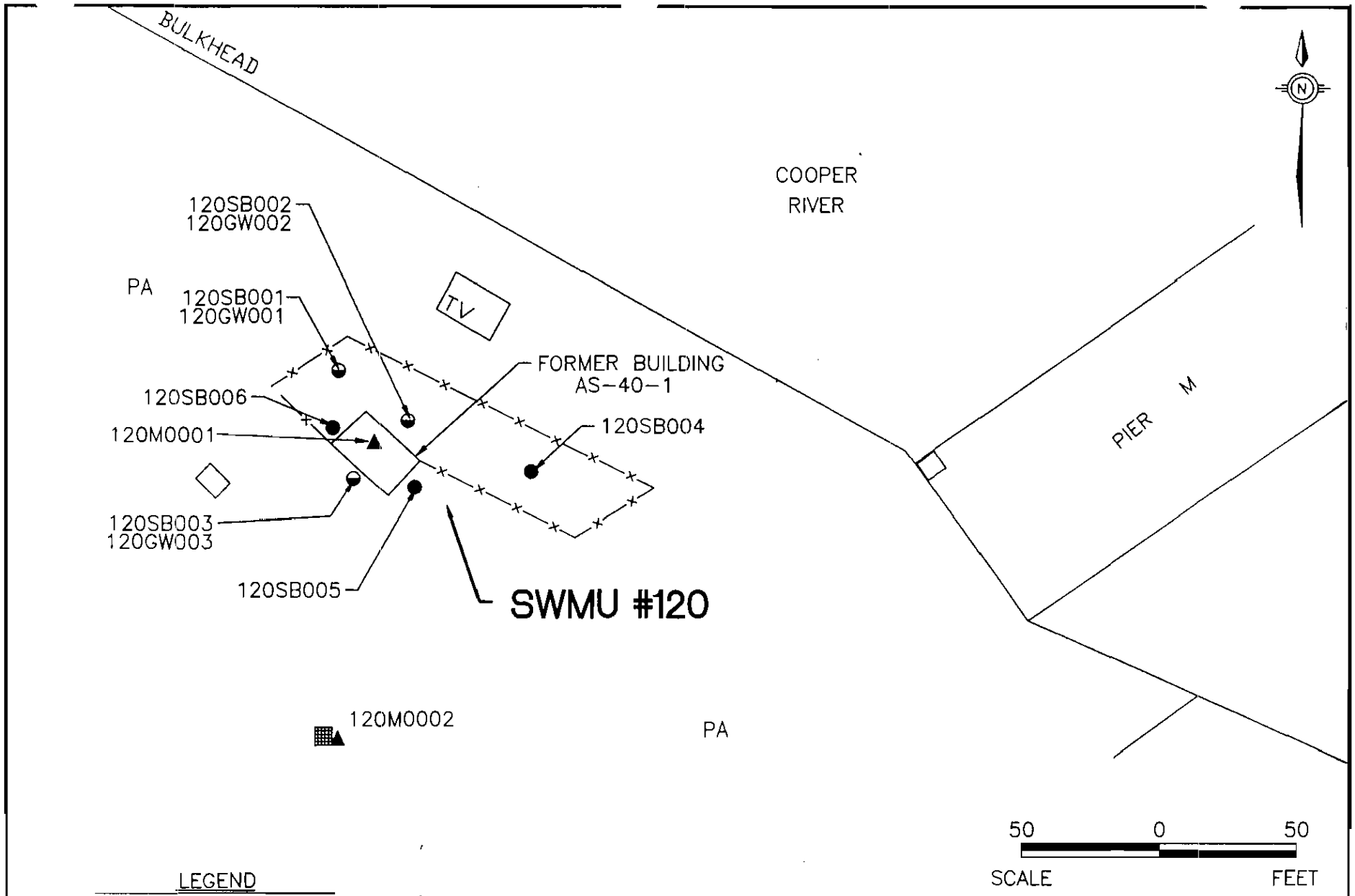
| | | |
|---|---|---|
| VAL | = | Validation is complete. |
| NV | = | Needs validation. |
| RBC | = | Risk Based Concentration. |
| SSL | = | Soil Screening Level - Transfers from soil to groundwater. |
| BKGD | = | Background |
| NA | = | Not available. |
| B | = | For inorganics, the reported value was obtained from a reading less than the CRDL but greater than the IDL. For organics, the analyte detected in the sample is also found in the associated method blank. |
| J | = | Indicates an estimated value for organics. |
| * | = | Indicates that the duplicate was not within control limits for inorganics. |
| P | = | Indicates that there was at least a 25% difference between the readings of the two GC columns. |
| D | = | Indicates an analysis at a secondary dilution factor. |
| E | = | For inorganics, the value is estimated because of the presence of interference. For organics, the concentration exceeded the calibration range of the instrument. |

**Table**
**Exceeded Preliminary Remediation Goals (PRGs) for Sediment Contaminants**
**Charleston Zone G Sediment**

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded |
|---|---|---|---|---|---|---|---|
| | | | **SWMU 11** | | | | |
| **Inorganics (mg/kg)** | | | | | | | |
| Mercury (Hg) | 011-M-0001 | 09/26/96 | 2.10 | | NV | 0.13 | USEPA-SSV |
| pH | 011-M-0001 | 09/26/96 | 12.00 | | NV | | USEPA-SSV |

**Notes:**

VAL = Validation is complete.
NV = Needs validation.
SSV = Sediment Screening Value
* = Indicates that the duplicate was not within control limits for inorganics.




LEGEND

- ● – SOIL BORING
- ▲ – SEDIMENT SAMPLE
- ▦ – STORM DRAIN
- ◒ – SOIL BORING/SHALLOW MONITORING WELL

ZONE G
RCRA FACILITY INVESTIGATION
60% PROGRESS MEETING
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

SAMPLING LOCATIONS
SWMU #120
PIER M LAYDOWN

DWG DATE: 11/25/96 | DWG NAME: 29CHZG30

**SWMU 120**

- Surficial Soil
  - Antimony, SVOC concentrations slightly exceed residential RBCs and background (SB001, SB002).
  - BEQ values slightly exceed residential RBC (SB001).

- Subsurface Soil
  - DDD and DDE significantly exceed SSL (SB002).

**RECOMMENDATIONS**

- Wait on groundwater data to evaluate pesticide impact on groundwater (SB002), if detected in groundwater may need two additional soil samples.

Table
Exceeds Preliminary Remediation Goals (PRGs) for Soil Contaminants
Charleston Zone G Soil (Only)

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background |
|---|---|---|---|---|---|---|---|---|
| | | | SWMU 120 | | | | | |
| **Semivolatiles (μg/kg)** | | | | | | | | |
| Benzo(a)pyrene | 120-S-B001-01 | 08/29/96 | 92.00 | J | VAL | 88.00 | USEPA-RBC | NA |
| **Inorgenics (mg/kg)** | | | | | | | | |
| Aluminum (Al) | 120-S-B001-01 | 08/29/96 | 9950.00 | | VAL | 7800.00 | USEPA-RBC | 20100.00 |
| Antimony (Sb) | 120-S-B002-01 | 08/29/96 | 4.40 | J | VAL | 3.10 | USEPA-RBC | 3.28 |
| | 120-S-B001-01 | 08/29/96 | 10.00 | J | VAL | 3.10 | USEPA-RBC | 3.28 |
| Arsenic (As) | 120-S-B005-01 | 09/25/96 | 1.50 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 120-S-B004-01 | 09/25/96 | 1.20 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 120-S-B003-01 | 08/29/96 | 0.91 | J | VAL | 0.43 | USEPA-RBC | 24.60 |
| | 120-S-B006-01 | 09/24/96 | 2.70 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 120-S-B001-01 | 08/29/96 | 16.30 | J | VAL | 0.43 | USEPA-RBC | 24.60 |
| | 120-S-B002-01 | 08/29/96 | 5.20 | J | VAL | 0.43 | USEPA-RBC | 24.60 |
| Beryllium (Be) | 120-S-B005-01 | 09/25/96 | 0.17 | B | NV | 0.15 | USEPA-RBC | 1.25 |
| | 120-S-B001-01 | 08/29/96 | 0.74 | | VAL | 0.15 | USEPA-RBC | 1.25 |
| | 120-S-B002-01 | 08/29/96 | 0.50 | | VAL | 0.15 | USEPA-RBC | 1.25 |
| | 120-S-B006-01 | 09/24/96 | 0.40 | | NV | 0.15 | USEPA-RBC | 1.25 |
| Copper (Cu) | 120-S-B002-02 | 08/29/96 | 69.30 | | VAL | 40.50 | Zone G Bkgd | 40.50 |
| Iron (Fe) | 120-S-B006-01 | 09/24/96 | 3520.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 120-S-B001-01 | 08/29/96 | 12700.00 | | VAL | 2300.00 | USEPA-RBC | NA |
| | 120-S-B002-01 | 08/29/96 | 5640.00 | | VAL | 2300.00 | USEPA-RBC | NA |
| **Pesticides/PCBs (μg/kg)** | | | | | | | | |
| 4,4'-DDD | 120-S-B002-02 | 08/29/96 | 7100.00 | D | VAL | 700.00 | USEPA-SSL | |
| 4,4'-DDE | 120-S-B002-02 | 08/29/96 | 3100.00 | | VAL | 500.00 | USEPA-SSL | |
| **Benzo(a)Pyrane Equivalents (BEQs)** | | | | | | | | |
| | 120-S-B001-01 | 08/29/96 | 125.78 | | | 88.00 | USEPA-BEQ-R8C | |

**Notes:**

| | | |
|---|---|---|
| VAL | = | Validation is complete. |
| NV | = | Needs validation. |
| RBC | = | Risk Based Concentration. |
| SSL | = | Soil Screening Level - Transfers from soil to groundwater. |
| BKGD | = | Background |
| NA | = | Not available. |
| B | = | For inorganics, the reported value was obtained from a reading less than the CRDL but greater than the IDL. For organics, the analyte detected in the sample is also found in the associated method blank. |
| J | = | Indicates an estimated value for organics. |
| * | = | Indicates that the duplicate was not within control limits for inorganics. |
| P | = | Indicates that there was at least a 25% difference between the readings of the two GC columns. |
| D | = | Indicates an analysis at a secondary dilution factor. |
| E | = | For inorganics, the value is estimated because of the presence of interference. For organics, the concentration exceeded the calibration range of the instrument. |

**Table**
**Exceeded Preliminary Remediation Goals (PRGs) for Sediment Contaminants**
**Charleston Zone G Sedimant**

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded |
|---|---|---|---|---|---|---|---|
| | | | **AOC 120** | | | | |
| **Semivolatiles (μg/kg)** | | | | | | | |
| Fluoranthene | 120-M-0001 | 10/01/96 | 700.00 | | NV | 330.00 | USEPA-SSV |
| Phenanthrene | 120-M-0001 | 10/01/96 | 520.00 | | NV | 330.00 | USEPA-SSV |
| Pyrene | 120-M-0001 | 10/01/96 | 410.00 | J | NV | 330.00 | USEPA-SSV |
| bis(2-Ethylhexyl)phthalate (BEHP) | 120-M-0001 | 10/01/96 | 7700.00 | | NV | 182.00 | USEPA-SSV |
| **Inorganics (mg/kg)** | | | | | | | |
| Arsenic (As) | 120-M-0001 | 10/01/96 | 13.90 | | NV | 7.24 | USEPA-SSV |
| Cadmium (Cd)) | 120-M-0001 | 10/01/96 | 5.20 | | NV | 1.00 | USEPA-SSV |
| Chromium (Cr) | 120-M-0001 | 10/01/96 | 57.30 | | NV | 52.30 | USEPA-SSV |
| Copper (Cu) | 120-M-0001 | 10/01/96 | 1110.00 | | NV | 18.70 | USEPA-SSV |
| Lead (Pb) | 120-M-0001 | 10/01/96 | 241.00 | | NV | 30.20 | USEPA-SSV |
| Nickel (Ni) | 120-M-0001 | 10/01/96 | 65.50 | | NV | 15.90 | USEPA-SSV |
| Zinc (Zn) | 120-M-0001 | 10/01/96 | 1020.00 | | NV | 124.00 | USEPA-SSV |

**Notes:**

VAL = Validation is complete.
NV = Needs validation.
RBC = Risk Based Concentration.
SSL = Soil Screening Level - Transfers from soil to groundwater.
J = Indicates an estimated value for organics.
* = Indicates that the duplicate was not within control limits for inorganics.
E = For inorganics, the value is estimated because of the presence of interference. For organics, the concentration exceeded the calibration range of the instrument.

