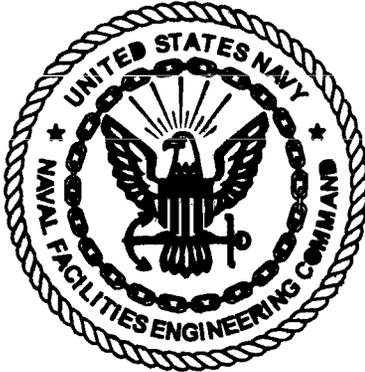


N61165.AR.003265
CNC CHARLESTON
5090.3a

DRAFT COMBINED SOLID WASTE MANAGEMENT UNIT 9 CORRECTIVE MEASURES
STUDY REPORT VOLUME 2 OF 2 APPENDICES A THROUGH C CNC CHARLESTON SC
12/22/1999
ENSAFE

**COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY
CHARLESTON NAVAL COMPLEX
CHARLESTON, SOUTH CAROLINA**



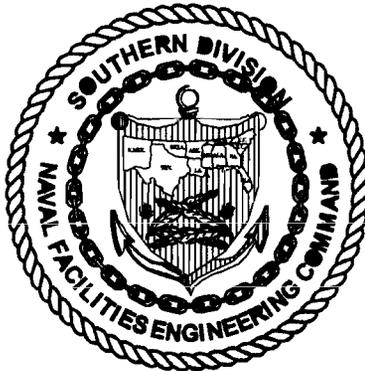
CTO-029

Contract Number: N62467-89-D-0318

**DRAFT COMBINED SWMU 9
CORRECTIVE MEASURES STUDY REPORT
Volume II of II (Appendices A through C)**

Prepared for:

**Department of the Navy
Southern Division
Naval Facilities Engineering Command
North Charleston, South Carolina**



Prepared by:

**Ensaf Inc.
5724 Summer Trees Drive
Memphis, Tennessee 38134
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**December 22, 1999
Revision: 0**

APPENDIX A

Chain of Custodies, Validation Reports, and Anadata

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY '96

| 8260-VQA | | SAMPLE ID -----> | 020-G-DF01-01 | 020-W-DF01-C1 | 020-G-DF01-S1 | 020-G-DF01-W1 | 020-G-DF02-01 | 020-G-DF02-S1 | | | |
|------------|-----------------------------|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|-----|-------|-----|
| | | ORIGINAL ID -----> | 020GDF0101 | 020WDF01C1 | 020GDF01S1 | 020GDF01W1 | 020GDF0201 | 020GDF02S1 | | | |
| | | LAB SAMPLE ID ----> | 9906206-03 | 9906364-01 | 9906206-01 | 9906206-02 | 9906206-06 | 9906206-04 | | | |
| | | ID FROM REPORT --> | 020GDF0101 | 020WDF01C1 | 020GDF01S1 | 020GDF01W1 | 020GDF0201 | 020GDF02S1 | | | |
| | | SAMPLE DATE -----> | 06/08/99 | 06/14/99 | 06/08/99 | 06/08/99 | 06/08/99 | 06/08/99 | | | |
| | | DATE EXTRACTED --> | 06/14/99 | 06/16/99 | 06/10/99 | 06/14/99 | 06/10/99 | 06/10/99 | | | |
| | | DATE ANALYZED ----> | 06/14/99 | 06/16/99 | 06/10/99 | 06/14/99 | 06/10/99 | 06/10/99 | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | |
| CAS # | Parameter | EN016 | VAL | EN016 | VAL | EN016 | VAL | EN016 | VAL | EN016 | VAL |
| 74-87-3 | Chloromethane | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 74-83-9 | Bromomethane | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 75-01-4 | Vinyl chloride | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 75-00-3 | Chloroethane | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 75-09-2 | Methylene chloride | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 67-64-1 | Acetone | 5. | UR | 5. | UR | 14. | J | 5. | UR | 14. | J |
| 75-15-0 | Carbon disulfide | 3. | U | 3. | U | 3. | U | 2. | J | 3. | U |
| 75-35-4 | 1,1-Dichloroethene | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 75-34-3 | 1,1-Dichloroethane | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 67-66-3 | Chloroform | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 107-06-2 | 1,2-Dichloroethane | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 78-93-3 | 2-Butanone (MEK) | 7. | J | 5. | U | 5. | U | 5. | UR | 5. | U |
| 71-55-6 | 1,1,1-Trichloroethane | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 56-23-5 | Carbon tetrachloride | 3. | UJ | 3. | U | 3. | U | 3. | UJ | 3. | U |
| 108-05-4 | Vinyl acetate | 3. | UJ | 3. | U | 3. | U | 3. | U | 3. | U |
| 75-27-4 | Bromodichloromethane | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 78-87-5 | 1,2-Dichloropropane | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 3. | UJ | 3. | U | 3. | U | 3. | UJ | 3. | U |
| 79-01-6 | Trichloroethene | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 124-48-1 | Dibromochloromethane | 3. | UJ | 3. | U | 3. | U | 3. | UJ | 3. | U |
| 79-00-5 | 1,1,2-Trichloroethane | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 71-43-2 | Benzene | 3. | U | 3. | U | 3. | U | 7. | U | 3. | U |
| 75-25-2 | Bromoform | 3. | UJ | 3. | U | 3. | U | 3. | UJ | 3. | U |
| 108-10-1 | 4-Methyl-2-Pentanone (MIBK) | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 591-78-6 | 2-Hexanone | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 127-18-4 | Tetrachloroethene | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 108-88-3 | Toluene | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 108-90-7 | Chlorobenzene | 2. | J | 3. | U | 3. | U | 12. | D | 35. | D |
| 100-41-4 | Ethylbenzene | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 100-42-5 | Styrene | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 110-75-8 | 2-Chloroethyl vinyl ether | 3. | U | 3. | UR | 3. | UR | 3. | U | 3. | UR |
| 156-59-2 | cis-1,2-Dichloroethene | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 156-60-5 | trans-1,2-Dichloroethene | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 108-38-3 | m-Xylene | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY '96

| 8260-VOA | | SAMPLE ID -----> | 020-G-DF01-01 | 020-W-DF01-C1 | 020-G-DF01-S1 | 020-G-DF01-W1 | 020-G-DF02-01 | 020-G-DF02-S1 | | | |
|----------|-----------|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|-----|-------|-----|
| | | ORIGINAL ID -----> | 020GDF0101 | 020WDF01C1 | 020GDF01S1 | 020GDF01W1 | 020GDF0201 | 020GDF02S1 | | | |
| | | LAB SAMPLE ID ----> | 9906206-03 | 9906364-01 | 9906206-01 | 9906206-02 | 9906206-06 | 9906206-04 | | | |
| | | ID FROM REPORT --> | 020GDF0101 | 020WDF01C1 | 020GDF01S1 | 020GDF01W1 | 020GDF0201 | 020GDF02S1 | | | |
| | | SAMPLE DATE -----> | 06/08/99 | 06/14/99 | 06/08/99 | 06/08/99 | 06/08/99 | 06/08/99 | | | |
| | | DATE EXTRACTED --> | 06/14/99 | 06/16/99 | 06/10/99 | 06/14/99 | 06/10/99 | 06/10/99 | | | |
| | | DATE ANALYZED ----> | 06/14/99 | 06/16/99 | 06/10/99 | 06/14/99 | 06/10/99 | 06/10/99 | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | |
| CAS # | Parameter | EN016 | VAL | EN016 | VAL | EN016 | VAL | EN016 | VAL | EN016 | VAL |
| 95-47-6 | o-Xylene | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| 8260-V0A | | SAMPLE ID -----> | 020-G-DF02-W1 | 020-G-DF03-01 | 020-G-DF03-S1 | 020-G-DF03-W1 | 020-G-DF04-01 | 020-G-DF04-S1 | | | |
|------------|-----------------------------|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|-----|-------|-----|
| | | ORIGINAL ID -----> | 020GDF02W1 | 020GDF0301 | 020GDF03S1 | 020GDF03W1 | 020GDF0401 | 020GDF04S1 | | | |
| | | LAB SAMPLE ID ----> | 9906206-05 | 9906244-03 | 9906244-01 | 9906244-02 | 9906244-06 | 9906244-04 | | | |
| | | ID FROM REPORT --> | 020GDF02W1 | 020GDF0301 | 020GDF03S1 | 020GDF03W1 | 020GDF0401 | 020GDF04S1 | | | |
| | | SAMPLE DATE -----> | 06/08/99 | 06/09/99 | 06/09/99 | 06/09/99 | 06/09/99 | 06/09/99 | | | |
| | | DATE EXTRACTED --> | 06/10/99 | 06/14/99 | 06/14/99 | 06/14/99 | 06/14/99 | 06/14/99 | | | |
| | | DATE ANALYZED ----> | 06/10/99 | 06/14/99 | 06/14/99 | 06/14/99 | 06/14/99 | 06/14/99 | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | |
| CAS # | Parameter | EN016 | VAL | EN016 | VAL | EN016 | VAL | EN016 | VAL | EN016 | VAL |
| 74-87-3 | Chloromethane | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 74-83-9 | Bromomethane | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 75-01-4 | Vinyl chloride | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 75-00-3 | Chloroethane | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 75-09-2 | Methylene chloride | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 67-64-1 | Acetone | 7. | J | 5. | UR | 12. | J | 6. | J | 5. | UR |
| 75-15-0 | Carbon disulfide | 10. | | 3. | U | 3. | U | 1. | J | 3. | U |
| 75-35-4 | 1,1-Dichloroethene | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 75-34-3 | 1,1-Dichloroethane | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 67-66-3 | Chloroform | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 107-06-2 | 1,2-Dichloroethane | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 78-93-3 | 2-Butanone (MEK) | 5. | U | 5. | UR | 5. | UR | 5. | UR | 5. | UR |
| 71-55-6 | 1,1,1-Trichloroethane | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 56-23-5 | Carbon tetrachloride | 3. | U | 3. | UJ | 3. | UJ | 3. | UJ | 3. | UJ |
| 108-05-4 | Vinyl acetate | 3. | U | 3. | UJ | 3. | UJ | 3. | UJ | 3. | UJ |
| 75-27-4 | Bromodichloromethane | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 78-87-5 | 1,2-Dichloropropane | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 3. | U | 3. | UJ | 3. | UJ | 3. | UJ | 3. | UJ |
| 79-01-6 | Trichloroethene | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 124-48-1 | Dibromochloromethane | 3. | U | 3. | UJ | 3. | UJ | 3. | UJ | 3. | UJ |
| 79-00-5 | 1,1,2-Trichloroethane | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 71-43-2 | Benzene | 21. | | 3. | U | 3. | U | 3. | U | 3. | U |
| 75-25-2 | Bromoform | 3. | U | 3. | UJ | 3. | UJ | 3. | UJ | 3. | UJ |
| 108-10-1 | 4-Methyl-2-Pentanone (MIBK) | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 591-78-6 | 2-Hexanone | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 127-18-4 | Tetrachloroethene | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 108-88-3 | Toluene | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 108-90-7 | Chlorobenzene | 5200. | D | 3. | U | 3. | U | 3. | U | 3. | U |
| 100-41-4 | Ethylbenzene | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 100-42-5 | Styrene | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 110-75-8 | 2-Chloroethyl vinyl ether | 3. | UR | 3. | U | 3. | U | 3. | U | 3. | U |
| 156-59-2 | cis-1,2-Dichloroethene | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 156-60-5 | trans-1,2-Dichloroethene | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |
| 108-38-3 | m-Xylene | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| B260-VOA | | SAMPLE ID -----> | 020-G-DF02-W1 | 020-G-DF03-01 | 020-G-DF03-S1 | 020-G-DF03-W1 | 020-G-DF04-01 | 020-G-DF04-S1 | | | |
|----------|-----------|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|-----|-------|-----|
| | | ORIGINAL ID -----> | 020GDF02W1 | 020GDF0301 | 020GDF03S1 | 020GDF03W1 | 020GDF0401 | 020GDF04S1 | | | |
| | | LAB SAMPLE ID ----> | 9906206-05 | 9906244-03 | 9906244-01 | 9906244-02 | 9906244-06 | 9906244-04 | | | |
| | | ID FROM REPORT --> | 020GDF02W1 | 020GDF0301 | 020GDF03S1 | 020GDF03W1 | 020GDF0401 | 020GDF04S1 | | | |
| | | SAMPLE DATE -----> | 06/08/99 | 06/09/99 | 06/09/99 | 06/09/99 | 06/09/99 | 06/09/99 | | | |
| | | DATE EXTRACTED --> | 06/10/99 | 06/14/99 | 06/14/99 | 06/14/99 | 06/14/99 | 06/14/99 | | | |
| | | DATE ANALYZED ----> | 06/10/99 | 06/14/99 | 06/14/99 | 06/14/99 | 06/14/99 | 06/14/99 | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | |
| CAS # | Parameter | EN016 | VAL | EN016 | VAL | EN016 | VAL | EN016 | VAL | EN016 | VAL |
| 95-47-6 | o-Xylene | 3. | U | 3. | U | 3. | U | 3. | U | 3. | U |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| 8260-VOA | | SAMPLE ID -----> 020-G-DF04-W1 | | | | | |
|------------|-----------------------------|---------------------------------|-----|--|--|--|--|
| | | ORIGINAL ID -----> 020GDF04W1 | | | | | |
| | | LAB SAMPLE ID -----> 9906244-05 | | | | | |
| | | ID FROM REPORT --> 020GDF04W1 | | | | | |
| | | SAMPLE DATE -----> 06/09/99 | | | | | |
| | | DATE EXTRACTED --> 06/14/99 | | | | | |
| | | DATE ANALYZED -----> 06/14/99 | | | | | |
| | | MATRIX -----> Water | | | | | |
| | | UNITS -----> UG/L | | | | | |
| CAS # | Parameter | EN016 | VAL | | | | |
| 74-87-3 | Chloromethane | 3. | U | | | | |
| 74-83-9 | Bromomethane | 3. | U | | | | |
| 75-01-4 | Vinyl chloride | 3. | U | | | | |
| 75-00-3 | Chloroethane | 3. | U | | | | |
| 75-09-2 | Methylene chloride | 3. | U | | | | |
| 67-64-1 | Acetone | 5. | UR | | | | |
| 75-15-0 | Carbon disulfide | 3. | J | | | | |
| 75-35-4 | 1,1-Dichloroethene | 3. | U | | | | |
| 75-34-3 | 1,1-Dichloroethane | 3. | U | | | | |
| 67-66-3 | Chloroform | 3. | U | | | | |
| 107-06-2 | 1,2-Dichloroethane | 3. | U | | | | |
| 78-93-3 | 2-Butanone (MEK) | 5. | UR | | | | |
| 71-55-6 | 1,1,1-Trichloroethane | 3. | U | | | | |
| 56-23-5 | Carbon tetrachloride | 3. | UJ | | | | |
| 108-05-4 | Vinyl acetate | 3. | UJ | | | | |
| 75-27-4 | Bromodichloromethane | 3. | U | | | | |
| 78-87-5 | 1,2-Dichloropropane | 3. | U | | | | |
| 10061-01-5 | cis-1,3-Dichloropropene | 3. | U | | | | |
| 10061-02-6 | trans-1,3-Dichloropropene | 3. | UJ | | | | |
| 79-01-6 | Trichloroethene | 3. | U | | | | |
| 124-48-1 | Dibromochloromethane | 3. | UJ | | | | |
| 79-00-5 | 1,1,2-Trichloroethane | 3. | U | | | | |
| 71-43-2 | Benzene | 3. | U | | | | |
| 75-25-2 | Bromoform | 3. | UJ | | | | |
| 108-10-1 | 4-Methyl-2-Pentanone (MIBK) | 5. | U | | | | |
| 591-78-6 | 2-Hexanone | 5. | U | | | | |
| 127-18-4 | Tetrachloroethene | 3. | U | | | | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 3. | U | | | | |
| 108-88-3 | Toluene | 3. | U | | | | |
| 108-90-7 | Chlorobenzene | 3. | U | | | | |
| 100-41-4 | Ethylbenzene | 3. | U | | | | |
| 100-42-5 | Styrene | 3. | U | | | | |
| 110-75-8 | 2-Chloroethyl vinyl ether | 3. | U | | | | |
| 156-59-2 | cis-1,2-Dichloroethene | 3. | U | | | | |
| 156-60-5 | trans-1,2-Dichloroethene | 3. | U | | | | |
| 108-38-3 | m-Xylene | 3. | U | | | | |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| | | | | | | | |
|----------|-----------|---------------------|---------------|--|--|--|--|
| 8260-VOA | | SAMPLE ID -----> | 020-G-DF04-W1 | | | | |
| | | ORIGINAL ID -----> | 020GDF04W1 | | | | |
| | | LAB SAMPLE ID ----> | 9906244-05 | | | | |
| | | ID FROM REPORT --> | 020GDF04W1 | | | | |
| | | SAMPLE DATE -----> | 06/09/99 | | | | |
| | | DATE EXTRACTED --> | 06/14/99 | | | | |
| | | DATE ANALYZED ----> | 06/14/99 | | | | |
| | | MATRIX -----> | Water | | | | |
| | | UNITS -----> | UG/L | | | | |
| CAS # | Parameter | EN016 | VAL | | | | |
| 95-47-6 | o-Xylene | 3. | U | | | | |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| CYANIDE-CN | | SAMPLE ID -----> | 009-G-W01D-01 | 009-H-W01D-01 | 009-G-W020-01 | 009-G-W021-01 | 009-G-W022-01 | 009-G-W023-01 | | | |
|------------|--------------|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|-----|-------|-----|
| | | ORIGINAL ID -----> | 009GW01D01 | 009HW01D01 | 009GW02001 | 009GW02101 | 009GW02201 | 009GW02301 | | | |
| | | LAB SAMPLE ID ----> | 35228.01 | 35228.02 | 35210.04 | 35210.08 | 35228.03 | 35210.02 | | | |
| | | ID FROM REPORT --> | 009GW01D01 | 009HW01D01 | 009GW02001 | 009GW02101 | 009GW02201 | 009GW02301 | | | |
| | | SAMPLE DATE -----> | 08/11/98 | 08/11/98 | 08/11/98 | 08/11/98 | 08/11/98 | 08/11/98 | | | |
| | | DATE EXTRACTED --> | 08/20/98 | 08/20/98 | 08/20/98 | 08/20/98 | 08/20/98 | 08/20/98 | | | |
| | | DATE ANALYZED --> | 08/21/98 | 08/21/98 | 08/21/98 | 08/21/98 | 08/21/98 | 08/21/98 | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | |
| CAS # | Parameter | 35210 | VAL | 35210 | VAL | 35210 | VAL | 35210 | VAL | 35210 | VAL |
| 57-12-5 | Cyanide (CN) | 2. | UJ | 2. | UJ | 2. | UJ | 2. | UJ | 2. | UJ |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| CYANIDE-CN | | SAMPLE ID -----> | 009-G-W024-01 | 009-G-W025-01 | 009-G-W026-01 | 009-G-W027-01 | 009-G-W028-01 | 009-G-W029-01 | | | | | |
|------------|--------------|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|-----|-------|-----|-------|-----|
| | | ORIGINAL ID -----> | 009GW02401 | 009GW02501 | 009GW02601 | 009GW02701 | 009GW02801 | 009GW02901 | | | | | |
| | | LAB SAMPLE ID ----> | 35182.01 | 35228.08 | 35269.01 | 35228.07 | 35228.05 | 35269.02 | | | | | |
| | | ID FROM REPORT --> | 009GW02401 | 009GW02501 | 009GW02601 | 009GW02701 | 009GW02801 | 009GW02901 | | | | | |
| | | SAMPLE DATE -----> | 08/10/98 | 08/12/98 | 08/13/98 | 08/12/98 | 08/12/98 | 08/13/98 | | | | | |
| | | DATE EXTRACTED --> | 08/17/98 | 08/20/98 | 08/20/98 | 08/20/98 | 08/20/98 | 08/20/98 | | | | | |
| | | DATE ANALYZED ----> | 08/17/98 | 08/21/98 | 08/21/98 | 08/21/98 | 08/21/98 | 08/21/98 | | | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | | | |
| CAS # | Parameter | 35007 | VAL | 35210 | VAL | 35269 | VAL | 35210 | VAL | 35210 | VAL | 35269 | VAL |
| 57-12-5 | Cyanide (CN) | 29.4 | | 2. | UJ | 2. | UJ | 5.7 | J | 9.9 | J | 9.5 | J |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| CYANIDE-CN | | SAMPLE ID -----> | 009-G-W030-01 | 009-G-W23D-01 | 009-G-W24D-01 | 009-H-W24D-01 | 009-G-W25D-01 | 009-G-W26D-01 | | | | | |
|------------|--------------|----------------------|---------------|---------------|---------------|---------------|---------------|---------------|-----|-------|-----|-------|-----|
| | | ORIGINAL ID -----> | 009GW03001 | 009GW23D01 | 009GW24D01 | 009HW24D01 | 009GW25D01 | 009GW26D01 | | | | | |
| | | LAB SAMPLE ID ----> | 35228.09 | 35210.01 | 35182.02 | 35182.03 | 35228.06 | 35271.01 | | | | | |
| | | ID FROM REPORT ----> | 009GW03001 | 009GW23D01 | 009GW24D01 | 009HW24D01 | 009GW25D01 | 009GW26D01 | | | | | |
| | | SAMPLE DATE -----> | 08/12/98 | 08/11/98 | 08/10/98 | 08/10/98 | 08/12/98 | 08/13/98 | | | | | |
| | | DATE EXTRACTED --> | 08/20/98 | 08/20/98 | 08/17/98 | 08/17/98 | 08/20/98 | 08/20/98 | | | | | |
| | | DATE ANALYZED ----> | 08/21/98 | 08/21/98 | 08/17/98 | 08/17/98 | 08/21/98 | 08/21/98 | | | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | | | |
| CAS # | Parameter | 35210 | VAL | 35210 | VAL | 35007 | VAL | 35007 | VAL | 35210 | VAL | 35271 | VAL |
| 57-12-5 | Cyanide (CN) | 2. | UJ | 2. | UJ | 2. | U | 2. | U | 2. | UJ | 2. | UJ |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY '96

| HYDRAZINE | | SAMPLE ID -----> | 009-G-W001-C1 | 009-G-W004-C1 | 009-G-W008-C1 | 009-G-W013-C1 | 009-G-W024-C1 | | | | |
|-----------|-----------|--------------------|---------------|---------------|---------------|---------------|---------------|-------|-----|-------|-----|
| | | ORIGINAL ID -----> | 009GW001C1 | 009GW004C1 | 009GW008C1 | 009GW013C1 | 009GW024C1 | | | | |
| | | LAB SAMPLE ID ---> | 40782.03 | 40782.02 | 40782.04 | 40799.03 | 40782.01 | | | | |
| | | ID FROM REPORT --> | 009GW001C1 | 009GW004C1 | 009GW008C1 | 009GW013C1 | 009GW024C1 | | | | |
| | | SAMPLE DATE -----> | 10/19/99 | 10/19/99 | 10/19/99 | 10/20/99 | 10/19/99 | | | | |
| | | DATE ANALYZED ---> | 10/21/99 | 10/21/99 | 10/21/99 | 10/25/99 | 10/21/99 | | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | | | | |
| | | UNITS -----> | MG/L | MG/L | MG/L | MG/L | MG/L | | | | |
| CAS # | Parameter | 40782 | VAL | 40782 | VAL | 40782 | VAL | 40799 | VAL | 40782 | VAL |
| 302-01-2 | Hydrazine | 5. | U | 13.9 | | 5. | U | 14. | | 20.8 | |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| SW-PEST | | SAMPLE ID -----> | 009-G-W01D-01 | 009-H-W01D-01 | 009-G-W020-01 | 009-G-W020-03 | 009-G-W021-01 | 009-G-W021-03 | | | | | |
|------------|---------------------|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|-----|-------|-----|-------|-----|
| | | ORIGINAL ID -----> | 009GW01D01 | 009HW01D01 | 009GW02001 | 009GW02003 | 009GW02101 | 009GW02103 | | | | | |
| | | LAB SAMPLE ID ----> | 35228.01 | 35228.02 | 35210.04 | 38273.03 | 35210.08 | 38273.05 | | | | | |
| | | ID FROM REPORT --> | 009GW01D01 | 009HW01D01 | 009GW02001 | 009GW02003 | 009GW02101 | 009GW02103 | | | | | |
| | | SAMPLE DATE -----> | 08/11/98 | 08/11/98 | 08/11/98 | 04/27/99 | 08/11/98 | 04/27/99 | | | | | |
| | | DATE EXTRACTED --> | 08/14/98 | 08/14/98 | 08/13/98 | 04/30/99 | 08/13/98 | 04/30/99 | | | | | |
| | | DATE ANALYZED ----> | 08/28/98 | 08/28/98 | 08/19/98 | 05/04/99 | 08/19/98 | 05/04/99 | | | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | | | |
| CAS # | Parameter | 35210 | VAL | 35210 | VAL | 35210 | VAL | 38273 | VAL | 35210 | VAL | 38273 | VAL |
| 7421-93-4 | Endrin aldehyde | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U |
| 309-00-2 | Aldrin | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U |
| 319-84-6 | alpha-BHC | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U |
| 319-85-7 | beta-BHC | 0.04 | U | 0.04 | U | 0.04 | UJ | 0.04 | U | 0.091 | R | 0.04 | U |
| 58-89-9 | gamma-BHC (Lindane) | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U |
| 319-86-8 | delta-BHC | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U |
| 5103-71-9 | alpha-Chlordane | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U |
| 5103-74-2 | gamma-Chlordane | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U |
| 50-29-3 | 4,4'-DDT | 0.08 | UJ | 0.08 | UJ | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U |
| 72-55-9 | 4,4'-DDE | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U |
| 72-54-8 | 4,4'-DDD | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U |
| 60-57-1 | Dieldrin | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U |
| 959-98-8 | Endosulfan I | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U |
| 33213-65-9 | Endosulfan II | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U |
| 1031-07-8 | Endosulfan sulfate | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U |
| 72-20-8 | Endrin | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U |
| 76-44-8 | Heptachlor | 0.04 | U | 0.04 | U | 0.042 | J | 0.04 | U | 0.04 | U | 0.04 | U |
| 1024-57-3 | Heptachlor epoxide | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U |
| 8001-35-2 | Toxaphene | 2.5 | U | 2.5 | U | 2.5 | U | 2.5 | U | 2.5 | U | 2.5 | U |
| 53494-70-5 | Endrin ketone | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U |
| 72-43-5 | Methoxychlor | 0.38 | U | 0.38 | U | 0.38 | U | 0.38 | U | 0.38 | U | 0.38 | U |
| 53469-21-9 | Aroclor-1242 | 1. | U | 1. | U | 1. | U | 1. | U | 1. | U | 1. | U |
| 11097-69-1 | Aroclor-1254 | 2. | U | 2. | U | 2. | U | 2. | U | 2. | U | 2. | U |
| 11104-28-2 | Aroclor-1221 | 1. | U | 1. | U | 1. | U | 1. | U | 1. | U | 1. | U |
| 11141-16-5 | Aroclor-1232 | 1. | U | 1. | U | 1. | U | 1. | U | 1. | U | 1. | U |
| 12672-29-6 | Aroclor-1248 | 1. | U | 1. | U | 1. | U | 1. | U | 1. | U | 1. | U |
| 11096-82-5 | Aroclor-1260 | 2. | U | 2. | U | 2. | U | 2. | U | 2. | U | 2. | U |
| 12674-11-2 | Aroclor-1016 | 1. | U | 1. | U | 1. | U | 1. | U | 1. | U | 1. | U |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| SW-PEST | | SAMPLE ID -----> 009-G-W022-01 | | 009-G-W022-03 | | 009-G-W023-01 | | 009-G-W023-03 | | 009-G-W024-01 | | 009-G-W025-01 | |
|----------------------|---------------------|--------------------------------|-----|---------------|-----|---------------|-----|---------------|-----|---------------|-----|---------------|-----|
| ORIGINAL ID -----> | | 009GW02201 | | 009GW02203 | | 009GW02301 | | 009GW02303 | | 009GW02401 | | 009GW02501 | |
| LAB SAMPLE ID -----> | | 35228.03 | | 38273.06 | | 35210.02 | | 38273.02 | | 35182.01 | | 35228.08 | |
| ID FROM REPORT ---> | | 009GW02201 | | 009GW02203 | | 009GW02301 | | 009GW02303 | | 009GW02401 | | 009GW02501 | |
| SAMPLE DATE -----> | | 08/11/98 | | 04/28/99 | | 08/11/98 | | 04/27/99 | | 08/10/98 | | 08/12/98 | |
| DATE EXTRACTED ---> | | 08/14/98 | | 04/30/99 | | 08/13/98 | | 04/30/99 | | 08/12/98 | | 08/14/98 | |
| DATE ANALYZED -----> | | 08/28/98 | | 05/04/99 | | 08/19/98 | | 05/04/99 | | 08/18/98 | | 08/28/98 | |
| MATRIX -----> | | Water | | Water | | Water | | Water | | Water | | Water | |
| UNITS -----> | | UG/L | | UG/L | | UG/L | | UG/L | | UG/L | | UG/L | |
| CAS # | Parameter | 35210 | VAL | 38273 | VAL | 35210 | VAL | 38273 | VAL | 35007 | VAL | 35210 | VAL |
| 7421-93-4 | Endrin aldehyde | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | UR | 0.08 | U |
| 309-00-2 | Aldrin | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U |
| 319-84-6 | alpha-BHC | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U |
| 319-85-7 | beta-BHC | 0.04 | U | 0.04 | U | 0.04 | UJ | 0.04 | U | 0.04 | U | 0.04 | U |
| 58-89-9 | gamma-BHC (Lindane) | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U |
| 319-86-8 | delta-BHC | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U |
| 5103-71-9 | alpha-Chlordane | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U |
| 5103-74-2 | gamma-Chlordane | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U |
| 50-29-3 | 4,4'-DDT | 0.08 | UJ | 0.08 | U |
| 72-55-9 | 4,4'-DDE | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | UJ | 0.08 | U |
| 72-54-8 | 4,4'-DDD | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | UJ | 0.08 | U |
| 60-57-1 | Dieldrin | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U |
| 959-98-8 | Endosulfan I | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U |
| 33213-65-9 | Endosulfan II | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U |
| 1031-07-8 | Endosulfan sulfate | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U |
| 72-20-8 | Endrin | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U |
| 76-44-8 | Heptachlor | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U |
| 1024-57-3 | Heptachlor epoxide | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U |
| 8001-35-2 | Toxaphene | 2.5 | U | 2.5 | U | 2.5 | U | 2.5 | U | 2.5 | U | 2.5 | U |
| 53494-70-5 | Endrin ketone | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U |
| 72-43-5 | Methoxychlor | 0.38 | U | 0.38 | U | 0.38 | U | 0.38 | U | 0.38 | U | 0.38 | U |
| 53469-21-9 | Aroclor-1242 | 1. | U | 1. | U | 1. | U | 1. | U | 1. | U | 1. | U |
| 11097-69-1 | Aroclor-1254 | 2. | U | 2. | U | 2. | U | 2. | U | 2. | U | 2. | U |
| 11104-28-2 | Aroclor-1221 | 1. | U | 1. | U | 1. | U | 1. | U | 1. | U | 1. | U |
| 11141-16-5 | Aroclor-1232 | 1. | U | 1. | U | 1. | U | 1. | U | 1. | U | 1. | U |
| 12672-29-6 | Aroclor-1248 | 1. | U | 1. | U | 1. | U | 1. | U | 1. | U | 1. | U |
| 11096-82-5 | Aroclor-1260 | 2. | U | 2. | U | 2. | U | 2. | U | 2. | U | 2. | U |
| 12674-11-2 | Aroclor-1016 | 1. | U | 1. | U | 1. | U | 1. | U | 1. | U | 1. | U |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| SW-PEST | | SAMPLE ID -----> | 009-G-W026-01 | 009-G-W027-01 | 009-G-W028-01 | 009-G-W029-01 | 009-G-W030-01 | 009-G-W23D-01 | | | | | |
|------------|---------------------|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|-----|-------|-----|-------|-----|
| | | ORIGINAL ID -----> | 009GW02601 | 009GW02701 | 009GW02801 | 009GW02901 | 009GW03001 | 009GW23D01 | | | | | |
| | | LAB SAMPLE ID ----> | 35269.01 | 35228.07 | 35228.05 | 35269.02 | 35228.09 | 35210.01 | | | | | |
| | | ID FROM REPORT --> | 009GW02601 | 009GW02701 | 009GW02801 | 009GW02901 | 009GW03001 | 009GW23D01 | | | | | |
| | | SAMPLE DATE -----> | 08/13/98 | 08/12/98 | 08/12/98 | 08/13/98 | 08/12/98 | 08/11/98 | | | | | |
| | | DATE EXTRACTED --> | 08/17/98 | 08/14/98 | 08/14/98 | 08/17/98 | 08/14/98 | 08/13/98 | | | | | |
| | | DATE ANALYZED ----> | 08/28/98 | 08/28/98 | 08/28/98 | 08/28/98 | 08/28/98 | 08/19/98 | | | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | | | |
| CAS # | Parameter | 35269 | VAL | 35210 | VAL | 35210 | VAL | 35269 | VAL | 35210 | VAL | 35210 | VAL |
| 7421-93-4 | Endrin aldehyde | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.16 | U |
| 309-00-2 | Aldrin | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.08 | U |
| 319-84-6 | alpha-BHC | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.08 | U |
| 319-85-7 | beta-BHC | 0.04 | U | 0.04 | U | 0.04 | U | 0.097 | U | 0.04 | U | 0.08 | UJ |
| 58-89-9 | gamma-BHC (Lindane) | 0.04 | U | 0.076 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.08 | U |
| 319-86-8 | delta-BHC | 0.04 | U | 0.28 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.08 | U |
| 5103-71-9 | alpha-Chlordane | 0.04 | U | 0.44 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.08 | U |
| 5103-74-2 | gamma-Chlordane | 0.04 | U | 0.27 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.08 | U |
| 50-29-3 | 4,4'-DDT | 0.08 | UJ | 0.08 | UJ | 0.08 | UJ | 0.08 | UJ | 0.08 | UJ | 0.16 | U |
| 72-55-9 | 4,4'-DDE | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.16 | UJ |
| 72-54-8 | 4,4'-DDD | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.16 | U |
| 60-57-1 | Dieldrin | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.16 | U |
| 959-98-8 | Endosulfan I | 0.04 | U | 0.042 | UJ | 0.04 | U | 0.04 | U | 0.04 | U | 0.08 | U |
| 33213-65-9 | Endosulfan II | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.11 | U | 0.16 | U |
| 1031-07-8 | Endosulfan sulfate | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.16 | U |
| 72-20-8 | Endrin | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.16 | U |
| 76-44-8 | Heptachlor | 0.04 | U | 0.084 | R | 0.04 | U | 0.04 | U | 0.04 | U | 0.08 | U |
| 1024-57-3 | Heptachlor epoxide | 0.04 | U | 0.06 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.08 | U |
| 8001-35-2 | Toxaphene | 2.5 | U | 2.5 | U | 2.5 | U | 2.5 | U | 2.5 | U | 5. | U |
| 53494-70-5 | Endrin ketone | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.16 | U |
| 72-43-5 | Methoxychlor | 0.38 | U | 0.38 | U | 0.38 | U | 0.38 | U | 0.38 | U | 0.76 | U |
| 53469-21-9 | Aroclor-1242 | 1. | U | 1. | U | 1. | U | 1. | U | 1. | U | 2. | U |
| 11097-69-1 | Aroclor-1254 | 2. | U | 2. | U | 2. | U | 2. | U | 2. | U | 4. | U |
| 11104-28-2 | Aroclor-1221 | 1. | U | 1. | U | 1. | U | 1. | U | 1. | U | 2. | U |
| 11141-16-5 | Aroclor-1232 | 1. | U | 1. | U | 1. | U | 1. | U | 1. | U | 2. | U |
| 12672-29-6 | Aroclor-1248 | 1. | U | 1. | U | 1. | U | 1. | U | 1. | U | 2. | U |
| 11096-82-5 | Aroclor-1260 | 2. | U | 2. | U | 2. | U | 2. | U | 2. | U | 4. | U |
| 12674-11-2 | Aroclor-1016 | 1. | U | 1. | U | 1. | U | 1. | U | 1. | U | 2. | U |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| SW-PEST | | SAMPLE ID -----> | 009-G-W23D-03 | 009-G-W24D-01 | 009-H-W24D-01 | 009-G-W25D-01 | 009-G-W26D-01 | 020-G-DF01-01 | | | | | |
|------------|---------------------|--------------------|---------------|---------------|---------------|---------------|---------------|---------------|-----|-------|-----|-------|-----|
| | | ORIGINAL ID -----> | 009GW23D03 | 009GW24D01 | 009HW24D01 | 009GW25D01 | 009GW26D01 | 020GDF0101 | | | | | |
| | | LAB SAMPLE ID ---> | 38273.01 | 35182.02 | 35182.03 | 35228.06 | 35271.01 | 9906206-03 | | | | | |
| | | ID FROM REPORT --> | 009GW23D03 | 009GW24D01 | 009HW24D01 | 009GW25D01 | 009GW26D01 | 020GDF0101 | | | | | |
| | | SAMPLE DATE -----> | 04/27/99 | 08/10/98 | 08/10/98 | 08/12/98 | 08/13/98 | 06/08/99 | | | | | |
| | | DATE EXTRACTED --> | 04/30/99 | 08/12/98 | 08/12/98 | 08/14/98 | 08/17/98 | 06/14/99 | | | | | |
| | | DATE ANALYZED ---> | 05/04/99 | 08/18/98 | 08/18/98 | 08/28/98 | 08/28/98 | 06/23/99 | | | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | | | |
| CAS # | Parameter | 38273 | VAL | 35007 | VAL | 35007 | VAL | 35210 | VAL | 35271 | VAL | EN016 | VAL |
| 7421-93-4 | Endrin aldehyde | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.11 | U |
| 309-00-2 | Aldrin | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.053 | U |
| 319-84-6 | alpha-BHC | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.053 | U |
| 319-85-7 | beta-BHC | 0.04 | U | 0.04 | UJ | 0.04 | UJ | 0.04 | U | 0.04 | U | 0.053 | U |
| 58-89-9 | gamma-BHC (Lindane) | 0.04 | U | 0.04 | UJ | 0.04 | UJ | 0.04 | U | 0.04 | U | 0.053 | U |
| 319-86-8 | delta-BHC | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.053 | U |
| 5103-71-9 | alpha-Chlordane | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.053 | U |
| 5103-74-2 | gamma-Chlordane | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.053 | U |
| 50-29-3 | 4,4'-DDT | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.11 | U |
| 72-55-9 | 4,4'-DDE | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.11 | U |
| 72-54-8 | 4,4'-DDD | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.11 | U |
| 60-57-1 | Dieldrin | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.11 | U |
| 959-98-8 | Endosulfan I | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.053 | U |
| 33213-65-9 | Endosulfan II | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.11 | U |
| 1031-07-8 | Endosulfan sulfate | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.11 | U |
| 72-20-8 | Endrin | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.11 | U |
| 76-44-8 | Heptachlor | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.053 | U |
| 1024-57-3 | Heptachlor epoxide | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.04 | U | 0.053 | U |
| 8001-35-2 | Toxaphene | 2.5 | U | 2.5 | U | 2.5 | U | 2.5 | U | 2.5 | U | 5.3 | U |
| 53494-70-5 | Endrin ketone | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.11 | U |
| 72-43-5 | Methoxychlor | 0.38 | U | 0.38 | U | 0.38 | U | 0.38 | U | 0.38 | U | 0.53 | U |
| 53469-21-9 | Aroclor-1242 | 1. | U | 1. | U | 1. | U | 1. | U | 1. | U | 1.1 | U |
| 11097-69-1 | Aroclor-1254 | 2. | U | 2. | U | 2. | U | 2. | U | 2. | U | 1.1 | U |
| 11104-28-2 | Aroclor-1221 | 1. | U | 1. | U | 1. | U | 1. | U | 1. | U | 2.1 | U |
| 11141-16-5 | Aroclor-1232 | 1. | U | 1. | U | 1. | U | 1. | U | 1. | U | 1.1 | U |
| 12672-29-6 | Aroclor-1248 | 1. | U | 1. | U | 1. | U | 1. | U | 1. | U | 1.1 | U |
| 11096-82-5 | Aroclor-1260 | 2. | U | 2. | U | 2. | U | 2. | U | 2. | U | 1.1 | U |
| 12674-11-2 | Aroclor-1016 | 1. | U | 1. | U | 1. | U | 1. | U | 1. | U | 1.1 | U |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| SW-PEST | | SAMPLE ID -----> | | 020-W-DF01-C1 | | 020-G-DF02-01 | | 020-G-DF03-01 | | 020-G-DF04-01 | |
|----------------------|---------------------|------------------|-----|---------------|-----|---------------|-----|---------------|-----|---------------|--|
| ORIGINAL ID -----> | | 020WDF01C1 | | 020GDF0201 | | 020GDF0301 | | 020GDF0401 | | | |
| LAB SAMPLE ID ----> | | 9906364-01 | | 9906206-06 | | 9906244-03 | | 9906244-06 | | | |
| ID FROM REPORT ----> | | 020WDF01C1 | | 020GDF0201 | | 020GDF0301 | | 020GDF0401 | | | |
| SAMPLE DATE -----> | | 06/14/99 | | 06/08/99 | | 06/09/99 | | 06/09/99 | | | |
| DATE EXTRACTED --> | | 06/21/99 | | 06/14/99 | | 06/14/99 | | 06/14/99 | | | |
| DATE ANALYZED ----> | | 06/23/99 | | 06/23/99 | | 06/23/99 | | 06/23/99 | | | |
| MATRIX -----> | | Water | | Water | | Water | | Water | | | |
| UNITS -----> | | UG/L | | UG/L | | UG/L | | UG/L | | | |
| CAS # | Parameter | EN016 | VAL | EN016 | VAL | EN016 | VAL | EN016 | VAL | | |
| 7421-93-4 | Endrin aldehyde | 0.1 | U | 0.11 | U | 0.11 | U | 0.11 | U | | |
| 309-00-2 | Aldrin | 0.05 | U | 0.056 | U | 0.053 | U | 0.053 | U | | |
| 319-84-6 | alpha-BHC | 0.05 | U | 0.056 | U | 0.053 | U | 0.053 | U | | |
| 319-85-7 | beta-BHC | 0.05 | U | 0.056 | U | 0.053 | U | 0.053 | U | | |
| 58-89-9 | gamma-BHC (Lindane) | 0.05 | U | 0.056 | U | 0.053 | U | 0.053 | U | | |
| 319-86-8 | delta-BHC | 0.05 | U | 0.056 | U | 0.053 | U | 0.053 | U | | |
| 5103-71-9 | alpha-Chlordane | 0.05 | U | 0.056 | U | 0.053 | U | 0.053 | U | | |
| 5103-74-2 | gamma-Chlordane | 0.05 | U | 0.056 | U | 0.053 | U | 0.053 | U | | |
| 50-29-3 | 4,4'-DDT | 0.1 | U | 0.11 | U | 0.11 | U | 0.11 | U | | |
| 72-55-9 | 4,4'-DDE | 0.1 | U | 0.11 | U | 0.11 | U | 0.11 | U | | |
| 72-54-8 | 4,4'-DDD | 0.1 | U | 0.11 | U | 0.11 | U | 0.11 | U | | |
| 60-57-1 | Dieldrin | 0.1 | U | 0.11 | U | 0.11 | U | 0.11 | U | | |
| 959-98-8 | Endosulfan I | 0.05 | U | 0.056 | U | 0.053 | U | 0.053 | U | | |
| 33213-65-9 | Endosulfan II | 0.1 | U | 0.11 | U | 0.11 | U | 0.11 | U | | |
| 1031-07-8 | Endosulfan sulfate | 0.1 | U | 0.11 | U | 0.11 | U | 0.11 | U | | |
| 72-20-8 | Endrin | 0.1 | U | 0.11 | U | 0.11 | U | 0.11 | U | | |
| 76-44-8 | Heptachlor | 0.05 | U | 0.056 | U | 0.053 | U | 0.053 | U | | |
| 1024-57-3 | Heptachlor epoxide | 0.05 | U | 0.056 | U | 0.053 | U | 0.053 | U | | |
| 8001-35-2 | Toxaphene | 5. | U | 5.6 | U | 5.3 | U | 5.3 | U | | |
| 53494-70-5 | Endrin ketone | 0.1 | U | 0.11 | U | 0.11 | U | 0.11 | U | | |
| 72-43-5 | Methoxychlor | 0.5 | U | 0.56 | U | 0.53 | U | 0.53 | U | | |
| 53469-21-9 | Aroclor-1242 | 1. | U | 1.1 | U | 1.1 | U | 1.1 | U | | |
| 11097-69-1 | Aroclor-1254 | 1. | U | 1.1 | U | 1.1 | U | 1.1 | U | | |
| 11104-28-2 | Aroclor-1221 | 2. | U | 2.2 | U | 2.1 | U | 2.1 | U | | |
| 11141-16-5 | Aroclor-1232 | 1. | U | 1.1 | U | 1.1 | U | 1.1 | U | | |
| 12672-29-6 | Aroclor-1248 | 1. | U | 1.1 | U | 1.1 | U | 1.1 | U | | |
| 11096-82-5 | Aroclor-1260 | 1. | U | 1.1 | U | 1.1 | U | 1.1 | U | | |
| 12674-11-2 | Aroclor-1016 | 1. | U | 1.1 | U | 1.1 | U | 1.1 | U | | |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY '96

| SW-SVOA | | SAMPLE ID -----> | 009-G-W010-01 | 009-H-W010-01 | 009-G-W020-01 | 009-G-W020-03 | 009-G-W021-01 | 009-G-W021-03 | | | | | |
|-----------|------------------------------|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|-----|-------|-----|--------|-----|
| | | ORIGINAL ID -----> | 009GW01D01 | 009HW01D01 | 009GW02001 | 009GW02003 | 009GW02101 | 009GW02103 | | | | | |
| | | LAB SAMPLE ID ----> | 35228.01 | 35228.02 | 35210.04 | 38273.03 | 35210.08 | 38273.05 | | | | | |
| | | ID FROM REPORT ---> | 009GW01D01 | 009HW01D01 | 009GW02001 | 009GW02003 | 009GW02101 | 009GW02103 | | | | | |
| | | SAMPLE DATE -----> | 08/11/98 | 08/11/98 | 08/11/98 | 04/27/99 | 08/11/98 | 04/27/99 | | | | | |
| | | DATE EXTRACTED ---> | 08/14/98 | 08/14/98 | 08/13/98 | 04/30/99 | 08/13/98 | 04/30/99 | | | | | |
| | | DATE ANALYZED ---> | 08/20/98 | 08/20/98 | 08/19/98 | 05/06/99 | 08/19/98 | 05/05/99 | | | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | | | |
| CAS # | Parameter | 35210 | VAL | 35210 | VAL | 35210 | VAL | 38273 | VAL | 35210 | VAL | 38273 | VAL |
| 99-09-2 | 3-Nitroaniline | 50. | U | 50. | U | 50. | U | 100. | U | 50. | U | 25. | U |
| 108-95-2 | Phenol | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | UR |
| 83-32-9 | Acenaphthene | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 51-28-5 | 2,4-Dinitrophenol | 50. | U | 50. | U | 50. | U | 100. | U | 50. | U | 25. | UR |
| 111-44-4 | bis(2-Chloroethyl)ether | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 100-02-7 | 4-Nitrophenol | 50. | U | 50. | U | 50. | U | 100. | U | 50. | U | 25. | UR |
| 95-57-8 | 2-Chlorophenol | 10. | U | 10. | U | 67. | U | 52. | U | 3. | J | 10. | UR |
| 132-64-9 | Dibenzofuran | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 541-73-1 | 1,3-Dichlorobenzene | 10. | U | 10. | U | 58. | U | 24. | J | 270. | D | 1100. | D |
| 121-14-2 | 2,4-Dinitrotoluene | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 106-46-7 | 1,4-Dichlorobenzene | 10. | U | 10. | U | 130. | D | 92. | U | 510. | D | 1900. | D |
| 84-66-2 | Diethylphthalate | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 100-51-6 | Benzyl alcohol | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 7005-72-3 | 4-Chlorophenylphenylether | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 95-50-1 | 1,2-Dichlorobenzene | 10. | U | 10. | U | 1500. | D | 140. | U | 3300. | D | 13000. | D |
| 86-73-7 | Fluorene | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 95-48-7 | 2-Methylphenol (o-Cresol) | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | UR |
| 100-01-6 | 4-Nitroaniline | 50. | U | 50. | U | 50. | U | 100. | U | 50. | U | 25. | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 534-52-1 | 2-Methyl-4,6-Dinitrophenol | 50. | U | 50. | U | 50. | U | 100. | U | 50. | U | 25. | UR |
| 106-44-5 | 4-Methylphenol (p-Cresol) | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | UR |
| 86-30-6 | N-Nitrosodiphenylamine | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 67-72-1 | Hexachloroethane | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 98-95-3 | Nitrobenzene | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 118-74-1 | Hexachlorobenzene | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 78-59-1 | Isophorone | 10. | U | 10. | U | 1. | J | 40. | U | 10. | U | 10. | U |
| 87-86-5 | Pentachlorophenol | 50. | U | 50. | U | 50. | U | 100. | U | 50. | U | 25. | UR |
| 88-75-5 | 2-Nitrophenol | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | UR |
| 85-01-8 | Phenanthrene | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 105-67-9 | 2,4-Dimethylphenol | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | UR |
| 120-12-7 | Anthracene | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 65-85-0 | Benzoic acid | 7. | J | 50. | U | 7. | J | 100. | U | 7. | J | 25. | UR |
| 84-74-2 | Di-n-butylphthalate | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 111-91-1 | bis(2-Chloroethoxy)methane | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| SW-SV0A | | SAMPLE ID -----> | 009-G-W01D-01 | 009-H-W01D-01 | 009-G-W020-01 | 009-G-W020-03 | 009-G-W021-01 | 009-G-W021-03 | | | | | |
|----------|-----------------------------------|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|-----|-------|-----|-------|-----|
| | | ORIGINAL ID -----> | 009GW01D01 | 009HW01D01 | 009GW02001 | 009GW02003 | 009GW02101 | 009GW02103 | | | | | |
| | | LAB SAMPLE ID ----> | 35228.01 | 35228.02 | 35210.04 | 38273.03 | 35210.08 | 38273.05 | | | | | |
| | | ID FROM REPORT --> | 009GW01D01 | 009HW01D01 | 009GW02001 | 009GW02003 | 009GW02101 | 009GW02103 | | | | | |
| | | SAMPLE DATE -----> | 08/11/98 | 08/11/98 | 08/11/98 | 04/27/99 | 08/11/98 | 04/27/99 | | | | | |
| | | DATE EXTRACTED --> | 08/14/98 | 08/14/98 | 08/13/98 | 04/30/99 | 08/13/98 | 04/30/99 | | | | | |
| | | DATE ANALYZED ----> | 08/20/98 | 08/20/98 | 08/19/98 | 05/06/99 | 08/19/98 | 05/05/99 | | | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | | | |
| CAS # | Parameter | 35210 | VAL | 35210 | VAL | 35210 | VAL | 38273 | VAL | 35210 | VAL | 38273 | VAL |
| 206-44-0 | Fluoranthene | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 120-83-2 | 2,4-Dichlorophenol | 10. | U | 10. | U | 5. | J | 40. | U | 10. | U | 10. | UR |
| 120-82-1 | 1,2,4-Trichlorobenzene | 10. | U | 10. | U | 10. | U | 40. | U | 2. | J | 6. | J |
| 129-00-0 | Pyrene | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 91-20-3 | Naphthalene | 10. | U | 10. | U | 28. | U | 40. | U | 10. | U | 10. | U |
| 85-68-7 | Butylbenzylphthalate | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 106-47-8 | 4-Chloroaniline | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 20. | U | 20. | U | 20. | U | 40. | U | 20. | U | 10. | U |
| 87-68-3 | Hexachlorobutadiene | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 56-55-3 | Benzo(a)anthracene | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 59-50-7 | 4-Chloro-3-methylphenol | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | UR |
| 218-01-9 | Chrysene | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 91-57-6 | 2-Methylnaphthalene | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 117-81-7 | bis(2-Ethylhexyl)phthalate (BEHP) | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 77-47-4 | Hexachlorocyclopentadiene | 10. | U | 10. | U | 10. | U | 40. | U | 10. | UJ | 10. | U |
| 117-84-0 | Di-n-octyl phthalate | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | UR |
| 205-99-2 | Benzo(b)fluoranthene | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 50. | U | 50. | U | 50. | U | 100. | U | 50. | U | 25. | UR |
| 207-08-9 | Benzo(k)fluoranthene | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 91-58-7 | 2-Chloronaphthalene | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 50-32-8 | Benzo(a)pyrene | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 88-74-4 | 2-Nitroaniline | 50. | U | 50. | U | 50. | U | 40. | U | 50. | U | 10. | U |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 131-11-3 | Dimethyl phthalate | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 53-70-3 | Dibenz(a,h)anthracene | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 208-96-8 | Acenaphthylene | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 191-24-2 | Benzo(g,h,i)perylene | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |
| 606-20-2 | 2,6-Dinitrotoluene | 10. | U | 10. | U | 10. | U | 40. | U | 10. | U | 10. | U |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY '96