**AOC 643**

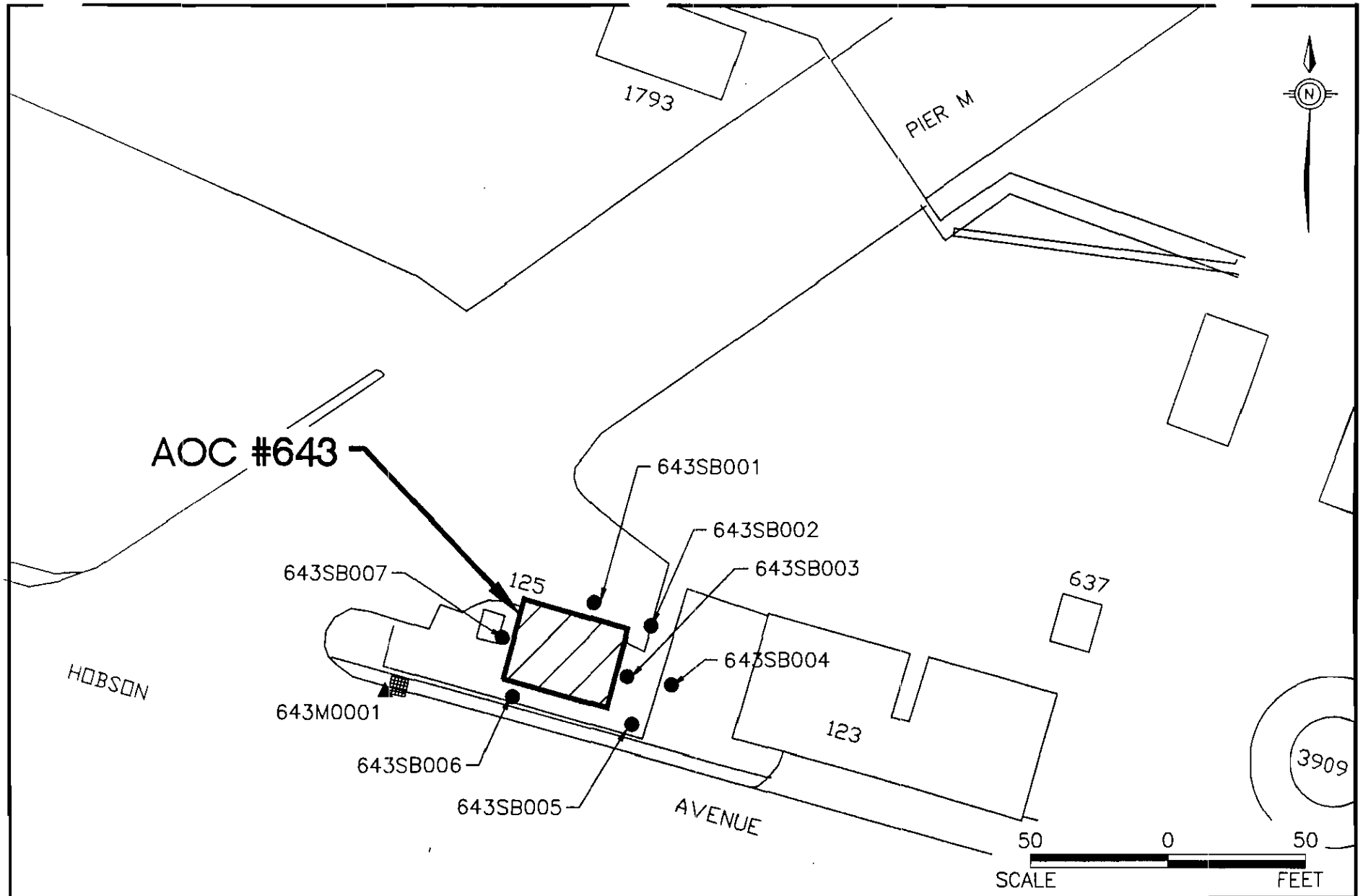
- Surficial Soil
  - Vanadium slightly exceeds residential RBC and background (SB004).
  - BEQ significantly exceeds residential RBC (SB005).

- Subsurface Soil
  - Dieldrin exceeds SSL (SB006).

- Sediment
  - SVOC and pesticide concentrations significantly exceed SSVs (M0001). These detections will be evaluated as part of Zone L.

**RECOMMENDATIONS**

- Three additional soil samples around SB007 to delineate Aroclor 1260.
- Two additional soil samples around SB005 to delineate SVOC/background in surficial soil.




LEGEND
● – SOIL BORING
▲ – SEDIMENT SAMPLE
▦ – STORM DRAIN

ZONE G
RCRA FACILITY INVESTIGATION
60% PROGRESS MEETING
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

SAMPLING LOCATIONS
AOC #643
SUBSTATION,
BUILDING 125

DWG DATE: 11/25/96 | DWG NAME: 29CHZG31

Table
Exceeds Preliminary Remediation Goals (PRGs) for Soil Contaminants
Charleston Zone G Soil (Only)

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background |
|---|---|---|---|---|---|---|---|---|
| | | | AOC 643 | | | | | |
| **Semivolatiles (μg/kg)** | | | | | | | | |
| Benzo(a)anthracene | 643-S-B005-01 | 09/25/96 | 1000.00 | | NV | 880.00 | USEPA-RBC | NA |
| Benzo(a)pyrene | 643-S-B002-01 | 09/25/96 | 93.00 | J | NV | 88.00 | USEPA-RBC | NA |
| | 643-S-B005-01 | 09/25/96 | 900.00 | | NV | 88.00 | USEPA-RBC | NA |
| Benzo(b)fluoranthene | 643-S-B005-01 | 09/25/96 | 1000.00 | | NV | 880.00 | USEPA-RBC | NA |
| Dibenz(a,h)anthracene | 643-S-B005-01 | 09/25/96 | 290.00 | J | NV | 88.00 | USEPA-RBC | NA |
| **Inorganics (mg/kg)** | | | | | | | | |
| Arsenic (As) | 643-S-B004-01 | 09/24/96 | 5.30 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 643-S-B007-01 | 09/24/96 | 1.20 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 643-S-B001-01 | 09/24/96 | 3.40 | | NV | 0.43 | USEPA-RBC | 24.60 |
| Beryllium (Be) | 643-S-B004-01 | 09/24/96 | 0.37 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 643-S-B001-01 | 09/24/96 | 0.31 | | NV | 0.15 | USEPA-RBC | 1.25 |
| Iron (Fe) | 643-S-B007-01 | 09/24/96 | 3400.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 643-S-B001-01 | 09/24/96 | 4340.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 643-S-B004-01 | 09/24/96 | 6290.00 | | NV | 2300.00 | USEPA-RBC | NA |
| Vanadium (V) | 643-S-B004-01 | 09/24/96 | 141.00 | | NV | 55.00 | USEPA-RBC | 61.00 |
| **Pesticides/PCBs (μg/kg)** | | | | | | | | |
| Aroclor-1260 | 643-S-B007-01 | 09/24/96 | 1300.00 | | NV | 320.00 | USEPA-RBC | NA |
| Dieldrin | 643-S-B006-02 | 09/25/96 | 22.00 | | NV | 3.60 | USEPA-SSL | NA |
| **Benzo(a)Pyrene Equivalents (BEQs)** | | | | | | | | |
| | 643-S-B002-01 | 09/25/96 | 112.70 | | NV | 88.00 | USEPA-BEQ-RBC | NA |
| | 643-S-B005-01 | 09/25/96 | 1446.77 | | NV | 88.00 | USEPA-BEQ-RBC | NA |

**Notes:**

| | | |
|---|---|---|
| VAL | = | Validation is complete. |
| NV | = | Needs validation. |
| RBC | = | Risk Based Concentration. |
| SSL | = | Soil Screening Level - Transfers from soil to groundwater. |
| BKGD | = | Background |
| NA | = | Not available. |
| B | = | For inorganics, the reported value was obtained from a reading less than the CRDL but greater than the IDL. For organics, the analyte detected in the sample is also found in the associated method blank. |
| J | = | Indicates an estimated value for organics. |
| * | = | Indicates that the duplicate was not within control limits for inorganics. |
| P | = | Indicates that there was at least a 25% difference between the readings of the two GC columns. |
| D | = | Indicates an analysis at a secondary dilution factor. |
| E | = | For inorganics, the value is estimated because of the presence of interference. For organics, the concentration exceeded the calibration range of the instrument. |

Table
Exceeded Preliminary Remediation Goals (PRGs) for Sediment Contaminants
Charleston Zone G Sediment

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded |
|---|---|---|---|---|---|---|---|
| | | | VOC 643 | | | | |
| **Semivolatiles (μg/kg)** | | | | | | | |
| Anthracene | 643-M-0001 | 09/27/96 | 410.00 | J | NV | 330.00 | USEPA-SSV |
| Benzo(a)anthracene | 643-M-0001 | 09/27/96 | 1300.00 | | NV | 330.00 | USEPA-SSV |
| Benzo(a)pyrene | 643-M-0001 | 09/27/96 | 1300.00 | | NV | 330.00 | USEPA-SSV |
| Chrysene | 643-M-0001 | 09/27/96 | 1700.00 | | NV | 330.00 | USEPA-SSV |
| Dibenz(a,h)anthracene | 643-M-0001 | 09/27/96 | 390.00 | J | NV | 330.00 | USEPA-SSV |
| Fluoranthene | 643-M-0001 | 09/27/96 | 4400.00 | | NV | 330.00 | USEPA-SSV |
| Phenanthrene | 643-M-0001 | 09/27/96 | 1700.00 | | NV | 330.00 | USEPA-SSV |
| Pyrene | 643-M-0001 | 09/27/96 | 3000.00 | | NV | 330.00 | USEPA-SSV |
| bis(2-Ethylhexyl)phthalate (BEHP) | 643-M-0001 | 09/27/96 | 9500.00 | E | NV | 182.00 | USEPA-SSV |
| **Pesticides/PCBs (μg/kg)** | | | | | | | |
| 4,4'-DDD | 643-M-0001 | 09/27/96 | 42.00 | | NV | 3.30 | USEPA-SSV |
| 4,4'-DDE | 643-M-0001 | 09/27/96 | 43.00 | P | NV | 3.30 | USEPA-SSV |
| 4,4'-DDT | 643-M-0001 | 09/27/96 | 9.20 | P | NV | 3.30 | USEPA-SSV |
| Dieldrin | 643-M-0001 | 09/27/96 | 6.60 | | NV | 3.30 | USEPA-SSV |

**Notes:**

VAL = Validation is complete.
NV = Needs validation.
RBC = Risk Based Concentration.
SSL = Soil Screening Level - Transfers from soil to groundwater.
J = Indicates an estimated value for organics.
P = Indicates that there was at least a 25% difference between the readings of the two GC columns.
D = Indicates an analysis at a secondary dilution factor.
E = For inorganics, the value is estimated because of the presence of interference. For organics, the concentration exceeded the calibration range of the instrument.

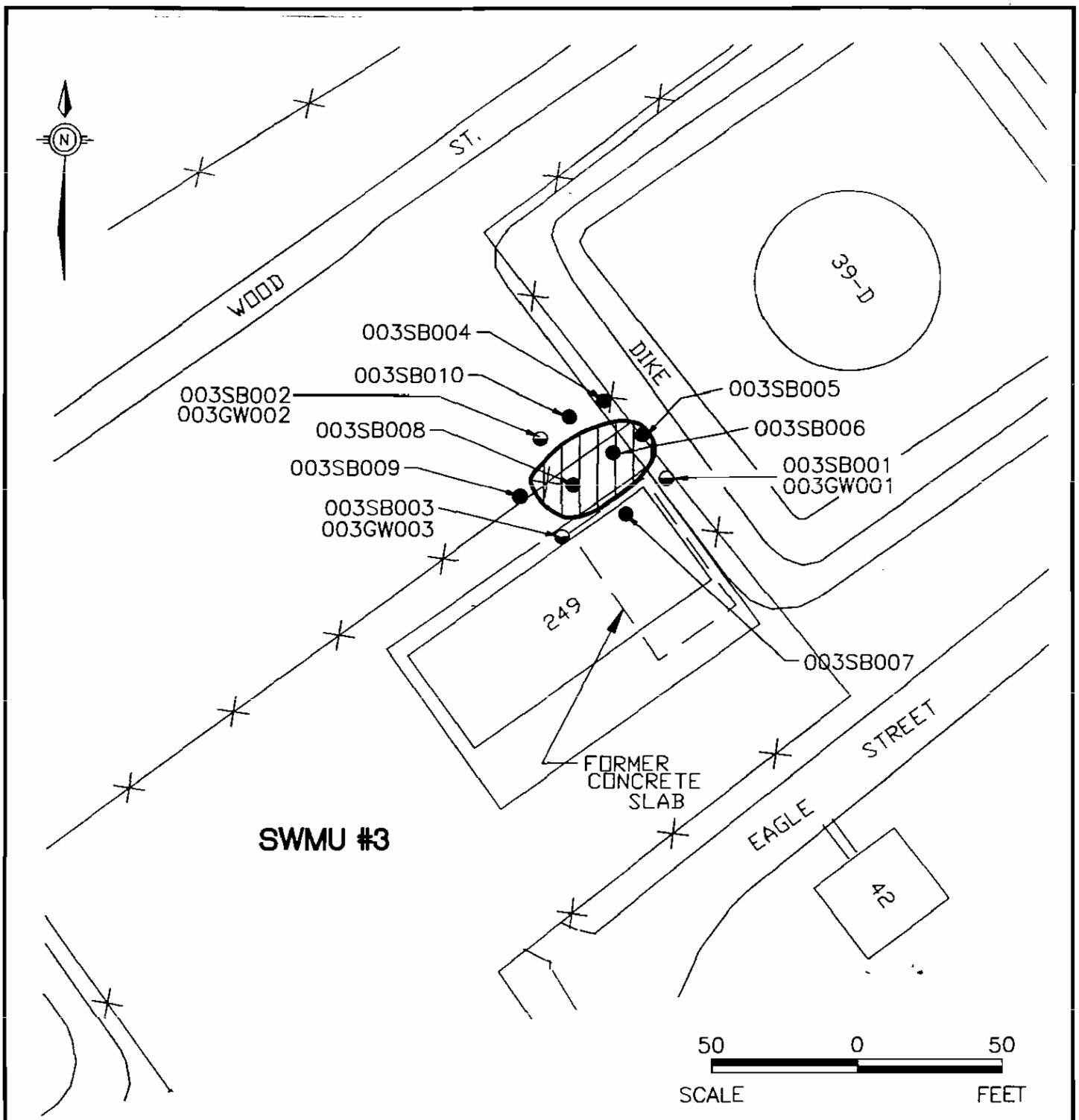
**SWMU 3**

- Surficial Soil
  - gamma chlordane and heptachlor detected slightly exceeding the residential RBC (SB008 and SB007 respectively).

- Subsurface Soil
  - Dieldrin slightly exceeded the SSL.

**RECOMMENDATIONS**

- Wait on OP pesticides data if no surprises, no additional sampling.