| SW-SVOA | | SAMPLE ID -----> | 009-G-W022-01 | 009-G-W022-03 | 009-G-W023-01 | 009-G-W023-03 RE | 009-G-W024-01 | 009-G-W025-01 | | | | | |
|-----------|------------------------------|---------------------|---------------|---------------|---------------|------------------|---------------|---------------|-----|-------|-----|-------|-----|
| | | ORIGINAL ID -----> | 009GW02201 | 009GW02203 | 009GW02301 | 009GW02303 | 009GW02401 | 009GW02501 | | | | | |
| | | LAB SAMPLE ID ----> | 35228.03 | 38273.06 | 35210.02 | 38273.02 | 35182.01 | 35228.08 | | | | | |
| | | ID FROM REPORT --> | 009GW02201 | 009GW02203 | 009GW02301 | 009GW02303 | 009GW02401 | 009GW02501 | | | | | |
| | | SAMPLE DATE -----> | 08/11/98 | 04/28/99 | 08/11/98 | 04/27/99 | 08/10/98 | 08/12/98 | | | | | |
| | | DATE EXTRACTED --> | 08/14/98 | 04/30/99 | 08/13/98 | 05/06/99 | 08/12/98 | 08/14/98 | | | | | |
| | | DATE ANALYZED ----> | 08/21/98 | 05/05/99 | 08/19/98 | 05/10/99 | 08/19/98 | 08/21/98 | | | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | | | |
| CAS # | Parameter | 35210 | VAL | 38273 | VAL | 35210 | VAL | 38273 | VAL | 35007 | VAL | 35210 | VAL |
| 99-09-2 | 3-Nitroaniline | 50. | U | 25. | U | 50. | U | 25. | U | 50. | UJ | 50. | U |
| 108-95-2 | Phenol | 10. | U | 10. | U | 1. | J | 10. | UJ | 10. | U | 10. | U |
| 83-32-9 | Acenaphthene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 3. | J |
| 51-28-5 | 2,4-Dinitrophenol | 50. | U | 25. | U | 50. | U | 25. | UJ | 50. | U | 50. | U |
| 111-44-4 | bis(2-Chloroethyl)ether | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 100-02-7 | 4-Nitrophenol | 50. | U | 25. | U | 50. | U | 25. | UJ | 50. | U | 50. | U |
| 95-57-8 | 2-Chlorophenol | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U | 10. | U |
| 132-64-9 | Dibenzofuran | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 541-73-1 | 1,3-Dichlorobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 121-14-2 | 2,4-Dinitrotoluene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 106-46-7 | 1,4-Dichlorobenzene | 10. | U | 15. | U | 10. | U | 10. | U | 2. | J | 10. | U |
| 84-66-2 | Diethylphthalate | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 100-51-6 | Benzyl alcohol | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 7005-72-3 | 4-Chlorophenylphenylether | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 95-50-1 | 1,2-Dichlorobenzene | 10. | U | 10. | U | 10. | U | 4. | J | 10. | UJ | 10. | U |
| 86-73-7 | Fluorene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 1. | J |
| 95-48-7 | 2-Methylphenol (o-Cresol) | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U | 10. | U |
| 100-01-6 | 4-Nitroaniline | 50. | U | 25. | U | 50. | U | 25. | U | 50. | UJ | 50. | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 534-52-1 | 2-Methyl-4,6-Dinitrophenol | 50. | U | 25. | U | 50. | U | 25. | UJ | 50. | U | 50. | U |
| 106-44-5 | 4-Methylphenol (p-Cresol) | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U | 10. | U |
| 86-30-6 | N-Nitrosodiphenylamine | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 67-72-1 | Hexachloroethane | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 98-95-3 | Nitrobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 118-74-1 | Hexachlorobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 78-59-1 | Isophorone | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 87-86-5 | Pentachlorophenol | 50. | U | 25. | U | 50. | U | 25. | UJ | 50. | U | 50. | U |
| 88-75-5 | 2-Nitrophenol | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U | 10. | U |
| 85-01-8 | Phenanthrene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 105-67-9 | 2,4-Dimethylphenol | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U | 10. | U |
| 120-12-7 | Anthracene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 65-85-0 | Benzoic acid | 8. | J | 25. | U | 7. | J | 25. | UJ | 50. | U | 50. | U |
| 84-74-2 | Di-n-butylphthalate | 2. | J | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 111-91-1 | bis(2-Chloroethoxy)methane | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| SW-SVOA | | SAMPLE ID -----> | 009-G-W022-01 | 009-G-W022-03 | 009-G-W023-01 | 009-G-W023-03 RE | 009-G-W024-01 | 009-G-W025-01 | | | | | |
|----------|-----------------------------------|---------------------|---------------|---------------|---------------|------------------|---------------|---------------|-----|-------|-----|-------|-----|
| | | ORIGINAL ID -----> | 009GW02201 | 009GW02203 | 009GW02301 | 009GW02303 | 009GW02401 | 009GW02501 | | | | | |
| | | LAB SAMPLE ID ----> | 35228.03 | 38273.06 | 35210.02 | 38273.02 | 35182.01 | 35228.08 | | | | | |
| | | ID FROM REPORT --> | 009GW02201 | 009GW02203 | 009GW02301 | 009GW02303 | 009GW02401 | 009GW02501 | | | | | |
| | | SAMPLE DATE -----> | 08/11/98 | 04/28/99 | 08/11/98 | 04/27/99 | 08/10/98 | 08/12/98 | | | | | |
| | | DATE EXTRACTED --> | 08/14/98 | 04/30/99 | 08/13/98 | 05/06/99 | 08/12/98 | 08/14/98 | | | | | |
| | | DATE ANALYZED ----> | 08/21/98 | 05/05/99 | 08/19/98 | 05/10/99 | 08/19/98 | 08/21/98 | | | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | | | |
| CAS # | Parameter | 35210 | VAL | 38273 | VAL | 35210 | VAL | 38273 | VAL | 35007 | VAL | 35210 | VAL |
| 206-44-0 | Fluoranthene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 120-83-2 | 2,4-Dichlorophenol | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U | 10. | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 129-00-0 | Pyrene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 91-20-3 | Naphthalene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 85-68-7 | Butylbenzylphthalate | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 106-47-8 | 4-Chloroaniline | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 20. | U | 10. | U | 20. | U | 10. | U | 20. | UJ | 20. | U |
| 87-68-3 | Hexachlorobutadiene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 56-55-3 | Benzo(a)anthracene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 59-50-7 | 4-Chloro-3-methylphenol | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U | 10. | U |
| 218-01-9 | Chrysene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 91-57-6 | 2-Methylnaphthalene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 117-81-7 | bis(2-Ethylhexyl)phthalate (BEHP) | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 77-47-4 | Hexachlorocyclopentadiene | 10. | U | 10. | U | 10. | UJ | 10. | U | 10. | UJ | 10. | UJ |
| 117-84-0 | Di-n-octyl phthalate | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U | 10. | U |
| 205-99-2 | Benzo(b)fluoranthene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 50. | U | 25. | U | 50. | U | 25. | UJ | 50. | U | 50. | U |
| 207-08-9 | Benzo(k)fluoranthene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 91-58-7 | 2-Chloronaphthalene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 50-32-8 | Benzo(a)pyrene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 88-74-4 | 2-Nitroaniline | 50. | U | 10. | U | 50. | U | 10. | U | 50. | UJ | 50. | U |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 131-11-3 | Dimethyl phthalate | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 53-70-3 | Dibenz(a,h)anthracene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 208-96-8 | Acenaphthylene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 191-24-2 | Benzo(g,h,i)perylene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 606-20-2 | 2,6-Dinitrotoluene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| SW-SVOA | | SAMPLE ID -----> | 009-G-W026-01 | 009-G-W027-01 | 009-G-W028-01 | 009-G-W029-01 | 009-G-W030-01 | 009-G-W23D-01 | | | | | |
|-----------|------------------------------|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|-----|-------|-----|-------|-----|
| | | ORIGINAL ID -----> | 009GW02601 | 009GW02701 | 009GW02801 | 009GW02901 | 009GW03001 | 009GW23D01 | | | | | |
| | | LAB SAMPLE ID ----> | 35269.01 | 35228.07 | 35228.05 | 35269.02 | 35228.09 | 35210.01 | | | | | |
| | | ID FROM REPORT --> | 009GW02601 | 009GW02701 | 009GW02801 | 009GW02901 | 009GW03001 | 009GW23D01 | | | | | |
| | | SAMPLE DATE -----> | 08/13/98 | 08/12/98 | 08/12/98 | 08/13/98 | 08/12/98 | 08/11/98 | | | | | |
| | | DATE EXTRACTED --> | 08/17/98 | 08/14/98 | 08/14/98 | 08/17/98 | 08/14/98 | 08/13/98 | | | | | |
| | | DATE ANALYZED ----> | 08/20/98 | 08/21/98 | 08/21/98 | 08/20/98 | 08/21/98 | 08/19/98 | | | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | | | |
| CAS # | Parameter | 35269 | VAL | 35210 | VAL | 35210 | VAL | 35269 | VAL | 35210 | VAL | 35210 | VAL |
| 99-09-2 | 3-Nitroaniline | 50. | U | 50. | U | 50. | U | 50. | U | 50. | U | 50. | UJ |
| 108-95-2 | Phenol | 10. | U | 10. | U | 1. | J | 10. | U | 10. | U | 10. | U |
| 83-32-9 | Acenaphthene | 3. | J | 8. | J | 2. | J | 5. | J | 1. | J | 10. | U |
| 51-28-5 | 2,4-Dinitrophenol | 50. | U | 50. | U | 50. | U | 50. | U | 50. | U | 50. | U |
| 111-44-4 | bis(2-Chloroethyl)ether | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 100-02-7 | 4-Nitrophenol | 50. | U | 50. | U | 50. | U | 50. | U | 50. | U | 50. | UR |
| 95-57-8 | 2-Chlorophenol | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ |
| 132-64-9 | Dibenzofuran | 1. | J | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 541-73-1 | 1,3-Dichlorobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 121-14-2 | 2,4-Dinitrotoluene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ |
| 106-46-7 | 1,4-Dichlorobenzene | 2. | J | 1. | J | 2. | J | 3. | J | 8. | J | 10. | U |
| 84-66-2 | Diethylphthalate | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 100-51-6 | Benzyl alcohol | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 7005-72-3 | 4-Chlorophenylphenylether | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 95-50-1 | 1,2-Dichlorobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 3. | J | 10. | U |
| 86-73-7 | Fluorene | 1. | J | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 95-48-7 | 2-Methylphenol (o-Cresol) | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 100-01-6 | 4-Nitroaniline | 50. | U | 50. | U | 50. | U | 50. | U | 50. | U | 50. | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 534-52-1 | 2-Methyl-4,6-Dinitrophenol | 50. | U | 50. | U | 50. | U | 50. | U | 50. | U | 50. | U |
| 106-44-5 | 4-Methylphenol (p-Cresol) | 10. | U | 2. | J | 10. | U | 10. | U | 10. | U | 10. | U |
| 86-30-6 | N-Nitrosodiphenylamine | 1. | J | 4. | J | 2. | J | 2. | J | 3. | J | 10. | U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ |
| 67-72-1 | Hexachloroethane | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 98-95-3 | Nitrobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 118-74-1 | Hexachlorobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 78-59-1 | Isophorone | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 87-86-5 | Pentachlorophenol | 50. | U | 50. | U | 50. | U | 50. | U | 50. | U | 50. | UR |
| 88-75-5 | 2-Nitrophenol | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 85-01-8 | Phenanthrene | 1. | J | 10. | U | 10. | U | 10. | U | 1. | J | 10. | U |
| 105-67-9 | 2,4-Dimethylphenol | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 120-12-7 | Anthracene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 65-85-0 | Benzoic acid | 50. | U | 9. | J | 8. | J | 7. | J | 9. | J | 50. | U |
| 84-74-2 | Di-n-butylphthalate | 10. | U | 10. | U | 1. | J | 10. | U | 10. | U | 10. | U |
| 111-91-1 | bis(2-Chloroethoxy)methane | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| SW-SVOA | | SAMPLE ID -----> | 009-G-W026-01 | 009-G-W027-01 | 009-G-W028-01 | 009-G-W029-01 | 009-G-W030-01 | 009-G-W230-01 | | | | | |
|----------|-----------------------------------|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|-----|-------|-----|-------|-----|
| | | ORIGINAL ID -----> | 009GW02601 | 009GW02701 | 009GW02801 | 009GW02901 | 009GW03001 | 009GW23001 | | | | | |
| | | LAB SAMPLE ID ----> | 35269.01 | 35228.07 | 35228.05 | 35269.02 | 35228.09 | 35210.01 | | | | | |
| | | ID FROM REPORT --> | 009GW02601 | 009GW02701 | 009GW02801 | 009GW02901 | 009GW03001 | 009GW23001 | | | | | |
| | | SAMPLE DATE -----> | 08/13/98 | 08/12/98 | 08/12/98 | 08/13/98 | 08/12/98 | 08/11/98 | | | | | |
| | | DATE EXTRACTED --> | 08/17/98 | 08/14/98 | 08/14/98 | 08/17/98 | 08/14/98 | 08/13/98 | | | | | |
| | | DATE ANALYZED ----> | 08/20/98 | 08/21/98 | 08/21/98 | 08/20/98 | 08/21/98 | 08/19/98 | | | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | | | |
| CAS # | Parameter | 35269 | VAL | 35210 | VAL | 35210 | VAL | 35269 | VAL | 35210 | VAL | 35210 | VAL |
| 206-44-0 | Fluoranthene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 120-83-2 | 2,4-Dichlorophenol | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 129-00-0 | Pyrene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 91-20-3 | Naphthalene | 10. | U | 10. | U | 1. | J | 10. | U | 4. | J | 10. | U |
| 85-68-7 | Butylbenzylphthalate | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 106-47-8 | 4-Chloroaniline | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 20. | U | 20. | U | 20. | U | 20. | U | 20. | U | 20. | U |
| 87-68-3 | Hexachlorobutadiene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 56-55-3 | Benzo(a)anthracene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 59-50-7 | 4-Chloro-3-methylphenol | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | UJ |
| 218-01-9 | Chrysene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 91-57-6 | 2-Methylnaphthalene | 3. | J | 10. | U | 3. | J | 10. | U | 20. | U | 10. | U |
| 117-81-7 | bis(2-Ethylhexyl)phthalate (BEHP) | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 77-47-4 | Hexachlorocyclopentadiene | 10. | U | 10. | UJ | 10. | U | 10. | U | 10. | UJ | 10. | UJ |
| 117-84-0 | Di-n-octyl phthalate | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 205-99-2 | Benzo(b)fluoranthene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 50. | U | 50. | U | 50. | U | 50. | U | 50. | U | 50. | U |
| 207-08-9 | Benzo(k)fluoranthene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 91-58-7 | 2-Chloronaphthalene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 50-32-8 | Benzo(a)pyrene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 88-74-4 | 2-Nitroaniline | 50. | U | 50. | U | 50. | U | 50. | U | 50. | U | 50. | U |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 131-11-3 | Dimethyl phthalate | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 53-70-3 | Dibenz(a,h)anthracene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 208-96-8 | Acenaphthylene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 191-24-2 | Benzo(g,h,i)perylene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 606-20-2 | 2,6-Dinitrotoluene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| SW-SVDA | | SAMPLE ID -----> | 009-G-W23D-03 | 009-G-W24D-01 | 009-H-W24D-01 | 009-G-W25D-01 RE | 009-G-W26D-01 | 020-G-DF01-01 | | | | | |
|-----------|------------------------------|---------------------|---------------|---------------|---------------|------------------|---------------|---------------|-----|-------|-----|-------|-----|
| | | ORIGINAL ID -----> | 009GW23D03 | 009GW24D01 | 009HW24D01 | 009GW25D01 | 009GW26D01 | 020GDF0101 | | | | | |
| | | LAB SAMPLE ID ---> | 38273.01 | 35182.02 | 35182.03 | 35228.06 | 35271.01 | 9906206-03 | | | | | |
| | | ID FROM REPORT ---> | 009GW23D03 | 009GW24D01 | 009HW24D01 | 009GW25D01 | 009GW26D01 | 020GDF0101 | | | | | |
| | | SAMPLE DATE -----> | 04/27/99 | 08/10/98 | 08/10/98 | 08/12/98 | 08/13/98 | 06/08/99 | | | | | |
| | | DATE EXTRACTED ---> | 04/30/99 | 08/12/98 | 08/12/98 | 08/24/98 | 08/17/98 | 06/15/99 | | | | | |
| | | DATE ANALYZED ---> | 05/05/99 | 08/18/98 | 08/18/98 | 08/27/98 | 08/20/98 | 06/19/99 | | | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | | | |
| CAS # | Parameter | 38273 | VAL | 35007 | VAL | 35007 | VAL | 35210 | VAL | 35271 | VAL | EN016 | VAL |
| 99-09-2 | 3-Nitroaniline | 25. | U | 50. | U | 50. | U | 53. | U | 56. | U | 6. | U |
| 108-95-2 | Phenol | 10. | U | 10. | U | 10. | U | 10. | U | 2. | J | 6. | U |
| 83-32-9 | Acenaphthene | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 51-28-5 | 2,4-Dinitrophenol | 25. | U | 50. | U | 50. | U | 53. | U | 56. | U | 11. | U |
| 111-44-4 | bis(2-Chloroethyl)ether | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 100-02-7 | 4-Nitrophenol | 25. | U | 50. | U | 50. | U | 53. | U | 56. | U | 11. | U |
| 95-57-8 | 2-Chlorophenol | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 132-64-9 | Dibenzofuran | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 541-73-1 | 1,3-Dichlorobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 121-14-2 | 2,4-Dinitrotoluene | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 106-46-7 | 1,4-Dichlorobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 84-66-2 | Diethylphthalate | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 100-51-6 | Benzyl alcohol | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 7005-72-3 | 4-Chlorophenylphenylether | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 95-50-1 | 1,2-Dichlorobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 86-73-7 | Fluorene | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 95-48-7 | 2-Methylphenol (o-Cresol) | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 100-01-6 | 4-Nitroaniline | 25. | U | 50. | U | 50. | U | 53. | U | 56. | U | 6. | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 534-52-1 | 2-Methyl-4,6-Dinitrophenol | 25. | U | 50. | U | 50. | U | 53. | U | 56. | U | 11. | U |
| 106-44-5 | 4-Methylphenol (p-Cresol) | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 86-30-6 | N-Nitrosodiphenylamine | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 67-72-1 | Hexachloroethane | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 98-95-3 | Nitrobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 118-74-1 | Hexachlorobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 78-59-1 | Isophorone | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 87-86-5 | Pentachlorophenol | 25. | U | 50. | U | 50. | U | 53. | U | 56. | U | 11. | U |
| 88-75-5 | 2-Nitrophenol | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 85-01-8 | Phenanthrene | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 105-67-9 | 2,4-Dimethylphenol | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 120-12-7 | Anthracene | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 65-85-0 | Benzoic acid | 25. | U | 50. | U | 50. | U | 8. | J | 9. | J | 1. | J |
| 84-74-2 | Di-n-butylphthalate | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 111-91-1 | bis(2-Chloroethoxy)methane | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| SM-SV0A | | SAMPLE ID -----> | 009-G-W23D-03 | 009-G-W24D-01 | 009-H-W24D-01 | 009-G-W25D-01 RE | 009-G-W26D-01 | 020-G-DF01-01 | | | | | |
|----------|-----------------------------------|---------------------|---------------|---------------|---------------|------------------|---------------|---------------|-----|-------|-----|-------|-----|
| | | ORIGINAL ID -----> | 009GW23D03 | 009GW24D01 | 009HW24D01 | 009GW25D01 | 009GW26D01 | 020GDF0101 | | | | | |
| | | LAB SAMPLE ID ----> | 38273.01 | 35182.02 | 35182.03 | 35228.06 | 35271.01 | 9906206-03 | | | | | |
| | | ID FROM REPORT --> | 009GW23D03 | 009GW24D01 | 009HW24D01 | 009GW25D01 | 009GW26D01 | 020GDF0101 | | | | | |
| | | SAMPLE DATE -----> | 04/27/99 | 08/10/98 | 08/10/98 | 08/12/98 | 08/13/98 | 06/08/99 | | | | | |
| | | DATE EXTRACTED --> | 04/30/99 | 08/12/98 | 08/12/98 | 08/24/98 | 08/17/98 | 06/15/99 | | | | | |
| | | DATE ANALYZED ----> | 05/05/99 | 08/18/98 | 08/18/98 | 08/27/98 | 08/20/98 | 06/19/99 | | | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | | | |
| CAS # | Parameter | 38273 | VAL | 35007 | VAL | 35007 | VAL | 35210 | VAL | 35271 | VAL | EN016 | VAL |
| 206-44-0 | Fluoranthene | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 120-83-2 | 2,4-Dichlorophenol | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 129-00-0 | Pyrene | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 91-20-3 | Naphthalene | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 85-68-7 | Butylbenzylphthalate | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 106-47-8 | 4-Chloroaniline | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 10. | U | 20. | U | 20. | U | 21. | U | 22. | U | 11. | U |
| 87-68-3 | Hexachlorobutadiene | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 56-55-3 | Benzo(a)anthracene | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 59-50-7 | 4-Chloro-3-methylphenol | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 218-01-9 | Chrysene | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 91-57-6 | 2-Methylnaphthalene | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 117-81-7 | bis(2-Ethylhexyl)phthalate (BEHP) | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 77-47-4 | Hexachlorocyclopentadiene | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 117-84-0 | Di-n-octyl phthalate | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 205-99-2 | Benzo(b)fluoranthene | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 25. | U | 50. | U | 50. | U | 53. | U | 56. | U | 6. | U |
| 207-08-9 | Benzo(k)fluoranthene | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 91-58-7 | 2-Chloronaphthalene | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 50-32-8 | Benzo(a)pyrene | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 88-74-4 | 2-Nitroaniline | 10. | U | 50. | U | 50. | U | 53. | U | 56. | U | 6. | U |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 131-11-3 | Dimethyl phthalate | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 53-70-3 | Dibenz(a,h)anthracene | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 208-96-8 | Acenaphthylene | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 191-24-2 | Benzo(g,h,i)perylene | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |
| 606-20-2 | 2,6-Dinitrotoluene | 10. | U | 10. | U | 10. | U | 10. | U | 11. | U | 6. | U |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| SW-SVOA | | SAMPLE ID -----> | 020-W-DF01-C1 | 020-G-DF02-01 | 020-G-DF03-01 | 020-G-DF04-01 | | | |
|-----------|------------------------------|---------------------|---------------|---------------|---------------|---------------|-----|-------|-----|
| | | ORIGINAL ID -----> | 020WDF01C1 | 020GDF0201 | 020GDF0301 | 020GDF0401 | | | |
| | | LAB SAMPLE ID ----> | 9906364-01 | 9906206-06 | 9906244-03 | 9906244-06 | | | |
| | | ID FROM REPORT --> | 020WDF01C1 | 020GDF0201 | 020GDF0301 | 020GDF0401 | | | |
| | | SAMPLE DATE -----> | 06/14/99 | 06/08/99 | 06/09/99 | 06/09/99 | | | |
| | | DATE EXTRACTED --> | 06/15/99 | 06/15/99 | 06/15/99 | 06/15/99 | | | |
| | | DATE ANALYZED ----> | 06/20/99 | 06/19/99 | 06/20/99 | 06/20/99 | | | |
| | | MATRIX -----> | Water | Water | Water | Water | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | | | |
| CAS # | Parameter | EN016 | VAL | EN016 | VAL | EN016 | VAL | EN016 | VAL |
| 99-09-2 | 3-Nitroaniline | 5. | U | 6. | U | 5. | U | 5. | U |
| 108-95-2 | Phenol | 5. | U | 2. | J | 5. | U | 5. | U |
| 83-32-9 | Acenaphthene | 5. | U | 6. | U | 5. | U | 5. | U |
| 51-28-5 | 2,4-Dinitrophenol | 11. | U | 11. | U | 11. | U | 10. | U |
| 111-44-4 | bis(2-Chloroethyl)ether | 5. | U | 6. | U | 5. | U | 5. | U |
| 100-02-7 | 4-Nitrophenol | 11. | U | 11. | U | 11. | U | 10. | U |
| 95-57-8 | 2-Chlorophenol | 5. | U | 7. | U | 5. | U | 5. | U |
| 132-64-9 | Dibenzofuran | 5. | U | 6. | U | 5. | U | 5. | U |
| 541-73-1 | 1,3-Dichlorobenzene | 5. | U | 6. | U | 5. | U | 5. | U |
| 121-14-2 | 2,4-Dinitrotoluene | 5. | U | 6. | U | 5. | U | 5. | U |
| 106-46-7 | 1,4-Dichlorobenzene | 5. | U | 23. | U | 5. | U | 5. | U |
| 84-66-2 | Diethylphthalate | 5. | U | 6. | U | 5. | U | 5. | U |
| 100-51-6 | Benzyl alcohol | 5. | U | 6. | U | 5. | U | 5. | U |
| 7005-72-3 | 4-Chlorophenylphenylether | 5. | U | 6. | U | 5. | U | 5. | U |
| 95-50-1 | 1,2-Dichlorobenzene | 5. | U | 6. | U | 5. | U | 5. | U |
| 86-73-7 | Fluorene | 5. | U | 6. | U | 5. | U | 5. | U |
| 95-48-7 | 2-Methylphenol (o-Cresol) | 5. | U | 6. | U | 5. | U | 5. | U |
| 100-01-6 | 4-Nitroaniline | 5. | U | 6. | U | 5. | U | 5. | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 5. | U | 6. | U | 5. | U | 5. | U |
| 534-52-1 | 2-Methyl-4,6-Dinitrophenol | 11. | U | 11. | U | 11. | U | 10. | U |
| 106-44-5 | 4-Methylphenol (p-Cresol) | 5. | U | 1. | J | 5. | U | 5. | U |
| 86-30-6 | N-Nitrosodiphenylamine | 5. | U | 6. | U | 5. | U | 5. | U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 5. | U | 6. | U | 5. | U | 5. | U |
| 67-72-1 | Hexachloroethane | 5. | U | 6. | U | 5. | U | 5. | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 5. | U | 6. | U | 5. | U | 5. | U |
| 98-95-3 | Nitrobenzene | 5. | U | 6. | U | 5. | U | 5. | U |
| 118-74-1 | Hexachlorobenzene | 5. | U | 6. | U | 5. | U | 5. | U |
| 78-59-1 | Isophorone | 5. | U | 6. | U | 5. | U | 5. | U |
| 87-86-5 | Pentachlorophenol | 11. | U | 11. | U | 11. | U | 10. | U |
| 88-75-5 | 2-Nitrophenol | 5. | U | 6. | U | 5. | U | 5. | U |
| 85-01-8 | Phenanthrene | 5. | U | 6. | U | 5. | U | 5. | U |
| 105-67-9 | 2,4-Dimethylphenol | 5. | U | 6. | U | 5. | U | 5. | U |
| 120-12-7 | Anthracene | 5. | U | 6. | U | 5. | U | 5. | U |
| 65-85-0 | Benzoic acid | 1. | J | 8. | J | 3. | J | 2. | J |
| 84-74-2 | Di-n-butylphthalate | 5. | U | 6. | U | 5. | U | 5. | U |
| 111-91-1 | bis(2-Chloroethoxy)methane | 5. | U | 6. | U | 5. | U | 5. | U |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| SW-SVOA | | SAMPLE ID -----> | | 020-W-DF01-C1 | | 020-G-DF02-01 | | 020-G-DF03-01 | | 020-G-DF04-01 | |
|---------------------|-----------------------------------|------------------|-----|---------------|-----|---------------|-----|---------------|-----|---------------|--|
| ORIGINAL ID -----> | | 020WDF01C1 | | 020GDF0201 | | 020GDF0301 | | 020GDF0401 | | | |
| LAB SAMPLE ID ----> | | 9906364-01 | | 9906206-06 | | 9906244-03 | | 9906244-06 | | | |
| ID FROM REPORT --> | | 020WDF01C1 | | 020GDF0201 | | 020GDF0301 | | 020GDF0401 | | | |
| SAMPLE DATE -----> | | 06/14/99 | | 06/08/99 | | 06/09/99 | | 06/09/99 | | | |
| DATE EXTRACTED --> | | 06/15/99 | | 06/15/99 | | 06/15/99 | | 06/15/99 | | | |
| DATE ANALYZED ----> | | 06/20/99 | | 06/19/99 | | 06/20/99 | | 06/20/99 | | | |
| MATRIX -----> | | Water | | Water | | Water | | Water | | | |
| UNITS -----> | | UG/L | | UG/L | | UG/L | | UG/L | | | |
| CAS # | Parameter | EN016 | VAL | EN016 | VAL | EN016 | VAL | EN016 | VAL | | |
| 206-44-0 | Fluoranthene | 5. | U | 6. | U | 5. | U | 5. | U | | |
| 120-83-2 | 2,4-Dichlorophenol | 5. | U | 1. | J | 5. | U | 5. | U | | |
| 120-82-1 | 1,2,4-Trichlorobenzene | 5. | U | 6. | U | 5. | U | 5. | U | | |
| 129-00-0 | Pyrene | 5. | U | 6. | U | 5. | U | 5. | U | | |
| 91-20-3 | Naphthalene | 5. | U | 6. | U | 5. | U | 5. | U | | |
| 85-68-7 | Butylbenzylphthalate | 5. | U | 6. | U | 5. | U | 5. | U | | |
| 106-47-8 | 4-Chloroaniline | 5. | U | 6. | U | 5. | U | 5. | U | | |
| 91-94-1 | 3,3'-Dichlorobenzidine | 11. | U | 11. | U | 11. | U | 10. | U | | |
| 87-68-3 | Hexachlorobutadiene | 5. | U | 6. | U | 5. | U | 5. | U | | |
| 56-55-3 | Benzo(a)anthracene | 5. | U | 6. | U | 5. | U | 5. | U | | |
| 59-50-7 | 4-Chloro-3-methylphenol | 5. | U | 6. | U | 5. | U | 5. | U | | |
| 218-01-9 | Chrysene | 5. | U | 6. | U | 5. | U | 5. | U | | |
| 91-57-6 | 2-Methylnaphthalene | 5. | U | 6. | U | 5. | U | 5. | U | | |
| 117-81-7 | bis(2-Ethylhexyl)phthalate (BEHP) | 5. | U | 6. | U | 5. | U | 5. | U | | |
| 77-47-4 | Hexachlorocyclopentadiene | 5. | U | 6. | U | 5. | U | 5. | U | | |
| 117-84-0 | Di-n-octyl phthalate | 5. | U | 6. | U | 5. | U | 5. | U | | |
| 88-06-2 | 2,4,6-Trichlorophenol | 5. | U | 6. | U | 5. | U | 5. | U | | |
| 205-99-2 | Benzo(b)fluoranthene | 5. | U | 6. | U | 5. | U | 5. | U | | |
| 95-95-4 | 2,4,5-Trichlorophenol | 5. | U | 6. | U | 5. | U | 5. | U | | |
| 207-08-9 | Benzo(k)fluoranthene | 5. | U | 6. | U | 5. | U | 5. | U | | |
| 91-58-7 | 2-Chloronaphthalene | 5. | U | 6. | U | 5. | U | 5. | U | | |
| 50-32-8 | Benzo(a)pyrene | 5. | U | 6. | U | 5. | U | 5. | U | | |
| 88-74-4 | 2-Nitroaniline | 5. | U | 6. | U | 5. | U | 5. | U | | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 5. | U | 6. | U | 5. | U | 5. | U | | |
| 131-11-3 | Dimethyl phthalate | 5. | U | 6. | U | 5. | U | 5. | U | | |
| 53-70-3 | Dibenz(a,h)anthracene | 5. | U | 6. | U | 5. | U | 5. | U | | |
| 208-96-8 | Acenaphthylene | 5. | U | 6. | U | 5. | U | 5. | U | | |
| 191-24-2 | Benzo(g,h,i)perylene | 5. | U | 6. | U | 5. | U | 5. | U | | |
| 606-20-2 | 2,6-Dinitrotoluene | 5. | U | 6. | U | 5. | U | 5. | U | | |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| SW-VDA | | SAMPLE ID -----> | 009-G-W01D-01 | 009-H-W01D-01 | 009-G-W020-01 | 009-G-W021-01 | 009-G-W022-01 | 009-G-W023-01 | | | |
|------------|-----------------------------|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|-----|-------|-----|
| | | ORIGINAL ID -----> | 009GW01D01 | 009HW01001 | 009GW02001 | 009GW02101 | 009GW02201 | 009GW02301 | | | |
| | | LAB SAMPLE ID ---> | 35228.01 | 35228.02 | 35210.04 | 35210.08 | 35228.03 | 35210.02 | | | |
| | | ID FROM REPORT ---> | 009GW01D01 | 009HW01D01 | 009GW02001 | 009GW02101 | 009GW02201 | 009GW02301 | | | |
| | | SAMPLE DATE -----> | 08/11/98 | 08/11/98 | 08/11/98 | 08/11/98 | 08/11/98 | 08/11/98 | | | |
| | | DATE ANALYZED ---> | 08/17/98 | 08/17/98 | 08/13/98 | 08/14/98 | 08/17/98 | 08/13/98 | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | |
| CAS # | Parameter | 35210 | VAL | 35210 | VAL | 35210 | VAL | 35210 | VAL | 35210 | VAL |
| 74-87-3 | Chloromethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 74-83-9 | Bromomethane | 5. | U | 5. | U | 5. | UJ | 5. | U | 5. | UJ |
| 75-01-4 | Vinyl chloride | 5. | U | 5. | U | 5. | U | 5. | U | 50. | U |
| 75-00-3 | Chloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-09-2 | Methylene chloride | 12. | U | 11. | U | 5. | U | 5. | U | 5. | U |
| 67-64-1 | Acetone | 5. | UR | 5. | UR | 5. | UR | 5. | UR | 21. | U |
| 75-15-0 | Carbon disulfide | 5. | U | 5. | U | 5. | J | 5. | UJ | 5. | UJ |
| 75-35-4 | 1,1-Dichloroethene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-34-3 | 1,1-Dichloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 5. | U | 5. | U | 5. | UJ | 49. | J | 5. | U |
| 67-66-3 | Chloroform | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 107-06-2 | 1,2-Dichloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 78-93-3 | 2-Butanone (MEK) | 5. | UR | 5. | UJ | 5. | U | 5. | U | 5. | UJ |
| 71-55-6 | 1,1,1-Trichloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 56-23-5 | Carbon tetrachloride | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 108-05-4 | Vinyl acetate | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-27-4 | Bromodichloromethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 78-87-5 | 1,2-Dichloropropane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 79-01-6 | Trichloroethene | 5. | U | 5. | U | 5. | U | 5. | U | 24. | U |
| 124-48-1 | Dibromochloromethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 71-43-2 | Benzene | 5. | U | 5. | U | 61. | U | 36. | U | 5. | U |
| 75-25-2 | Bromoform | 5. | UJ | 5. | UJ | 5. | U | 5. | U | 5. | UJ |
| 108-10-1 | 4-Methyl-2-Pentanone (MIBK) | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 591-78-6 | 2-Hexanone | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 127-18-4 | Tetrachloroethene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 108-88-3 | Toluene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 108-90-7 | Chlorobenzene | 5. | U | 5. | U | 5100. | D | 4300. | D | 5. | U |
| 100-41-4 | Ethylbenzene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 100-42-5 | Styrene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 1330-20-7 | Xylene (Total) | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 110-75-8 | 2-Chloroethyl vinyl ether | 5. | UR | 5. | UR | 5. | U | 5. | U | 5. | UR |
| 156-59-2 | cis-1,2-Dichloroethene | NR | | NR | | NR | | NR | | NR | |
| 156-60-5 | trans-1,2-Dichloroethene | NR | | NR | | NR | | NR | | NR | |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY '96

| SW-VOA | | SAMPLE ID -----> | 009-G-W010-01 | 009-H-W010-01 | 009-G-W020-01 | 009-G-W021-01 | 009-G-W022-01 | 009-G-W023-01 | | | |
|-----------|-------------------------|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|-----|-------|-----|
| | | ORIGINAL ID -----> | 009GW01D01 | 009HW01D01 | 009GW02D01 | 009GW021D1 | 009GW022D1 | 009GW023D1 | | | |
| | | LAB SAMPLE ID ----> | 35228.01 | 35228.02 | 35210.04 | 35210.08 | 35228.03 | 35210.02 | | | |
| | | ID FROM REPORT --> | 009GW01D01 | 009HW01D01 | 009GW02D01 | 009GW021D1 | 009GW022D1 | 009GW023D1 | | | |
| | | SAMPLE DATE -----> | 08/11/98 | 08/11/98 | 08/11/98 | 08/11/98 | 08/11/98 | 08/11/98 | | | |
| | | DATE ANALYZED ----> | 08/17/98 | 08/17/98 | 08/13/98 | 08/14/98 | 08/17/98 | 08/13/98 | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | |
| CAS # | Parameter | 35210 | VAL | 35210 | VAL | 35210 | VAL | 35210 | VAL | 35210 | VAL |
| 1634-04-4 | Methyl tert-butyl ether | | NR | | NR | | NR | | NR | | NR |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| SW-VDA | | SAMPLE ID -----> | 009-G-W025-01 | 009-G-W026-01 | 009-G-W027-01 | 009-G-W028-01 | 009-G-W029-01 | 009-G-W030-01 | | | | | |
|------------|-----------------------------|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|-----|-------|-----|-------|-----|
| | | ORIGINAL ID -----> | 009GW02501 | 009GW02601 | 009GW02701 | 009GW02801 | 009GW02901 | 009GW03001 | | | | | |
| | | LAB SAMPLE ID ----> | 35228.08 | 35269.01 | 35228.07 | 35228.05 | 35269.02 | 35228.09 | | | | | |
| | | ID FROM REPORT --> | 009GW02501 | 009GW02601 | 009GW02701 | 009GW02801 | 009GW02901 | 009GW03001 | | | | | |
| | | SAMPLE DATE -----> | 08/12/98 | 08/13/98 | 08/12/98 | 08/12/98 | 08/13/98 | 08/12/98 | | | | | |
| | | DATE ANALYZED ----> | 08/18/98 | 08/18/98 | 08/17/98 | 08/17/98 | 08/18/98 | 08/17/98 | | | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | | | |
| CAS # | Parameter | 35210 | VAL | 35269 | VAL | 35210 | VAL | 35210 | VAL | 35269 | VAL | 35210 | VAL |
| 74-87-3 | Chloromethane | 5. | UJ | 5. | UJ | 5. | U | 5. | U | 5. | UJ | 5. | U |
| 74-83-9 | Bromomethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-01-4 | Vinyl chloride | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-00-3 | Chloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-09-2 | Methylene chloride | 27. | UJ | 28. | J | 10. | U | 11. | U | 27. | J | 10. | U |
| 67-64-1 | Acetone | 5. | UR | 5. | UR | 5. | UR | 5. | UR | 5. | UR | 5. | UR |
| 75-15-0 | Carbon disulfide | 5. | U | 5. | U | 5. | U | 5. | U | 2. | J | 5. | U |
| 75-35-4 | 1,1-Dichloroethene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-34-3 | 1,1-Dichloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 67-66-3 | Chloroform | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 107-06-2 | 1,2-Dichloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 78-93-3 | 2-Butanone (MEK) | 5. | UJ | 5. | UJ | 5. | UJ | 5. | UJ | 5. | UJ | 5. | UJ |
| 71-55-6 | 1,1,1-Trichloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 56-23-5 | Carbon tetrachloride | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 108-05-4 | Vinyl acetate | 5. | UJ | 5. | UJ | 5. | U | 5. | U | 5. | UJ | 5. | U |
| 75-27-4 | Bromodichloromethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 78-87-5 | 1,2-Dichloropropane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 79-01-6 | Trichloroethene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 124-48-1 | Dibromochloromethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 71-43-2 | Benzene | 3. | J | 17. | | 6. | | 2. | J | 5. | U | 25. | |
| 75-25-2 | Bromoform | 5. | UJ | 5. | UJ | 5. | UJ | 5. | UJ | 5. | UJ | 5. | UJ |
| 108-10-1 | 4-Methyl-2-Pentanone (MIBK) | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 591-78-6 | 2-Hexanone | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 127-18-4 | Tetrachloroethene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 108-88-3 | Toluene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 108-90-7 | Chlorobenzene | 22. | | 80. | | 14. | | 20. | | 19. | | 80. | |
| 100-41-4 | Ethylbenzene | 1. | J | 5. | U | 5. | U | 5. | U | 5. | U | 5. | J |
| 100-42-5 | Styrene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 1330-20-7 | Xylene (Total) | 5. | UJ | 5. | UJ | 5. | U | 5. | U | 5. | UJ | 9. | |
| 110-75-8 | 2-Chloroethyl vinyl ether | 5. | UR | 5. | UR | 5. | UR | 5. | UR | 5. | UR | 5. | UR |
| 156-59-2 | cis-1,2-Dichloroethene | NR | | NR | | NR | | NR | | NR | | NR | |
| 156-60-5 | trans-1,2-Dichloroethene | NR | | NR | | NR | | NR | | NR | | NR | |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| SM-VDA | | SAMPLE ID -----> | 009-G-W025-01 | 009-G-W026-01 | 009-G-W027-01 | 009-G-W028-01 | 009-G-W029-01 | 009-G-W030-01 | | | | | |
|-----------|-------------------------|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|-----|-------|-----|-------|-----|
| | | ORIGINAL ID -----> | 009GW02501 | 009GW02601 | 009GW02701 | 009GW02801 | 009GW02901 | 009GW03001 | | | | | |
| | | LAB SAMPLE ID ----> | 35228.08 | 35269.01 | 35228.07 | 35228.05 | 35269.02 | 35228.09 | | | | | |
| | | ID FROM REPORT --> | 009GW02501 | 009GW02601 | 009GW02701 | 009GW02801 | 009GW02901 | 009GW03001 | | | | | |
| | | SAMPLE DATE -----> | 08/12/98 | 08/13/98 | 08/12/98 | 08/12/98 | 08/13/98 | 08/12/98 | | | | | |
| | | DATE ANALYZED ----> | 08/18/98 | 08/18/98 | 08/17/98 | 08/17/98 | 08/18/98 | 08/17/98 | | | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | | | |
| CAS # | Parameter | 35210 | VAL | 35269 | VAL | 35210 | VAL | 35210 | VAL | 35269 | VAL | 35210 | VAL |
| 1634-04-4 | Methyl tert-butyl ether | | NR | | NR | | NR | | NR | | NR | | NR |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| SW-VOA | | SAMPLE ID -----> | 009-G-W23D-01 | 009-G-W25D-01 | 009-G-W26D-01 | | |
|------------|-----------------------------|--------------------|---------------|---------------|---------------|-------|-----|
| | | ORIGINAL ID -----> | 009GW23D01 | 009GW25D01 | 009GW26D01 | | |
| | | LAB SAMPLE ID ---> | 35210.01 | 35228.06 | 35271.01 | | |
| | | ID FROM REPORT --> | 009GW23D01 | 009GW25D01 | 009GW26D01 | | |
| | | SAMPLE DATE -----> | 08/11/98 | 08/12/98 | 08/13/98 | | |
| | | DATE ANALYZED ---> | 08/13/98 | 08/17/98 | 08/18/98 | | |
| | | MATRIX -----> | Water | Water | Water | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | | |
| CAS # | Parameter | 35210 | VAL | 35210 | VAL | 35271 | VAL |
| 74-87-3 | Chloromethane | 5. | U | 5. | U | 5. | U |
| 74-83-9 | Bromomethane | 5. | UJ | 5. | U | 5. | U |
| 75-01-4 | Vinyl chloride | 5. | U | 5. | U | 5. | U |
| 75-00-3 | Chloroethane | 5. | U | 5. | U | 5. | UJ |
| 75-09-2 | Methylene chloride | 5. | U | 10. | U | 23. | U |
| 67-64-1 | Acetone | 5. | UR | 5. | UR | 5. | UR |
| 75-15-0 | Carbon disulfide | 5. | UJ | 1. | J | 5. | U |
| 75-35-4 | 1,1-Dichloroethene | 5. | U | 5. | U | 5. | U |
| 75-34-3 | 1,1-Dichloroethane | 5. | U | 5. | U | 5. | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 5. | UJ | 5. | U | 5. | U |
| 67-66-3 | Chloroform | 5. | U | 5. | U | 5. | U |
| 107-06-2 | 1,2-Dichloroethane | 5. | U | 5. | U | 5. | U |
| 78-93-3 | 2-Butanone (MEK) | 5. | U | 5. | UJ | 5. | UJ |
| 71-55-6 | 1,1,1-Trichloroethane | 5. | U | 5. | U | 5. | U |
| 56-23-5 | Carbon tetrachloride | 5. | U | 5. | U | 5. | U |
| 108-05-4 | Vinyl acetate | 5. | U | 5. | U | 5. | UJ |
| 75-27-4 | Bromodichloromethane | 5. | U | 5. | U | 5. | U |
| 78-87-5 | 1,2-Dichloropropane | 5. | U | 5. | U | 5. | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 5. | U | 5. | U | 5. | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 5. | U | 5. | U | 5. | U |
| 79-01-6 | Trichloroethene | 5. | U | 5. | U | 5. | U |
| 124-48-1 | Dibromochloromethane | 5. | U | 5. | U | 5. | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5. | U | 5. | U | 5. | U |
| 71-43-2 | Benzene | 5. | U | 5. | U | 5. | U |
| 75-25-2 | Bromoform | 5. | U | 5. | U | 5. | UJ |
| 108-10-1 | 4-Methyl-2-Pentanone (MIBK) | 5. | U | 5. | UJ | 5. | U |
| 591-78-6 | 2-Hexanone | 5. | U | 5. | U | 5. | U |
| 127-18-4 | Tetrachloroethene | 5. | U | 5. | U | 5. | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 5. | U | 5. | U | 5. | U |
| 108-88-3 | Toluene | 5. | U | 5. | U | 5. | U |
| 108-90-7 | Chlorobenzene | 5. | U | 5. | U | 5. | U |
| 100-41-4 | Ethylbenzene | 5. | U | 5. | U | 5. | U |
| 100-42-5 | Styrene | 5. | U | 5. | U | 5. | U |
| 1330-20-7 | Xylene (Total) | 5. | U | 5. | U | 5. | U |
| 110-75-8 | 2-Chloroethyl vinyl ether | 5. | U | 5. | UR | 5. | UR |
| 156-59-2 | cis-1,2-Dichloroethene | NR | | NR | | NR | |
| 156-60-5 | trans-1,2-Dichloroethene | NR | | NR | | NR | |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| SW-VOA | | SAMPLE ID -----> | 009-G-W23D-01 | 009-G-W25D-01 | 009-G-W26D-01 | | | |
|-----------|-------------------------|---------------------|---------------|---------------|---------------|-------|-----|--|
| | | ORIGINAL ID -----> | 009GW23D01 | 009GW25D01 | 009GW26D01 | | | |
| | | LAB SAMPLE ID ----> | 35210.01 | 35228.06 | 35271.01 | | | |
| | | ID FROM REPORT --> | 009GW23D01 | 009GW25D01 | 009GW26D01 | | | |
| | | SAMPLE DATE -----> | 08/11/98 | 08/12/98 | 08/13/98 | | | |
| | | DATE ANALYZED ---> | 08/13/98 | 08/17/98 | 08/18/98 | | | |
| | | MATRIX -----> | Water | Water | Water | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | | | |
| CAS # | Parameter | 35210 | VAL | 35210 | VAL | 35271 | VAL | |
| 1634-04-4 | Methyl tert-butyl ether | | NR | | NR | | NR | |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| SUB846-DIOX | | SAMPLE ID -----> | 009-G-W001-C1 | 009-G-W004-C1 | 009-G-W008-C1 | 009-G-W013-C1 | 009-G-W024-C1 | | | | |
|-------------|---------------------|---------------------|---------------|---------------|---------------|---------------|---------------|---------|-----|--------|-----|
| | | ORIGINAL ID -----> | 009GW001C1 | 009GW004C1 | 009GW008C1 | 009GW013C1 | 009GW024C1 | | | | |
| | | LAB SAMPLE ID ----> | 40782.03 | 40782.02 | 40782.04 | 40799.03 | 40782.01 | | | | |
| | | ID FROM REPORT --> | 009GW001C1 | 009GW004C1 | 009GW008C1 | 009GW013C1 | 009GW024C1 | | | | |
| | | SAMPLE DATE -----> | 10/19/99 | 10/19/99 | 10/19/99 | 10/20/99 | 10/19/99 | | | | |
| | | DATE EXTRACTED --> | 10/20/99 | 10/20/99 | 10/20/99 | 10/22/99 | 10/20/99 | | | | |
| | | DATE ANALYZED ----> | 11/01/99 | 11/02/99 | 11/01/99 | 11/02/99 | 10/29/99 | | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | | | | |
| | | UNITS -----> | PG/L | PG/L | PG/L | PG/L | PG/L | | | | |
| CAS # | Parameter | 40782 | VAL | 40782 | VAL | 40782 | VAL | 40799 | VAL | 40782 | VAL |
| 1746-01-6 | 2378-TCDD | 19.365 | U | 13.027 | U | 13.775 | U | 3.23 | U | 7.407 | U |
| 40321-76-4 | 12378-PeCDD | 17.549 | U | 26.021 | U | 21.398 | U | 3.643 | U | 21.087 | U |
| 39227-28-6 | 123478-HxCDD | 26.167 | U | 27.221 | U | 14.649 | U | 2.979 | U | 19.022 | U |
| 57653-85-7 | 123678-HxCDD | 17.618 | U | 18.327 | U | 9.863 | U | 3.025 | U | 12.807 | U |
| 19408-74-3 | 123789-HxCDD | 20.196 | U | 21.008 | U | 11.306 | U | 2.919 | U | 14.681 | U |
| 35822-46-9 | 1234678-HpCDD | 13.123 | U | 15.096 | U | 11.757 | U | 10.082 | | 10.833 | U |
| 3268-87-9 | OCDD | 15.173 | U | 4.535 | U | 9.104 | U | 170.535 | | 22.837 | J |
| 51207-31-9 | 2378-TCDF | 15.435 | U | 17.867 | U | 19.335 | U | 2.146 | U | 5.794 | U |
| 57117-41-6 | 12378-PeCDF | 13.31 | U | 13.789 | U | 13.774 | U | 2.025 | U | 7.868 | U |
| 57117-31-4 | 23478-PeCDF | 13.457 | U | 13.941 | U | 13.927 | U | 2.038 | U | 7.955 | U |
| 70648-26-9 | 123478-HxCDF | 7.437 | U | 5.839 | U | 6.889 | U | 2.814 | U | 6.813 | U |
| 57117-44-9 | 123678-HxCDF | 5.578 | U | 4.379 | U | 5.166 | U | 2.856 | U | 5.109 | U |
| 72918-21-9 | 123789-HxCDF | 8.83 | U | 6.932 | U | 8.178 | U | 3.752 | U | 8.088 | U |
| 60851-34-5 | 234678-HxCDF | 6.522 | U | 5.12 | U | 6.041 | U | 2.803 | U | 5.974 | U |
| 67562-39-4 | 1234678-HpCDF | 6.048 | U | 8.333 | U | 9.322 | U | 3.233 | U | 4.466 | U |
| 55673-89-7 | 1234789-HpCDF | 8.518 | U | 11.735 | U | 13.129 | U | 4.97 | U | 6.289 | U |
| 39001-02-0 | OCDF | 19.31 | U | 8.223 | U | 12.038 | U | 6.328 | U | 12.117 | U |
| 41903-57-5 | Total Tetra-Dioxins | 19.365 | U | 13.027 | U | 13.775 | U | 3.23 | U | 7.407 | U |
| 36088-22-9 | Total Penta-Dioxins | 17.549 | U | 26.021 | U | 21.398 | U | 3.643 | U | 21.087 | U |
| 34465-46-8 | Total Hexa-Dioxins | 17.618 | U | 18.327 | U | 9.863 | U | 3.025 | U | 12.807 | U |
| 37871-00-4 | Total Hepta-Dioxins | 13.123 | U | 15.096 | U | 11.757 | U | 10.082 | | 10.833 | U |
| 55722-27-5 | Total Tetra-Furans | 15.435 | U | 17.867 | U | 19.335 | U | 2.146 | U | 5.794 | U |
| 30602-15-4 | Total Penta-Furans | 13.457 | U | 13.941 | U | 13.927 | U | 2.038 | U | 7.955 | U |
| 55684-94-1 | Total Hexa-Furans | 5.578 | U | 4.379 | U | 5.166 | U | 2.856 | U | 5.109 | U |
| 38998-75-3 | Total Hepta-Furans | 6.048 | U | 8.333 | U | 9.322 | U | 3.233 | U | 4.466 | U |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| | | | | | | | |
|-------------------|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| SW846-META | SAMPLE ID -----> | 009-G-W001-C1 | 009-G-W004-C1 | 009-G-W008-C1 | 009-G-W013-C1 | 009-G-W01D-01 | 009-H-W01D-01 |
| | ORIGINAL ID -----> | 009GW001C1 | 009GW004C1 | 009GW008C1 | 009GW013C1 | 009GW01D01 | 009HW01D01 |
| | LAB SAMPLE ID ----> | 40782.03 | 40782.02 | 40782.04 | 40799.03 | 35228.01 | 35228.02 |
| | ID FROM REPORT --> | 009GW001C1 | 009GW004C1 | 009GW008C1 | 009GW013C1 | 009GW01D01 | 009HW01D01 |
| | SAMPLE DATE -----> | 10/19/99 | 10/19/99 | 10/19/99 | 10/20/99 | 08/11/98 | 08/11/98 |
| | DATE EXTRACTED --> | 10/27/99 | 10/27/99 | 10/27/99 | 10/27/99 | 08/21/98 | 08/21/98 |
| | DATE ANALYZED ----> | 10/28/99 | 10/28/99 | 10/28/99 | 10/28/99 | 09/03/98 | 09/03/98 |
| | MATRIX -----> | Water | Water | Water | Water | Water | Water |
| UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | |

| CAS # | Parameter | 40782 | VAL | 40782 | VAL | 40782 | VAL | 40799 | VAL | 35210 | VAL | 35210 | VAL |
|-----------|----------------|----------|-----|----------|-----|----------|-----|----------|-----|----------|-----|----------|-----|
| 7429-90-5 | Aluminum (Al) | 56.1 | J | 32.1 | U | 32.1 | U | 247. | | 255. | U | 86.2 | U |
| 7440-36-0 | Antimony (Sb) | 5. | U | 5. | U | 5. | U | 5. | U | 2.7 | U | 5.3 | U |
| 7440-38-2 | Arsenic (As) | 3.3 | U | 3.3 | U | 15.7 | J | 3.3 | U | 3.6 | U | 5.6 | U |
| 7440-39-3 | Barium (Ba) | 469. | J | 265. | J | 254. | J | 222. | | 174. | | 173. | |
| 7440-41-7 | Beryllium (Be) | 0.3 | U | 1.1 | | 0.53 | J | 0.37 | J | 0.53 | U | 0.51 | U |
| 7440-43-9 | Cadmium (Cd) | 0.35 | J | 0.3 | U |
| 7440-70-2 | Calcium (Ca) | 71300. | J | 448000. | J | 353000. | J | 211000. | | 450000. | | 443000. | |
| 7440-47-3 | Chromium (Cr) | 3.1 | U | 1.7 | U | 1.4 | U | 6.1 | J | 2.3 | U | 0.7 | U |
| 7440-48-4 | Cobalt (Co) | 1.7 | U | 1.7 | U | 1.7 | U | 1.7 | U | 1. | U | 1. | U |
| 7440-50-8 | Copper (Cu) | 5.3 | U | 1. | U | 1. | U | 6.2 | J | 5.8 | U | 1.9 | U |
| 7439-89-6 | Iron (Fe) | 561. | | 24.2 | U | 26900. | | 7650. | | 2610. | | 2450. | |
| 7439-92-1 | Lead (Pb) | 3. | J | 2.1 | U | 2.1 | U | 2.1 | U | 1.5 | U | 1.5 | U |
| 7439-95-4 | Magnesium (Mg) | 23600. | J | 1070000. | J | 283000. | J | 140000. | | 352000. | | 356000. | |
| 7439-96-5 | Manganese (Mn) | 62.3 | | 341. | | 1190. | | 610. | | 617. | | 613. | |
| 7439-97-6 | Mercury (Hg) | 0.14 | J | 0.1 | J | 0.1 | J | 0.1 | U | 0.12 | J | 0.11 | J |
| 7440-02-0 | Nickel (Ni) | 9.1 | | 1.8 | J | 1.3 | J | 1.1 | J | 2.7 | U | 2.1 | U |
| 7440-09-7 | Potassium (K) | 109000. | J | 296000. | J | 63500. | J | 69500. | | 103000. | | 102000. | |
| 7782-49-2 | Selenium (Se) | 2.9 | U | 2.9 | U | 2.9 | U | 2.9 | U | 3.1 | UJ | 3.1 | UJ |
| 7440-22-4 | Silver (Ag) | 2. | U | 2. | U | 2. | U | 2. | U | 1.4 | U | 1.4 | U |
| 7440-23-5 | Sodium (Na) | 1070000. | J | 9540000. | J | 2810000. | J | 1100000. | | 4240000. | J | 4070000. | J |
| 7440-28-0 | Thallium (Tl) | 2.3 | U | 2.3 | U | 2.3 | U | 2.3 | U | 3.1 | U | 3.3 | U |
| 7440-62-2 | Vanadium (V) | 1.2 | J | 0.9 | U | 1.2 | J | 4.9 | J | 2. | U | 1.3 | U |
| 7440-66-6 | Zinc (Zn) | 16.2 | U | 2.9 | U | 2.9 | U | 16.6 | J | 10.2 | J | 9.7 | J |
| 7440-31-5 | Tin (Sn) | 29.5 | U | 29.5 | U | 29.5 | U | 29.5 | U | 22. | UJ | 22. | UJ |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| SW846-META | | SAMPLE ID -----> | 009-G-W020-01 | 009-G-W020-F1 | 009-G-W021-01 | 009-G-W022-01 | 009-G-W022-F1 | 009-G-W023-01 | | | | | |
|------------|----------------|-----------------------|---------------|---------------|---------------|---------------|---------------|---------------|-----|---------|-----|--------|----|
| | | ORIGINAL ID -----> | 009GW02001 | 009GW020F1 | 009GW02101 | 009GW02201 | 009GW022F1 | 009GW02301 | | | | | |
| | | LAB SAMPLE ID -----> | 35210.04 | 35210.05 | 35210.08 | 35228.03 | 35228.04 | 35210.02 | | | | | |
| | | ID FROM REPORT -----> | 009GW02001 | 009GW020F1 | 009GW02101 | 009GW02201 | 009GW022F1 | 009GW02301 | | | | | |
| | | SAMPLE DATE -----> | 08/11/98 | 08/11/98 | 08/11/98 | 08/11/98 | 08/11/98 | 08/11/98 | | | | | |
| | | DATE EXTRACTED -----> | 08/21/98 | 08/21/98 | 08/21/98 | 08/21/98 | 08/21/98 | 08/21/98 | | | | | |
| | | DATE ANALYZED -----> | 09/03/98 | 09/03/98 | 09/03/98 | 09/03/98 | 09/03/98 | 09/03/98 | | | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | | | |
| CAS # | Parameter | 35210 | VAL | 35210 | VAL | 35210 | VAL | 35210 | VAL | 35210 | VAL | | |
| 7429-90-5 | Aluminum (Al) | 2590. | | 6740. | | 331. | | 2500. | | 1310. | | 5970. | |
| 7440-36-0 | Antimony (Sb) | 4.4 | U | 5.4 | U | 4.2 | U | 3.2 | U | 3. | U | 4.3 | U |
| 7440-38-2 | Arsenic (As) | 17.8 | | 28.5 | | 17.8 | | 20.5 | | 10.7 | U | 21.6 | |
| 7440-39-3 | Barium (Ba) | 97.4 | | 117. | | 161. | | 125. | | 105. | | 114. | |
| 7440-41-7 | Beryllium (Be) | 0.33 | U | 0.63 | U | 0.26 | U | 0.39 | U | 0.3 | U | 0.29 | U |
| 7440-43-9 | Cadmium (Cd) | 0.3 | U | 1.1 | U | 0.58 | U | 1.5 | U | 0.3 | U | 0.3 | U |
| 7440-70-2 | Calcium (Ca) | 71200. | | 79800. | | 125000. | | 34300. | | 28000. | | 71700. | |
| 7440-47-3 | Chromium (Cr) | 5.5 | U | 15.7 | | 0.71 | U | 4.6 | U | 2. | U | 13.5 | |
| 7440-48-4 | Cobalt (Co) | 8.2 | J | 9.3 | J | 5.2 | U | 1.7 | U | 1.1 | U | 4.4 | U |
| 7440-50-8 | Copper (Cu) | 7.6 | U | 13.7 | U | 6. | U | 6.8 | U | 10.5 | U | 8.6 | U |
| 7439-89-6 | Iron (Fe) | 13000. | | 15500. | | 1520. | | 4980. | | 1520. | | 11900. | |
| 7439-92-1 | Lead (Pb) | 5. | | 13.5 | | 2.9 | J | 14.1 | | 1.5 | U | 4.3 | |
| 7439-95-4 | Magnesium (Mg) | 37800. | | 36000. | | 59400. | | 8010. | | 8150. | | 21600. | |
| 7439-96-5 | Manganese (Mn) | 1680. | | 1290. | | 1040. | | 117. | | 101. | | 657. | |
| 7439-97-6 | Mercury (Hg) | 0.13 | J | 0.12 | J | 0.13 | J | 0.12 | J | 0.69 | | 0.11 | J |
| 7440-02-0 | Nickel (Ni) | 4.9 | U | 7.1 | J | 3.9 | U | 6.8 | J | 7.7 | J | 5.5 | U |
| 7440-09-7 | Potassium (K) | 23900. | | 22100. | | 36600. | | 9420. | | 9870. | | 6470. | |
| 7782-49-2 | Selenium (Se) | 3.1 | UJ | 3.1 | UJ | 3.1 | UJ | 3.1 | UJ | 3.1 | UJ | 3.1 | UJ |
| 7440-22-4 | Silver (Ag) | 1.4 | U | 1.4 | U | 1.4 | U | 1.4 | U | 1.4 | U | 1.4 | U |
| 7440-23-5 | Sodium (Na) | 248000. | J | 184000. | J | 610000. | J | 146000. | J | 137000. | J | 17300. | J |
| 7440-28-0 | Thallium (Tl) | 3.1 | U | 3.1 | U | 3.1 | U | 3.1 | U | 3.4 | U | 3.1 | U |
| 7440-62-2 | Vanadium (V) | 10.5 | J | 23.6 | | 1.9 | U | 9.5 | J | 10.3 | J | 17.8 | J |
| 7440-66-6 | Zinc (Zn) | 51.3 | | 66.3 | | 54. | | 27. | | 12.2 | J | 20.1 | |
| 7440-31-5 | Tin (Sn) | 22. | UJ | 22. | UJ | 22. | UJ | 22. | UJ | 22. | UJ | 22. | UJ |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9, 19, 20, 121, 649, 650, 651 POST JULY '96

| | | | | | | | |
|------------|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| SW846-META | SAMPLE ID -----> | 009-G-W023-F1 | 009-G-W024-01 | 009-G-W024-C1 | 009-G-W025-01 | 009-G-W026-01 | 009-G-W027-01 |
| | ORIGINAL ID -----> | 009GW023F1 | 009GW02401 | 009GW024C1 | 009GW02501 | 009GW02601 | 009GW02701 |
| | LAB SAMPLE ID ----> | 35210.03 | 35182.01 | 40782.01 | 35228.08 | 35269.01 | 35228.07 |
| | ID FROM REPORT --> | 009GW023F1 | 009GW02401 | 009GW024C1 | 009GW02501 | 009GW02601 | 009GW02701 |
| | SAMPLE DATE -----> | 08/11/98 | 08/10/98 | 10/19/99 | 08/12/98 | 08/13/98 | 08/12/98 |
| | DATE EXTRACTED --> | 08/21/98 | 08/12/98 | 10/27/99 | 08/21/98 | 08/27/98 | 08/21/98 |
| | DATE ANALYZED ----> | 09/03/98 | 08/19/98 | 10/28/99 | 09/03/98 | 09/02/98 | 09/03/98 |
| | MATRIX -----> | Water | Water | Water | Water | Water | Water |
| | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L |

| CAS # | Parameter | 35210 | VAL | 35007 | VAL | 40782 | VAL | 35210 | VAL | 35269 | VAL | 35210 | VAL |
|-----------|----------------|--------|-----|----------|-----|----------|-----|---------|-----|---------|-----|----------|-----|
| 7429-90-5 | Aluminum (Al) | 7050. | | 25. | J | 32.1 | U | 41.1 | U | 85.3 | J | 86.1 | U |
| 7440-36-0 | Antimony (Sb) | 4.2 | U | 9.1 | J | 15.5 | | 3.4 | U | 18. | U | 3. | U |
| 7440-38-2 | Arsenic (As) | 18.5 | | 2.9 | U | 3.3 | U | 10.8 | U | 2.9 | U | 4.1 | U |
| 7440-39-3 | Barium (Ba) | 123. | | 283. | | 289. | J | 270. | | 394. | | 21300. | |
| 7440-41-7 | Beryllium (Be) | 0.43 | U | 0.34 | U | 0.6 | J | 0.3 | U | 0.5 | U | 0.44 | U |
| 7440-43-9 | Cadmium (Cd) | 0.3 | U | 0.3 | U | 0.3 | U | 0.3 | U | 4.6 | U | 0.3 | U |
| 7440-70-2 | Calcium (Ca) | 76500. | | 188000. | | 251000. | J | 144000. | | 131000. | | 271000. | |
| 7440-47-3 | Chromium (Cr) | 15.9 | | 1.8 | J | 1.2 | U | 0.78 | U | 3.3 | U | 1.4 | U |
| 7440-48-4 | Cobalt (Co) | 4.2 | U | 1. | U | 1.7 | U | 1. | U | 5.3 | U | 2.2 | U |
| 7440-50-8 | Copper (Cu) | 9.2 | U | 1.7 | UJ | 1. | U | 2.6 | U | 7.8 | U | 3.3 | U |
| 7439-89-6 | Iron (Fe) | 12300. | | 540. | U | 24.2 | U | 41600. | | 57300. | | 2440. | |
| 7439-92-1 | Lead (Pb) | 4.5 | | 1.5 | U | 2.1 | U | 1.5 | U | 1.5 | U | 1.5 | U |
| 7439-95-4 | Magnesium (Mg) | 22400. | | 339000. | | 477000. | J | 30200. | | 59100. | | 316000. | |
| 7439-96-5 | Manganese (Mn) | 648. | | 51.8 | | 44.5 | | 525. | | 252. | | 341. | |
| 7439-97-6 | Mercury (Hg) | 0.11 | U | 0.1 | UJ | 0.11 | J | 0.12 | J | 0.1 | U | 0.13 | J |
| 7440-02-0 | Nickel (Ni) | 5.8 | U | 1. | U | 0.8 | U | 2.6 | U | 13. | U | 1.6 | U |
| 7440-09-7 | Potassium (K) | 6650. | | 115000. | | 163000. | J | 22500. | | 28900. | | 112000. | |
| 7782-49-2 | Selenium (Se) | 3.1 | UJ | 3.1 | U | 2.9 | U | 3.1 | UJ | 3.1 | UJ | 3.1 | UJ |
| 7440-22-4 | Silver (Ag) | 1.4 | U | 1.4 | U | 2. | U | 1.4 | U | 7. | U | 1.4 | U |
| 7440-23-5 | Sodium (Na) | 18400. | J | 2940000. | | 5000000. | J | 229000. | J | 443000. | | 3070000. | J |
| 7440-28-0 | Thallium (Tl) | 3.1 | U | 3.1 | U | 2.3 | U | 10. | U | 7.9 | J | 3.1 | U |
| 7440-62-2 | Vanadium (V) | 20.6 | | 1.6 | J | 0.9 | U | 1.7 | U | 4.4 | U | 4. | U |
| 7440-66-6 | Zinc (Zn) | 26.8 | | 8.2 | U | 2.9 | U | 12.2 | J | 10.4 | U | 15.2 | J |
| 7440-31-5 | Tin (Sn) | 22. | UJ | 4.7 | UJ | 29.5 | U | 22. | UJ | 22. | U | 22. | UJ |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| SMB66-META | | SAMPLE ID -----> | 009-G-W028-01 | 009-G-W029-01 | 009-G-W030-01 | 009-G-W23D-01 | 009-G-W24D-01 | 009-H-W24D-01 | | | | | |
|------------|----------------|----------------------|---------------|---------------|---------------|---------------|---------------|---------------|-----|----------|-----|----------|-----|
| | | ORIGINAL ID -----> | 009GW02801 | 009GW02901 | 009GW03001 | 009GW23D01 | 009GW24D01 | 009HW24D01 | | | | | |
| | | LAB SAMPLE ID ----> | 35228.05 | 35269.02 | 35228.09 | 35210.01 | 35182.02 | 35182.03 | | | | | |
| | | ID FROM REPORT ----> | 009GW02801 | 009GW02901 | 009GW03001 | 009GW23D01 | 009GW24D01 | 009HW24D01 | | | | | |
| | | SAMPLE DATE -----> | 08/12/98 | 08/13/98 | 08/12/98 | 08/11/98 | 08/10/98 | 08/10/98 | | | | | |
| | | DATE EXTRACTED ----> | 08/21/98 | 08/27/98 | 08/21/98 | 08/21/98 | 08/12/98 | 08/12/98 | | | | | |
| | | DATE ANALYZED ----> | 09/03/98 | 09/02/98 | 09/05/98 | 09/03/98 | 08/19/98 | 08/19/98 | | | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | | | |
| CAS # | Parameter | 35210 | VAL | 35269 | VAL | 35210 | VAL | 35210 | VAL | 35007 | VAL | 35007 | VAL |
| 7429-90-5 | Aluminum (Al) | 80. | U | 56. | U | 680. | | 197. | U | 17. | U | 17. | U |
| 7440-36-0 | Antimony (Sb) | 3. | U | 18. | U | 6.3 | U | 2.7 | U | 2.7 | U | 2.7 | U |
| 7440-38-2 | Arsenic (As) | 4.7 | U | 3.7 | J | 2.9 | U | 2.9 | U | 54.6 | J | 48.9 | J |
| 7440-39-3 | Barium (Ba) | 622. | | 553. | | 561. | | 87.8 | | 42. | J | 40.9 | J |
| 7440-41-7 | Beryllium (Be) | 0.44 | U | 0.5 | U | 0.13 | U | 0.1 | U | 0.57 | U | 0.73 | U |
| 7440-43-9 | Cadmium (Cd) | 0.3 | U | 4.6 | U | 0.3 | U | 0.3 | U | 0.3 | UJ | 0.3 | UJ |
| 7440-70-2 | Calcium (Ca) | 285000. | | 263000. | | 268000. | | 93000. | | 526000. | | 513000. | |
| 7440-47-3 | Chromium (Cr) | 1.3 | U | 1.3 | U | 3.1 | U | 1.2 | U | 1.1 | J | 0.94 | J |
| 7440-48-4 | Cobalt (Co) | 1.8 | U | 5.3 | U | 2.2 | U | 1. | U | 4.7 | J | 5.1 | J |
| 7440-50-8 | Copper (Cu) | 3.4 | U | 8.2 | U | 29.4 | J | 3.1 | U | 2. | UJ | 1.6 | UJ |
| 7439-89-6 | Iron (Fe) | 251. | | 278. | | 33300. | | 537. | | 29200. | | 28400. | |
| 7439-92-1 | Lead (Pb) | 1.5 | U | 1.5 | U | 2.9 | U | 1.5 | U | 1.5 | U | 1.5 | U |
| 7439-95-4 | Magnesium (Mg) | 297000. | | 335000. | | 267000. | | 19200. | | 585000. | | 580000. | |
| 7439-96-5 | Manganese (Mn) | 181. | | 173. | | 364. | | 154. | | 2560. | J | 2540. | J |
| 7439-97-6 | Mercury (Hg) | 0.12 | J | 0.1 | U | 0.15 | J | 0.11 | J | 0.1 | UJ | 0.1 | UJ |
| 7440-02-0 | Nickel (Ni) | 3.7 | U | 13. | U | 6.1 | U | 1.8 | U | 23.7 | J | 22.5 | J |
| 7440-09-7 | Potassium (K) | 119000. | | 127000. | | 142000. | J | 5750. | | 94900. | | 94500. | |
| 7782-49-2 | Selenium (Se) | 3.1 | UJ | 3.1 | UJ | 3.1 | UJ | 3.1 | UJ | 3.1 | UJ | 3.1 | UJ |
| 7440-22-4 | Silver (Ag) | 1.4 | U | 7.2 | J | 1.4 | U | 1.4 | U | 1.4 | U | 1.4 | U |
| 7440-23-5 | Sodium (Na) | 3210000. | J | 3290000. | J | 2300000. | J | 124000. | J | 5960000. | J | 5750000. | J |
| 7440-28-0 | Thallium (Tl) | 3.6 | U | 3.8 | J | 3.1 | U | 3.1 | U | 3.1 | UJ | 3.1 | UJ |
| 7440-62-2 | Vanadium (V) | 5.8 | U | 9.8 | J | 3.2 | U | 0.87 | U | 0.8 | UJ | 0.8 | UJ |
| 7440-66-6 | Zinc (Zn) | 12.1 | J | 6.8 | U | 51.3 | | 13.2 | J | 17.3 | U | 18.8 | U |
| 7440-31-5 | Tin (Sn) | 22. | UJ | 22. | U | 22. | UJ | 22. | UJ | 4.7 | UJ | 22.6 | UJ |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| SW846-META | | SAMPLE ID -----> | 009-G-W25D-01 | 009-G-W26D-01 | | | | |
|------------|----------------|---------------------|---------------|---------------|-----|--|--|--|
| | | ORIGINAL ID -----> | 009GW25D01 | 009GW26D01 | | | | |
| | | LAB SAMPLE ID ----> | 35228.06 | 35271.01 | | | | |
| | | ID FROM REPORT --> | 009GW25D01 | 009GW26D01 | | | | |
| | | SAMPLE DATE -----> | 08/12/98 | 08/13/98 | | | | |
| | | DATE EXTRACTED --> | 08/21/98 | 08/27/98 | | | | |
| | | DATE ANALYZED ----> | 09/03/98 | 08/27/98 | | | | |
| | | MATRIX -----> | Water | Water | | | | |
| | | UNITS -----> | UG/L | UG/L | | | | |
| CAS # | Parameter | 35210 | VAL | 35271 | VAL | | | |
| 7429-90-5 | Aluminum (Al) | 17. | U | 875. | | | | |
| 7440-36-0 | Antimony (Sb) | 2.7 | U | 19.4 | J | | | |
| 7440-38-2 | Arsenic (As) | 2.9 | U | 12. | U | | | |
| 7440-39-3 | Barium (Ba) | 124. | | 70.4 | | | | |
| 7440-41-7 | Beryllium (Be) | 0.73 | B | 0.5 | UJ | | | |
| 7440-43-9 | Cadmium (Cd) | 0.6 | B | 4.6 | U | | | |
| 7440-70-2 | Calcium (Ca) | 224000. | | 142000. | | | | |
| 7440-47-3 | Chromium (Cr) | 0.7 | U | 1.3 | U | | | |
| 7440-48-4 | Cobalt (Co) | 1. | U | 5.3 | U | | | |
| 7440-50-8 | Copper (Cu) | 0.8 | U | 7.3 | U | | | |
| 7439-89-6 | Iron (Fe) | 380. | | 7140. | | | | |
| 7439-92-1 | Lead (Pb) | 6.7 | | 27.7 | | | | |
| 7439-95-4 | Magnesium (Mg) | 881000. | | 672000. | | | | |
| 7439-96-5 | Manganese (Mn) | 256. | | 781. | | | | |
| 7439-97-6 | Mercury (Hg) | 0.12 | B | 0.1 | U | | | |
| 7440-02-0 | Nickel (Ni) | 1.6 | B | 13. | U | | | |
| 7440-09-7 | Potassium (K) | 265000. | | 192000. | | | | |
| 7782-49-2 | Selenium (Se) | 3.1 | U | 3.1 | UJ | | | |
| 7440-22-4 | Silver (Ag) | 1.4 | U | 7. | U | | | |
| 7440-23-5 | Sodium (Na) | 7530000. | E | 6090000. | | | | |
| 7440-28-0 | Thallium (Tl) | 3.1 | U | 5.5 | J | | | |
| 7440-62-2 | Vanadium (V) | 2.7 | B | 6.7 | J | | | |
| 7440-66-6 | Zinc (Zn) | 12.1 | B | 22.7 | U | | | |
| 7440-31-5 | Tin (Sn) | 22. | U | 22. | U | | | |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY '96