LEGEND

● – SOIL BORING

◒ – SOIL BORING/SHALLOW MONITORING WELL

ZONE G
RCRA FACILITY INVESTIGATION
60% PROGRESS MEETING
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

SAMPLING LOCATIONS
SWMU #3
PESTICIDE MIXING AREA

DWG DATE: 11/25/96 | DWG NAME: 29CHZG19

Table
Exceeds Preliminary Remediation Goals (PRGs) for Soil Contaminants
Charles Zone G Soil (Only)

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background |
|---|---|---|---|---|---|---|---|---|
| | | | SWMU 3 | | | | | |
| Inorganics (mg/kg) | | | | | | | | |
| Aluminum (Al) | 003-S-B003-01 | 08/28/96 | 8000.00 | | VAL | 7800.00 | USEPA-RBC | 20100.00 |
| Arsenic (As) | 003-S-B009-01 | 09/26/96 | 2.00 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 003-S-B004-01 | 09/26/96 | 2.60 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 003-S-B003-01 | 08/28/96 | 3.60 | | VAL | 0.43 | USEPA-RBC | 24.60 |
| | 003-S-B008-01 | 09/26/96 | 1.60 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 003-S-B007-01 | 10/08/96 | 1.50 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 003-S-B005-01 | 09/26/96 | 1.50 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 003-S-B006-01 | 09/26/96 | 1.20 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 003-S-B010-01 | 09/26/96 | 3.30 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 003-S-B002-01 | 08/28/96 | 3.40 | | VAL | 0.43 | USEPA-RBC | 24.60 |
| | 003-S-B001-01 | 08/29/96 | 1.60 | J | VAL | 0.43 | USEPA-RBC | 24.60 |
| Beryllium (Be) | 003-S-B008-01 | 09/26/96 | 0.49 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 003-S-B006-01 | 09/26/96 | 0.51 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 003-S-B007-01 | 10/08/96 | 0.15 | B | NV | 0.15 | USEPA-RBC | 1.25 |
| | 003-S-B010-01 | 09/26/96 | 0.52 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 003-S-B009-01 | 09/26/96 | 0.35 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 003-S-B004-01 | 09/26/96 | 0.56 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 003-S-B003-01 | 08/28/96 | 0.67 | | VAL | 0.15 | USEPA-RBC | 1.25 |
| | 003-S-B005-01 | 09/26/96 | 0.58 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 003-S-B002-01 | 08/28/96 | 0.55 | | VAL | 0.15 | USEPA-RBC | 1.25 |
| Copper (Cu) | 003-S-B009-02 | 09/26/96 | 41.50 | | NV | 40.50 | Zone G Bkgd | 40.50 |
| Iron (Fe) | 003-S-B009-01 | 09/26/96 | 4100.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 003-S-B00B-01 | 09/26/96 | 3320.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 003-S-B010-01 | 09/26/96 | 6660.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 003-S-B007-01 | 10/08/96 | 3120.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 003-S-B003-01 | 08/28/96 | 4210.00 | | VAL | 2300.00 | USEPA-RBC | NA |
| | 003-S-B004-01 | 09/26/96 | 6170.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 003-S-B002-01 | 08/28/96 | 6860.00 | | VAL | 2300.00 | USEPA-RBC | NA |
| | 003-S-B001-01 | 08/29/96 | 4670.00 | | VAL | 2300.00 | USEPA-RBC | NA |
| | 003-S-B005-01 | 09/26/96 | 3510.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 003-S-B006-01 | 09/26/96 | 3210.00 | | NV | 2300.00 | USEPA-RBC | NA |

**Table**
**Exceeds Preliminary Remediation Goals (PRGs) for Soil Contaminants**
**Charles Zone G Soil (Only)**

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background |
|---|---|---|---|---|---|---|---|---|
| Manganese (Mn) | 003-S-B005-01 | 09/26/96 | 341.00 | | NV | 180.00 | USEPA-RBC | 321.00 |
| | 003-S-B004-01 | 09/26/96 | 194.00 | | NV | 180.00 | USEPA-RBC | 321.00 |
| | 003-S-B006-01 | 09/26/96 | 207.00 | | NV | 180.00 | USEPA-RBC | 321.00 |
| | 003-S-B003-01 | 08/28/96 | 183.00 | | VAL | 180.00 | USEPA-RBC | 321.00 |
| | 003-S-B008-01 | 09/26/96 | 210.00 | | NV | 180.00 | USEPA-RBC | 321.00 |
| | 003-S-B002-01 | 08/28/96 | 193.00 | | VAL | 180.00 | USEPA-RBC | 321.00 |
| **Pesticides/PCBs (µg/kg)** | | | | | | | | |
| Dieldrin | 003-S-B009-02 | 09/26/96 | 7.20 | P | NV | 3.60 | USEPA-SSL | NA |
| Heptachlor | 003-S-B009-01 | 09/26/96 | 210.00 | E | NV | 140.00 | USEPA-RBC | NA |
| gamma-Chlordane | 003-S-B008-01 | 09/26/96 | 500.00 | E | NV | 490.00 | USEPA-RBC | NA |

**Notes:**

| | | |
|---|---|---|
| VAL | = | Validation is complete. |
| NV | = | Needs validation. |
| RBC | = | Risk Based Concentration. |
| SSL | = | Soil Screening Level - Transfers from soil to groundwater. |
| BKGD | = | Background |
| NA | = | Not available. |
| B | = | For inorganics, the reported value was obtained from a reading less than the CRDL but greater than the IDL. For organics, the analyte detected in the sample is also found in the associated method blank. |
| J | = | Indicates an estimated value for organics. |
| * | = | Indicates that the duplicate was not within control limits for inorganics. |
| P | = | Indicates that there was at least a 25% difference between the readings of the two GC columns. |
| D | = | Indicates an analysis at a secondary dilution factor. |
| E | = | For inorganics, the value is estimated because of the presence of interference. For organics, the concentration exceeded the calibration range of the instrument. |

**SWMU 6/SWMU 7/AOC 635**

- Surficial Soil
  - Manganese concentration exceeds residential RBC (SB004).
  - DDE, DDT exceeds residential RBCs (SB001, SB002).
  - Aroclor 1260 significantly exceeds residential RBC (SB001, SB002)
  - BEQ significantly exceeds residential RBC.

- Subsurface Soil
  - Aluminum, copper, lead, manganese, tin exceed background/SSL by at least two times.

**RECOMMENDATIONS**

- No additional soil sampling.
- This soil sampling confirmed previous results.
- Wait on groundwater results for additional assessment.

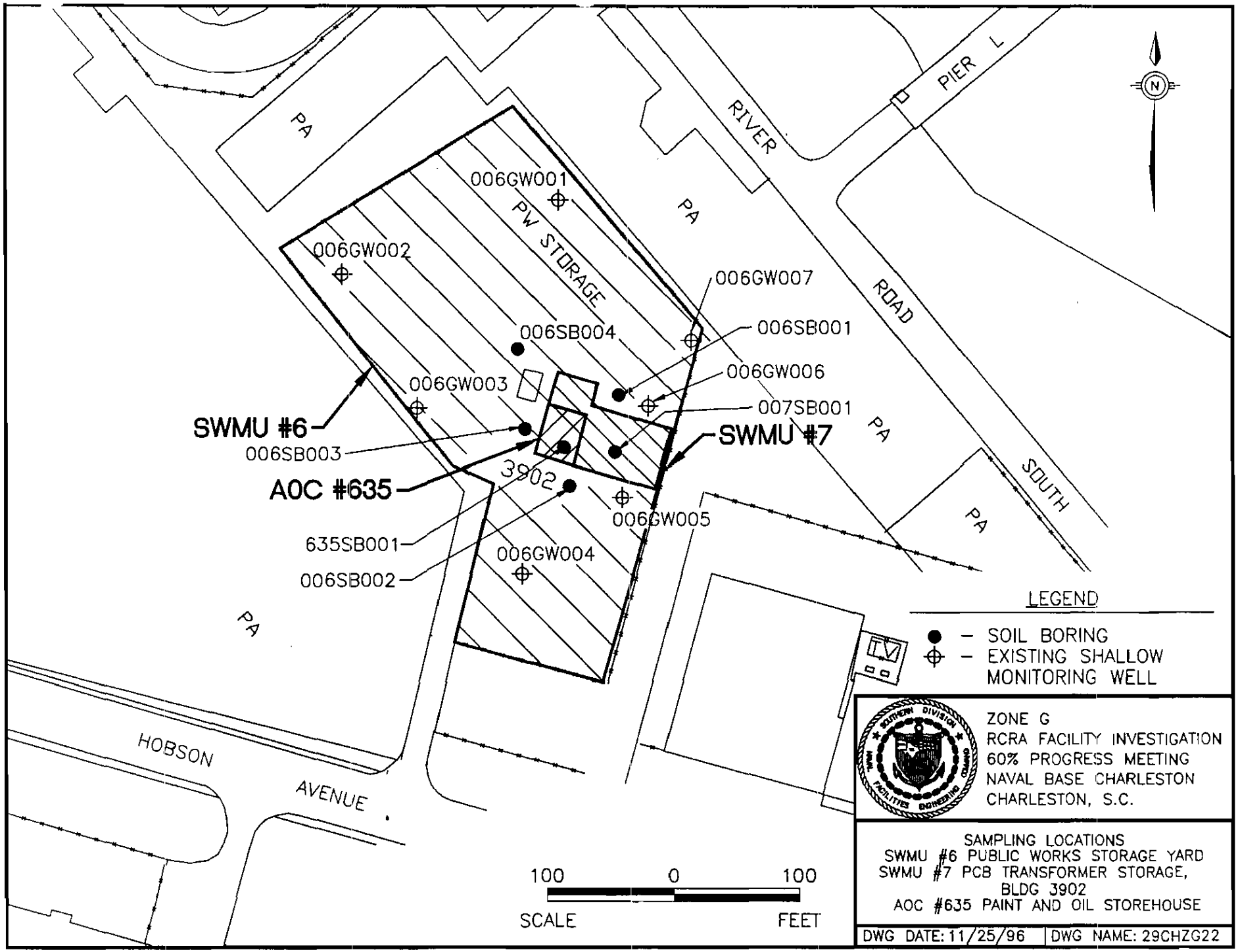

PA
PA
PA
PA
PA
RIVER
ROAD
SOUTH
PIER L
PW STORAGE
006GW001
006GW002
006GW003
006GW004
006GW005
006GW006
006GW007
006SB001
006SB002
006SB003
006SB004
007SB001
635SB001
3902
SWMU #6
SWMU #7
AOC #635
HOBSON
AVENUE
100
0
100
SCALE
FEET
LEGEND
SOIL BORING
EXISTING SHALLOW MONITORING WELL
ZONE G
RCRA FACILITY INVESTIGATION
60% PROGRESS MEETING
NAVAL BASE CHARLESTON
CHARLESTON, S.C.
SAMPLING LOCATIONS
SWMU #6 PUBLIC WORKS STORAGE YARD
SWMU #7 PCB TRANSFORMER STORAGE, BLDG 3902
AOC #635 PAINT AND OIL STOREHOUSE
DWG DATE: 11/25/96
DWG NAME: 29CHZG22

**Table**
**Exceeds Preliminary Remediation Goals (PRGs) for Soil Contaminants**
**Charleston Zone G Soil (Only)**

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background |
|---|---|---|---|---|---|---|---|---|
| | | | **SWMU 6** | | | | | |
| **Semivolatilas (μg/kg)** | | | | | | | | |
| Benzo(a)anthracene | 006-S-B001-01 | 09/19/96 | 1300.00 | | NV | 880.00 | USEPA-RBC | NA |
| | 006-S-B002-01 | 09/19/96 | 2500.00 | | NV | 880.00 | USEPA-RBC | NA |
| Benzo(a)pyrene | 006-S-B001-01 | 09/19/96 | 1200.00 | | NV | 88.00 | USEPA-RBC | NA |
| | 006-S-B002-01 | 09/19/96 | 2500.00 | | NV | 88.00 | USEPA-RBC | NA |
| | 006-S-B003-01 | 09/19/96 | 220.00 | J | NV | 88.00 | USEPA-RBC | NA |
| | 006-S-B004-01 | 09/19/96 | 180.00 | J | NV | 88.00 | USEPA-RBC | NA |
| Benzo(b)fluoranthene | 006-S-B002-01 | 09/19/96 | 4300.00 | | NV | 880.00 | USEPA-RBC | NA |
| Dibenz(a,h)anthracene | 006-S-B001-01 | 09/19/96 | 350.00 | J | NV | 88.00 | USEPA-RBC | NA |
| | 006-S-B002-01 | 09/19/96 | 760.00 | | NV | 88.00 | USEPA-RBC | NA |
| Indeno(1,2,3-cd)pyrene | 006-S-B002-01 | 09/19/96 | 1600.00 | | NV | 880.00 | USEPA-RBC | NA |
| **Inorganics (mg/kg)** | | | | | | | | |
| Aluminum (Al) | 006-S-B004-01 | 09/19/96 | 13300.00 | | NV | 7800.00 | USEPA-RBC | 20100.00 |
| | 006-S-B001-02 | 09/19/96 | 32300.00 | | NV | 26800.00 | Zone G Bkgd | 26800.00 |
| Arsenic (As) | 006-S-B004-01 | 09/19/96 | 17.30 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 006-S-B002-01 | 09/19/96 | 11.30 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 006-S-B003-01 | 09/19/96 | 4.10 | | NV | 0.43 | USEPA-RBC | 24.60 |
| | 006-S-B001-01 | 09/19/96 | 9.50 | | NV | 0.43 | USEPA-RBC | 24.60 |
| Beryllium (Be) | 006-S-B004-01 | 09/19/96 | 0.80 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 006-S-B003-01 | 09/19/96 | 0.29 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 006-S-B001-01 | 09/19/96 | 0.24 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 006-S-B002-01 | 09/19/96 | 0.40 | | NV | 0.15 | USEPA-RBC | 1.25 |
| Copper (Cu) | 006-S-B001-02 | 09/19/96 | 126.00 | | NV | 40.50 | Zone G Bkgd | 40.50 |
| Iron (Fe) | 006-S-B004-01 | 09/19/96 | 20500.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 006-S-B003-01 | 09/19/96 | 6100.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 006-S-B002-01 | 09/19/96 | 10000.00 | | NV | 2300.00 | USEPA-RBC | NA |
| | 006-S-B001-01 | 09/19/96 | 12500.00 | | NV | 2300.00 | USEPA-RBC | NA |
| Lead (Pb) | 006-S-B001-02 | 09/19/96 | 131.00 | | NV | 66.70 | Zone G Bkgd | 66.70 |
| Manganese (Mn) | 006-S-B004-01 | 09/19/96 | 568.00 | | NV | 180.00 | USEPA-RBC | 321.00 |
| | 006-S-B001-02 | 09/19/96 | 411.00 | | NV | 268.00 | Zone G Bkgd | 268.00 |
| | 006-S-B004-02 | 09/19/96 | 528.00 | | NV | 268.00 | Zone G Bkgd | 268.00 |
| Tin (Sn) | 006-S-B001-02 | 09/19/96 | 14.40 | | NV | 4.75 | Zone G Bkgd | 4.75 |
| | 006-S-B004-02 | 09/19/96 | 12.10 | B | NV | 4.75 | Zone G Bkgd | 4.75 |