| SW846-SV0A | | SAMPLE ID -----> | 009-G-W001-C1 | 009-G-W004-C1 | 009-G-W008-C1 | 009-G-W013-C1 | 009-G-W024-C1 | | | | |
|------------|------------------------------|---------------------|---------------|---------------|---------------|---------------|---------------|-------|-----|-------|-----|
| | | ORIGINAL ID -----> | 009GW001C1 | 009GW004C1 | 009GW008C1 | 009GW013C1 | 009GW024C1 | | | | |
| | | LAB SAMPLE ID ----> | 40782.03 | 40782.02 | 40782.04 | 40799.03 | 40782.01 | | | | |
| | | ID FROM REPORT --> | 009GW001C1 | 009GW004C1 | 009GW008C1 | 009GW013C1 | 009GW024C1 | | | | |
| | | SAMPLE DATE -----> | 10/19/99 | 10/19/99 | 10/19/99 | 10/20/99 | 10/19/99 | | | | |
| | | DATE EXTRACTED --> | 10/21/99 | 10/21/99 | 10/21/99 | 10/22/99 | 10/21/99 | | | | |
| | | DATE ANALYZED ----> | 11/04/99 | 11/04/99 | 11/05/99 | 11/05/99 | 11/04/99 | | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | | | | |
| CAS # | Parameter | 40782 | VAL | 40782 | VAL | 40782 | VAL | 40799 | VAL | 40782 | VAL |
| 62-75-9 | N-Nitrosodimethylamine | | NR | | NR | | NR | | NR | | NR |
| 99-09-2 | 3-Nitroaniline | 24. | U | 24. | U | 24. | U | 25. | U | 24. | U |
| 108-95-2 | Phenol | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 83-32-9 | Acenaphthene | 1. | J | 10. | U | 10. | U | 8. | J | 10. | U |
| 62-53-3 | Aniline | | NR | | NR | | NR | | NR | | NR |
| 51-28-5 | 2,4-Dinitrophenol | 24. | U | 24. | U | 24. | U | 25. | U | 24. | U |
| 111-44-4 | bis(2-Chloroethyl)ether | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 100-02-7 | 4-Nitrophenol | 24. | U | 24. | U | 24. | U | 25. | U | 24. | U |
| 95-57-8 | 2-Chlorophenol | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 132-64-9 | Dibenzofuran | 10. | U | 10. | U | 10. | U | 1. | J | 10. | U |
| 541-73-1 | 1,3-Dichlorobenzene | 1. | J | 10. | U | 10. | U | 10. | U | 10. | U |
| 121-14-2 | 2,4-Dinitrotoluene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 106-46-7 | 1,4-Dichlorobenzene | 1. | J | 10. | U | 10. | U | 2. | J | 3. | J |
| 84-66-2 | Diethylphthalate | 10. | U | 10. | U | 10. | U | 1. | J | 10. | U |
| 100-51-6 | Benzyl alcohol | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 7005-72-3 | 4-Chlorophenylphenylether | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 95-50-1 | 1,2-Dichlorobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 86-73-7 | Fluorene | 1. | J | 10. | U | 10. | U | 1. | J | 10. | U |
| 95-48-7 | 2-Methylphenol (o-Cresol) | 3. | J | 10. | U | 10. | U | 10. | U | 10. | U |
| 100-01-6 | 4-Nitroaniline | 24. | U | 24. | U | 24. | U | 25. | U | 24. | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 534-52-1 | 2-Methyl-4,6-Dinitrophenol | 24. | U | 24. | U | 24. | U | 25. | U | 24. | U |
| 106-44-5 | 4-Methylphenol (p-Cresol) | 1. | J | 10. | U | 10. | U | 10. | U | 10. | U |
| 86-30-6 | N-Nitrosodiphenylamine | 10. | U | 10. | U | 10. | U | 10. | U | 1. | J |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 103-33-3 | Azobenzene | | NR | | NR | | NR | | NR | | NR |
| 67-72-1 | Hexachloroethane | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 98-95-3 | Nitrobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 118-74-1 | Hexachlorobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 78-59-1 | Isophorone | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 87-86-5 | Pentachlorophenol | 24. | U | 24. | U | 24. | U | 25. | U | 24. | U |
| 88-75-5 | 2-Nitrophenol | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 85-01-8 | Phenanthrene | 1. | J | 10. | U | 10. | U | 10. | U | 10. | U |
| 105-67-9 | 2,4-Dimethylphenol | 50. | J | 10. | U | 10. | U | 10. | U | 10. | U |
| 120-12-7 | Anthracene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| SW846-SVOA | | SAMPLE ID -----> | 009-G-W001-C1 | 009-G-W004-C1 | 009-G-W008-C1 | 009-G-W013-C1 | 009-G-W024-C1 | | | | |
|------------|-----------------------------------|---------------------|---------------|---------------|---------------|---------------|---------------|-------|-----|-------|-----|
| | | ORIGINAL ID -----> | 009GW001C1 | 009GW004C1 | 009GW008C1 | 009GW013C1 | 009GW024C1 | | | | |
| | | LAB SAMPLE ID ----> | 40782.03 | 40782.02 | 40782.04 | 40799.03 | 40782.01 | | | | |
| | | ID FROM REPORT --> | 009GW001C1 | 009GW004C1 | 009GW008C1 | 009GW013C1 | 009GW024C1 | | | | |
| | | SAMPLE DATE -----> | 10/19/99 | 10/19/99 | 10/19/99 | 10/20/99 | 10/19/99 | | | | |
| | | DATE EXTRACTED --> | 10/21/99 | 10/21/99 | 10/21/99 | 10/22/99 | 10/21/99 | | | | |
| | | DATE ANALYZED ----> | 11/04/99 | 11/04/99 | 11/05/99 | 11/05/99 | 11/04/99 | | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | | | | |
| CAS # | Parameter | 40782 | VAL | 40782 | VAL | 40782 | VAL | 40799 | VAL | 40782 | VAL |
| 65-85-0 | Benzoic acid | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 84-74-2 | Di-n-butylphthalate | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 111-91-1 | bis(2-Chloroethoxy)methane | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 206-44-0 | Fluoranthene | 10. | U | 10. | U | 10. | U | 5. | J | 10. | U |
| 120-83-2 | 2,4-Dichlorophenol | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 92-87-5 | Benizidine | NR | | NR | | NR | | NR | | NR | |
| 120-82-1 | 1,2,4-Trichlorobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 129-00-0 | Pyrene | 10. | U | 10. | U | 10. | U | 2. | J | 10. | U |
| 91-20-3 | Naphthalene | 4. | J | 10. | U | 10. | U | 1. | J | 10. | U |
| 85-68-7 | Butylbenzylphthalate | 10. | U | 10. | U | 10. | U | 1. | J | 10. | U |
| 106-47-8 | 4-Chloroaniline | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 87-68-3 | Hexachlorobutadiene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 56-55-3 | Benzo(a)anthracene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 59-50-7 | 4-Chloro-3-methylphenol | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 218-01-9 | Chrysene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 91-57-6 | 2-Methylnaphthalene | 1. | J | 10. | U | 10. | U | 10. | U | 10. | U |
| 117-81-7 | bis(2-Ethylhexyl)phthalate (BEHP) | 10. | U | 10. | U | 10. | U | 17. | U | 10. | U |
| 77-47-4 | Hexachlorocyclopentadiene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 117-84-0 | Di-n-octyl phthalate | 10. | U | 10. | U | 10. | U | 1. | J | 10. | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 205-99-2 | Benzo(b)fluoranthene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 24. | U | 24. | U | 24. | U | 25. | U | 24. | U |
| 207-08-9 | Benzo(k)fluoranthene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 91-58-7 | 2-Chloronaphthalene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 50-32-8 | Benzo(a)pyrene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 88-74-4 | 2-Nitroaniline | 24. | U | 24. | U | 24. | U | 25. | U | 24. | U |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 131-11-3 | Dimethyl phthalate | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 53-70-3 | Dibenz(a,h)anthracene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 208-96-8 | Acenaphthylene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 191-24-2 | Benzo(g,h,i)perylene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 606-20-2 | 2,6-Dinitrotoluene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| SW846-VOA | | SAMPLE ID -----> | 009-G-W001-C1 | 009-G-W004-C1 | 009-G-W008-C1 | 009-G-W013-C1 | 009-G-W024-C1 | | | | |
|------------|-----------------------------|-----------------------|---------------|---------------|---------------|---------------|---------------|-------|-----|-------|-----|
| | | ORIGINAL ID -----> | 009GW001C1 | 009GW004C1 | 009GW008C1 | 009GW013C1 | 009GW024C1 | | | | |
| | | LAB SAMPLE ID -----> | 40782.03 | 40782.02 | 40782.04 | 40799.03 | 40782.01 | | | | |
| | | ID FROM REPORT -----> | 009GW001C1 | 009GW004C1 | 009GW008C1 | 009GW013C1 | 009GW024C1 | | | | |
| | | SAMPLE DATE -----> | 10/19/99 | 10/19/99 | 10/19/99 | 10/20/99 | 10/19/99 | | | | |
| | | DATE ANALYZED -----> | 11/02/99 | 11/02/99 | 11/02/99 | 11/01/99 | 11/02/99 | | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | | | | |
| CAS # | Parameter | 40782 | VAL | 40782 | VAL | 40782 | VAL | 40799 | VAL | 40782 | VAL |
| 74-87-3 | Chloromethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 74-83-9 | Bromomethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-01-4 | Vinyl chloride | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-00-3 | Chloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-09-2 | Methylene chloride | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 67-64-1 | Acetone | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-15-0 | Carbon disulfide | 5. | U | 4. | J | 5. | U | 5. | U | 4. | J |
| 109-99-9 | Tetrahydrofuran | NR | | NR | | NR | | NR | | NR | |
| 75-69-4 | Trichlorofluoromethane | NR | | NR | | NR | | NR | | NR | |
| 75-35-4 | 1,1-Dichloroethene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-34-3 | 1,1-Dichloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 67-66-3 | Chloroform | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 107-06-2 | 1,2-Dichloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 78-93-3 | 2-Butanone (MEK) | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 71-55-6 | 1,1,1-Trichloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 56-23-5 | Carbon tetrachloride | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 108-05-4 | Vinyl acetate | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-27-4 | Bromodichloromethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 78-87-5 | 1,2-Dichloropropane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 79-01-6 | Trichloroethene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 124-48-1 | Dibromochloromethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 71-43-2 | Benzene | 3. | J | 5. | U | 5. | U | 3. | J | 5. | U |
| 75-25-2 | Bromoform | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 108-10-1 | 4-Methyl-2-Pentanone (MIBK) | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 591-78-6 | 2-Hexanone | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 127-18-4 | Tetrachloroethene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 108-88-3 | Toluene | 5. | U | 5. | U | 7. | U | 5. | U | 5. | U |
| 108-90-7 | Chlorobenzene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 100-41-4 | Ethylbenzene | 68. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 100-42-5 | Styrene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 1330-20-7 | Xylene (Total) | 140. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 110-75-8 | 2-Chloroethyl vinyl ether | 5. | U | 5. | U | 5. | U | 5. | UR | 5. | U |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY '96

| SUB46-VOA | | SAMPLE ID -----> | 009-G-W001-C1 | 009-G-W004-C1 | 009-G-W008-C1 | 009-G-W013-C1 | 009-G-W024-C1 | | | | |
|-----------|--------------------------|---------------------|---------------|---------------|---------------|---------------|---------------|-------|-----|-------|-----|
| | | ORIGINAL ID -----> | 009GW001C1 | 009GW004C1 | 009GW008C1 | 009GW013C1 | 009GW024C1 | | | | |
| | | LAB SAMPLE ID ----> | 40782.03 | 40782.02 | 40782.04 | 40799.03 | 40782.01 | | | | |
| | | ID FROM REPORT --> | 009GW001C1 | 009GW004C1 | 009GW008C1 | 009GW013C1 | 009GW024C1 | | | | |
| | | SAMPLE DATE -----> | 10/19/99 | 10/19/99 | 10/19/99 | 10/20/99 | 10/19/99 | | | | |
| | | DATE ANALYZED ----> | 11/02/99 | 11/02/99 | 11/02/99 | 11/01/99 | 11/02/99 | | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | | | | |
| CAS # | Parameter | 40782 | VAL | 40782 | VAL | 40782 | VAL | 40799 | VAL | 40782 | VAL |
| 156-59-2 | cis-1,2-Dichloroethene | | NR | | NR | | NR | | NR | | NR |
| 156-60-5 | trans-1,2-Dichloroethene | | NR | | NR | | NR | | NR | | NR |
| 1634-04-4 | Methyl tert-butyl ether | | NR | | NR | | NR | | NR | | NR |
| 108-38-3 | m-Xylene | | NR | | NR | | NR | | NR | | NR |
| 95-47-6 | o-Xylene | | NR | | NR | | NR | | NR | | NR |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| SW846_VOA | | SAMPLE ID -----> | 009-G-W020-03 | 009-G-W021-03 | 009-G-W022-03 | 009-G-W023-03 | 009-G-W024-01 | 009-G-W23D-03 | | | |
|------------|-----------------------------|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|-----|-------|-----|
| | | ORIGINAL ID -----> | 009GW02003 | 009GW02103 | 009GW02203 | 009GW02303 | 009GW02401 | 009GW23D03 | | | |
| | | LAB SAMPLE ID ----> | 38273.03 | 38273.05 | 38273.06 | 38273.02 | 35182.01 | 38273.01 | | | |
| | | ID FROM REPORT --> | 009GW02003 | 009GW02103 | 009GW02203 | 009GW02303 | 009GW02401 | 009GW23D03 | | | |
| | | SAMPLE DATE -----> | 04/27/99 | 04/27/99 | 04/28/99 | 04/27/99 | 08/10/98 | 04/27/99 | | | |
| | | DATE ANALYZED --> | 04/30/99 | 04/30/99 | 04/30/99 | 04/30/99 | 08/12/98 | 04/30/99 | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | |
| CAS # | Parameter | 38273 | VAL | 38273 | VAL | 38273 | VAL | 35007 | VAL | 38273 | VAL |
| 74-87-3 | Chloromethane | 5. | U | 5. | UJ | 5. | U | 5. | U | 5. | U |
| 74-83-9 | Bromomethane | 5. | U | 5. | UJ | 5. | U | 5. | U | 5. | U |
| 75-01-4 | Vinyl chloride | 5. | U | 44. | J | 5. | U | 5. | U | 5. | U |
| 75-00-3 | Chloroethane | 5. | U | 5. | UJ | 5. | U | 5. | U | 5. | U |
| 75-35-4 | 1,1-Dichloroethene | 5. | U | 2. | J | 5. | U | 5. | U | 5. | U |
| 75-09-2 | Methylene chloride | 5. | U | 5. | UJ | 5. | U | 5. | U | 5. | U |
| 75-34-3 | 1,1-Dichloroethane | 5. | U | 5. | UJ | 5. | U | 5. | U | 5. | U |
| 67-66-3 | Chloroform | 5. | U | 5. | UJ | 5. | U | 5. | U | 5. | U |
| 71-55-6 | 1,1,1-Trichloroethane | 5. | U | 5. | UJ | 5. | U | 5. | U | 5. | U |
| 56-23-5 | Carbon tetrachloride | 5. | U | 5. | UJ | 5. | U | 5. | U | 5. | U |
| 71-43-2 | Benzene | 19. | | 110. | | 5. | U | 5. | U | 5. | U |
| 107-06-2 | 1,2-Dichloroethane | 5. | U | 5. | UJ | 5. | U | 5. | U | 5. | U |
| 79-01-6 | Trichloroethene | 5. | U | 4. | J | 5. | U | 5. | U | 5. | U |
| 78-87-5 | 1,2-Dichloropropane | 5. | U | 5. | UJ | 5. | U | 5. | U | 5. | U |
| 75-27-4 | Bromodichloromethane | 5. | U | 5. | UJ | 5. | U | 5. | U | 5. | U |
| 108-88-3 | Toluene | 5. | U | 6. | J | 5. | U | 5. | U | 5. | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5. | U | 5. | UJ | 5. | U | 5. | U | 5. | U |
| 127-18-4 | Tetrachloroethene | 5. | U | 5. | J | 5. | U | 5. | U | 5. | U |
| 124-48-1 | Dibromochloromethane | 5. | U | 5. | UJ | 5. | U | 5. | U | 5. | U |
| 108-90-7 | Chlorobenzene | 16000. | D | 19000. | D | 42. | | 5. | U | 1. | J |
| 100-41-4 | Ethylbenzene | 5. | U | 2. | J | 5. | U | 5. | U | 5. | U |
| 100-42-5 | Styrene | 5. | U | 5. | UJ | 5. | U | 5. | U | 5. | U |
| 75-25-2 | Bromoform | 5. | U | 5. | UJ | 5. | U | 5. | U | 5. | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 5. | U | 5. | UJ | 5. | U | 5. | U | 5. | U |
| 67-64-1 | Acetone | 5. | UR | 5. | UR | 4. | J | 5. | UR | 5. | UR |
| 75-15-0 | Carbon disulfide | 5. | U | 5. | UJ | 5. | U | 5. | U | 5. | UJ |
| 108-05-4 | Vinyl acetate | 5. | U | 5. | UJ | 5. | U | 5. | U | 5. | U |
| 78-93-3 | 2-Butanone (MEK) | 5. | UR | 5. | UR | 5. | UR | 5. | UR | 5. | UR |
| 110-75-8 | 2-Chloroethyl vinyl ether | 5. | U | 5. | UJ | 5. | U | 5. | U | 5. | U |
| 108-10-1 | 4-Methyl-2-Pentanone (MIBK) | 5. | U | 4. | J | 5. | U | 5. | U | 5. | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 5. | U | 5. | UJ | 5. | U | 5. | U | 5. | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 5. | U | 5. | UJ | 5. | U | 5. | U | 5. | U |
| 591-78-6 | 2-Hexanone | 5. | U | 5. | UJ | 5. | U | 5. | U | 5. | U |
| 1330-20-7 | Xylene (Total) | 5. | U | 4. | J | 5. | U | 5. | U | 5. | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 5. | U | 240. | | 5. | U | 5. | UJ | 5. | U |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9, 19, 20, 121, 649, 650, 651 POST JULY '96

| | | | |
|-----------|---------------------|---------------|---------------|
| SW846_VOA | SAMPLE ID -----> | 009-G-W24D-01 | 009-H-W24D-01 |
| | ORIGINAL ID -----> | 009GW24D01 | 009HW24D01 |
| | LAB SAMPLE ID ----> | 35182.02 | 35182.03 |
| | ID FROM REPORT --> | 009GW24D01 | 009HW24D01 |
| | SAMPLE DATE -----> | 08/10/98 | 08/10/98 |
| | DATE ANALYZED ----> | 08/12/98 | 08/12/98 |
| | MATRIX -----> | Water | Water |
| | UNITS -----> | UG/L | UG/L |

| CAS # | Parameter | 35007 | VAL | 35007 | VAL |
|------------|-----------------------------|-------|-----|-------|-----|
| 74-87-3 | Chloromethane | 5. | U | 5. | U |
| 74-83-9 | Bromomethane | 5. | U | 5. | U |
| 75-01-4 | Vinyl chloride | 5. | U | 5. | U |
| 75-00-3 | Chloroethane | 5. | U | 5. | U |
| 75-35-4 | 1,1-Dichloroethene | 5. | U | 5. | U |
| 75-09-2 | Methylene chloride | 5. | U | 5. | U |
| 75-34-3 | 1,1-Dichloroethane | 5. | U | 5. | U |
| 67-66-3 | Chloroform | 5. | U | 5. | U |
| 71-55-6 | 1,1,1-Trichloroethane | 5. | U | 5. | U |
| 56-23-5 | Carbon tetrachloride | 5. | U | 5. | U |
| 71-43-2 | Benzene | 5. | U | 5. | U |
| 107-06-2 | 1,2-Dichloroethane | 5. | U | 5. | U |
| 79-01-6 | Trichloroethene | 5. | U | 5. | U |
| 78-87-5 | 1,2-Dichloropropane | 5. | U | 5. | U |
| 75-27-4 | Bromodichloromethane | 5. | U | 5. | U |
| 108-88-3 | Toluene | 5. | U | 5. | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5. | U | 5. | U |
| 127-18-4 | Tetrachloroethene | 5. | U | 5. | U |
| 124-48-1 | Dibromochloromethane | 5. | U | 5. | U |
| 108-90-7 | Chlorobenzene | 5. | U | 5. | U |
| 100-41-4 | Ethylbenzene | 5. | U | 5. | U |
| 100-42-5 | Styrene | 5. | U | 5. | U |
| 75-25-2 | Bromoform | 5. | U | 5. | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 5. | U | 5. | U |
| 67-64-1 | Acetone | 5. | UR | 5. | UR |
| 75-15-0 | Carbon disulfide | 5. | UJ | 5. | UJ |
| 108-05-4 | Vinyl acetate | 5. | U | 5. | U |
| 78-93-3 | 2-Butanone (MEK) | 5. | U | 5. | U |
| 110-75-8 | 2-Chloroethyl vinyl ether | 5. | U | 5. | U |
| 108-10-1 | 4-Methyl-2-Pentanone (MIBK) | 5. | U | 5. | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 5. | U | 5. | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 5. | U | 5. | U |
| 591-78-6 | 2-Hexanone | 5. | U | 5. | U |
| 1330-20-7 | Xylene (Total) | 5. | U | 5. | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 5. | UJ | 5. | UJ |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| TETRYL | | SAMPLE ID -----> | 009-G-W001-C1 RE | 009-G-W004-C1 | 009-G-W008-C1 | 009-G-W013-C1 | 009-G-W024-C1 | | | | |
|----------|-----------|---------------------|------------------|---------------|---------------|---------------|---------------|-------|-----|-------|-----|
| | | ORIGINAL ID -----> | 009GW001C1 | 009GW004C1 | 009GW008C1 | 009GW013C1 | 009GW024C1 | | | | |
| | | LAB SAMPLE ID ----> | 40782.03 | 40782.02 | 40782.04 | 40799.03 | 40782.01 | | | | |
| | | ID FROM REPORT --> | 009GW001C1 | 009GW004C1 | 009GW008C1 | 009GW013C1 | 009GW024C1 | | | | |
| | | SAMPLE DATE -----> | 10/19/99 | 10/19/99 | 10/19/99 | 10/20/99 | 10/19/99 | | | | |
| | | DATE EXTRACTED --> | 11/02/99 | 10/22/99 | 10/22/99 | 10/22/99 | 10/22/99 | | | | |
| | | DATE ANALYZED ----> | 11/04/99 | 11/01/99 | 11/01/99 | 11/01/99 | 11/01/99 | | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | | | | |
| CAS # | Parameter | 40782 | VAL | 40782 | VAL | 40782 | VAL | 40799 | VAL | 40782 | VAL |
| 479-45-8 | Tetryl | 0.51 | UJ | 0.51 | U | 0.51 | U | 0.51 | U | 0.51 | UJ |

CHARLESTON - ZONE H
CHARLESTON ZONE H - QUARTERLY '95
9,19,20,121,649,650,651 POST JULY'96

| TSS | | SAMPLE ID -----> | 009-G-W020-01 | 009-G-W022-01 | 009-G-W023-01 | | | |
|--------------|------------------------------|------------------|---------------|---------------|---------------|-------|-----|--|
| | ORIGINAL ID -----> | 009GW02001 | 009GW02201 | 009GW02301 | | | | |
| | LAB SAMPLE ID ----> | 35210.04 | 35228.03 | 35210.02 | | | | |
| | ID FROM REPORT --> | 009GW02001 | 009GW02201 | 009GW02301 | | | | |
| | SAMPLE DATE -----> | 08/11/98 | 08/11/98 | 08/11/98 | | | | |
| | DATE ANALYZED ----> | 08/14/98 | 08/17/98 | 08/14/98 | | | | |
| | MATRIX -----> | Water | Water | Water | | | | |
| | UNITS -----> | MG/L | MG/L | MG/L | | | | |
| CAS # | Parameter | 35210 | VAL | 35210 | VAL | 35210 | VAL | |
| 9999900-03-7 | Total Suspended Solids (TSS) | 86. | | 84. | | 180. | | |



800-588-7982
MEMPHIS, TENNESSEE

CHARLESTON, SC; CINCINNATI, OH; DALLAS, TX; JACKSON, TN; KNOXVILLE, TN;
LANCASTER, PA; NASHVILLE, TN; NORFOLK, VA; PADUCAH, KY; PENSACOLA, FL;
RALEIGH, NC; COLOGNE, GERMANY

CHAIN OF CUSTODY RECORD

Amended Chain of Custody

PROJECT/JOB NO: 2909-0 - 09-014-00
COC NO: _____
PO NO: 4
REL NO: 93
LAB NAME: SOUTH WEST

CLIENT: Naval Base Charleston PROJECT MANAGER: Charlie Verroy
LOCATION: Zone H TELE/FAX NO.: (843) 884-0029
SAMPLERS: (SIGNATURE) Andrew Wertz

| FIELD SAMPLE NUMBER | DATE | TIME | SAMPLE TYPE | TYPE/SIZE OF CONTAINER | PRESERVATION | | NO. OF CONTAINERS | ANALYSIS REQUIRED | | | REMARKS |
|--------------------------------|---------|------|-------------|---------------------------|--------------|-------------|-------------------|-------------------|------|----------|---------------------------|
| | | | | | TEMP. | CHEMICAL | | VOA | SVOA | Pest/PCB | |
| NBCH\009GW23D03 | 4-27-99 | 1130 | W | 4-1L amber 2-40ml vial | 4°C | see remarks | 6 | X | X | X | VOA - HCl (40 ml vial) |
| NBCH\009GW02303 | | 1210 | | | | | 6 | X | X | X | |
| NBCH\009GW02003 | | 1635 | | | | | 6 | X | X | X | |
| NBCH\GELGW01503 | | 1650 | | | | | 6 | X | X | X | # 21 Day Results |
| NBCH\009GW02103 | | 1805 | | | | | 6 | X | X | X | Sho 1999 |
| NBCH\009GW02203 | 4-28-99 | 1015 | | 3-1L amber 2-40ml vial | | | 5 | X | X | X | |
| NBCH\009TW02203 | 4-28-99 | | | 2-40ml vial | | | 2 | X | | | |
| <i>Andrew Wertz</i> 4-28-99 | | | | | | | | | | | |

| | | | | | | | |
|-----------------------------------|----------------------|-----------------|-------------|---------------------|-------------|-----------------|-------------|
| RELINQUISHER: <u>Andrew Wertz</u> | DATE: <u>4/28/99</u> | RECEIVER: _____ | DATE: _____ | RELINQUISHER: _____ | DATE: _____ | RECEIVER: _____ | DATE: _____ |
| PRINTED: <u>ANDREW WERTZ</u> | TIME: <u>1700</u> | PRINTED: _____ | TIME: _____ | PRINTED: _____ | TIME: _____ | PRINTED: _____ | TIME: _____ |
| COMPANY: <u>EnSafe</u> | | COMPANY: _____ | | COMPANY: _____ | | COMPANY: _____ | |

METHOD OF SHIPMENT: FEDEX
 SHIPMENT NO. 808625948849
 SEND RESULTS TO: _____
 COMMENTS: _____
DOO III

ANALYTICAL DATA RECEIVED BY (INITIALS/DATE) _____



800-588-7862
 MEMPHIS, TENNESSEE
 CHARLESTON, SC; CINCINNATI, OH; DALLAS, TX; JACKSON, TN; KNOXVILLE, TN;
 LANCASTER, PA; NASHVILLE, TN; NORFOLK, VA; PADUCAH, KY; PENSACOLA, FL;
 RALEIGH, NC; COLOGNE, GERMANY

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1
 PROJECT/JOB NO: 2908 1-09-014-00
 COC NO: _____
 PO NO: 1840
 REL NO: 31
 LAB NAME: Lauks

CLIENT Naval Base Charleston PROJECT MANAGER Charlie Vernoy
 LOCATION Zone H TELE/FAX NO. (843) 884-0029 / 856-0107
 SAMPLERS: (SIGNATURE) [Signature]

ANALYSIS REQUIRED
 NO. OF CONTAINERS
 8260 SW-846 Vials + Ties
 8270 SW-846 Swabs + Ties
 8081/8082 Rest/Ads

| FIELD SAMPLE NUMBER | DATE | TIME | SAMPLE TYPE | TYPE/SIZE OF CONTAINER | PRESERVATION | | NO. OF CONTAINERS | REMARKS |
|---------------------|--------|------|-------------|------------------------|--------------|----------|-------------------|--|
| | | | | | TEMP. | CHEMICAL | | |
| NBCH\020GDF01S1 | 6/8/99 | 0915 | W | 40ML Vial | 4°C | HCL=VOC | 2 | Final Faxed Results 14 Days + Hardcopy and EDD's 28 days |
| NBCH\020GDF01W1 | | 0925 | W | 40ML Vial | 4°C | | 3 | |
| NBCH\020GDF0101 | | 1035 | W | 40ML Vial, 1L Amber | 4°C | | 7 | |
| NBCH\020GDF02S1 | | 1005 | W | 40 ML Vial | 4°C | | 2 | |
| NBCH\020GDF02W1 | | 1010 | W | 40 ML Vial | 4°C | | 3 | |
| NBCH\020GDF0201 | | 1205 | W | 40ML Vial, 1L Amber | 4°C | | 7 | |
| NBCH\020TDF0201 | | | W | 40ML Vial | 4°C | | 3 | |

~~NOV 13 1999~~
 6-8-99

RELINQUISHER: [Signature] DATE: 6/8/99 RECEIVER: _____ DATE: _____
 PRINTED: Todd B. Temple TIME: 1700 PRINTED: _____ TIME: _____
 COMPANY: ENSAFE COMPANY: _____ COMPANY: _____

METHOD OF SHIPMENT: Fed Ex COMMENTS: NR0 III Final Faxed Results 14 Days, Hardcopy and EDD's 28 Days
 SHIPMENT NO. 809609452321
 SEND RESULTS TO: _____

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1
PROJECT/JOB NO: 2908 01-09-04-0
COC NO: _____
PO NO: 1840
REL NO: 31
LAB NAME: LAUCKS

CLIENT CHARLESTON NAVAL COMPLEX PROJECT MANAGER CHARLIE VERAMY
LOCATION ZONE H TELE/FAX NO. (843) 884-0029/856-0167
SAMPLERS: (SIGNATURE) Andrew Wertz

ANALYSIS REQUIRED
NO. OF CONTAINERS
8260 SW-846 / PAHs + TICs
4270 SW-846 / PAHs + TICs
8081 / 8082 Pest / PCBs

| FIELD SAMPLE NUMBER | DATE | TIME | SAMPLE TYPE | TYPE/SIZE OF CONTAINER | PRESERVATION | | NO. OF CONTAINERS | ANALYSIS REQUIRED | REMARKS |
|---------------------|--------|------|-------------|------------------------|--------------|----------|-------------------|-------------------|--|
| | | | | | TEMP. | CHEMICAL | | | |
| NBCH 020GDF03SI | 6/9/99 | 0910 | W | 40 ml vial | 4°C | VOH=HCl | 3 | X | Final Fixed Results 14 days Hardcopy and EDDs 28 days |
| NBCH 020GDF03WI | | 0915 | | 40 ml vial | | | 3 | X | |
| NBCH 020GDF0301 | | 1035 | | 40 ml vial, 1L amber | | | 7 | X X X | |
| NBCH 020GDF04SI | | 0925 | | 40 ml vial | | | 3 | X | |
| NBCH 020GDF04WI | | 0930 | | 40 ml vial | | | 3 | X | |
| NBCH 020GDF0401 | | 1055 | | 40 ml vial, 1L amber | | | 7 | X X X | |
| NBCH 020TDF0401 | | - | | 40 ml amber | | | 3 | X | |

Andrew Wertz
6-9-99

RELINQUISHER: Andrew Wertz DATE: 6/9/99 RECIPIENT: _____ DATE: _____
PRINTED: ANDREW WERTZ TIME: 1500 COMPANY: EnSafe
RELINQUISHER: _____ DATE: _____ RECIPIENT: _____ DATE: _____
PRINTED: _____ TIME: _____ COMPANY: _____

METHOD OF SHIPMENT: FEDEX COMMENTS: DQO III Final Fixed Results - 14 days
SHIPMENT NO. 809609452310 Hardcopy and EDD's - 28 days
SEND RESULTS TO: _____



800-588-7862
MEMPHIS, TENNESSEE
CHARLESTON, SC; CINCINNATI, OH; DALLAS, TX; JACKSON, TN; KNOXVILLE, TN;
LANCASTER, PA; NASHVILLE, TN; NORFOLK, VA; PADUCAH, KY; PENSACOLA, FL;
RALEIGH, NC; COLOGNE, GERMANY

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1
PROJECT/JOB NO: 2908-6 -09-014-00
COC NO: _____
PO NO: 1840
REL NO: 31
LAB NAME: LAUCKS

CLIENT CHARLESTON NAVAL COMPLEX PROJECT MANAGER CHARLIE VERNON
LOCATION ZONE H TELE/FAX NO. (843) 884-0029/856-0107
SAMPLERS: (SIGNATURE) *Andrew Wertz*

| ANALYSIS REQUIRED | |
|-------------------|-----------------------------|
| NO. OF CONTAINERS | 826 SW-246 VOA+VOC |
| | 826 SW-246 VOA+VOC+PCE |
| | 826 SW-246 VOA+VOC+PCE+PCBs |

| FIELD SAMPLE NUMBER | DATE | TIME | SAMPLE TYPE | TYPE/SIZE OF CONTAINER | PRESERVATION | | NO. OF CONTAINERS | ANALYSIS REQUIRED | REMARKS |
|-------------------------------------|---------|------|-------------|------------------------|--------------|----------|-------------------|-------------------|---|
| | | | | | TEMP. | CHEMICAL | | | |
| NBCH 020601C1 WDF01C1 | 6-14-99 | 1100 | W | 40ml vial, 1 Lamber | 4°C | HCl=VOA | 7 | X X X | Final Faxed Results 14 Days Hard copy and EDDs 28 Days |
| NBCH 020701C1 | 6-14-99 | - | W | 40ml vial | 4°C | HCl | 3 | X | |
| <i>Andrew Wertz</i> 6-14-99 | | | | | | | | | |

| | | | | | | | |
|--|----------------------|-----------------|----------------|---------------------|----------------|-----------------|----------------|
| RELINQUISHER: <u><i>Andrew Wertz</i></u> | DATE: <u>6-14-99</u> | RECEIVER: _____ | DATE: _____ | RELINQUISHER: _____ | DATE: _____ | RECEIVER: _____ | DATE: _____ |
| PRINTED: <u>ANDREW WERTZ</u> | TIME: <u>1300</u> | PRINTED: _____ | TIME: _____ | PRINTED: _____ | TIME: _____ | PRINTED: _____ | TIME: _____ |
| COMPANY: <u>EnSafe</u> | COMPANY: _____ | COMPANY: _____ | COMPANY: _____ | COMPANY: _____ | COMPANY: _____ | COMPANY: _____ | COMPANY: _____ |

| | |
|----------------------------------|--|
| METHOD OF SHIPMENT: <u>FEDEX</u> | COMMENTS: <u>Final Faxed Results - 14 Days</u> |
| SHIPMENT NO. <u>809609452538</u> | <u>DQO III</u> |
| SEND RESULTS TO: _____ | <u>Hardcopy and EDDs - 28 Days</u> |

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

PROJECT/JOB NO: 2908 - 14 - 090 - 08

COC NO: _____

PO NO: 4

REL NO: 52

LAB NAME: SUL

CLIENT Daval Base Charleston

PROJECT MANAGER Charlie Vennoy

LOCATION Zone Hums

TELE/FAX NO. (843) 884-0829 / (843) 856-0197

SAMPLERS: (SIGNATURE) Krista Collins

| FIELD SAMPLE NUMBER | DATE | TIME | SAMPLE TYPE | TYPE/SIZE OF CONTAINER | PRESERVATION | | ANALYSIS REQUIRED | | | | | | REMARKS | |
|---------------------|---------|------|-------------|----------------------------------|--------------|--|-------------------|------|--------|-----------|--------|-----|---------|--|
| | | | | | TEMP. | CHEMICAL | NO. OF CONTAINERS | VOCs | S/VOCs | PEST/PCBS | Metals | CAN | | |
| NBCH/009GW2401 | 8/10/98 | 1450 | GW | 40-ml, 1 Lamber 500ml, 250 ml | 4°C | VOC = PEL CAN = No. of Metals Hubs | 8 | X | X | X | X | X | | |
| NBCH/009GW2401 | 8/10/98 | 1530 | GW | | 4°C | | 8 | X | X | X | X | X | | |
| NBCH/009HW2401 | | 1530 | GW | | | | 8 | X | X | X | X | X | | |
| NBCH/009FW2401 | | 1400 | DIW | | | | 8 | X | X | X | X | X | | |
| NBCH/009F02401 | | 1410 | DIW | | | | 8 | X | X | X | X | X | | |
| NBCH/009TV102401 | " | W/A | Trip | 2-40ml | " | " | 2 | X | | | | | | |

Matthew C. Post
8-10-98

| | | | |
|-------------------------------------|----------------------|-----------------|-------------|
| RELINQUISHER: <u>Krista Collins</u> | DATE: <u>8/10/98</u> | RECEIVER: _____ | DATE: _____ |
| PRINTED: <u>Krista Collins</u> | TIME: <u>1800</u> | PRINTED: _____ | TIME: _____ |
| COMPANY: <u>EnvSAFE</u> | | COMPANY: _____ | |

| | |
|-----------------------------------|--|
| METHOD OF SHIPMENT: <u>Fed Ex</u> | COMMENTS: <u>All samples DO03 & TICs</u> |
| SHIPMENT NO. <u>4848175393</u> | |
| SEND RESULTS TO: _____ | |



800-588-7962
 MEMPHIS, TENNESSEE
 CHARLESTON, SC; CINCINNATI, OH; DALLAS, TX; JACKSON, TN; KNOXVILLE, TN;
 LANCASTER, PA; NASHVILLE, TN; NORFOLK, VA; PADUCAH, KY; PENSACOLA, FL;
 RALEIGH, NC; COLOGNE, GERMANY

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1
 PROJECT/JOB NO: 2908-c 0114-090-00
 COC NO: _____
 PO NO: #4
 REL NO: #52
 LAB NAME: SW

CLIENT Naval Base Charleston PROJECT MANAGER Charles Vernay
 LOCATION Zone HCMS TELE/FAX NO. (843) 884-0029 / (843) 856-0107
 SAMPLERS: (SIGNATURE) Krista Collins

| FIELD SAMPLE NUMBER | DATE | TIME | SAMPLE TYPE | TYPE/SIZE OF CONTAINER | PRESERVATION | | NO. OF CONTAINERS | ANALYSIS REQUIRED | | | | | | | REMARKS | | |
|---------------------|---------|------|-------------|--------------------------------|--------------|---------------------------------------|-------------------|-------------------|-------|-----------|--------|----|-------------------------|-----|---------|--|--------------------------|
| | | | | | TEMP. | CHEMICAL | | VOCs | SVOCs | Pest/PCBs | Metals | CN | Metals (to be filtered) | TSS | | | |
| NBCH/009GW01D01 | 8/11/98 | 840 | GW | 40ml, 1L Amber 500ml, 250ml | 4°C | VOC = HCL Metals = HCL CN = HCL | 8 | X | X | X | X | X | | | | | |
| NBCH/009HW01D01 | | 840 | | | | | 8 | X | X | X | X | X | | | | | |
| NBCH/009GW23D01 | | 1310 | | | | | 8 | X | X | X | X | X | | | | | |
| NBCH/009GW02301 | | 1300 | | | | | 10 | X | X | X | X | X | X | | | | |
| NBCH/009GW02201 | | 1220 | | | | | 6 | X | X | | X | X | X | | | | Limited Volume of |
| NBCH/009GW02001 | | 1440 | | | | | 10 | X | X | X | X | X | X | | | | |
| NBCH/009GW66mmw1501 | | 1430 | ↓ | | | | 8 | X | X | X | X | X | | | | | |
| TRIP Blank MAB | | | W | | | | 1 | X | | | | | | | | | |
| NBCH/009GW02101 | | 1325 | W | ↓ | | | 2 | X | X | X | X | X | | | | | |
| NBCH/009TW02101 | ↓ | | W | 40-ml | 4°C | HCL | 2 | X | | | | | | | | | No labels on sample Jars |

| | | | | | | | |
|-------------------------------------|----------------------|-----------------|-------------|---------------------|-------------|-----------------|-------------|
| RELINQUISHER: <u>Krista Collins</u> | DATE: <u>8/11/98</u> | RECEIVER: _____ | DATE: _____ | RELINQUISHER: _____ | DATE: _____ | RECEIVER: _____ | DATE: _____ |
| PRINTED: <u>Krista Collins</u> | TIME: <u>1800</u> | PRINTED: _____ | TIME: _____ | PRINTED: _____ | TIME: _____ | PRINTED: _____ | TIME: _____ |
| COMPANY: <u>ENSAF</u> | | COMPANY: _____ | | COMPANY: _____ | | COMPANY: _____ | |

METHOD OF SHIPMENT: Fed Ex 4848175404 COMMENTS: All samples PQ03 & TICS
Note: Sample volume for Pest/PCBs is 2. OK

Amen Chain 8/13/98

P04 Re152-SWL

Environmental and Safety Designs, Inc.



CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

5724 SUMMER TREES DR. MEMPHIS, TN 38134 #1-800-588-7962
CINCINNATI, OH, CHARLESTON, SC, JACKSON, TN, KNOXVILLE, TN
NASHVILLE, TN, NORFOLK, VA, PENSACOLA, FL, RALEIGH, NC

CLIENT Naval Base Charleston PROJECT MANAGER Charlie Verroy
ADDRESS Zone H-CMS TELEPHONE NO. 843 884-0029
PROJECT NAME/NUMBER 2908-001-14-090-00 FAX. NO. 843 856-0107
SAMPLERS: (SIGNATURE) _____

| NO. OF CONTAINERS | ANALYSIS REQUIRED | | | | | | | REMARKS |
|-------------------|-------------------|------|----------|--------|----|-------------------|-----|------------------------|
| | VDA | SVDA | PEST/PCB | METALS | CN | METAL TO BE FILED | TSS | |
| 8 | X | X | X | X | X | | | *Name Metals to be F |
| 10 | X | X | X | X | X | X | X | 009GW023F1 |
| 10 | X | X | X | X | X | X | X | 009GW020F1* |
| 8 | X | X | X | X | X | | | |
| 8 | X | X | X | X | X | | | |
| 2 | X | | | | | | | No label on Sample jar |

| FIELD SAMPLE NUMBER | DATE | TIME | SAMPLE TYPE | TYPE/SIZE OF CONTAINER | PRESERVATION | |
|---------------------|---------|------|-------------|------------------------------|--------------|-------------------------------|
| | | | | | TEMP. | CHEMICAL |
| NBCH/009GW2300 | 8/11/98 | 1310 | GW | 40ml, 1L Amber, 500ml, 250ml | 4°C | VOL-HCL MT-HNO3 LV-NAOH |
| 009GW02301 | | 1300 | | | | |
| 009GW02001 | | 1440 | | | | |
| GELGW01501 | | 1430 | | | | |
| 009GW02101 | | 1325 | | | | |
| 009TWP2101 | | - | | 40 ml | | VOL-HCL |

| | | | | | | | |
|--|---|---|--------------|---|--------------|---|--------------|
| RELINQUISHED BY: SIGNATURE _____ PRINTED <u>Krista Collins</u> COMPANY <u>Ensafe</u> REASON <u>Ship to lab</u> | DATE <u>8/11/98</u> TIME <u>1800</u> | RECEIVED BY: SIGNATURE _____ PRINTED _____ COMPANY _____ REASON _____ | DATE TIME | RELINQUISHED BY: SIGNATURE _____ PRINTED _____ COMPANY _____ REASON _____ | DATE TIME | RECEIVED BY: SIGNATURE _____ PRINTED _____ COMPANY _____ REASON _____ | DATE TIME |
|--|---|---|--------------|---|--------------|---|--------------|

METHOD OF SHIPMENT: Fed-Ex SHIPMENT NO. 4848175404 SPECIAL INSTRUCTION: SWL
COMMENTS: DG03 + TICS
AFTER ANALYSIS, SAMPLES ARE TO BE:
 DISPOSED OF
 STORED (90 DAYS MAX)
 STORED OVER 90 DAYS
 RETURNED TO CUSTOMER

Amend Chain 8/13/98 *[Signature]*

BPA/60# P.O. 4, Rel # 52

Environmental and Safety Designs, Inc.



CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

5724 SUMMER TREES DR. MEMPHIS, TN 38134 #1-800-588-7962
 CINCINNATI, OH, CHARLESTON, SC, JACKSON, TN, KNOXVILLE, TN
 NASHVILLE, TN, NORFOLK, VA, PENSACOLA, FL, RALEIGH, NC

CLIENT Naval Base Charleston PROJECT MANAGER Charles Vennoy
 ADDRESS Zone HCMs TELEPHONE NO. (843) 884-0629
 PROJECT NAME/NUMBER 2908-001-14-090-01 FAX NO. (843) 856-0107
 SAMPLERS: (SIGNATURE) Krista Collins

| NO. OF CONTAINERS | ANALYSIS REQUIRED | | | | | | | REMARKS |
|-------------------|-------------------|-------|-----------|--------|----|-------------------------|-----|-----------------------------|
| | VOCs | SUVCs | Pest/PCBs | Metals | CN | Metals (To Be Filtered) | TSS | |
| 8 | X | X | X | X | X | | | |
| 8 | X | X | X | X | X | | | *Name Metals to be filtered |
| 10 | X | X | X | X | X | X | X | 009GW022F1* |
| 8 | X | X | X | X | X | | | |
| 8 | X | X | X | X | X | | | |
| 8 | X | X | X | X | X | | | |
| 8 | X | X | X | X | X | | | |
| 1 | X | | | | | | | |

| FIELD SAMPLE NUMBER | DATE RC | TIME RC | SAMPLE TYPE | TYPE/SIZE OF CONTAINER | PRESERVATION | | NO. OF CONTAINERS | VOCs | SUVCs | Pest/PCBs | Metals | CN | Metals (To Be Filtered) | TSS | REMARKS |
|-------------------------------------|---------|---------|-------------|------------------------------|--------------|-------------------------------------|-------------------|------|-------|-----------|--------|----|-------------------------|-----|-------------|
| | | | | | TEMP. | CHEMICAL | | | | | | | | | |
| NBCH/009GW01D01 | 8/11/98 | 8:40 | GW | 40mL, 1L Amber, 500mL, 250mL | 40C | VOC 7 HCL METHANOL NO = NACHS | 8 | X | X | X | X | X | | | |
| NBCH/009HW01D01 | 8/11/98 | 8:40 | | | | | 8 | X | X | X | X | X | | | |
| NBCH/009GW02Z01 | 8/11/98 | 12:20 | | | | | 10 | X | X | X | X | X | X | X | 009GW022F1* |
| NBCH/009GW02801 | 8/12/98 | 10:00 | | | | | 8 | X | X | X | X | X | | | |
| NBCH/009GWZ6D01 | 8/12/98 | 10:30 | | | | | 8 | X | X | X | X | X | | | |
| NBCH/009GW02701 | 8/12/98 | 11:25 | | | | | 8 | X | X | X | X | X | | | |
| NBCH/009GW02601 | 8/12/98 | 11:30 | | | | | 8 | X | X | X | X | X | | | |
| NBCH/009GW03001 | 8/12/98 | 15:10 | ↓ | ↓ | ↓ | ↓ | 8 | X | X | X | X | X | | | |
| FRIT Blank 009TW03001 | 8/12/98 | - | ↓ RC | 40 ml | ↓ | HCL | 1 | X | | | | | | | |

| | | | | | | | |
|--|---|---|--------------|---|--------------|---|--------------|
| RELINQUISHED BY: SIGNATURE <u>Krista Collins</u> PRINTED <u>Krista Collins</u> COMPANY <u>EnSafe Inc</u> REASON <u>Ship to Job</u> | DATE <u>8/12/98</u> TIME <u>1800</u> | RECEIVED BY: SIGNATURE _____ PRINTED _____ COMPANY _____ REASON _____ | DATE TIME | RELINQUISHED BY: SIGNATURE _____ PRINTED _____ COMPANY _____ REASON _____ | DATE TIME | RECEIVED BY: SIGNATURE _____ PRINTED _____ COMPANY _____ REASON _____ | DATE TIME |
|--|---|---|--------------|---|--------------|---|--------------|

METHOD OF SHIPMENT: Fedex COMMENTS: All samples DOQ3 & TICS AFTER ANALYSIS, SAMPLES ARE TO BE:
 SHIPMENT NO. 24848175415
 SPECIAL INSTRUCTION: SWL
 DISPOSED OF
 STORED (90 DAYS MAX)
 STORED OVER 90 DAYS
 RETURNED TO CUSTOMER

Environmental and Safety Designs, Inc.



5724 SUMMER TREES DR. MEMPHIS, TN 38134 #1-800-588-7962
 CINCINNATI, OH, CHARLESTON, SC, JACKSON, TN, KNOXVILLE, TN
 NASHVILLE, TN, NORFOLK, VA, PENSACOLA, FL, RALEIGH, NC

CHAIN OF CUSTODY RECORD

BPA/So# P.O. 4
 Rel # 52

PAGE 1 OF 1

CLIENT Naval Base Charleston PROJECT MANAGER Charlie Vernay
 ADDRESS Zone HCMS TELEPHONE NO. (843) 884-0029
 PROJECT NAME/NUMBER 2908-001-14-09d-00 FAX. NO. (843) 856-0107
 SAMPLERS: (SIGNATURE) Krista Collins

| FIELD SAMPLE NUMBER | DATE | TIME | SAMPLE TYPE | TYPE/SIZE OF CONTAINER | PRESERVATION | | NO. OF CONTAINERS | ANALYSIS REQUIRED | | | | | | REMARKS |
|---------------------|---------|------|-------------|--------------------------------|--------------|---------------------------------------|-------------------|-------------------|--------|-----------|--------|-----|----------|---------|
| | | | | | TEMP. | CHEMICAL | | VOCs | Silica | Pest/PCBA | Metals | CAN | Asbestos | |
| NBCA1009GW02601 | 8/13/98 | 920 | GW | 40ml, 1 Lamber 500ml, 250ml | 40C | VOC = HCL CN = NaOH Metals = Hg | 8 | X | X | X | X | X | | |
| NBCA1009GW02901 | | 950 | GW | " " | | | 8 | X | X | X | X | X | | |
| NBCA1159GW00101 | | 1530 | GW | 40ml | | HCL | 2 | X | | | | | | |
| NBCA1159GW00201 | | 1420 | GW | 40ml | | HCL | 2 | X | | | | | | |
| NBCA1017GW00901 | | 1500 | GW | 40ml, 1 Lamber 250ml | | VOC = HCL CN = NaOH | 7 | X | X | X | | X | | |
| NBCA1053GW00301 | | 1345 | GW | 40ml, 500ml | | VOC = HCL Metals = Hg | 3 | X | | | | | X | |
| NBCA1009TW02901 | | - | W | 40ml | | | 1 | X | | | | | | |
| 8/13/98 | | | | | | | | | | | | | | |

| | | | | | | | |
|---|---|---|--------------------------|---|--------------------------|---|--------------------------|
| RELINQUISHED BY: SIGNATURE <u>Krista Collins</u> PRINTED <u>KRISTA COLLINS</u> COMPANY <u>ENSAFE</u> REASON _____ | DATE <u>8/13/98</u> TIME <u>1800</u> | RECEIVED BY: SIGNATURE _____ PRINTED _____ COMPANY _____ REASON _____ | DATE _____ TIME _____ | RELINQUISHED BY: SIGNATURE _____ PRINTED _____ COMPANY _____ REASON _____ | DATE _____ TIME _____ | RECEIVED BY: SIGNATURE _____ PRINTED _____ COMPANY _____ REASON _____ | DATE _____ TIME _____ |
|---|---|---|--------------------------|---|--------------------------|---|--------------------------|

METHOD OF SHIPMENT: FedEx SHIPMENT NO. 4848175426 SPECIAL INSTRUCTION: Ship to lab
 COMMENTS: All samples DQ03 + TICA
 AFTER ANALYSIS, SAMPLES ARE TO BE:
 DISPOSED OF
 STORED (90 DAYS MAX)
 STORED OVER 90 DAYS
 RETURNED TO CUSTOMER



800-588-7862
MEMPHIS, TENNESSEE

CHARLESTON, SC; CINCINNATI, OH; DALLAS, TX; JACKSON, TN; KNOXVILLE, TN;
LANCASTER, PA; NASHVILLE, TN; NORFOLK, VA; PADUCAH, KY; PENSACOLA, FL;
RALEIGH, NC; COLOGNE, GERMANY

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

PROJECT/JOB NO: 2908-001-14-090-00
COC NO: _____
PO NO: 4
REL NO: 52
LAB NAME: SWL

CLIENT Naval Base Charleston PROJECT MANAGER Charlie Verney
LOCATION Zone H CMS TELE/FAX NO. 843-881-0029
SAMPLERS: (SIGNATURE) 2908-001-14-090-00 James Feltz

| NO. OF CONTAINERS | ANALYSIS REQUIRED | | | | |
|-------------------|-------------------|-------|----------|--------|---------|
| | VOCs | SUOCs | Pest/PCB | Metals | Cyanide |

| FIELD SAMPLE NUMBER | DATE | TIME | SAMPLE TYPE | TYPE/SIZE OF CONTAINER | PRESERVATION | | | | | | | REMARKS | |
|------------------------|----------------|--------------|-----------------------|--|--------------|-----------------------------------|----------|----------|----------|----------|----------|----------|--|
| | | | | | TEMP. | CHEMICAL | | | | | | | |
| <u>WBC#1009GW26D01</u> | <u>8/13/98</u> | <u>15:10</u> | <u>H₂O</u> | <u>200ml, 4-14, 1-500</u> <u>1-250 poly</u> | <u>40</u> | <u>HCl, Nitric</u> <u>NaOH</u> | <u>8</u> | <u>X</u> | <u>X</u> | <u>X</u> | <u>X</u> | <u>X</u> | |
| <u>WBC#10176W00701</u> | <u>8/14/98</u> | <u>09:10</u> | <u>H₂O</u> | <u>200ml 4-14</u> <u>1-250 poly</u> | <u>40</u> | <u>HCl, NaOH</u> | <u>7</u> | <u>X</u> | <u>X</u> | <u>X</u> | <u>X</u> | <u>X</u> | |
| <u>WBC#1017TW00701</u> | <u>8/14/98</u> | <u>N/A</u> | <u>H₂O</u> | <u>200ml</u> | <u>40</u> | <u>HCl</u> | <u>2</u> | <u>X</u> | | | | | |

James Feltz

| | | | |
|----------------------------------|-------------------|-----------------|----------------|
| RELINQUISHER: <u>James Feltz</u> | DATE: <u>8/14</u> | RECEIVER: _____ | DATE: _____ |
| PRINTED: <u>James Feltz</u> | TIME: <u>1500</u> | PRINTED: _____ | TIME: _____ |
| COMPANY: <u>EnSafe</u> | COMPANY: _____ | COMPANY: _____ | COMPANY: _____ |

METHOD OF SHIPMENT: FED EX
SHIPMENT NO. 4848175430
SEND RESULTS TO: Charlie Verney

COMMENTS: All samples DQO level III + TICs



800-588-7962
 MEMPHIS, TENNESSEE
 CHARLESTON, SC; CHICAGO, ILL.; DALLAS, TX; JACKSON, TN; KNOXVILLE, TN;
 LANCASTER, PA; NASHVILLE, TN; NORFOLK, VA; PADUCAH, KY; PENSACOLA, FL;
 RALEIGH, NC; COLOGNE, GERMANY

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

PROJECT/JOB NO: 2908-06 014-00

COC NO: _____

PO NO: 4

REL NO: 129

LAB NAME: SWL

CLIENT Naval Base Charleston PROJECT MANAGER Charlie Vermy
 LOCATION Zone H TELE/FAX NO. (843) 884-0029/856-0107
 SAMPLERS: (SIGNATURE) Andrew West [Signature]

ANALYSIS REQUIRED

| NO. OF CONTAINERS | VOCS + TICs | SVOCs + TICs | TAL Metals + Tn | Dioxin/Furan | Hydrazine | Explosives Tetra | REMARKS |
|-------------------|-------------|--------------|-----------------|--------------|-----------|------------------|---------|
| | | | | | | | |
| 10 | X | X | X | X | X | X | |
| 10 | X | X | X | X | X | X | |
| 10 | X | X | X | X | X | X | |
| 10 | X | X | X | X | X | X | |
| 10 | X | X | X | X | X | X | |
| 10 | X | X | X | X | X | X | |
| 10 | X | X | X | X | X | X | |
| 2 | X | | | | | | |

| FIELD SAMPLE NUMBER | DATE | TIME | SAMPLE TYPE | TYPE/SIZE OF CONTAINER | PRESERVATION | |
|---------------------|----------|------|-------------|------------------------|--------------|--------------|
| | | | | | TEMP. | CHEMICAL |
| NBCH 009GW024C1 | 10/19/99 | 0940 | W | Sec Comments | 4°C | Sec Comments |
| NBCH 009GW004C1 | | 0940 | | | | |
| NBCH 009GW001C1 | | 1130 | | | | |
| NBCH 009GW008C1 | | 1145 | | | | |
| NBCH 009FW008C1 | | 1100 | | | | |
| NBCH 009EW008C1 | | 1400 | | | | |
| NBCH 009DW008C1 | | 1415 | | ↓ | ↓ | |
| NBCH 009TW008C1 | ↓ | — | ↓ | 2-40 ml vial | ↓ | HCl |

Andrew West
10/19/99

| | | | |
|----------------------------------|-----------------------|-----------------|----------------|
| RELINQUISHER: <u>Andrew West</u> | DATE: <u>10/19/99</u> | RECEIVER: _____ | DATE: _____ |
| PRINTED: <u>Andrew Wertz</u> | TIME: <u>1600</u> | PRINTED: _____ | TIME: _____ |
| COMPANY: <u>EnSafe</u> | COMPANY: _____ | COMPANY: _____ | COMPANY: _____ |

METHOD OF SHIPMENT: Fed Ex COMMENTS: 2-40 ml vial - HCl ; 6-1L amber - None ; 1-1L poly - HNO3 ; 1-500 ml poly - HCl
 SHIPMENT NO. 4849148393
 SEND RESULTS TO: Charlie Vermy
DQO III 14 Day TAT

EN SAFE



**CHAIN OF CUSTODY RECORD
CHARLESTON ZONE H - QUARTERLY '95**

CTO-Task: 2908-001-00-005

CoC: 99292-AW

BPA/SO: 0P04REL129/000

Address: 5724 Summer Trees Drive
Memphis, TN 38134

Project Manager: Todd
Telephone No.: (901) 372-7962
Fax No.: (901) 372-2454

Page: 1 of 1

Database Number 2908-00005

Samplers: (Signature): _____

| Field Sample Number | Date | Time | Sample Type | Type/Size Of Container | Preservation | | No. of Containers | ANALYSIS REQUIRED | | | | | | | Remarks | | | |
|---------------------|----------|-------|-------------|------------------------|--------------|----------|-------------------|-------------------|-----------|------------|------------|------------|-----------|--|---------|--|--|--|
| | | | | | TEMP. | Chemical | | EXPLOSIVES | HYDRAZINE | SW846-DIOX | SW846-META | SW846-SVOA | SW846-VOA | | | | | |
| 009DW008C1 | 10/19/99 | 14:15 | Water | | 4ø C | | 10 | X | X | X | X | X | X | | | | | |
| 009EW008C1 | 10/19/99 | 14:00 | Water | | 4ø C | | 10 | X | X | X | X | X | X | | | | | |
| 009FW008C1 | 10/19/99 | 11:00 | Water | | 4ø C | | 10 | X | X | X | X | X | X | | | | | |
| 009GW001C1 | 10/19/99 | 11:30 | Water | | 4ø C | | 10 | X | X | X | X | X | X | | | | | |
| 009GW004C1 | 10/19/99 | 09:40 | Water | | 4ø C | | 10 | X | X | X | X | X | X | | | | | |
| 009GW008C1 | 10/19/99 | 11:45 | Water | | 4ø C | | 10 | X | X | X | X | X | X | | | | | |
| 009GW024C1 | 10/19/99 | 09:40 | Water | | 4ø C | | 10 | X | X | X | X | X | X | | | | | |
| 009TW008C1 | 10/19/99 | 00:00 | Water | | 4ø C | | 2 | | | | | | X | | | | | |

| | | | | | | | |
|---|---|---|--------------|---|--------------|---|--------------|
| RELINQUISHED BY: Signature: _____ Printed: <u>ANDREW WERTZ</u> Company: <u>E/A&H</u> Reason: <u>Ship to Lab</u> | DATE <u>10/19/99</u> TIME <u>16:00</u> | RECEIVED BY: Signature: _____ Printed: _____ Company: _____ Reason: _____ | DATE TIME | RELINQUISHED BY: Signature: _____ Printed: _____ Company: _____ Reason: _____ | DATE TIME | RECEIVED BY: Signature: _____ Printed: _____ Company: _____ Reason: _____ | DATE TIME |
|---|---|---|--------------|---|--------------|---|--------------|

| | | |
|---|----------------------------------|---|
| Method of Shipment: <u>FED-EX</u> Shipment No.: <u>4849148393</u> Special Instruction: <u>SWL</u> | Comments: <u>DQ03 14 DAY TAT</u> | After Analysis, Samples are to be: <input checked="" type="checkbox"/> Disposed of <input type="checkbox"/> Stored (90 days Max) <input type="checkbox"/> Stored Over 90 Days <input type="checkbox"/> Returned to Customer |
|---|----------------------------------|---|

PROJECT/JOB NO: 2909-001-09-014-00
 COC NO: _____
 PO NO: 4
 REL NO: 129
 LAB NAME: SWL

800-888-7902
 MEMPHIS, TENNESSEE
 CHARLESTON, SC; CINCINNATI, OH; DALLAS, TX; JACKSON, TN; KNOXVILLE, TN;
 LANCASTER, PA; NASHVILLE, TN; NORFOLK, VA; PADUCAH, KY; PENSACOLA, FL;
 RALEIGH, NC; COLOGNE, GERMANY

CLIENT: Naval Base Charleston PROJECT MANAGER: Charlie Vernoy
 LOCATION: Zone H TELE/FAX NO.: (843) 884-0029/856-0107
 SAMPLERS: (SIGNATURE) Andrew West

| NO. OF CONTAINERS | ANALYSIS REQUIRED | | | | | | REMARKS |
|-------------------|-------------------|--------------|-----------------|---------------|-----------|-------------------|---------|
| | VOLs + TICs | SVOCs + TICs | TN Metals + Tin | Dioxin/Furans | HydroZinc | Explosives/Tetrvl | |

| FIELD SAMPLE NUMBER | DATE | TIME | SAMPLE TYPE | TYPE/SIZE OF CONTAINER | PRESERVATION | | NO. OF CONTAINERS | ANALYSIS REQUIRED | | | | | | REMARKS |
|--------------------------------|----------|------|-------------|------------------------|--------------|--------------|-------------------|-------------------|--------------|-----------------|---------------|-----------|-------------------|---------|
| | | | | | TEMP. | CHEMICAL | | VOLs + TICs | SVOCs + TICs | TN Metals + Tin | Dioxin/Furans | HydroZinc | Explosives/Tetrvl | |
| NBCH\GDHGW003C1 | 10/20/99 | 1000 | W | See Comments | 4°C | See Comments | 10 | X | X | X | X | X | X | |
| NBCH\653GW003C1 | | 1005 | | | | | 10 | X | X | X | X | X | X | |
| NBCH\009GW013C1 | | 1405 | | | | | 10 | X | X | X | X | X | X | |
| NBCH\009TW013C1 | ↓ | - | ↓ | 2-40 mL vial | ↓ | HCl | 2 | X | | | | | | |
| <i>Andrew West</i> 10/20/99 | | | | | | | | | | | | | | |

| | | | |
|----------------------------------|-----------------------|-----------------|-------------|
| RELINQUISHER: <u>Andrew West</u> | DATE: <u>10/20/99</u> | RECEIVER: _____ | DATE: _____ |
| PRINTED: <u>Andrew West</u> | TIME: <u>1530</u> | PRINTED: _____ | TIME: _____ |
| COMPANY: <u>EnSafe</u> | | COMPANY: _____ | |

METHOD OF SHIPMENT: Fed Ex COMMENTS: 2-40ml vial-HCl ; 6-1L amber-None ; 1-1L poly-HNO3 ; 1-500 ml poly-HCl
 SHIPMENT NO. 4849149382
 SEND RESULTS TO: Charlie Vernoy
DDO III 14 Day TAT

ANALYTICAL DATA RECEIVED BY (INITIALS/DATE)

RECEIVED OCT 20 1999

10/20/99 15:42 TEL 7477306 ENSAFE ALLEN HOS --- CHARSAFE

EN SAFE



**CHAIN OF CUSTODY RECORD
CHARLESTON ZONE H - QUARTERLY '95**

CTO-Task: 2908-001-00-005

CoC: 99293-AW

BPA/SO: 0P04REL129/000

Address: 5724 Summer Trees Drive
Memphis, TN 38134

Project Manager: Todd
Telephone No.: (901) 372-7962
Fax No.: (901) 372-2454

Page: 1 of 1

Database Number 2908-00005

Samplers: (Signature): _____

| Field Sample Number | Date | Time | Sample Type | Type/Size Of Container | Preservation | | No. of Containers | ANALYSIS REQUIRED | | | | | | Remarks | |
|---------------------|----------|-------|-------------|------------------------|--------------|----------|-------------------|-------------------|-----------|------------|------------|------------|-----------|---------|--|
| | | | | | TEMP. | Chemical | | EXPLOSIVES | HYDRAZINE | SW846-DIOX | SW846-META | SW846-SVOA | SW846-VOA | | |
| 009GW013C1 | 10/20/99 | 14:05 | Water | | 4ø C | | 10 | X | X | X | X | X | X | | |
| 009TW013C1 | 10/20/99 | 00:00 | Water | | 4ø C | | 2 | | | | | | X | | |
| 653GW003C1 | 10/20/99 | 10:05 | Water | | 4ø C | | 10 | X | X | X | X | X | X | | |
| GDHGW003C1 | 10/20/99 | 10:00 | Water | | 4ø C | | 10 | X | X | X | X | X | X | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

| | | | | | | | |
|---|---|---|--------------|---|--------------|---|--------------|
| RELINQUISHED BY: Signature: _____ Printed: <u>ANDREW WERTZ</u> Company: <u>E/A&H</u> Reason: <u>Ship to Lab</u> | DATE <u>10/20/99</u> TIME <u>15:30</u> | RECEIVED BY: Signature: _____ Printed: _____ Company: _____ Reason: _____ | DATE TIME | RELINQUISHED BY: Signature: _____ Printed: _____ Company: _____ Reason: _____ | DATE TIME | RECEIVED BY: Signature: _____ Printed: _____ Company: _____ Reason: _____ | DATE TIME |
|---|---|---|--------------|---|--------------|---|--------------|

| | | |
|---|----------------------------------|---|
| Method of Shipment: <u>FED-EX</u> Shipment No.: <u>4849148382</u> Special Instruction: <u>SWL</u> | Comments: <u>DQ03 14 DAY TAT</u> | After Analysis, Samples are to be: <input checked="" type="checkbox"/> Disposed of <input type="checkbox"/> Stored (90 days Max) <input type="checkbox"/> Stored Over 90 Days <input type="checkbox"/> Returned to Customer |
|---|----------------------------------|---|



HEARTLAND

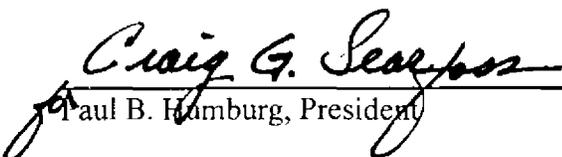
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#: EN016
Date: July 21, 1999
Client Name: Ensafe
Project/Site Name: Charleston Zone H
Date Sampled: June 8-14, 1999
Number of Samples: 16 Aqueous Sample(s) with 0 MS/MSD(s)
Laboratory: Laucks Testing laboratories
Validation Guidance: National Functional Guidelines for Organic and Inorganic Data, February, 1994
QA/QC Level: EPA DQO Level III
Method(s) Utilized: SW846 Third Edition
Analytical Fractions: Volatiles, Semivolatiles, Pesticides/PCBs

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:



Paul B. Hamburg, President

7-22-99

Date

SDG# EN016

Samples and Fractions Reviewed

Sample Identifications

Analytical Fractions

| ENSAFE ID | MATRIX | VOA | SVOA | P/P | | | |
|-------------------------------------|--------|-----|------|-----|---|---|---|
| 020GDF0101 | WATER | X | X | X | | | |
| 020WDF01C1 | WATER | X | X | X | | | |
| 020TDF01C1 | WATER | X | | | | | |
| 020GDF01S1 | WATER | X | | | | | |
| 020GDF01W1 | WATER | X | | | | | |
| 020GDF0201 | WATER | X | X | X | | | |
| 020TDF0201 | WATER | X | | | | | |
| 020GDF02S1 | WATER | X | | | | | |
| 020GDF02W1 | WATER | X | | | | | |
| 020GDF0301 | WATER | X | X | X | | | |
| 020GDF03S1 | WATER | X | | | | | |
| 020GDF03W1 | WATER | X | | | | | |
| 020GDF0401 | WATER | X | X | X | | | |
| 020TDF0401 | WATER | X | | | | | |
| 020GDF04S1 | WATER | X | | | | | |
| 020GDF04W1 | WATER | X | | | | | |
| Total Billable Samples (Water/Soil) | | 16 | 0 | 5 | 0 | 5 | 0 |

VOA= Volatiles
 SVOA= Semivolatiles
 P/P= Pesticides/PCBs

DATA ASSESSMENT NARRATIVES

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW846 Method 8260B; the National Functional Guidelines for Organic Data Review, and DQO Level III. All comments made within this report should be considered when examining the analytical results.