**Table**
**Exceeds Preliminary Remediation Goals (PRGs) for Soil Contaminants**
**Charleston Zone G Soil (Only)**

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background |
|---|---|---|---|---|---|---|---|---|
| Vanadium (V) | 006-S-B001-02 | 09/19/96 | 85.20 | | NV | 79.90 | Zone G Bkgd | 79.90 |
| **Pesticides/PCBs (μg/kg)** | | | | | | | | |
| 4,4'-DDD | 006-S-B002-01 | 09/19/96 | 20000.00 | PE | NV | 2700.00 | USEPA-RBC | NA |
| 4,4'-DDE | 006-S-B002-01 | 09/19/96 | 4200.00 | E | NV | 1900.00 | USEPA-RBC | NA |
| | 006-S-B001-01 | 09/19/96 | 1900.00 | E | NV | 1900.00 | USEPA-RBC | NA |
| 4,4'-DDT | 006-S-B001-01 | 09/19/96 | 2600.00 | E | NV | 1900.00 | USEPA-RBC | NA |
| | 006-S-B002-01 | 09/19/96 | 5000.00 | E | NV | 1900.00 | USEPA-RBC | NA |
| Aroclor-1260 | 006-S-B002-01 | 09/19/96 | 3700.00 | P | NV | 320.00 | USEPA-RBC | NA |
| | 006-S-B001-01 | 09/19/96 | 7300.00 | | NV | 320.00 | USEPA-RBC | NA |
| **Benzo(a)Pyrene Equivalents (BEQs)** | | | | | | | | |
| | 006-S-B001-01 | 09/19/96 | 1766.30 | | NV | 88.00 | USEPA-RBC | NA |
| | 006-S-B002-01 | 09/19/96 | 4141.80 | | NV | 88.00 | USEPA-RBC | NA |
| | 006-S-B003-01 | 09/19/96 | 335.85 | | NV | 88.00 | USEPA-RBC | NA |
| | 006-S-B004-01 | 09/19/96 | 285.25 | | NV | 88.00 | USEPA-RBC | NA |

**Notes:**

| | | |
|---|---|---|
| VAL | = | Validation is complete. |
| NV | = | Needs validation. |
| RBC | = | Risk Based Concentration. |
| SSL | = | Soil Screening Level - Transfers from soil to groundwater. |
| BKGD | = | Background |
| NA | = | Not available. |
| B | = | For inorganics, the reported value was obtained from a reading less than the CRDL but greater than the IDL. For organics, the analyte detected in the sample is also found in the associated method blank. |
| J | = | Indicates an estimated value for organics. |
| * | = | Indicates that the duplicate was not within control limits for inorganics. |
| P | = | Indicates that there was at least a 25% difference between the readings of the two GC columns. |
| D | = | Indicates an analysis at a secondary dilution factor. |
| E | = | For inorganics, the value is estimated because of the presence of interference. For organics, the concentration exceeded the calibration range of the instrument. |

**Table**
**Exceeds Preliminary Remediation Goals (PRBs) for Soil Contaminants**
**Charleston Zone G Soil (Only)**

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background |
|---|---|---|---|---|---|---|---|---|
| | | | **SWMU 7** | | | | | |
| **Semivolatiles (μg/kg)** | | | | | | | | |
| Benzo(a)anthracene | 007-S-B001-01 | 10/03/96 | 980.00 | | NV | 880.00 | USEPA-RBC | NA |
| Benzo(a)pyrene | 007-S-B001-01 | 10/03/96 | 470.00 | | NV | 88.00 | USEPA-RBC | NA |
| **Inorgenics (mg/kg)** | | | | | | | | |
| Aluminum (Al) | 007-S-B001-01 | 10/03/96 | 10400.00 | | NV | 7800.00 | USEPA-RBC | 20100.00 |
| Arsenic (As) | 007-S-B001-01 | 10/03/96 | 5.70 | | NV | 0.43 | USEPA-RBC | 24.60 |
| Beryllium (Be) | 007-S-B001-01 | 10/03/96 | 0.37 | | NV | 0.15 | USEPA-RBC | 1.25 |
| Iron (Fe) | 007-S-B001-01 | 10/03/96 | 13700.00 | | NV | 2300.00 | USEPA-RBC | NA |
| **Benzo(a)Pyrene Equivalents (BEQs)** | | | | | | | | |
| | 007-S-B001-01 | 10/03/96 | 708.40 | | NV | 88.00 | USEPA-BEQ-RBC | VA |

**Notes:**

| | | |
|---|---|---|
| VAL | = | Validation is complete. |
| NV | = | Needs validation. |
| RBC | = | Risk Based Concentration. |
| SSL | = | Soil Screening Level - Transfers from soil to groundwater. |
| BKGD | = | Background |
| NA | = | Not available. |
| B | = | For inorganics, the reported value was obtained from a reading less than the CRDL but greater than the IDL. For organics, the analyte detected in the sample is also found in the associated method blank. |
| J | = | Indicates an estimated value for organics. |
| * | = | Indicates that the duplicate was not within control limits for inorganics. |
| P | = | Indicates that there was at least a 25% difference between the readings of the two GC columns. |
| D | = | Indicates an analysis at a secondary dilution factor. |
| E | = | For inorganics, the value is estimated because of the presence of interference. For organics, the concentration exceeded the calibration range of the instrument. |

Table
Exceeds Preliminary Remediation Goals (PRGs) for Soil Contaminants
Charleston Zone G Soil (Only)

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceeded | Background |
|---|---|---|---|---|---|---|---|---|
| | | | AOC 635 | | | | | |
| Inorganics (mg/kg) | | | | | | | | |
| Aluminum (Al) | 635-S-B001-01 | 10/03/96 | 12700.00 | | NV | 7800.00 | USEPA-RBC | 20100.00 |
| Arsenic (As) | 635-S-B001-01 | 10/03/96 | 14.70 | | NV | 0.43 | USEPA-RBC | 24.60 |
| Beryllium (Be) | 635-S-B001-01 | 10/03/96 | 0.51 | | NV | 0.15 | USEPA-RBC | 1.25 |
| Iron (Fe) | 635-S-B001-01 | 10/03/96 | 28000.00 | | NV | 2300.00 | USEPA-RBC | NA |
| Thallium (Tl) | 635-S-B001-01 | 10/03/96 | 0.89 | B | NV | 0.63 | USEPA-RBC | 0.87 |

**Notes:**

| | | |
|---|---|---|
| VAL | = | Validation is complete. |
| NV | = | Needs validation. |
| RBC | = | Risk Based Concentration. |
| SSL | = | Soil Screening Level - Transfers from soil to groundwater. |
| BKGD | = | Background |
| NA | = | Not available. |
| B | = | For inorganics, the reported value was obtained from a reading less than the CRDL but greater than the IDL. For organics, the analyte detected in the sample is also found in the associated method blank. |
| J | = | Indicates an estimated value for organics. |
| * | = | Indicates that the duplicate was not within control limits for inorganics. |
| P | = | Indicates that there was at least a 25% difference between the readings of the two GC columns. |
| D | = | Indicates an analysis at a secondary dilution factor. |
| E | = | For inorganics, the value is estimated because of the presence of interference. For organics, the concentration exceeded the calibration range of the instrument. |

**AOC 646**

- Surficial Soil
  - No exceedances
- Subsurface Soil
  - No exceedances

**RECOMMENDATIONS**

- No additional sampling.

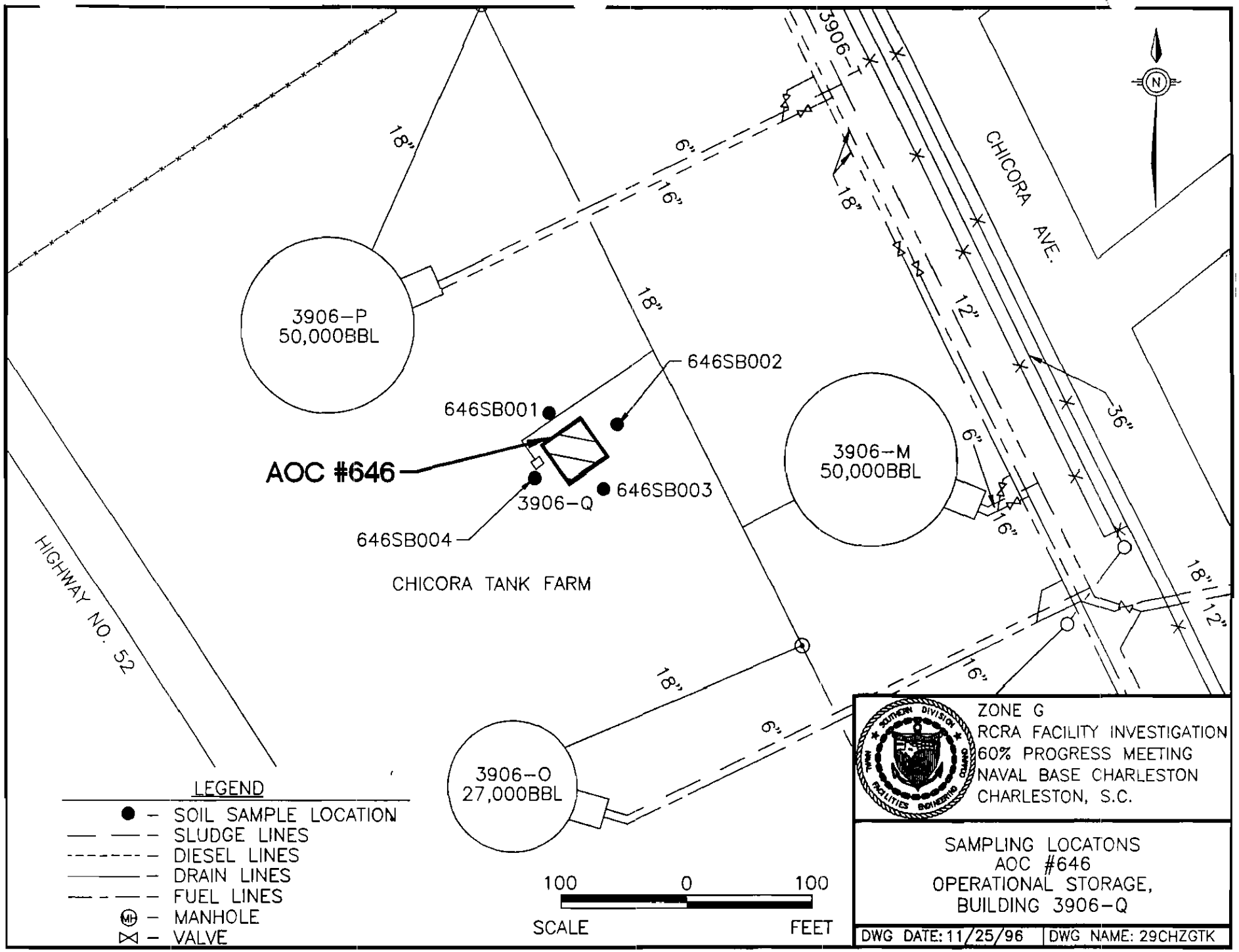

3906-P
50,000BBL
3906-M
50,000BBL
3906-O
27,000BBL
3906-Q
3906-T
646SB001
646SB002
646SB003
646SB004
AOC #646
CHICORA TANK FARM
CHICORA AVE.
HIGHWAY NO. 52
18"
16"
6"
12"
36"
LEGEND
SOIL SAMPLE LOCATION
SLUDGE LINES
DIESEL LINES
DRAIN LINES
FUEL LINES
MANHOLE
VALVE
100 0 100
SCALE FEET
ZONE G
RCRA FACILITY INVESTIGATION
60% PROGRESS MEETING
NAVAL BASE CHARLESTON
CHARLESTON, S.C.
SAMPLING LOCATONS
AOC #646
OPERATIONAL STORAGE,
BUILDING 3906-Q
DWG DATE: 11/25/96
DWG NAME: 29CHZGTK

Table
Exceeds Preliminary Remediation Goals (PRGs) for Soil Contaminants
Charleston Zone G Soil (Only)

| Name | Sample ID | Sample Date | Result | VQUAL | Validation | PRG Result | PRG Exceedad | Background |
|---|---|---|---|---|---|---|---|---|
| | | | AOC 646 | | | | | |
| Inorganics (mg/kg) | | | | | | | | |
| Aluminum (Al) | 646-S-B004-01 | 10/15/96 | 9180.00 | | NV | 7800.00 | USEPA-RBC | 20100.00 |
| Arsenic (As) | 646-S-B001-01 | 10/15/96 | 3.10 | N* | NV | 0.43 | USEPA-RBC | 24.60 |
| | 646-S-B004-01 | 10/15/96 | 4.30 | N* | NV | 0.43 | USEPA-RBC | 24.60 |
| | 646-S-B003-01 | 10/15/96 | 5.10 | N* | NV | 0.43 | USEPA-RBC | 24.60 |
| | 646-S-B002-01 | 10/15/96 | 3.40 | N* | NV | 0.43 | USEPA-RBC | 24.60 |
| Beryllium (Be) | 646-S-B002-01 | 10/15/96 | 0.24 | | NV | 0.15 | USEPA-RBC | 1.25 |
| | 646-S-B001-01 | 10/15/96 | 0.22 | B | NV | 0.15 | USEPA-RBC | 1.25 |
| | 646-S-B004-01 | 10/15/96 | 0.15 | B | NV | 0.15 | USEPA-RBC | 1.25 |
| | 646-S-B003-01 | 10/15/96 | 0.44 | | NV | 0.15 | USEPA-RBC | 1.25 |
| Iron (Fe) | 646-S-B003-01 | 10/15/96 | 5540.00 | * | NV | 2300.00 | USEPA-RBC | NA |
| | 646-S-B004-01 | 10/15/96 | 10500.00 | * | NV | 2300.00 | USEPA-RBC | NA |
| | 646-S-B002-01 | 10/15/96 | 3970.00 | * | NV | 2300.00 | USEPA-RBC | NA |
| | 646-S-B001-01 | 10/15/96 | 5480.00 | * | NV | 2300.00 | USEPA-RBC | NA |
| Thallium (Tl) | 646-S-B004-01 | 10/15/96 | 0.76 | B | NV | 0.63 | USEPA-RBC | 0.87 |

**Notes:**

| | | |
|---|---|---|
| VAL | = | Validation is complete. |
| NV | = | Needs validation. |
| RBC | = | Risk Based Concentration. |
| SSL | = | Soil Screening Level - Transfers from soil to groundwater. |
| BKGD | = | Background |
| NA | = | Not available. |
| B | = | For inorganics, the reported value was obtained from a reading less than the CRDL but greater than the IDL. For organics, the analyte detected in the sample is also found in the associated method blank. |
| J | = | Indicates an estimated value for organics. |
| * | = | Indicates that the duplicate was not within control limits for inorganics. |
| P | = | Indicates that there was at least a 25% difference between the readings of the two GC columns. |
| D | = | Indicates an analysis at a secondary dilution factor. |
| E | = | For inorganics, the value is estimated because of the presence of interference. For organics, the concentration exceeded the calibration range of the instrument. |

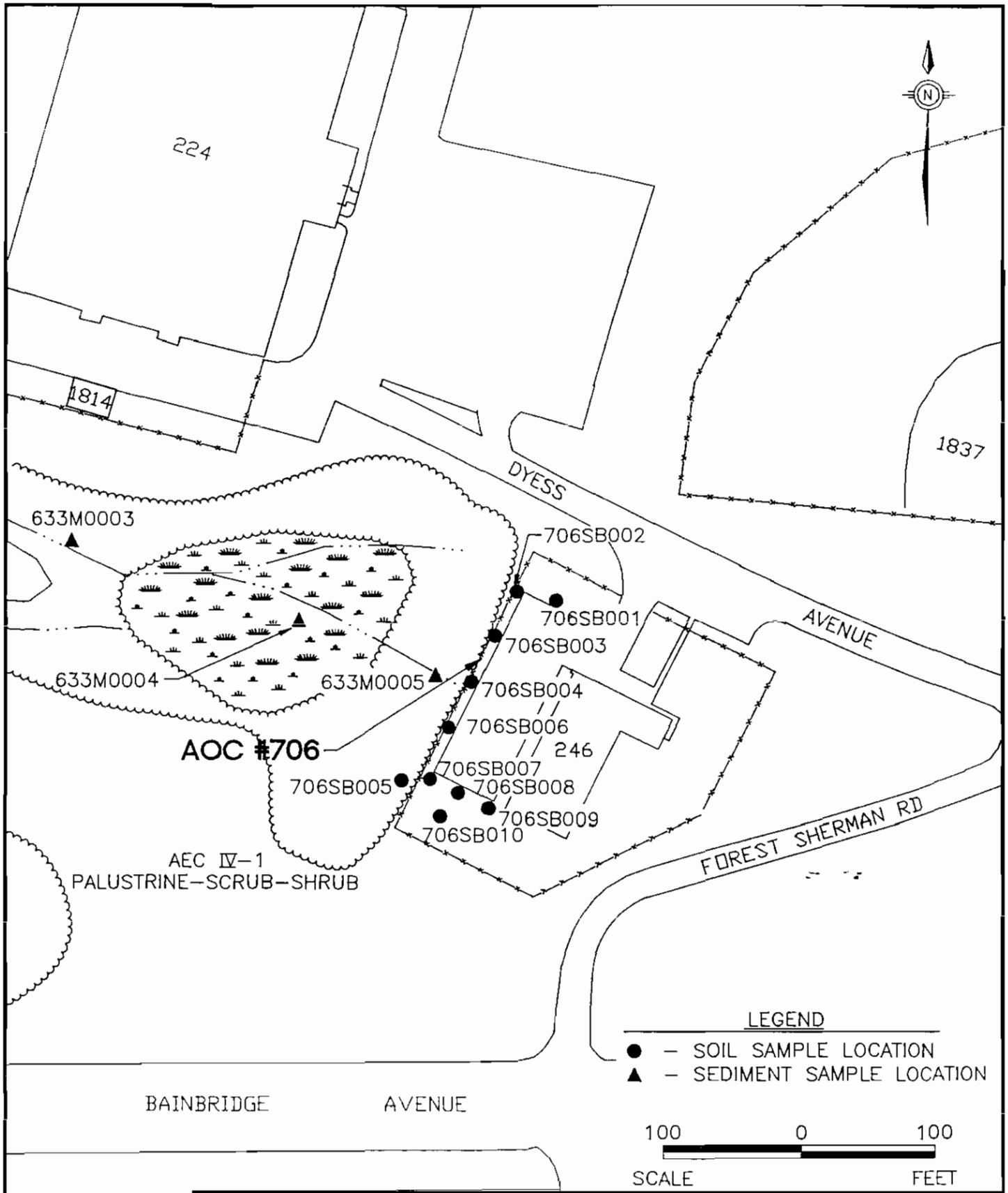
## AOC 706

- Surficial Soil
  - Cadmium exceeds residential RBC and background (SB002).

- Subsurface Soil
  - Aluminum, antimony, manganese, mercury, thallium slightly exceed SSL/ background (SB001, SB002, SB004, SB006, SB009).
  - Lead and tin significantly exceed SSLs/background (SB004, SB006).

## RECOMMENDATIONS

- No additional sampling is proposed at this time, the area is secured and fenced.




ZONE G
RCRA FACILITY INVESTIGATION
60% PROGRESS MEETING
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

SAMPLING LOCATIONS
AOC #706
AREA BEHIND BUILDING 246

DWG DATE: 11/26/96 | DWG NAME: 29CHZG33

NAVAL BASE CHARLESTON
RESTORATION ADVISORY BOARD (RAB)
Minutes of 12 November 1996

1. Introduction of the RAB Members and Guests

Mr. Daryle Fontenot, Navy Co-chair, welcomed members and guests to the Restoration Advisory Board meeting. The primary focus of this meeting will be the presentation of Zones C and I preliminary sampling results. This meeting is the first in the shortened format as recommended at the October meeting, and is scheduled to run between 6 and 7. In order to allow as much time as possible for the presentation, questions, and answers, the other regularly scheduled topics will not be discussed.

2. RAB Members Attending

Mr. Oliver Addison
Mr. Doyle Brittain
Mr. James Conner
Mr. Bobby Dearhart
Mr. Daryle Fontenot
Mr. Wilburn Gilliard
Ms. Gussie Greene
Mr. Donald Harbert
Mr. Ralph Laney
Ms. Wannetta Mallette-Pratt
Mr. Arthur Pinckney
Mr. Odell Price
Ms. Ann Ragan
LDCR Paul Rose
Ms. Fouche'na Sheppard
Ms. Priscilla Wendt

3. Guests Attending

| | |
|---|---|
| Mr. Tony Hunt | NAVFAC, SouthDiv |
| Mr. Gabriel Magwood | NAVFAC, SouthDiv |
| Mr. Doug Ghisel | Navy |
| Mr. John Lawrence | Detachment |
| Ms. Virginia Thomas | Detachment |
| E. Strong | Detachment |
| Ms. T'nania Simmons | Charleston MBDC |
| Mr. James Coar | Charleston MBDC |
| Mr. Johnny Tapia | SCDHEC |
| Mr. Paul M. Bergstrand | SCDHEC |
| Mr. Tom Fressilli | BTC Naval Base |
| Ms. Stephanie Kuzemchak | Clean Harbor Environmental Services |
| Ms. Jeri Johnson | RDA |
| Ms. June Brittan | Concerned Citizen |
| J.T. Amey | |
| Ms. Diane Cutler | EnSafe/Allen&Hoshall |
| Ms. Sandy Reagan | EnSafe/Allen&Hoshall |
| Ms. Amy Stehlin | EnSafe/Allen&Hoshall |
| Mr. Craig Smith | EnSafe/Allen&Hoshall |
| Ms. Ginny Gray | EnSafe/Allen&Hoshall |

| | |
|---|---|
| Mr. Jay Cornelius | EnSafe/Allen&Hoshall |
| Mr. Greg Temple | EnSafe/Allen&Hoshall |
| Mr. Dave Backus | EnSafe/Allen&Hoshall |
| Mr. James Watson | EnSafe/Allen&Hoshall |
| Mr. Todd Kafka | EnSafe/Allen&Hoshall |
| Mr. Britton Dotson | EnSafe/Allen&Hoshall |

4. Administrative Remarks and Comments on Minutes

Mr. Fontenot asked if there were any comments on the minutes of the 8 October RAB meeting. No comments or changes were offered. Mr. Fontenot added that Progress Report and Project Status handouts are available on the back table.

Mr. Fontenot announced that new information has been received from the contractor on the options at Chicora Tank Farm. The RAB is still looking at options 1 and 3, with option 3 being demolition on site. A conference call has been scheduled with DHEC to discuss the new information. Another issue that is in the process of being ironed out deals with the capping material for the tanks - a synthetic material versus clay. If the RAB is interested, the Navy can provide a presentation on the status of Chicora at the December meeting. RAB members expressed interest in an update. Hopefully there will be some new information that can be added to be sure everyone understands the entire issue.

Next month's meeting will be held in the North Charleston area. Suggestions as to the best place to hold the meeting can be given to Mr. Fontenot and would be greatly appreciated.

5. Environmental Cleanup Progress Report

Mr. Fontenot introduced Ginny Gray, Task Order Manager for Zones C and I from EnSafe/Allen & Hoshall who is to present the RCRA Facility Investigation Report for Zones C and I.

Ms. Gray introduced herself and stated that the last time she had the pleasure to speak to the RAB was to give a progress update on the field investigation, or RCRA facility investigation, for Zones C and I. She further stated that at this time all the studies were completed and all the samples were collected for the risk assessment for Zones C and I, and that the draft RCRA Facility Investigation Report is currently being reviewed.

The material Ms. Gray will cover in her presentation includes background information such as where Zones C and I are located within the Charleston Naval Shipyard, and what types of sites are being investigated. She'll also present site specific results that tell what contaminants or chemicals were found at each site, and a review of the risk assessment process (how do the particular chemicals that were found in soil, water, or air pose a risk to people?). She will then provide a summary and recommendations based on the risks and what the Navy thinks should be done at each site.

Ms.Gray's presentation material is included as an attachment to these minutes.

6. Remaining Questions and Comments

In response to the Zones C & I presentation, Ms. Jeri Johnson stated that there is a lot of reuse interest in the Dredge Materials Area (DMA) in Zone I.

The Zones C and I RCRA Facility Investigation reports are contained in the Information Repository at the Dorchester Road Regional Library for anyone who is interested in obtaining more detailed information about Zone C and Zone I results. Chicora reports can also be found in the repository.

The next meeting will be held on December 10 in the North Charleston area. Please check your agenda for the time and location.

7. Adjournment

8. Addendum to Minutes

RAB community members met at the close of the meeting to vote on a new Community Co-Chair. Wannetta Mallette was elected to replace Don Harbert who finished his one-year appointment. Thank you to Mr. Harbert for his efforts and leadership over the last year, and congratulations to Wannetta on her new appointment.

The next RAB meeting will be held on December 10 from 3 - 4 p.m. at the Saint John's Catholic Church at 3921 Saint John's Ave. outside the St. John's gate at the Base.

**Summary of Action Item**

- Update on Chicora tank farm will be prepared for next meeting.

Attachments to Minutes
(1) Tuesday November 12, 1996 RAB Meeting Agenda
(2) Naval Base Charleston Project Status - 11/12/96 with List of Acronyms
(3) RFI Progress Report for November 1996
(4) Zones C & I RCRA Facility Investigation

Minutes recorded by: Diane Cutler, EnSafe/Allen&Hoshall

Minutes approved by: _____ _____

Daryle Fontenot
Co-Chairman

Wannetta Mallette
Co-Chairman

**Tuesday, November 12, 1996**

**Charleston Naval Complex**

**RESTORATION ADVISORY BOARD MEETING AGENDA**

6:00 P.M. Location: Charleston County School District Building (School Board Chambers) 75 Calhoun Street, Charleston, SC

5:00 - 6:00 P.M. Presentation on Risk Assessment

**6:00 P.M. RAB MEETING**

A. Introduction of the RAB Members and Guests

B. Administrative Remarks, comments on the minutes of the last meeting

C. Environmental Cleanup Progress Report - Cleanup Team

Status of the Environmental Programs
Presentation of RCRA Facility Investigation Results for Zones C and I

D. Remaining Questions and Comments from Visitors

E. Agenda for next meeting.

Selection of new Community Co-Chair by RAB Community Members

RAB Members, Project Team, and interested citizens informally talk about what's going on after the meeting from 7:00 p.m. to 7:30 p.m.