SDG # EN016

A validation was performed on the Volatile Data from SDG EN016. The data was evaluated based on the following parameters.

- * Data Completeness
- * Holding Times
- * GC/MS Tuning
- Calibrations
- * Internal Standard Performance
- * Blanks
- * Surrogate Recoveries
- * Laboratory Control Samples
- * Matrix Spike/Matrix Spike duplicate
- * Field Duplicates
- Compound Identification/Quantitation

* - All criteria were met for this parameter

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 2

Initial Calibration

The initial calibration, analyzed on 05/19/99, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as rejected (UR).

All Samples acetone (0.040)

The initial calibration, analyzed on 05/19/99, contained compounds with %ds greater than 15% and less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J).

020GDF0101 2-butanone (24.6%)

Continuing Calibration

The continuing calibration, U0610004.D, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as rejected (UR).

020GDF01S1 acetone (0.037)
020GDF02S1 2-chloroethyl vinyl ether (0.002)
020GDF02W1
020GDF0201

The continuing calibration, U0614005.D, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as rejected (UR).

020GDF01W1 acetone (0.035)
020GDF0101 2-butanone (0.044)
020GDF03S1
020GDF03W1
020GDF0301
020GDF04S1
020GDF04W1
020GDF0401

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 3

Continuing Calibration

The continuing calibration, U0614005.D, contained compounds with %Ds greater than 50% and less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

| | |
|------------|-----------------------------------|
| 020GDF01W1 | vinyl acetate (80.1%) |
| 020GDF0101 | carbon tetrachloride (50.6%) |
| 020GDF03S1 | trans-1,3-dichloropropene (63.9%) |
| 020GDF03W1 | dibromochloromethane (63.2%) |
| 020GDF0301 | bromoform (81.5%) |
| 020GDF04S1 | |
| 020GDF04W1 | |
| 020GDF0401 | |

The continuing calibration, U0616006.D, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as rejected (UR).

| | |
|------------|-----------------------------------|
| 020WDF01C1 | acetone (0.045) |
| | 2-chloroethyl vinyl ether (0.002) |

Compound Identification/Quantitation

Do not use E-flagged compound results, in favor of the D-flagged corresponding compound in the dilution for 020GDF0201 and 020GDF02W1.

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

| <u>SAMPLE ID</u> | <u>COMPOUND ID</u> | <u>DL</u> | <u>QL</u> |
|------------------|------------------------------|-----------|------------|
| All Samples | acetone | +/- | J/UR |
| 020GDF0101 | 2-butanone | + | J |
| 020GDF01S1 | acetone | +/- | J/UR |
| 020GDF02S1 | 2-chloroethyl vinyl ether | | |
| 020GDF02W1 | | | |
| 020GDF0201 | | | |
| 020GDF01W1 | acetone | +/- | J/UR |
| 020GDF0101 | 2-butanone | | |
| 020GDF03S1 | | | |
| 020GDF03W1 | | | |
| 020GDF0301 | | | |
| 020GDF04S1 | | | |
| 020GDF04W1 | | | |
| 020GDF0401 | | | |
| 020GDF01W1 | vinyl acetate | +/- | J/UJ |
| 020GDF0101 | carbon tetrachloride | | |
| 020GDF03S1 | trans-1,3-dichloropropene | | |
| 020GDF03W1 | dibromochloromethane | | |
| 020GDF0301 | bromoform | | |
| 020GDF04S1 | | | |
| 020GDF04W1 | | | |
| 020GDF0401 | | | |
| 020WDF01C1 | acetone | +/- | J/UR |
| | 2-chloroethyl vinyl ether | | |
| 020GDF0201 | all E-flagged compounds | + | do not use |
| 020GDF02W1 | | | |
| 020GDF0201DL | all results except D-flagged | +/- | do not use |
| 020GDF02W1DL | compounds | | |

- * DL denotes the Form I qualifier supplied by the laboratory
 QL denotes the qualifier used by the data validation firm
 + in the DL column denotes a positive result
 - in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW846 Method 8270C; the National Functional Guidelines for Organic Data Review, and DQO Level III. All comments made within this report should be considered when examining the analytical results.

SDG # EN016

A validation was performed on the Semivolatile Data from SDG EN016. The data was evaluated based on the following parameters.

- * Data Completeness
- * Holding Times
- * GC/MS Tuning
- Calibrations
- * Internal Standard Performance
- Blanks
- * Surrogate Recoveries
- * Laboratory Control Samples
- * Matrix Spike/Matrix Spike duplicate
- * Field Duplicates
- * Compound Identification/Quantitation

* - All criteria were met for this parameter

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ANALYSIS

PAGE - 2

Initial Calibration

The initial calibration, analyzed on 06/19/99, contained compounds with %Ds greater than 15% and less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J).

All Samples benzoic acid (16.6%)

Blank

The end user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into considerations when applying the 5X and 10X criteria to field samples.

Method Blank

| <u>Associated blank</u> | <u>Compound</u> | <u>Concentration</u> | <u>Action Level</u> |
|-------------------------|----------------------------|----------------------|---------------------|
| SBLK1 | bis(2-ethylhexyl)phthalate | 1J ug/L | 10 ug/L |

| <u>Samples</u> | <u>Compound</u> | <u>Qualification</u> |
|--|----------------------------|----------------------|
| 020GDF0101 020GDF0201 020GDF0301 020GDF0401 020WDF01C1 | bis(2-ethylhexyl)phthalate | CRQL |

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

| <u>SAMPLE ID</u> | <u>COMPOUND ID</u> | <u>DL</u> | <u>QL</u> |
|--|----------------------------|-----------|-----------|
| All Samples | benzoic acid | + | J |
| 020GDF0101 020GDF0201 020GDF0301 020GDF0401 020WDF01C1 | bis(2-ethylhexyl)phthalate | + | CRQL |

- * DL denotes the Form I qualifier supplied by the laboratory
- QL denotes the qualifier used by the data validation firm
- + in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

PESTICIDE/AROCLORS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance, and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW846 Method 8081A/8082; the National Functional Guidelines for Organic Data Validation, February 1994; and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # EN016

A validation was performed on the Pesticide/Aroclor Data from SDG EN016. The data was evaluated based on the following parameters:

- * • Data Completeness
- * • Holding Times
- * • GC Performance
- * • Calibration
- * • Blanks
- * • Surrogate Recoveries
- * • Matrix Spike/Matrix Spike Duplicates
- * • Field Duplicates
- * • Compound Identification
- * • Compound Quantitation

* - All criteria were met for this parameter.

System Performance and Overall Assessment

The data did not require qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

NJ = Result is considered presumptively present at an estimated concentration

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 5X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

| <u>SAMPLE ID</u> | <u>COMPOUND ID</u> | <u>DL</u> | <u>QL</u> |
|------------------|--------------------|-----------|-----------|
|------------------|--------------------|-----------|-----------|

NO QUALIFICATIONS WERE REQUIRED.

- * DL denotes the Form I qualifier supplied by the laboratory
- QL denotes the qualifier used by the data validation firm
- + in the DL column denotes a positive result
- in the DL column denotes a non-detect result

VALIDATA

Chemical Services, Inc.

P. O. Box 930422, Norcross, GA 30003

(770) 923-3890

(770) 923-8769 (Fax)

DATA VALIDATION SUMMARY REPORT

COMPANY: Ensafe, Inc.
SITE NAME: Charleston Naval Base, Zone H
SERVICE ORDER NUMBER: 0305
CONTRACTED LAB: Southwest Laboratories, Inc.
QA/QC LEVEL: EPA Level III
EPA METHOD: EPA SOW 3-90 or SW-846
VALIDATION GUIDELINES: USEPA CLP National Functional Guidelines for Organic Data Review, 1994; USEPA CLP National Functional Guidelines for Inorganic Data Review, 1994

SAMPLE MATRIX: Water
TYPES OF ANALYSES: Total Volatiles, Semivolatiles, Pesticides / PCB's, Total Metals, Cyanide

SDG NUMBER: 35210 (Level III)

| Client | Lab | Matrix | Volatile Organics | Semi- volatiles | Pesticides/ PCB's | Metals/ Cyanide |
|-----------------|-----------------|--------|----------------------|--------------------|----------------------|--------------------|
| <u>Sample #</u> | <u>Sample #</u> | | | | | |
| 009GW01D01 | 35228.01 | Water | X | X | X | X |
| 009HW01D01 | 35228.02 | Water | X | X | X | X |
| 009GW02001 | 35210.04 | Water | X | X | X | X |
| 009GW02001DL | 35210.04DL | Water | + | + | | |
| 009GW020F1 | 35210.05 | Water | | | | X* |
| 009GW02101 | 35210.08 | Water | X | X | X | X |
| 009GW02101DL | 35210.08DL | Water | + | + | | |
| 009TW02101 | 35210.07 | Water | X | | | |
| 009TW02101RE | 35210.07RE | Water | + | | | |
| 009GW02201 | 35228.03 | Water | X | X | X | X |
| 009GW022F1 | 35228.04 | Water | | | | X* |
| 009GW02301 | 35210.02 | Water | X | X | X | X |
| 009GW023F1 | 35210.03 | Water | | | | X* |
| 009GW02501 | 35228.08 | Water | X | X | X | X |
| 009GW02701 | 35228.07 | Water | X | X | X | X |
| 009GW02801 | 35228.05 | Water | X | X | X | X |
| 009GW03001 | 35228.09 | Water | X | X | X | X |
| 009TW03001 | 35228.10 | Water | X | | | |
| 009GW23D01 | 35210.01 | Water | X | X | X | X |
| 009GW25D01 | 35228.06 | Water | X | + | X | X |

| <u>Client</u> <u>Sample #</u> | <u>Lab</u> <u>Sample #</u> | <u>Matrix</u> | <u>Volatile</u> <u>Organics</u> | <u>Semi-</u> <u>volatiles</u> | <u>Pesticides/</u> <u>PCB's</u> | <u>Metals/</u> <u>Cyanide</u> |
|----------------------------------|-------------------------------|---------------|------------------------------------|----------------------------------|------------------------------------|----------------------------------|
| 009GW25D01RE | 35228.06RE | Water | | X | | |
| GELGW01502 | 35210.06 | Water | X | X | X | X |
| GELDW01502DL | 35210.06DL | Water | + | + | | |
| 009GW23D01MS | 35210.01MS | Water | | + | + | |
| 009GW23D01MSD | 35210.01MSD | Water | | + | + | |
| 009GW01D01MS | 35228.01MS | Water | | | | + |
| 009GW01D01MD | 35228.01MD | Water | | | | + |
| 009GW03001MS | 35228.09MS | Water | | | | + |
| 009GW03001MD | 35228.09MD | Water | | | | + |

* Analyses include total metals only.

+ Non-billable analysis

DL = DILUTION, MD = MATRIX DUPLICATE, MS = MATRIX SPIKE,
MSD = MATRIX SPIKE DUPLICATE, RE = REANALYSIS, T = TRIP BLANK

DATA REVIEWER(S): Amy L. Hogan, Marvin L. Smith, Jean M. Delashmit

RELEASE SIGNATURE:



Data Qualifier Definitions

- J - The associated numerical value is an estimated quantity.
- R - The data are unusable (the compound/analyte may or may not be present). Resampling and reanalysis are necessary for verification.
- U - The compound/analyte was analyzed for, but not detected. The associated numerical value is the sample quantitation limit.
- UU - The compound/analyte was analyzed for, but not detected. The sample quantitation limit is an estimated quantity.

DATA QUALIFICATION SUMMARY

Southwest Laboratories of Oklahoma, Inc. - 35210 CLP Organics and Inorganics

SAMPLES: 009GW01D01, 009HW01D01, 009GW02001, 009GW02001DL, 009GW020F1, 009GW02101, 009GW02101DL, 009TW02101, 009TW02101RE, 009GW02201, 009GW022F1, 009GW02301, 009GW023F1, 009GW02501, 009GW02701, 009GW02801, 009GW03001, 009TW03001, 009GW23D01, 009GW25D01, 009GW25D01RE, GELGW01502, GELGW01502DL, 009GW23D01MS, 009GW23D01MSD, 009GW01D01MS, 009GW01D01MD, 009GW03001MS, 009GW03001MD

VOLATILE ORGANICS

I.) Holding Times:

The fifteen days between sample date and analysis date for sample GELGW01502DL exceeded the 14 day QC limit for water samples. The positive result for chlorobenzene, which was the only analyte required for this dilution analysis, was flagged as estimated (J).

II.) GC / MS Tuning:

All GC / MS Tuning criteria were met. No action was required.

III.) Calibration:

Initial Calibration:

The Average Relative Response Factor (RRF) for 2-chloroethyl vinyl ether was 0.014 for the standards run on 7/27/98 on instrument C, which was below the 0.050 QC limit. All results for this compound in the associated samples, which consisted entirely of non-detects, were rejected (R). The associated samples were 009GW01D01, 009HW01D01, 009GW02201, 009GW02801, 009GW25D01, 009GW02701, 009GW03001, 009GW02501 and trip blank 009TW03001.

The Average Relative Response Factor (RRF) for acetone was 0.041 for the standards run on 8/10/98 on instrument U, which was below the 0.050 QC limit. All results for this compound in the associated samples, which consisted entirely of non-detects, were rejected (R). The associated samples were 009GW23D01, 009GW02301, 009GW02001, GELGW01502, 009GW02101 and trip blank 009TW02101.

Continuing Calibration:

The Relative Response Factors (RRF's) for acetone (0.042) and 2-chloroethyl vinyl ether (0.020) were below the 0.050 QC limit for the standards run on 8/17/98 at 09:23 on instrument C. All positive results for acetone in the associated samples were flagged as estimated (J) and all non-detect results

for acetone in the associated samples were rejected (R). The associated samples were 009GW01D01, 009HW01D01, 009GW02201, 009GW02801, 009GW25D01, 009GW02701, and 009GW03001. The results for 2-chloroethyl vinyl ether were previously rejected because of a low RRF in the initial calibration. No further action was required.

The Percent Differences (%D's) exceeded the 25% QC limit for the standards run on 8/17/98 at 09:23 on instrument C for the following compounds:

| | |
|------------|-------|
| 2-butanone | 32.6% |
| bromoform | 27.9% |

All results for these compounds in the associated samples, which consisted entirely of non-detects, were flagged as estimated (UJ). The associated samples were 009GW01D01, 009HW01D01, 009GW02201, 009GW02801, 009GW25D01, 009GW02701, and 009GW03001.

The Relative Response Factors (RRF's) for acetone (0.047) and 2-chloroethyl vinyl ether (0.014) were below the 0.050 QC limit for the standards run on 8/18/98 at 08:52 on instrument C. All results for acetone in the associated samples, which consisted entirely of non-detects, were rejected (R). The associated samples were 009GW02501 and trip blank 009TW03001. The results for 2-chloroethyl vinyl ether in the associated sample and blank were previously rejected because of a low RRF in the initial calibration. No further action was required.

The Percent Differences (%D's) exceeded the 25% QC limit for the standards run on 8/18/98 at 08:52 on instrument C for the following compounds:

| | |
|--------------------|-------|
| chloromethane | 29.5% |
| methylene chloride | 29.9% |
| vinyl acetate | 53.9% |
| 2-butanone | 49.5% |
| bromoform | 27.8% |
| total xylenes | 187% |

All results for these compounds in associated sample 009GW02501, which consisted entirely of non-detects after blank qualification, were flagged as estimated (UJ).

The Relative Response Factor (RRF) for acetone (0.034) was below the 0.050 QC limit for the standards run on 8/13/98 at 09:41 on instrument U. The results for this compound in the associated samples were previously rejected because of a low RRF in the initial calibration. No further action was required.

The Percent Differences (%D's) exceeded the 25% QC limit for the standards run on 8/13/98 at 09:41 on instrument U for the following compounds:

| | |
|--------------------|-------|
| bromomethane | 51.1% |
| carbon disulfide | 25.1% |
| 1,2-dichloroethene | 93.2% |

All positive and non-detect results for these compounds in the associated sample were flagged as

estimated (J) and (UJ). The associated samples were 009GW23D01, 009GW02301, 009GW02001 and GELGW01502.

The Relative Response Factor (RRF) for acetone (0.032) was below the 0.050 QC limit for the standards run on 8/14/98 at 10:46 on instrument U. All results for acetone in the associated samples were previously rejected because of a low RRF in the initial calibration. No further action was required.

The Percent Differences (%D's) exceeded the 25% QC limit for the standards run on 8/14/98 at 10:46 on instrument U for the following compounds:

| | |
|--------------------|-------|
| carbon disulfide | 47.2% |
| 1,2-dichloroethene | 90.4% |

The positive and non-detect results for these compounds in associated sample 009GW02101 were flagged as estimated (J) and (UJ).

IV.) Blanks:

Method Blanks:

There were no positive detections in the method blanks. No action was required.

Trip Blanks:

Methylene chloride was detected at 26 ug/L in trip blank 009TW03001. All positive results for this compound in the associated samples, less than 10X the blank amount, were flagged as undetected (U) with the detection limits being raised to the level of contamination in each sample. The associated samples were 009GW01D01, 009HW01D01, 009GW02201, 009GW02501, 009GW02701, 009GW02801 and 009GW03001.

Chlorobenzene was detected at 32 ug/L in trip blank 009TW02101. Since there were no positive results for this compound in the associated samples less than 5X the blank amount, no action was taken.

Tentatively Identified Compounds (TIC's):

There were no TIC's detected in the method or trip blanks. No action was required.

V.) Surrogate Recoveries:

All Surrogate Recovery criteria were met. No action was required.

VI.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS / MSD analyses were not performed in this fraction of the SDG. No action was required.

VII.) Laboratory Control Samples (LCS):

Five LCS's were analyzed for this SDG. Several recoveries were outside the QC limits. Data

validation action based on LCS criteria was not required. No action was taken.

VIII.) Field Duplicates:

There were no calculable Relative Percent Differences (RPD's) for the set of field duplicate samples identified in this SDG. No action was required.

IX.) Internal Standards Performance (ISTD):

All ISTD criteria were met. No action was required.

X.) TCL Compound Identification:

The original results exceeded the linear standard calibration range for chlorobenzene in samples 009GW02001, 009GW02101 and GELGW01502. The original results for this compound were replaced with the dilution results with the appropriate qualifiers (D or DJ).

XI.) Compound Quantitation and Reported Contract Required Quantitation Limits (CRQL's):

All CRQL criteria were met. No action was necessary.

XII.) Tentatively Identified Compounds (TIC's):

All TIC Identification criteria were met. No action was required.

XIII.) System Performance:

All System Performance criteria were met. No action was taken.

XIV.) Overall Assessment of Data/General:

The original analysis of sample 009TW02101 was considered by the validator to be of preferable data quality to the reanalysis because of its better holding time.

Twenty-three non-detect results for acetone and 2-chloroethyl vinyl ether in the samples in this SDG were rejected because of low Relative Response Factors in the initial and continuing calibrations. All other laboratory data were acceptable with qualifications.

SEMIVOLATILE ORGANICS

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) GC / MS Tuning:

All GC / MS Tuning criteria were met, so no action was required.

III.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No action was required.

Continuing Calibration:

The Percent Difference (%D) exceeded the 25% QC limits for the standards run on 8/19/98 at 12:56 on instrument M for hexachlorocyclopentadiene (25.2%). The results for this compound in the associated samples, which consisted entirely of non-detects, were flagged as estimated (UJ). The associated samples were 009GW23D01, 009GW02301, 009GW02001, GELGW01502 and 009GW02101.

The Percent Difference (%D) exceeded the 25% QC limits for the standards run on 8/21/98 at 12:52 on instrument M for hexachlorocyclopentadiene (29.6%). The results for this compound in the associated samples, which consisted entirely of non-detects, were flagged as estimated (UJ). The associated samples were 009GW02701, 009GW02501 and 009GW03001.

IV.) Blanks:

Method Blanks:

1,4-Dichlorobenzene and bis(2-ethylhexyl)phthalate were detected at 6 ug/L and 3 ug/L, respectively, in method blank SBLK1. All positive results for 1,4-dichlorobenzene, less than 5X the blank amount, and all positive results for bis(2-ethylhexyl)phthalate less than 10X the blank amount, in the associated samples were flagged as undetected (U) with the analytical results below the CRQL being replaced with the CRQL. The associated samples were 009GW23D01, 009GW02301, 009GW02001, GELGW01502 and 009GW02101.

Phenol was detected at 2 ug/L in method blank SBLK3. Since there were no positive results for this compound in the associated samples, no action was required.

Tentatively Identified Compounds (TIC's):

There were no TIC's detected in the method blanks. No action was required.

V.) Surrogate Recoveries:

The Surrogate Percent Recoveries (%R's) were below their respective QC limits for the following samples:

| <u>Sample #</u> | <u>Surrogate</u> | <u>%R</u> | <u>QC Limits</u> |
|-----------------|------------------|-----------|------------------|
| 009HW01D01 | 2-fluorobiphenyl | 34% | 43-116% |
| 009GW02201 | terphenyl-d14 | 28% | 33-141% |
| 009GW02801 | 2-fluorobiphenyl | 38% | 43-116% |
| 009GW02701 | terphenyl-d14 | 30% | 33-141% |
| 009GW02501 | 2-fluorobiphenyl | 41% | 43-116% |

Since only one surrogate recovery in the base/neutral fraction was below the QC limits for each of these samples, no action was required.

VI.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

The Percent Recoveries (%R's) were below the QC limits for spiked sample 009GW23D01MSD for the following compounds:

| <u>Compound</u> | <u>MSD</u> | <u>QC Limits</u> |
|----------------------------|------------|------------------|
| 2-chlorophenol | 26% | 27-123% |
| n-nitroso-di-n-propylamine | 38% | 41-116% |
| 4-nitrophenol | 1% | 10-80% |
| pentachlorophenol | 3% | 9-103% |

The non-detect results for 4-nitrophenol and pentachlorophenol in unspiked sample 009GW23D01 were rejected (R) because the %R's were less than 10%. The non-detect results for 2-chlorophenol and n-nitroso-di-n-propylamine were flagged as estimated (UJ).

The Relative Percent Differences (RPD's) for spiked samples 009GW23D01MS and 009GW23D01MSD exceeded the QC limits for the following compounds:

| <u>Compound</u> | <u>RPD</u> | <u>QC Limit</u> |
|-------------------------|------------|-----------------|
| phenol | 60% | 42% |
| 2-chlorophenol | 72% | 40% |
| 4-chloro-3-methylphenol | 50% | 42% |
| 2,4-dinitrotoluene | 68% | 38% |
| 4-nitrophenol | 193% | 50% |
| pentachlorophenol | 179% | 50% |

All results for these compounds in unspiked sample 009GW23D01, which consisted entirely of non-detects were flagged as estimated (UJ), unless previously flagged using the MSD spiked sample.

VII.) Laboratory Control Samples (LCS):

One LCS was analyzed for this SDG. Several Recoveries were outside the QC limits. Data validation based on LCS criteria was not required. No action was taken.

VIII.) Field Duplicates:

There were no calculable Relative Percent Differences (RPD's) for the set of field duplicate samples identified in this SDG. No action was required.

IX.) Internal Standards Performance (ISTD):

All ISTD criteria were met. No action was required.

X.) TCL Compound Identification:

All Compound Identification criteria were met. No action was required.

XI.) Compound Quantitation and Reported Contract Required Quantitation Limits (CRQL's):

The results for 1,2-dichlorobenzene and 1,4-dichlorobenzene in samples 009GW02001, 009GW02101 and GELGW01502 were taken from dilution analyses of the samples since the results for these compounds in the original analyses exceeded the linear standard calibration range.

All other CRQL criteria were met. No further action was necessary.

XII.) Tentatively Identified Compounds (TIC's):

All TIC Identification criteria were met. No action was required.

XIII.) System Performance:

All System Performance criteria were met. No action was taken.

XIV.) Overall Assessment of Data/General:

The reanalysis of sample 009GW25D01 was considered by the validator to be of preferable data quality to the original analysis because of improved surrogate recoveries.

The non-detect results for 4-nitrophenol and pentachlorophenol were rejected in sample 009GW23D01 because of low recoveries (less than 10%) in the MSD. All other laboratory data were acceptable with qualifications.

PESTICIDES/PCB's

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Instrument Performance:

The Percent Difference (%D) exceeded the 25% QC limit for the PEM run on 8/19/98 at 10:59 on the secondary column for beta-BHC (29.0%). All results for this compound in the associated samples, which consisted entirely of non-detects, were flagged as estimated (UJ). The associated samples were 009GW23D01, 009GW02301, 009GW02001, GELGW01502 and 009GW02101.

The Percent Difference (%D) exceeded the 25% QC limit for the PEM run on 8/27/98 at 22:47 on the secondary column for 4,4'-DDT (26.0%). All results for this compound in the associated samples, which consisted entirely of non-detects, were flagged as estimated (UJ). The associated samples were 009GW01D01, 009HW01D01, 009GW02201, 009GW02801, 009GW02701 and 009GW03001.

III.) Calibration:

All Initial and Continuing Calibration criteria were met. No action was required.

IV.) Blanks:

There were no positive detections in the method blanks. No action was required.

V.) Surrogate Recoveries:

The Percent Recoveries (%R's) of surrogate TCX exceeded the 30-150% QC limits for the following samples:

| <u>Client</u> <u>Sample #</u> | <u>TCX, %R</u> <u>Column 1</u> | <u>TCX, %R</u> <u>Column 2</u> |
|----------------------------------|-----------------------------------|-----------------------------------|
| 009GW02001 | | 168% |
| GELGW01502 | | 168% |
| 009GW02101 | | 477% |

All positive detections in these samples were flagged as estimated (J).

VI.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

The Percent Recoveries (%R's) of 4,4'-DDE in spiked samples 009GW23D01MS (62%) and 009GW23D01MSD (64%) were below the 70-122% QC limits. The non-detect result for this compound in associated unspiked sample 009GW23D01 was flagged as estimated (UJ).

VII.) TCL Compound Identification:

Pesticide/PCB Identification Summary (PIS):

The Percent Differences (%D's) between column 1 and column 2 exceeded the 70% QC limit for the following sample:

| <u>Sample</u> | <u>Compound</u> | <u>Col., %D</u> |
|---------------|-----------------|-----------------|
| 009GW02101 | beta-BHC | 999% |
| 009GW02701 | heptachlor | 507% |
| | endosulfan I | 162% |

The results for the compounds with %D's exceeding 300% were rejected (R), and the results for the other compound was flagged as estimated (J).

VIII.) Field Duplicates:

There were no calculable Relative Percent Differences (RPD's) for the set of field duplicate samples in this SDG. No action was required.

IX.) Pesticide Cleanup Check:

Florisil Cartridge Check:

Florisil Cleanup data was not submitted for this SDG. No action was taken.

Gel Permeation Chromatography (GPC):

GPC cleanup was not required for this SDG. No action was taken.

X.) Overall Assessment of Data/General:

The results for beta-BHC in sample 009GW02101 and heptachlor in sample 009GW02701 were rejected (R) based on PIS criteria. All other laboratory data were acceptable with qualifications.

TOTAL METALS / CYANIDE

I.) Holding Times:

All Holding Time criteria were met, so no action was taken.

II.) Calibration:

All Initial and Continuing Calibration criteria were met, so no action was necessary.

III.) Blanks:

The following blank results represent the highest detections associated with the samples and were used for data qualification:

| <u>Blank Type/ID#</u> | <u>Analyte</u> | <u>Max. Conc.</u> | <u>5X Action Level</u> |
|-----------------------|----------------|-------------------|------------------------|
| CCB1 | aluminum | 57.6 ug/L | 288 ug/L |
| CCB3 | antimony | 4.8 ug/L | 24.0 ug/L |
| ICB | arsenic | 3.0 ug/L | 15.0 ug/L |
| CCB1 | barium | 0.8 ug/L | 4.0 ug/L |
| CCB2 | beryllium | 0.3 ug/L | 1.5 ug/L |
| CCB1 | cadmium | 0.5 ug/L | 2.5 ug/L |
| CCB1 | chromium | 1.2 ug/L | 6.0 ug/L |
| CCB1 | cobalt | 1.1 ug/L | 5.5 ug/L |
| CCB4 | copper | 3.1 ug/L | 15.5 ug/L |
| CCB1 | iron | 35.5 ug/L | 178 ug/L |
| CCB1 | magnesium | 43.4 ug/L | 217 ug/L |
| CCB1 | nickel | 1.3 ug/L | 6.5 ug/L |
| CCB1 | silver | 3.2 ug/L | 16.0 ug/L |
| PBW | sodium | 536 ug/L | 2700 ug/L |
| CCB3 | thallium | 3.4 ug/L | 17.0 ug/L |

| <u>Blank Type/ID#</u> | <u>Analyte</u> | <u>Max. Conc.</u> | <u>5X Action Level</u> |
|---------------------------|----------------|-------------------|----------------------------|
| CCB1 | vanadium | 1.8 ug/L | 9.0 ug/L |

CCB = Continuing Calibration Blank, ICB = Initial Calibration Blank,
PBW = Preparation Blank (Water)

All results greater than the IDL but less than 5X the blank amounts (Action Level, ug/L for water samples) for which the contaminated blank was an associated calibration or preparation blank were flagged as undetected (U).