Please mark your calendar. Our next meeting is **Tuesday, December 10, 1996**. Time and location to be determined.

**Naval Base Charleston**
**RCRA Facility Investigation (RFI)**
**PROGRESS REPORT FOR NOVEMBER 1996**

INVESTIGATIVE ZONES

A. Warehousing and scrap metal yard
B. Golf course and residential
C. Office space and warehouse (NH-45, Navbase HQ)
D. Parking lot, warehouses
E. Shipyard
F. Recreational areas and public works shops
G. Fuel farm and transfer facility
H. Southern end of the base excluding waterfront
I. Southern end of the base including waterfront and dredge material area
J. Ecological study area (waterbodies and certain areas on land)
K. Non-contiguous areas
L. Sewer systems and railroad system

FUNDING

- Funding status
  Funds available, not yet negotiated and awarded: J, L

PROGRESS FOR OCTOBER

- Final copies of Revisions 01 and 02 to the Comprehensive RFI Work Plan were distributed on 15 October.

- Addendums II and III of the RCRA Facility Assessment were distributed on 24 October.

- Comments on the Draft Zone B RFI Report were received on 21 October.

- Regulatory approval of the Final Zone K RFI Work Plan was received on 16 October.

- Six additional groundwater monitoring wells were installed in Zone A as part of the on going SWMU 39 investigation. The locations were selected based on the results of the direct push screening work completed in September.

- Well development was initiated in Zones D, F & G. Also, 19 wells were installed at AOC 607 and 5 wells were installed at AOC 619. The well locations were selected based on the results of direct push screening.

PROJECTED ACTIVITY FOR NOVEMBER

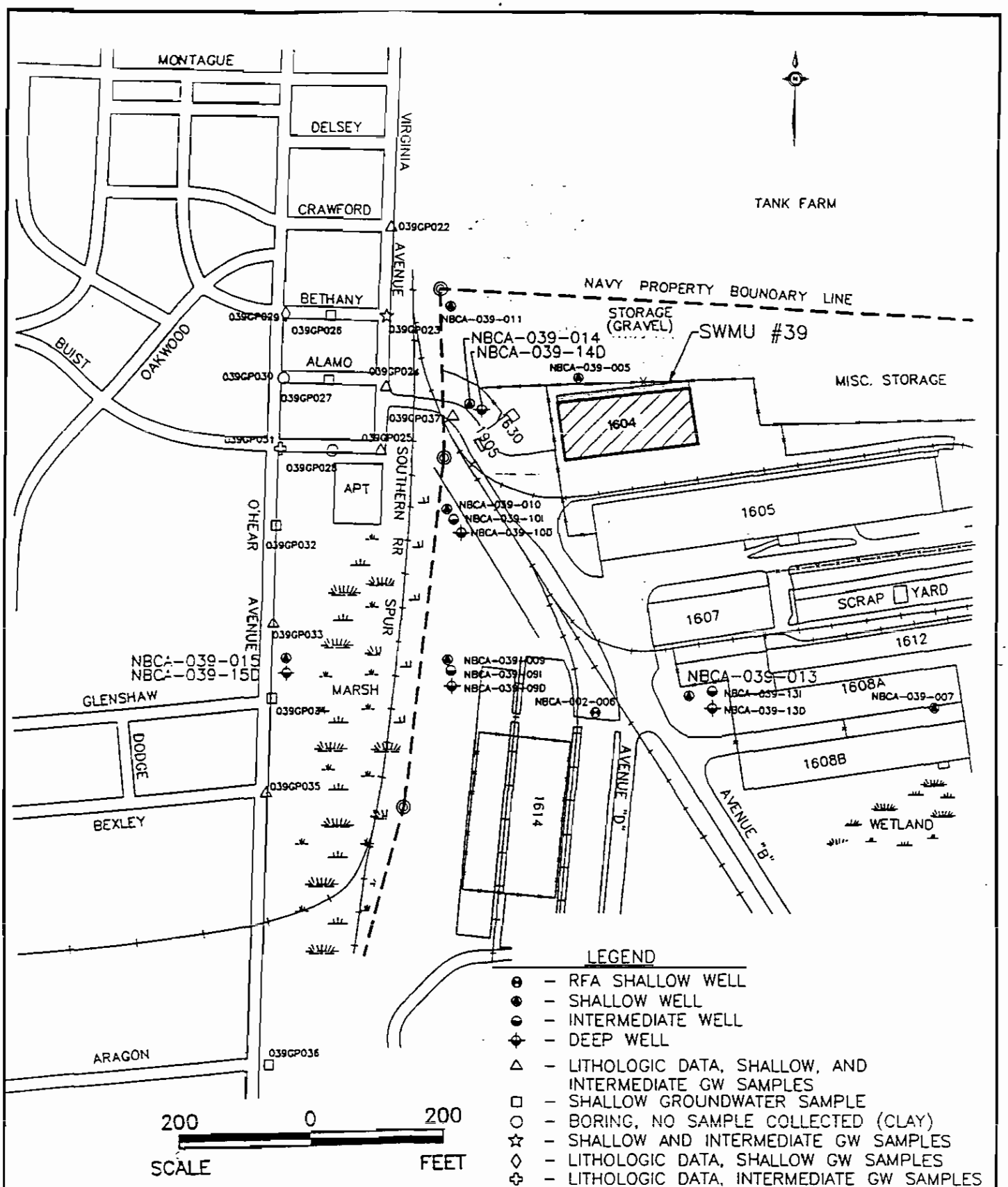
- Begin field work in Zone K.
- Collect groundwater samples from new wells installed in Zone A as wells developed in Zones D, F & G.
- Resolve regulatory comments on Zones J work plan.
- Resolve issues with Zone H RFI report (Eco changes).
- Resolve Zone B RFI Report comments.

Naval Base Charleston
Project Status
11/12/96

| PROGRAM | PROJECT DESCRIPTION | ACTION REQUIRED | ECD |
|---|---|---|---|
| BRAC - Property Lease/Transfer | | | |
| | EBSL/FOSL for McKinney Act (20 fac.) | Signed | |
| | EBSL/FOSL for 231 facilities | Incorporating Regulatory comments | 11/27/96 |
| | EBSL/FOSL for NS Annex (19 fac.) | Awaiting SOUTHDIV CO signature | 11/15/96 |
| | EBST Clouter Island (Transfer to COE, 2 fac.) | Awaiting SOUTHDIV CO signature | 11/15/96 |
| | EBST NS Annex (Transfer to MC, 6 fac.) | Signed | |
| | Environmental Condition of Property map | Changes made to Environmental condition of property map | complete |
| | Environmental Baseline Survey | Computed and distributed final | |
| | | | |
| NEPA | | | |
| | Environmental Assessment of South Annex | Waiting on reuse plan from RDA before completing the EA | |
| | | | |
| RCRA Compliance | | | |
| | Part B permit application | CSO submit Part B application | 12/20/96 |
| | Generator ID-Naval Annex | CSO submitted letter requesting change in owner 9/24/96 | Complete |
| | | | |
| RCRA Corrective Action (RFI Report Regulatory review priority) | | | |
| | Zone A RFI report | Ensafe generating Eco changes | 11/22/96 |
| | Zone A field work | In progress, additional work on several sites, well permit requests submitted. | |
| | Zone B RFI report | Comments recieved, Navy to submit RTC | 11/21/96 |
| | Zone C RFI report (3) | In EPA/SCDHEC review | 1/24/97 |
| | Zone D field work | In progress, next progress meeting (60%) is 11/12/96 | 11/12/96 |
| | Zone F & G field work | In progress, next progress meeting (60%) is 12/11/96 | 12/11/96 |
| | Zone E RFI field work | In progress, next progress meeting (90%) is 11/12 | 11/12/96 |
| | Zone H RFI report (1) | Ensafe generating Eco changes | 11/22/96 |
| | Zone I RFI report (2) | In EPA/SCDHEC review | 3/27/97 |
| | Zone J RFI WP | Document Approval Meeting scheduled for 11/13/96 | 11/13/96 |
| | Zone K Field Work | In progress, 30% progress scheduled for 12/11/96. | 12/11/96 |
| | Zone L RFI WP | In EPA/SCDHEC review | 11/22/96 |
| | | | |
| | Miscellaneous issues | | |
| | Groundwater Model | USGS preparing draft regional and local report | 11/15/96 |
| | Transfer of IR sites to UST program | Navy to submit letter requesting transfer of sites | |
| | GRAM survey of DRMO | Survey complete, data in review | 12/1/96 |
| | Support services | | |
| | IDW Management | Navy preparing letter for submittal to State and EPA on background organics | 11/15/96 |
| | Groundwater Monitoring | Zone E 3rd quarter in progress, Zone H, C, I, B complete through 4 quarters | |
| | | Navy reviewing PEP for Zones D, F &G | 11/8/96 |
| | | | |
| Underground Storage Tank | | | |
| | Tank Management Plan | EPA/SCDHEC Final review, resubmitted 10/18/96 | |
| | Petroleum Remediation Plan | Det preparing plan of action | 11/13/96 |
| | Bioremediation demonstration project | Facility being prepared, addressing State comments | |

Naval Base Charleston
Project Status
11/12/96

| PROGRAM | PROJECT DESCRIPTION | ACTION REQUIRED | ECD |
|---|---|---|---|
| | Removals | FY 96 - 54 tanks authorized for removal, as of 10/31 two more tanks remaining | |
| | | FY 97 - 40 tanks authorized for removal, as of 10/31 two have been removed | |
| | Chicora Tank Farm | Navy resolving technical issues (update next meeting) | 12/10/96 |
| Asbestos | | | |
| | Building 32 remediation | Notice to proceed given to Detachment | 6/30/97 |
| | Building 1171 remediation | Work in progress | 1/30/97 |



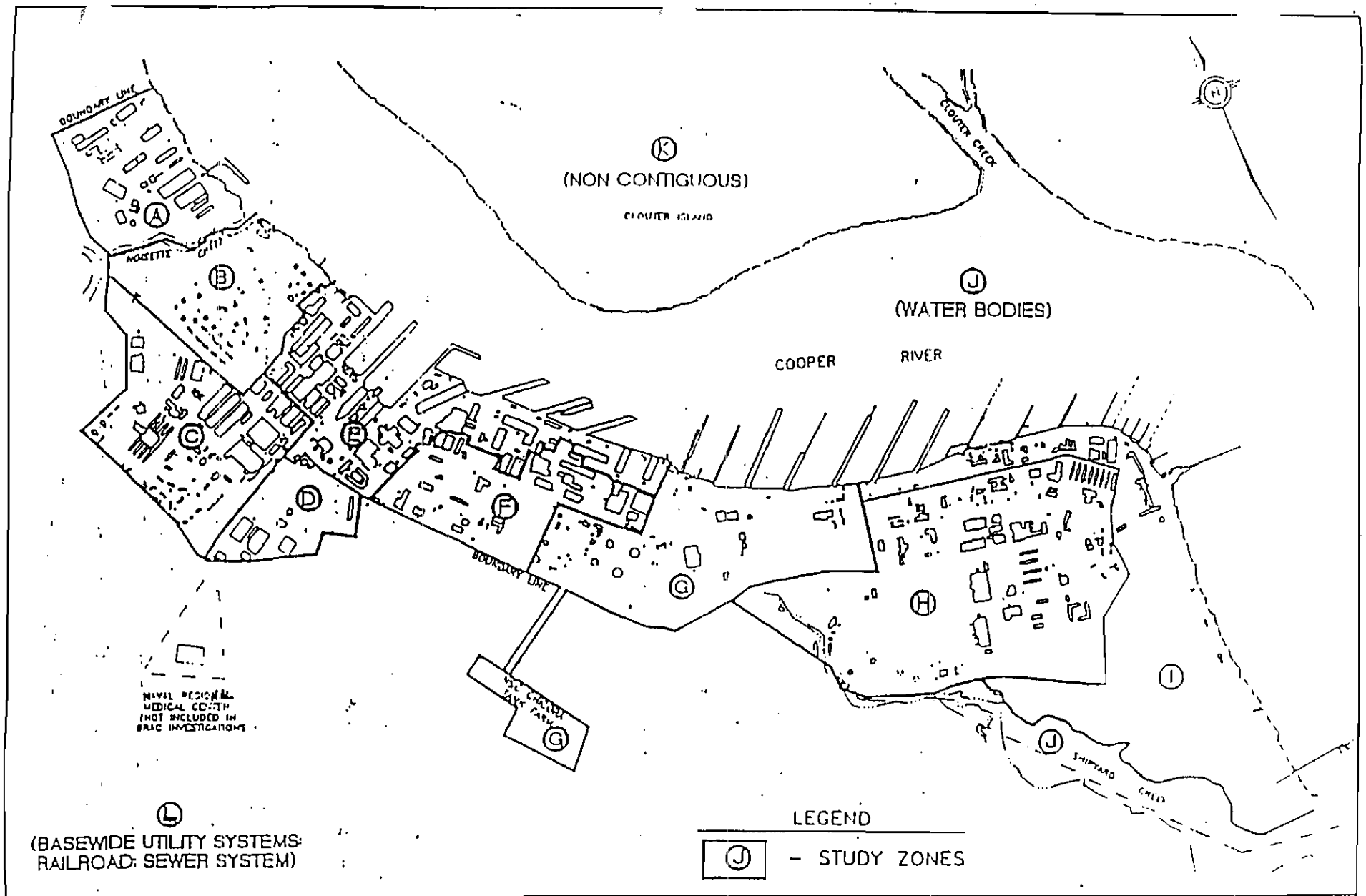

NAVAL BASE CHARLESTON
CHARLESTON, S.C.

FIGURE 1
PROPOSED WELL LOCATIONS
AT SWMU 39

DWG DATE: 10/30/96 | DWG NAME: 29ZARAB8

Acronym List

EBSL - Environmental Baseline Survey for Lease
FOSL - Finding of Suitability for Lease
BEC - BRAC Environmental Coordinator
NS - Naval Station
COE - Army Corps of Engineers
EBST - Environmental Baseline Survey for Transfer
MC - Marine Corps
fac. - facility
EA - Environmental Assessment
RCRA - Resource, Conservation and Recovery Act
SCDHEC - South Carolina Department of Health and Environmental Control
LCDR - Leutenant Commander
OIC - Officer in Charge
RFI - RCRA Facility Investigation
WP - Work Plan
EPA - Environmental Protection Agency
RTC - Response to Comments
RFA - RCRA Facility Assessment
SWMU - Solid Waste Management Unit
IM - Interim Measures
AOC - Area of Concern
IR - Installation Restoration
UST - Underground Storage Tank
DRMO - Defense Reutilization and Marketing Office
IDW - Investigative Derived Waste
USGS - United States Geological Survey
CSO - Caretaker Site Office
PEP - Project Execution Package
GRAM - General Radioactive Material
Det. - Shipyard Detachment
SOW - Statement of Work
ASB - Asbestos
ECD - Estimated Completion Date




NAVAL BASE CHARLESTON
CHARLESTON, S.C.

FIGURE 1-2
BASE WIDE
ZONE BOUNDARIES

DWG DATE: 01/13/95 | DWG NAME: 29ZONE1

Please come and join us at the
Naval Base Charleston
**R**estoration **A**dvisory **B**oard

# RAB Meeting

**Agenda Topics:**

- Status Report on Chicora Tank Farm
- Reuse Update
- Progress Report on Environmental Activities

**Meeting Specifics:**

**Date** ..... Tuesday, December 10, 1996
**Time** ..... Meeting: 3 - 4 p.m.

[Informal question & answer session immediately following the meeting.]

**Location**.....Saint John's Catholic Church
3921 Saint John's Ave.
[Outside Saint John's Gate at the Naval Base]

The RAB is a forum where community members meet with representatives from the Navy, State and Federal environmental agencies, and other groups to discuss the environmental program under way at Naval Base Charleston.

## For More Information:

Call Jim Beltz at the Public Affairs Office
at Naval Facilities Engineering Command,
Southern Division: (803) 820-5771

Please come and join us at the
Naval Base Charleston
**R**estoration **A**dvisory **B**oard

# RAB Meeting

**Agenda Topics:**

- Status Report on Chicora Tank Farm
- Reuse Update
- Progress Report on Environmental Activities

**Meeting Specifics:**

**Date** ..... Tuesday, December 10, 1996
**Time** ..... Meeting: 3 - 4 p.m.

[Informal question & answer session immediately following the meeting.]

**Location**.....Saint John's Catholic Church
3921 Saint John's Ave.
[Outside Saint John's Gate at the Naval Base]

The RAB is a forum where community members meet with representatives from the Navy, State and Federal environmental agencies, and other groups to discuss the environmental program under way at Naval Base Charleston.

## For More Information:

Call Jim Beltz at the Public Affairs Office
at Naval Facilities Engineering Command,
Southern Division: (803) 820-5771

# NAVY NEWS RELEASE

Public Affairs Office
Naval Facilities Engineering Command, Southern Division
P.O. Box 190010
North Charleston, SC 29419

***Chicora Tank Farm Remediation Options Revisited***

*For Publication by Tuesday, December 10*

*For more information, contact:*
Jim Beltz (803) 820-5771

*North Charleston* – A status report on the remediation options at Chicora Tank Farm will be discussed at the December 10 meeting of the Naval Base Charleston Restoration Advisory Board (RAB). The meeting will be held on Tuesday, December 10, 1996 from 3 to 4 p.m. at Saint John's Catholic Church, 3921 Saint John's Ave. in North Charleston (just outside the Saint John's Gate at Naval Base Charleston). Navy staff and environmental specialists will be available immediately after the meeting for informal discussion and to answer questions. The meeting is open to the public and all are encouraged to attend.

The RAB is a group of community members, Navy representatives, and federal, state, and local organizations and agencies that gather monthly to discuss the progress of environmental cleanup and property reuse at Naval Base Charleston. Meetings are held on the second Tuesday of every month in alternating locations to accommodate the local communities most significantly affected by the Base closure.

Other agenda topics will include a base reuse update by the Charleston Naval Complex Redevelopment Authority, and a progress report on environmental activities presented by the Navy.

For more information on the upcoming meeting, call Jim Beltz at the Public Affairs Office at Naval Facilities Engineering Command, Southern Division, (803) 820-5771.

**DEPARTMENT OF THE NAVY**
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
P.O. BOX 190010
2155 EAGLE DRIVE
NORTH CHARLESTON, S.C 29419-9010

5090/11
Code 1877
9 January 1997

Mr. G. Randall Thompson
Director, Division of Hazardous and Infectious Waste Management
Bureau of Solid and Hazardous Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201

Re: SUBMITTAL OF THE QUARTERLY RCRA FACILITY INVESTIGATION PROGRESS REPORT

Dear Mr. Thompson,

The purpose of this letter is to submit the Quarterly RCRA Facility Investigation (RFI) Progress Report for Naval Base Charleston. This report is submitted in order to comply with condition IV.C.5 of the RCRA Part B permit issued to the Naval Base by the South Carolina Department of Health and Environmental Control.

Enclosure (1) is the Quarterly Report which contains the activity for the month of December, 1996. Monthly reports have been submitted previously for the months of October and November which complete the quarter. If you should have any questions, please contact Gary Crawford or Tony Hunt at (803) 743-9985 (Ext. 32) and (803) 820-5525 respectively.

Sincerely,

PAUL ROSE
Lieutenant Commander, U.S. Navy
Caretaker Site Officer
By direction

Encl:
(1) Quarterly RFI Progress Report - December 1996
Copy to (w/encl):
SCDHEC (Bergstrand, Tapia)
USEPA (Brittain, Bassett)
SOUTHNAVFACENGCOM (Hunt)
CSO Naval Base Charleston (Crawford, Fontenot)
SPORTENVDETCHASN (Dearhart)

**NAVBASE CHARLESTON**
**RFI STATUS REPORT**
**PERIOD: SUMMARY OF**
**01 December 1996 To 31 December 1996**

## I. INTRODUCTION

The following status report has been prepared to satisfy condition II.E.3.a of the Part B Permit Renewal dated 5 December 1994 for Naval Base Charleston (NAVBASE). The requirements of this condition are in effect since the total elapsed time to complete the RCRA Facility Investigation (RFI) is projected to be greater than 180 calendar days from the approval date of the *Final Comprehensive RFI Work Plan* as indicated in the Corrective Action Management Plan (CAMP).

In lieu of submitting quarterly reports, NAVBASE is voluntarily submitting monthly reports to provide an update on the progress of the RFI to members of the NAVBASE BRAC Cleanup Team (BCT) in a more timely manner. The content of the monthly reports includes information intended to satisfy condition II.E.3.a of the Part B Permit. Consequently, this report only addresses activities which occurred during the month of December 1996.

## II. PORTION OF THE RFI COMPLETED

- The 90% progress meeting for Zone D was held in conjunction with the December Project Team meeting. As a result, team members agreed field work in Zone D had been adequately completed to support preparation for Zone D RFI report.

- The 30% progress meeting for Zone K and the 60% progress meeting for Zones F & G were held in conjunction with the December Project Team meeting.

- The scoping meeting for the *Comprehensive Corrective Measures Study Work Plan* was held during the current reporting period.

- The *Final Zone J and L RFI Work Plans* were approved by the regulatory agencies on 13 December 96.

- The schedule of the groundwater monitoring activities is included as Attachment A.

## III. SUMMARIES OF FINDINGS

At the time of preparation of this document there were no new findings to report.

## IV. DEVIATIONS FROM APPROVED WORK PLANS THIS REPORTING PERIOD

There were no known deviations from the approved RFI Work Plans for this reporting period.

## V. SUMMARY OF CONTACTS WITH LOCAL COMMUNITY PUBLIC INTEREST GROUPS OR STATE GOVERNMENT

As indicated in the January 1995 Quarterly Status Report, the Navy has established a Restoration Advisory Board (RAB) to involve the public in the decisions regarding the investigation and remediation of contaminated sites at Naval Base Charleston. The meetings are held monthly and are open to the public. The minutes of the November 1996 meeting are provided as Attachment B.

## VI. SUMMARY OF PROBLEMS OR POTENTIAL PROBLEMS AND ACTION TAKEN TO RECTIFY PROBLEMS

The installation of two monitoring wells near the Virginia Avenue gate has been temporarily delayed due to the installation of a water main through the area where the wells are proposed. Relocation of the wells to a nearby location suitable for monitoring the desired area is not feasible due to other underground obstructions. Construction of the water main was completed in mid-December and installation of the wells is scheduled to begin the week of 6 January 1997.

## VII. KEY PROJECT PERSONNEL

The status report for March 1996 reflected numerous changes in key Navy personnel for the NAVBASE Charleston RFI resulting from the closure of Charleston Naval Shipyard. No additional changes occurred during the current reporting period.

## VIII. PROJECTED WORK FOR THE NEXT REPORTING PERIOD

**Document Preparation and Data Evaluation:**

- If comments are received from the regulatory agencies, submittal of the final RFI reports for Zones B and H is expected to occur.
- The 60% progress meeting for Zones K will be held in conjunction with the January project team meeting.
- The final RFI work plans for Zones J and L are scheduled to be submitted by 3 January 97.
- The Draft Comprehensive CMS Work Plan is scheduled to be submitted to the Project Team for review by 31 January 97.
- Preparation of the *Draft Zone D RFI Report* will begin next period.

**Field Activities:**

- Installation of off site monitoring wells near SWMU 39 will begin the week of 6 January 97.
- Field activities in Zones F, G, and K will continue. RFI field work is expected to begin in Zones J and L.
- Groundwater monitoring will continue in accordance with the schedule submitted as Attachment A.

## IX. COPIES OF DAILY REPORTS, INSPECTION REPORTS, LABORATORY DATA

Daily activities are recorded in accordance with the Data Management Plan included as Section 14 of the Final Comprehensive Sampling and Analysis Plan. Photocopies of these daily records have not been included with this status report; however, this information is available for review upon request.

Per agreement with SCDHEC and EPA, hard copies of the analytical data are not being submitted. A copy of the data is maintained at the EnSafe/Allen & Hoshall office in Charleston and is available for review.

## GROUNDWATER MONITORING PROJECT

This project samples groundwater wells segregated in nine (9) zones throughout the Naval Base to analyze for hazardous materials that have leached into the water table. EnSafe/Allen & Hoshall (E/A&H) is contracted by the Navy to establish the monitoring plan and to monitor all wells quarterly for a total of four quarters. E/A&H will accomplish the initial sampling cycle (1st quarter) in each zone and the detachment will perform the remaining follow-up sampling cycles. Currently the detachment has been funded and authorized to complete sampling Zones A,B,C,E,H and I. Funding and authorization for Zones D,F, and G is expected to be awarded to the detachment.

| ZONE | SCHED START | SCHED COMP | ESD/[ASD] | ECD/[ACD] | % COMP | # WELLS |
|---|---|---|---|---|---|---|
| A (QTR. II) | 03/04/96 | 06/04/96 | [04/22/96] | [04/29/96] | 100% | 26 |
| (QTR. III) | 06/04/96 | 09/04/96 | [06/19/96] | [06/26/96] | 100% | |
| (QTR IV) | 09/04/96 | 12/04/96 | [10/04/96] | [10/18/96] | 100% | |
| A — ADDENDUM 1 | | | | | | |
| (QTR I) | | | [10/10/96] | [10/16/96] | 100% | 11 |
| (QTR II) | 01/17/97 | 04/16/97 | 01/22/97 | 01/26/96 | 0% | |
| (QTR III) | 04/17/97 | 07/16/97 | 04/21/97 | 04/24/97 | 0% | |
| (QTR IV) | 07/17/97 | 10/16/97 | 07/21/97 | 07/25/97 | 0% | |
| B (QTR. II) | 03/04/96 | 06/04/96 | [04/22/96] | [05/02/96] | 100% | 6 |
| (QTR. III) | 06/04/96 | 09/04/96 | [06/19/96] | [06/26/96] | 100% | |
| (QTR IV) | 09/04/96 | 12/04/96 | [10/04/96] | [10/18/96] | 100% | |
| C (QTR. III) | 03/04/96 | 06/04/96 | [05/06/96] | [05/15/96] | 100% | 30 |
| (QTR. IV) | 06/04/96 | 09/04/96 | [06/07/96] | [06/17/96] | 100% | |
| E (QTR. II) | 06/19/96 | 09/19/96 | [07/01/96] | [08/19/96] | 100% | 175 |
| (QTR. III) | 09/19/96 | 12/19/96 | [10/28/96] | [12/17/96] | 100% | 171 |
| (QTR IV) | 12/19/96 | 03/19/97 | 01/06/97 | 03/06/97 | 0% | |
| H (QTR IV) | 07/10/95 | 10/10/95 | [03/08/96] | [04/17/96] | 100% | 97 |
| I (QTR. III) | 03/04/96 | 06/04/96 | [05/15/96] | [06/05/96] | 100% | 55 |
| (QTR. IV) | 06/04/96 | **09/04/96** | [08/19/96] | **[09/13/96]** | 100% | |

**ESD = Estimated Start Date** **[ASD]= Actual Start Date**
**ECD = Estimated Completion Date** **[ACD ]= Actual Completion Date**

NAVAL BASE CHARLESTON
RESTORATION ADVISORY BOARD (RAB)
Minutes of 10 December 1996

1. Introduction of the RAB Members and Guests

Mr. Daryle Fontenot, Navy Co-chair, welcomed everyone to the RAB meeting. He announced that Ms. Wannetta Mallette is the newly elected community Co-chair replacing Mr. Don Harbert.

2. RAB Members Attending

Mr. Ray Anderson
Mr. Steve Best
Mr. Doyle Brittain
Mr. James Conner
Mr. Bobby Dearhart
Mr. Daryle Fontenot
Mr. Don Harbert
Mr. Virgil Johnston
Mr. Ralph Laney
Mr. Tom Fressilli
Ms. Wannetta Mallette
Mr. Arthur Pinckney
Mr. Odell Price
Ms. Ann Ragan
LDCR Paul Rose
Ms. Fouche'na Sheppard
Mr. Bob Veronee

3. Guests Attending

| | |
|---|---|
| Mr. Brian Stockmaster | NAVFAC, SouthDiv |
| Mr. Gabriel Magwood | NAVFAC, SouthDiv |
| Mr. Jim Beltz | NAVFAC, SouthDiv |
| Mr. Johnny Tapia | SCDHEC |
| Mr. Paul M. Bergstrand | SCDHEC |
| Ms. Jeri Johnson | RDA |
| Mr. J.B. Lawrence | CEERD |
| Ms. Diane Cutler | EnSafe/Allen&Hoshall |
| Mr. Dave Backus | EnSafe/Allen&Hoshall |
| Mr. Larry Bowers | EnSafe/Allen&Hoshall |
| Ms. Sandy Reagan | EnSafe/Allen&Hoshall |

4. Administrative Remarks and Comments on Minutes

Mr. Fontenot asked if there were any comments on last month's minutes. No comments or changes were volunteered. Mr. Fontenot stated that subcommittee reports are not included on this month's agenda, but will be back next month. In addition, the community relations subcommittee did not meet this month because of the early RAB meeting time, but will meet again next month on January 14 at 3:30 at the Caretaker Site Office.

5. Reuse Update

Ms. Jeri Johnson provided the update and reported that the RDA has had two meetings since the last RAB. At the October 30th meeting the RDA received a presentation by the Charleston County Parks and Recreation Commission. They are interested in building a boat facility and boat ramp down by the marina at the tip of the south end of the base. The plans were very ambitious and would entail leasing additional property in order to expand (they are already leasing the marina for 5 years). This was an informational presentation, and no action was taken. During the same meeting, the RDA approved the selection of Fluor Daniel Consulting to prepare the business plan that they have been trying to get underway for the last six or seven months. The Business Feasibility Development Plan will appraise the base and allow the RDA to apply for an economic development conveyance.

At the December 3rd RDA meeting, the Authority agreed to license four buildings to the South Carolina National Guard for a six-month period. This is a license in anticipation of a lease; the RDA strongly believes that the National Guard will seek a permanent home at the south end of the base. The Authority also provided authorization to execute either a license or lease amendment to the CMMC lease for them to occupy one of the barracks and one of the family housing quarters. CMMC is entering into an agreement to train foreign sailors under the Foreign Military Sales Program and will need housing for the sailors.

6. Environmental Cleanup Progress Report

*Chicora Tank Farm Update*

Mr.Gabriel Magwood provided a brief review on the environmental investigation activities relating to the Chicora tank farm. A copy of his presentation is attached to these minutes. The Chicora tank farm is a 23-acre site which formerly supplied fuel to the Naval Shipyard and currently consists of six fuel storage tanks which are covered with 3 - 5 feet of soil. A drainage system and containment pond were built to collect spills or discharges.

Originally, heavy No. 6 fuel oil was stored in the tanks which was replaced in 1960 by Navy Special Fuel Oil (NSFO). In 1969, NSFO was replaced with a lighter diesel fuel in Tanks P, L, and K.

After diesel was stored in Tanks P, L, and K, staining was discovered around the tanks. As a result, soil, and groundwater samples were collected and analyzed. No petroleum products were found in the soil, and only one water sample showed any evidence of petroleum - a slight sheen in the groundwater. At that time, it was determined that the tanks were not creating an environmental problem.

Then in 1986, there was a spill caused by overfilling tank P. Free product was found in french drains #2 and #3. Another investigation was initiated where tracers were used to check for leaks in the tanks. No leaks were detected, and it was verified that the spill was caused by overfilling tank P. The second part of the investigation included soil-gas surveys that analyzed for petroleum hydrocarbons. Again, the only evidence of contamination came from the spill caused by

overfilling tank P. The soil-gas surveys provided information on where to install monitoring wells and take soil borings. Eleven soil borings and groundwater monitoring wells were installed, and french drain manhole #2 was tested. The only hit that was slightly above the detection limit for petroleum hydrocarbons was at monitoring well #2.

Sampling results were provided to South Carolina Department of Health and Environmental control (DHEC). DHEC required that quarterly sampling be done for a year. The first quarter sampling was done in March 1993 and the only hit was in monitoring well #4 where xylene was found only slightly above the detection limit. Since monitoring well #5 was situated next to a large oil tank, DHEC required the Navy to test for metals as well. Arsenic was found slightly above the Maximum Contaminant Level (MCL) and all other elements were below the MCL. French drain manhole results were below detection limits. For the last three quarters of sampling, all results were below detection limits.

Also in March 1993, the Navy sampled sediment inside the spill containment pond at eight locations. In sediment sample #5, fluorene was barely above the detection limit. In sediment sample #2 there was a total petroleum hydrocarbon hit of 1200 parts per million, however, the analytical method used often gives false positives for that specific compound, so it was re-sampled and analyzed by another method which gave a much lower reading.

In summary, investigations consisted of a tracer survey, a soil-gas survey, soil sampling analysis, and groundwater analysis. The results of the investigation indicates that there is not environmental contamination to be remediated at the Chicora tank farm. Based on site investigations, "no further action" was issued by DHEC.

Mr. Pinckney stated that he thought everyone was already in agreement that there was no environmental contamination at the site, and that the issue the community is concerned with is what will be done to the tanks. Mr. Fontenot agreed that the main issue is how to deal with the tanks but added that every once in a while someone brings up the issue of contamination at the site. These are two separate issues. Mr. Fontenot added that the Navy wanted to share the information that shows that there are no environmental problems to deal with regarding the tank farm. The next issue to deal with is the closure of the tanks. Mr. Fontenot clarified that the no further action ruling by DHEC was for environmental issues (such as groundwater and soil), not the removal of the tanks.

At this time, the Navy is technically ready to proceed with option #1 or #3 for tank closure and is planning on using Shipyard Detachment personnel to complete the work. Right now, the Navy is waiting on some direction from the City of North Charleston or the RDA regarding who will take over the property. Once that's determined, they'll be able to work toward the preferred option for the planned reuse.

Ms. Johnson said that the RDA's position is the total removal of the tanks, but will defer to the Mayor. Ms. Mallette volunteered to draft a letter to the Mayor on behalf of the RAB that relays their backing of option #3 - partial demolition.

*Status of Environmental Programs*
Under property leasing and transfer, there are two Findings of Suitability to Lease (FOSLs) and one federal to federal transfer totaling 252 facilities that are awaiting SouthDiv Commanding Officer signature. The Navy is waiting on the RDA's reuse plan before completing the Environmental Assessment of the Naval Annex.

Mr. Brian Stockmaster provided the RCRA Facility Investigation Progress Report for November. The ecological risk assessment changes for Zones A and H were prepared and submitted on November 22; EPA has forwarded a letter of approval for both of these documents to DHEC; and DHEC's review of these documents is still in progress.

Ms. Johnson asked what the changes to the ecological risk assessment meant to the rest of the investigation process and schedule. Mr. Brittain explained that there were some minor points that needed to be addressed in the ecological section of these reports. These points wouldn't change the whole report and were addressed by simply revising the section and replacing the old section with the new section (rather than rewriting and resubmitting the entire report). This procedure was approved at a meeting in Atlanta among key players.

The final Zone B RFI Report was submitted to the regulatory agencies for approval on 22 November; EPA has forwarded a letter of approval to SCDHEC; and DHEC's review is still in progress.

Revisions to the final Zone J RFI Work Plan were submitted to the regulatory agencies for approval on 21 November 1996; EPA has reviewed and approved the Work Plan; and DHEC approval is expected the week of 12/9/96.

Field work began in Zone K on 18 November.

Field work continued in Zones A, D, F, and G.

Projected activities for December include continued field activities in Zones A, D, E, F, G, and K; scope the requirements for the Comprehensive Corrective Measures Study Work Plan and begin Work Plan preparation; and submit Part B permit application and minor modification for Zone B.

Mr. Stockmaster also provided a list of interim measures and process closure work in his handout that accompanies these minutes.

Someone asked what kind of field work will be going on regarding the unexploded ordnance. Mr. Stockmaster said the Navy Explosive Ordnance Disposal team will search the area for the two depth bombs that were dropped in the early 1940s.

Mr. Fontenot reported that in the Underground Storage Tank program, the detachment has removed 65 of 94 tanks. In the asbestos program, remediation has been completed at building 1171.

7. RAB Membership

A few months ago the RAB members held an executive session to discuss the issue of RAB attendance and membership. Mr. Fontenot called every RAB member to determine if they were interested in continuing to serve on the RAB. About a month ago, Mr. Harbert and Mr. Fontenot sat down to discuss a plan of action on how to deal with those that were not attending. As a result, Mr. Fontenot sent a letter to the three members with the most excessive absences, Diane Duncan, Robert Mikell, and Van Robinson, informing them that they are no longer members of the RAB, and if they would like to discuss the issue, to call him. None of the three responded. The RAB now consists of 22 members. As the next step, Mr. Fontenot asked the RAB for input on what they want to do about any remaining individuals who have expressed interest in maintaining membership, yet have continued to be absent.

After a group discussion, the RAB members decided that they will leave the decision up to the Co-chairs. The Co-chairs will address an individual's absentee/membership status and share any recommendations for dismissal with the RAB who will provide feedback on the decision.

The next issue regarding membership is to discuss who will be added to the RAB. Applications will not be necessary, but some background on the individual will be required. RAB members should provide input on the agencies or groups that they feel should be represented, and if agreed upon, someone from that group should be approached and asked if they would like to represent their group/agency on the RAB. For the January meeting, Mr. Fontenot asked that anyone with suggestions and recommendations be ready to discuss them.

Mr. Fontenot pointed out that when he first started on the RAB, it consisted of approximately 50% government entities and 50% community members. Now, due to recent changes, there are considerably more community members than government representatives.

Ms. Ann Ragan asked the RAB members if they would mind if she provided the RAB member names and addressed to other groups such as Citizens for Environmental Justice for mailings regarding conferences and meeting announcements. No one objected.

Mr. J.B. Lawrence, referring to a meeting from a few months ago, asked if the RDA ever determined how many of the jobs that have been created through base redevelopment have been filled by displaced shipyard workers. Mr. Johnston answered that the RDA does not have access to that information, that they are only provided with the number of workers, not status and background. Mr. Fressilli said that he can talk to Mr. Sprott (RDA) to see if there is a mechanism for collecting that information.

Ms. Ragan asked if Mr. Johnston could update and distribute the table that he normally hands out at the RAB meetings for the next meeting. Mr. Johnston agreed to bring it to the January meeting.

8. Remaining Questions and Comments

Mr. Fontenot read a letter of appreciation that was provided to Mr. Harbert on behalf of all the RAB members regarding his service and leadership as community Co-chair over the past year. The RAB members and audience showed their appreciation with a round of applause.

*Addendum to minutes:* The next RAB meeting will be held from 6 - 7 p.m. on January 14, 1997 at the Live Oak Community Center at 2012 Success Street in North Charleston.

Mr. Fontenot added that the meetings have been rotating locations in an attempt to increase attendance. Unfortunately, that effort has not proved to be successful. As a result, he recommends that meetings return to North Charleston. In an effort to improve attendance, he reminded RAB members to distribute the meeting announcement flyers that are provided in their agenda packages. He also informed the RAB that the Navy is coming to an important decision-making stage in the environmental investigation and it will be important for RAB members to provide input on behalf of the community. This process will run smoother if RAB member and community attendance is good.

Mr. Dearhart asked if meetings can be held on base. Mr. Fontenot replied if a good location could be secured he didn't see any reason why not. Any suggestions for meeting locations are welcome.

Mr. Conner stated that a representative of the Chicora community should have specifically been informed of this meeting. Mr. Fontenot replied that Ms. Gussie Greene, a RAB member, is a representative of the Chicora community and acts as the liaison between that community and the RAB. The meeting was held in a location very close to the tank farm to make it convenient for residents of the Chicora community. In addition, media was informed of the meeting, and a mailing to community groups announcing the meeting was sent out. The Navy and RAB can only provide the opportunity for the community to attend the meetings - it is up the community to take the steps to attend.

Mr. Virgil Johnston stated on behalf of the RDA that he would like to have the RAB's choice for tank remediation in writing. To recap, the RAB would of course like to see full removal of the tanks, but understands the cost is prohibitive, so instead they will be satisfied with option #3 which is the partial demolition and filling of the tanks. As stated previously, Ms. Mallette will write a letter to the Mayor, and the RDA, that clearly states the RAB's support of option #3.

9. Adjournment

Happy Holidays!

**Summary of Action Item**

- Ms. Mallette will draft a letter to the Mayor and the RDA on behalf of the RAB expressing the RAB's support of option #3 for the closure of the Chicora tanks.
- Mr. Fressilli will speak with Mr. Sprott of the RDA to see if there is a mechanism to determine the number of displace shipyard workers that have been hired through base reuse.
- Anyone with recommendations for representation, or nominations for RAB membership should be prepared to discuss them at the January meeting.

Attachments to Minutes
(1) Tuesday December 10, 1996 RAB Meeting Agenda
(2) Chicora Tank Farm Presentation Handout
(3) RFI Progress Report for November 1996

Minutes recorded by: Diane Cutler, EnSafe/Allen&Hoshall

Minutes approved by: _____ _____

Daryle Fontenot
Navy Co-Chair

Wannetta Mallette
Community Co-Chair