The following analytes had negative results with absolute values greater than the IDL:

| <u>Blank Type/ID#</u> | <u>Analyte</u> | <u>Neg. Conc.</u> | <u>5X Conc.</u> |
|---------------------------|----------------|-------------------|-----------------|
| CCB2 | potassium | -741 ug/L | 3700 ug/L |
| CCB3 | selenium | -3.4 ug/L | 17.0 ug/L |
| PBW | tin | -32 ug/L | 160 ug/L |
| CCB1 | cyanide | -2.6 ug/L | 13.0 ug/L |

CCB = Continuing Calibration Blank, PBW = Preparation Blank (Water)

All associated positive sample results less than 5X the absolute value of the negative blank results and all associated non-detects were flagged as estimated (J) and (UJ).

IV.) ICP Interference Check Sample Results:

All Percent Recovery criteria were met, so no action was taken.

The following analytes were detected in ICS Solution A at concentrations greater than the IDL:

| | |
|----------|---------|
| antimony | 7 ug/L |
| arsenic | 9 ug/L |
| barium | 5 ug/L |
| chromium | 3 ug/L |
| copper | 6 ug/L |
| lead | 4 ug/L |
| silver | 3 ug/L |
| thallium | 14 ug/L |
| vanadium | 2 ug/L |
| zinc | 3 ug/L |

These analytes should not be present. Since neither aluminum, calcium, iron nor magnesium was present in the samples at a concentration comparable to or greater than the amount in Solution A, no action was required.

Negative results were observed in ICS Solution A at absolute concentrations greater than the IDL for the following analytes:

| | |
|-----------|-----------|
| cadmium | -1 ug/L |
| cobalt | -2 ug/L |
| manganese | -3 ug/L |
| nickel | -1 ug/L |
| potassium | -139 ug/L |
| selenium | -6 ug/L |
| sodium | -156 ug/L |

Since neither aluminum, calcium, iron nor magnesium was present in the samples at a concentration comparable to or greater than the amount in Solution A, no action was required.

V.) ICP Serial Dilution Analysis:

The Percent Difference (%D) for sodium was 13% for dilution sample 009GW03001L, which exceeded the 10% QC limit. All positive results for sodium in the SDG samples were flagged as estimated (J).

VI.) Laboratory Control Samples (LCS):

All LCS Recovery criteria were met. No action was required.

VII.) Duplicate Sample Analysis:

All Duplicate Sample Analysis criteria were met. No action was required.

VIII.) Matrix Spike Recoveries:

All Matrix Spike Recovery criteria were met. No action was required.

IX.) Field Duplicates:

One set of field duplicate samples were analyzed by the laboratory for this SDG. The calculable Relative Percent Differences (RPD's) were:

| <u>Compound</u> | <u>009GW01D01, ug/L</u> | <u>009HW01D01, ug/L</u> | <u>RPD</u> |
|-----------------|-------------------------|-------------------------|------------|
| barium | 174 | 173 | 0.6% |
| calcium | 450000 | 443000 | 1.6% |
| iron | 2610 | 2450 | 6.3% |
| magnesium | 352000 | 356000 | 1.1% |
| manganese | 617 | 613 | 0.6% |
| potassium | 103000 | 102000 | 0.9% |
| sodium | 4240000 | 4070000 | 4.1% |
| zinc | 10.2 | 9.7 | 5.0% |

Since all RPD's were within the 30% QC limit for water samples, no action was required.

X.) Graphite Furnace Atomic Absorption QC (GFAA):

Graphite Furnace analyses were not used for the samples in this SDG. No action was required.

XI.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No action was required.

XII.) Quarterly Verification of Instrumental Parameters:

All criteria were met. No action was taken.

XIII.) Overall Assessment of Data/General:

All laboratory data were acceptable with qualifications.

VALIDATA

Chemical Services, Inc.

P. O. Box 930422, Norcross, GA 30003

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(770) 923-8769 (Fax)

DATA VALIDATION SUMMARY REPORT

COMPANY: Ensafe, Inc.
SITE NAME: Charleston Navel Base, Zone H
SERVICE ORDER NUMBER: 0311
CONTRACTED LAB: Southwest Laboratory of Oklahoma, Inc.
QA/QC LEVEL: EPA Level III
EPA METHOD: EPA SOW 3-90 / SW846
VALIDATION GUIDELINES: USEPA CLP National Functional Guidelines for Organic Data Review, 1994; USEPA CLP National Functional Guidelines for Inorganic Data Review, 1994
SAMPLE MATRIX: Water
TYPES OF ANALYSES: Volatile Organics, Semivolatiles, Pesticides/PCB's, Total Metals, Cyanide
SDG NUMBER: 35007 (Level III)

SAMPLES:

| Client Sample # | Lab Sample # | Matrix | Volatile Organics | Semi- volatiles | Pesticides/ PCBs | Total Metals | Cyanide |
|--------------------|-----------------|--------|----------------------|--------------------|---------------------|-----------------|---------|
| 009GW02401 | 35182-01 | Water | X | X | X | X | X |
| 009GW24D01 | 35182-02 | Water | X | X | X | X | X |
| 009HW24D01 | 35182-03 | Water | X | X | X | X | X |
| 014GW00305 | 35007-03 | Water | X | | | | |
| 014GW00405 | 35007-01 | Water | X | | | | |
| 014GW00505 | 35007-04 | Water | X | | | | |
| 014GW00601 | 35007-05 | Water | X | | | | |
| 014GW04D05 | 35007-02 | Water | X | | | | |
| 014GW05D05 | 35007-10 | Water | X | | | | |
| 017GW00501 | 25067-01 | Water | | X | X | X* | |
| GDHGW00305 | 35007-09 | Water | X | | | X* | |
| GDHGW00605 | 35007-08 | Water | X | | | X* | |
| GDHGW03D05 | 35007-06 | Water | X | | | X* | |
| GDIHGW06D05 | 35007-07 | Water | X | | | | |
| 009EW24D01 | 35182-04 | Water | X | X | X | X | X |
| 009FW02401 | 35182-05 | Water | X | X | X | X | X |
| 009TW02401 | 35182-06 | Water | X | | | | |
| GDHTW00305 | 35007-11 | Water | X | | | | |
| 014GW00505MS | 35007-04MS | Water | + | | | | |

| Client <u>Sample #</u> | Lab <u>Sample #</u> | Volatile <u>Matrix</u> | Semi- <u>Organics</u> | Pesticides/ <u>volatiles</u> | Total <u>PCBs</u> | <u>Metals</u> | <u>Cyanide</u> |
|---------------------------|------------------------|---------------------------|--------------------------|---------------------------------|----------------------|---------------|----------------|
| 014GW00505MSD | 35007-04MSD | Water | + | | | | |
| 009GW02401MS | 35182-01MS | Water | | + | + | | |
| 009GW02401MSD | 35182-01MSD | Water | | + | + | | |

* Total metals consisted of analyses for arsenic and beryllium only.

+ Non-billable analysis

EW = EQUIPMENT RINSATE BLANK, FW = FIELD BLANK, HW = FIELD DUPLICATE,
MS = MATRIX SPIKE, MSD = MATRIX SPIKE DUPLICATE, TW = TRIP BLANK

DATA REVIEWER(S): Marvin L. Smith, Jean M. Delashmit

RELEASE SIGNATURE:

Data Qualifier Definitions

- J - The associated numerical value is an estimated quantity.
- R - The data are unusable (the compound/analyte may or may not be present). Resampling and reanalysis are necessary for verification.
- U - The compound/analyte was analyzed for, but not detected. The associated numerical value is the sample quantitation limit.
- UJ - The compound/analyte was analyzed for, but not detected. The sample quantitation limit is an estimated quantity.

DATA QUALIFICATION SUMMARY

Southwest Laboratory of Oklahoma, Inc - 35007 CLP Organics and Inorganics

SAMPLES: 009GW02401, 009GW24D01, 009HW24D01, 014GW00305, 014GW00405, 014GW00505, 014GW00601, 014GW04D05, 014GW05D05, 017GW00501, GDHGW00305, GDHGW00605, GDHGW03D05, GDHGW06D05, 009EW24D01, 009FW02401, 009TW02401, GDHTW00304, 014GW00505MS, 014GW00505MSD, 009GW02401MS, 009GW02401MSD

VOLATILE ORGANICS

I.) Holding Times:

All Holding Time criteria were met. No action was taken.

II.) GC / MS Tuning:

All GC / MS Tuning criteria were met. No action was required.

III.) Calibration:

Initial Calibration:

The average Relative Response Factor (RRF) was 0.014 for 2-chloroethyl vinyl ether in the standards analyzed on 7/14/98 on instrument U, which was below the 0.050 QC limit. All results for this compound in the associated samples, which consisted entirely of non-detects, were rejected (R). The associated samples were 014GW00305, 014GW00405, 014GW00505, 014GW00601, 014GW04D05, 014GW05D05, GDHGW00305, GDHGW00605, GDHGW03D05, GDHGW06D05, and trip blank GDHTW00305.

Continuing Calibration:

The Relative Response Factors (RRF's) were 0.029 and 0.004, respectively, for acetone and 2-chloroethyl vinyl ether in the standard analyzed on 8/4/98 at 08:55 on instrument U, which were below the 0.050 QC limit. The non-detect results for acetone in the associated samples 014GW00305, 014GW00405 and 014GW04D05 were rejected (R). All results for 2-chloroethyl vinyl ether were previously rejected because of a low RRF in the initial calibration. No further action was taken.

The Percent Differences (%D's) of the following compounds exceeded the 25% QC limit for the standard analyzed on 8/4/98 at 08:55 on instrument C:

| | |
|---------------------------|-------|
| acetone | 67.0% |
| carbon disulfide | 60.2% |
| 2-chloroethyl vinyl ether | 68.3% |

The non-detect results for acetone and 2-chloroethyl vinyl ether were previously rejected because of low RRF's in the initial and continuing calibrations. The non-detect results for carbon disulfide in associated samples 014GW00305, 014GW00405 and 014GW04D05 were qualified as estimated (UJ).

The Relative Response Factors (RRF's) were 0.028 and 0.002, respectively, for acetone and 2-chloroethyl vinyl ether in the standard analyzed on 8/5/98 at 10:40 on instrument U, which were below the 0.050 QC limit. The non-detect results for acetone in associated samples 014GW00505, 014GW00601, 014GW05D05, GDHGW00605, GDHGW03D05, GDHGW06D05, and trip blank GDHTW00305 were rejected (R). The detection of acetone in sample GDHGW00305 was flagged as estimated (J). All results for 2-chloroethyl vinyl ether were previously rejected because of a low RRF in the initial calibration. No further action was taken.

The Percent Differences (%D's) of the following compounds exceeded the 25% QC limit for the standard analyzed on 8/4/98 at 08:55 on instrument C:

| | |
|---------------------------|-------|
| acetone | 70.8% |
| carbon disulfide | 68.7% |
| 1,2-dichloroethene | 103% |
| 2-butanone | 26.7% |
| 2-chloroethyl vinyl ether | 86.8% |
| total xylenes | 29.4% |

All results for acetone and 2-chloroethyl vinyl ether in the associated samples were previously qualified because of low RRF's in the initial and continuing calibrations. The non-detect results for the four other compounds in the associated samples were flagged as estimated (UJ). The associated samples were 014GW00505, 014GW00601, 014GW05D05, GDHGW00305, GDHGW00605, GDHGW03D05 and GDHGW06D05.

The Relative Response Factor (RRF) was 0.030 for acetone in the standard analyzed on 8/12/98 at 10:21 on instrument U, which was below the 0.050 QC limit. All results for acetone in the associated samples, which consisted entirely of non-detects, were rejected (R). The associated samples were 009GW02401, 009GW24D01, 009HW24D01, and blanks 009EW24D05, GDHFW02401 and GDHTW00305.

The Percent Differences (%D's) of the following compounds exceeded the 25% QC limit for the standard analyzed on 8/12/98 at 10:21 on instrument U:

| | |
|--------------------|-------|
| carbon disulfide | 52.5% |
| 1,2-dichloroethene | 80.2% |

All results for the two compounds in the associated samples, which consisted entirely of non-detects, were flagged as estimated (UJ). The associated samples were 009GW02401, 009GW24D01 and 009HW24D01.

IV.) Blanks:

Method Blanks:

There were no detections in the method blanks. No action was required.

Field Blanks:

Chloroform was detected at 3 ug/L and 1 ug/L, respectively, in equipment rinsate blank 009EW24D01 and field blank 009FW02401. Since this compound was not detected in the associated samples, no action was taken.

Trip Blanks:

There were no detections in the trip blanks. No action was required.

Tentatively Identified Compounds (TIC):

There were no TIC's detected in the method, field or trip blanks. No action was necessary.

V.) Surrogate Recoveries:

All Surrogate Recovery criteria were met. No action was required.

VI.) Laboratory Control Samples (LCS):

Six LCS's were analyzed by the laboratory. Eighteen LCS recoveries were below their respective QC limits. Data validation action based on LCS Recovery criteria was not required. No action was taken.

VII.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

The Percent Recoveries (%R's) were below the QC limits in spiked samples 014GW00505MS and 014GW00505MSD for the following compounds:

| <u>Compound</u> | <u>MS, %R</u> | <u>MSD, %R</u> | <u>QC Limits, %</u> |
|---------------------------|---------------|----------------|---------------------|
| 1,1-dichloroethene | 64 | 61 | 76-125 |
| acetone | 12 | 12 | 60-140 |
| carbon disulfide | 22 | 22 | 60-140 |
| 1,1-dichloroethane | 72 | 70 | 78-127 |
| 2-chloroethyl vinyl ether | 12 | 10 | 60-140 |
| cis-1,3-dichloropropene | | 59 | 60-140 |
| 2-butanone | | 57 | 60-140 |

The non-detect results for acetone and 2-chloroethyl vinyl ether in unspiked sample 014GW00505 were previously rejected because of low RRF's in the initial and continuing calibrations. The associated sample results for the other compounds, which consisted entirely of non-detects, were flagged as estimated (UJ).

VIII.) Field Duplicates:

There were no calculable Relative Percent Differences (RPD's) in the set of field duplicate samples analyzed in this SDG. No action was required.

IX.) Internal Standards Performance (ISTD):

All ISTD criteria were met. No action was required.

X.) TCL Compound Identification:

All TCL Compound Identification criteria were met. No action was taken.

XI.) Compound Quantitation and Reported Contract Required Quantitation Limits (CRQL's):

All CRQL criteria were met. No action was necessary.

XII.) Tentatively Identified Compounds (TIC's):

All TIC Identification criteria were met. No action was required.

XIII.) System Performance:

All System Performance criteria were met. No action was taken.

XIV.) Overall Assessment of Data/General:

Twenty-seven non-detect results for acetone and 2-chloroethyl vinyl ether were rejected in the SDG samples, field blanks and trip blanks because of low RRF's in the initial and continuing calibrations. All other laboratory data were acceptable with qualifications.

SEMIVOLATILE ORGANICS

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) GC / MS Tuning:

All GC / MS Tuning criteria were met, so no action was taken.

III.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No action was required.

Continuing Calibration:

The Percent Difference (%D) for 2,4-dinitrotoluene was 32.7% for the standard analyzed on 8/10/98 at 08:25 on instrument O, which exceeded the 25% QC limit. The non-detect result for this compound in associated sample 017GW00501 was flagged as estimated (UJ).

IV.) Blanks:

Method Blanks:

The following compounds were detected in method blank SBLK1:

| | |
|----------------------------|--------|
| phenol | 5 ug/L |
| benzoic acid | 4 ug/L |
| di-n-butyl phthalate | 3 ug/L |
| bis(2-ethylhexyl)phthalate | 2 ug/L |

The detections of di-n-butylphthalate and bis(2-ethylhexyl)phthalate in sample 017GW00501, which were less than 10X the blank amounts, were flagged as undetected (U) with the analytical results below the CRQL being replaced with the CRQL. The detections of phenol and benzoic acid in this sample, which were less than 5X the blank amounts, were flagged as undetected (U) with the analytical results below the CRQL being replaced with the CRQL.

Field Blanks:

Benzoic acid was detected at 6 ug/L in equipment rinsate blank 009EW24D01. The detections of this compound in associated samples 009GW02401, 009GW24D01 and 009HW24D01, which were less than 5X the blank amount, were flagged as undetected (U) with the analytical results below the CRQL being replaced with the CRQL.

Bis(2-ethylhexyl)phthalate was detected at 1 ug/L in blank 009FW02401. The detections of this compound in associated sample 017GW00501 was previously qualified using method blank SBLK1. No further action was necessary.

Tentatively Identified Compounds (TIC's):

Trimethyl heptene and ethylmethyl heptene were detected in the field blanks. Since these two compounds were not detected in the samples, no action was taken.

V.) Surrogate Recoveries:

The Percent Recoveries (%R's) were 34% and 39%, respectively, for nitrobenzene-d5 and 2-fluorobiphenyl in sample 009GW02401, which were below their respective 35-114% and 43-116% QC limits. All positive and non-detect results in the base/neutral fraction of this sample were flagged as estimated (J) and (UJ).

The Percent Recovery (%R) was 15% 2-fluorophenol in sample 009HW24D01, which was below the 21-100% QC limits. Since only one surrogate was outside the QC limits in the acid fraction, no action was necessary.

VI.) Laboratory Control Samples (LCS):

Four LCS samples were analyzed by the laboratory. All LCS Recovery criteria were met. No action was taken.

VII.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

The Percent Recoveries (%R's) were below the QC limits in spiked samples 009GW02401MS and 009GW02401MSD for the following compounds:

| <u>Compound</u> | <u>MS, %R</u> | <u>MSD, %R</u> | <u>QC Limits, %</u> |
|----------------------------|---------------|----------------|---------------------|
| n-nitroso-di-n-propylamine | | 38 | 41-116 |
| 1,4-dichlorobenzene | | 32 | 36-97 |
| 1,2,4-trichlorobenzene | | 36 | 39-98 |
| acenaphthene | | 41 | 46-118 |
| 2,4-dinitrotoluene | 21 | 20 | 24-96 |

The results for these compounds in unspiked sample 009GW02401, which consisted entirely of non-detects, were flagged as estimated (UJ).

VIII.) Field Duplicates:

There were no calculable Relative Percent Differences (RPD's) for the set of field duplicate samples analyzed in this SDG. No action was required.

IX.) Internal Standards Performance:

All Internal Standards Performance criteria were met. No action was taken.

X.) TCL Compound Identification:

All TCL Compound Identification criteria were met. No action was required.

XI.) Compound Quantitation and Reported Contract Required Quantitation Limits (CRQL's):

All CRQL criteria were met. No action was necessary.

XII.) Tentatively Identified Compounds (TIC's):

All TIC criteria were met. No action was necessary.

XIII.) System Performance:

All System Performance criteria were met. No action was taken.

XIV.) Overall Assessment of Data/General:

All laboratory data were acceptable with qualifications.

PESTICIDES/PCB's

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Instrument Performance:

The Percent Differences (%D's) were 33.0% and 29.0%, respectively, for beta-BHC and gamma-BHC in the PEM2F standard analyzed on 8/17/98 at 21:16 on the secondary columns, which exceeded the 25% QC limit. The non-detect results for these two compounds in associated samples 009GW24D01 and 009HW24D01 were flagged as estimated (UJ).

III.) Calibration:

Initial Calibration:

The Percent Relative Standard Deviation (%RSD) was 21.8% for methoxychlor in the standards analyzed on 8/9/98 on the secondary column, which exceeded the 20% QC limit. Since only one compound was outside the QC limit with a %RSD of less than 30%, no action was necessary.

Continuing Calibration:

All Continuing Calibration criteria were met. No action was necessary.

IV.) Blanks:

There were no detections in the method or field blanks. No action was required.

V.) Surrogate Recoveries:

All Surrogate Recovery criteria were met. No action was taken.

VI.) Laboratory Control Sample (LCS):

Four LCS's were analyzed by the laboratory. Four LCS Percent Recoveries (%R's) were below their respective QC limits. Since data validation action based on LCS Recovery criteria was not required, no action was necessary.

VII.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

The Percent Recoveries (%R's) were below the QC limits in spiked samples 009GW02401MS and 009GW02401MSD for the following compounds:

| <u>Compound</u> | <u>MS, %R</u> | <u>MSD, %R</u> | <u>QC Limits, %</u> |
|-----------------|---------------|----------------|---------------------|
| 4,4'-DDE | 59 | 58 | 70-122 |
| 4,4'-DDD | | 68 | 70-133 |
| endrin aldehyde | 2 | 2 | 47-178 |

The non-detect results for 4,4'-DDE and 4,4'-DDD in unspiked sample 009GW02401 were flagged as estimated (U). The non-detect result for endrin aldehyde was rejected (R) because the %R was less than 10%.

VIII.) Field Duplicates:

There were no calculable Relative Percent Differences (RPD's) in the set of field duplicate samples analyzed in this SDG. No action was required.

IX.) TCL Compound Identification:

Pesticide/PCB Identification Summary (PIS):

All PIS criteria were met. No action was taken.

X.) Pesticide Cleanup Check:

Florisil Cartridge Check:

Florisil Cartridge Check data was not included in the SDG package. No action was taken.

Gel Permeation Chromatography (GPC):

GPC cleanup was not required for this SDG. No action was necessary.

XI.) Overall Assessment of Data/General:

The non-detect result for endrin aldehyde in sample 009GW02401 was rejected because of low recoveries (less than 10%) in the MS / MSD samples. All other laboratory data were acceptable with four qualifications.

TOTAL METALS AND CYANIDE

I.) Holding Times:

All Holding Time criteria were met. No action was taken.

II.) Calibration:

All Initial and Continuing Calibration criteria were met. No action was necessary.

III.) Blanks:

The following blank results represent the highest detections associated with the samples and were used for data qualification:

| <u>Blank ID</u> | <u>Analyte</u> | <u>Max. Conc.</u> | <u>Action Level</u> |
|-----------------|----------------|-------------------|---------------------|
| CCB3 | arsenic | 8.10 ug/L | 40.5 ug/L |
| CCB3 | beryllium | 0.30 ug/L | 1.50 ug/L |
| ERB | barium | 1.60 ug/L | 8.00 ug/L |
| FB | calcium | 1020 ug/L | 5100 ug/L |
| ERB | copper | 18.8 ug/L | 94.0 ug/L |
| ERB | iron | 156 ug/L | 780 ug/L |
| ERB | magnesium | 79.0 ug/L | 395 ug/L |
| CCB5 | selenium | 4.10 ug/L | 20.5 ug/L |
| ERB | sodium | 21300 ug/L | 107000 ug/L |
| ERB | tin | 28.7 ug/L | 144 ug/L |
| ERB | zinc | 20.7 ug/L | 104 ug/L |

CCB = Continuing Calibration Blank, ERB = Equipment Rinsate Blank (009EW24D01),
FB = Field Blank (009FW02401)

All results greater than the IDL but less than 5X the blank amounts (Action Level, ug/L for water samples) for which the contaminated blank was an associated calibration or field blank were flagged as undetected (U).

The following analytes had negative results with absolute values greater than the IDL:

| <u>Blank ID</u> | <u>Analyte</u> | <u>Neg. Conc.</u> | <u>5X Conc.</u> |
|-----------------|----------------|-------------------|-----------------|
| CCB4 | copper | -2.10 ug/L | 10.5 ug/L |
| ICB | mercury | -0.10 ug/L | 0.50 ug/L |
| CCB2 | tin | -32.6 ug/L | 163 ug/L |

CCB = Continuing Calibration Blank, ICB = Initial Calibration Blank

All associated sample results, which consisted entirely of non-detects after blank qualification, were flagged as estimated (J) and (UJ).

IV.) ICP Interference Check Sample Results:

The following analytes were detected in ICS Solution A at concentrations greater than the IDL:

| | |
|-----------|--------|
| antimony | 3 ug/L |
| arsenic | 3 ug/L |
| barium | 5 ug/L |
| copper | 2 ug/L |
| manganese | 4 ug/L |
| vanadium | 1 ug/L |

These analytes should not be present. The concentrations of calcium and magnesium in samples 009GW24D01 and 009HW24D01 exceeded that of ICS Solution A. All positive results for the above analytes in these two samples were flagged as estimated (J). Since neither aluminum, calcium, iron nor magnesium was detected in the other SDG samples at a concentration comparable to or greater than that of ICS Solution A, no further action was taken.

Negative results were observed for the following analytes in ICS Solution A at absolute concentrations greater than the IDL:

| | |
|-----------|------------|
| cadmium | -2 ug/L |
| cobalt | -2 ug/L |
| manganese | -2 ug/L |
| potassium | -1060 ug/L |
| selenium | -5 ug/L |
| sodium | -140 ug/L |
| thallium | -15 ug/L |
| tin | -24 ug/L |
| vanadium | -19 ug/L |

The concentrations of magnesium in samples GDIGW07D06, GDIHW07D06, GDIGW08D06 and GDIGW13D06 exceeded that of ICS Solution A. All non-detect results for these analytes in the four samples were flagged as estimated (UJ). Since neither aluminum, calcium, iron nor magnesium was present in the other SDG samples at a concentration comparable to or greater than the amount in Solution A, no further action was required.

V.) ICP Serial Dilution Analysis:

Serial Dilution Analysis was not performed in this SDG. No action was required.

VI.) Laboratory Control Samples (LCS):

All LCS Recovery criteria were met. No action was required.

VII.) Duplicate Sample Analysis:

Duplicate Sample Analysis was not performed in this SDG. No action was taken.

VIII.) Matrix Spike Recoveries (MS / MSD):

MS / MSD samples were not analyzed in this SDG. No action was required.

IX.) Field Duplicates:

One set of field duplicate samples was analyzed in this SDG. The calculable Relative Percent Differences (RPD's) were:

| Analyte | 009GW24D01 (ug/L) | 009HW24D01 (ug/L) | RPD |
|-----------|-------------------|-------------------|------|
| arsenic | 54.6 | 48.9 | 11% |
| barium | 42.0 | 40.9 | 2.7% |
| calcium | 526000 | 513000 | 2.8% |
| iron | 29200 | 28400 | 2.5% |
| magnesium | 585000 | 580000 | 0.9% |
| manganese | 2560 | 2540 | 0.8% |
| potassium | 94900 | 94500 | 0.4% |

| <u>Analyte</u> | <u>009GW24D01 (ug/L)</u> | <u>009HW24D01 (ug/L)</u> | <u>RPD</u> |
|----------------|--------------------------|--------------------------|------------|
| sodium | 5960000 | 5750000 | 3.6% |

Since all RPD's were within the 30% QC limit for water samples, no action was taken.

X.) Graphite Furnace Atomic Absorption QC (GFAA):

Graphite Furnace analyses were not used for the samples in this SDG. No action was taken.

XI.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No action was required.

XII.) Quarterly Verification of Instrumental Parameters:

All criteria were met. No action was taken.

XIII.) Overall Assessment of Data/General:

All laboratory data were acceptable with qualifications.

VALIDATA

Chemical Services, Inc.

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DATA VALIDATION SUMMARY REPORT

COMPANY: Ensafe, Inc.
SITE NAME: Charleston Naval Base, Zone H
SERVICE ORDER NUMBER: 0307
CONTRACTED LAB: Southwest Laboratory of Oklahoma, Inc.
QA/QC LEVEL: EPA Level III
EPA METHOD: EPA SOW 3-90 or SW-846
VALIDATION GUIDELINES: USEPA CLP National Functional Guidelines for Organic Data Review, 1994; USEPA CLP National Functional Guidelines for Inorganic Data Review, 1994
SAMPLE MATRIX: Water
TYPES OF ANALYSES: Total Volatiles, Semivolatiles, Pesticides / PCB's, Total Metals, Cyanide
SDG NUMBER: 35269 (Level III)

| Client | Lab | | Volatile | Semi- | Pesticides/ | Metals |
|-----------------|-----------------|---------------|-----------------|------------------|--------------|----------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Organics</u> | <u>volatiles</u> | <u>PCB's</u> | <u>Cyanide</u> |
| 009GW02601 | 35269.01 | Water | X | X | X | X |
| 009GW02901 | 35269.02 | Water | X | X | X | X |
| 017GW00901 | 35269.05 | Water | X | X | X | X* |
| 159GW00101 | 35269.03 | Water | X | | | |
| 159GW00201 | 35269.04 | Water | X | | | |
| 653GW00301 | 35269.06 | Water | X | | | |
| 009GW02601MS | 35269.01MS | Water | + | | | |
| 009GW02601MSD | 35269.01MSD | Water | + | | | |

MS = MATRIX SPIKE, MSD = MATRIX SPIKE DUPLICATE

* - Analysis consisted of cyanide only.

DATA REVIEWER(S): Amy L. Hogan, Marvin L. Smith, Jean M. Delashmit

RELEASE SIGNATURE:



Data Qualifier Definitions

- J - The associated numerical value is an estimated quantity.
- R - The data are unusable (the compound/analyte may or may not be present). Resampling and reanalysis are necessary for verification.
- U - The compound/analyte was analyzed for, but not detected. The associated numerical value is the sample quantitation limit.
- UJ - The compound/analyte was analyzed for, but not detected. The sample quantitation limit is an estimated quantity.

DATA QUALIFICATION SUMMARY

Southwest Laboratory of Oklahoma, Inc. - 35269 CLP Organics and Inorganics

SAMPLES: 009GW02601, 009GW02901, 017GW00901, 159GW00101, 159GW00201,
653GW00301, 009GW02601MS, 009GW02601MSD

VOLATILE ORGANICS

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) GC / MS Tuning:

All GC / MS Tuning criteria were met, so no action was required.

III.) Calibration:

Initial Calibration:

The Average Relative Response Factor (RRF) for 2-chloroethyl vinyl ether was 0.014 for the standards analyzed on 7/27/98 on instrument C, which was below the 0.050 QC limit. All results for this compound in the associated samples, which consisted entirely of non-detects, were rejected (R). The associated samples were 009GW02601, 009GW02901, 017GW00901, 159GW00101, 159GW00201 and 653GW00301.

Continuing Calibration:

The Relative Response Factors (RRF's) for acetone (0.047) and 2-chloroethyl vinyl ether (0.014) were below the 0.050 QC limit for the standard analyzed on 8/18/98 at 08:52 on instrument C. All results for acetone in the associated samples, which consisted entirely of non-detects, were rejected (R). The associated samples were 009GW02601, 009GW02901, 017GW00901, 159GW00101, 159GW00201 and 653GW00301. The results for 2-chloroethyl vinyl ether in the associated samples were previously rejected because of a low RRF in the initial calibration. No further action was required.

The Percent Differences (%D's) exceeded the 25% QC limit for the standard analyzed on 8/18/98 at 08:52 on instrument C for the following compounds:

| | |
|--------------------|-------|
| chloromethane | 29.5% |
| methylene chloride | 29.9% |
| vinyl acetate | 53.9% |
| 2-butanone | 49.5% |
| bromoform | 27.8% |
| xylene | 187% |

All positive and non-detect results for these compounds in the associated samples were flagged as estimated (J) and (UJ). The associated samples were 009GW02601, 009GW02901, 017GW00901, 159GW00101, 159GW00201 and 653GW00301.

IV.) Blanks:

There were no positive detections in the method blanks. No action was required.

Tentatively Identified Compounds (TIC's):

There were no TIC's detected in the method blanks. No action was required.

V.) Surrogate Recoveries:

All Surrogate Recovery criteria were met. No action was taken.

VI.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

All MS / MSD criteria were met. No action was required.

VII.) Laboratory Control Samples (LCS):

One LCS was analyzed for this SDG. All LCS Recovery criteria were met. No action was necessary.

VIII.) Field Duplicates:

There were no field duplicate samples in this SDG. No action was required.

IX.) Internal Standards Performance (ISTD):

All ISTD criteria were met. No action was required.

X.) TCL Compound Identification:

All TCL criteria were met. No action was required.

XI.) Compound Quantitation and Reported Contract Required Quantitation Limits (CRQL's):

All CRQL criteria were met. No action was necessary.

XII.) Tentatively Identified Compounds (TIC's):

All TIC Identification criteria were met. No action was required.

XIII.) System Performance:

All System Performance criteria were met. No action was taken.

XIV.) Overall Assessment of Data/General:

All non-detect results for acetone and 2-chloroethyl vinyl ether in the SDG samples were rejected because of low RRF's in the initial and continuing calibrations. All other laboratory data were acceptable with qualifications.

SEMIVOLATILE ORGANICS

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) GC / MS Tuning:

All GC / MS Tuning criteria were met, so no action was required.

III.) Calibration:

All Initial and Continuing Calibration criteria were met. No action was required.

IV.) Blanks:

Bis(2-ethylhexyl)phthalate was detected at 2 ug/L in method blank SBLK1. All positive results for this compound in the associated samples, less than 10X the blank amount, were flagged as undetected (U) with the analytical results being replaced with the detection limit. The associated samples were 009GW02601 and 009GW02901.

Tentatively Identified Compounds (TIC's):

There were no TIC's detected in the method blanks. No action was required.

V.) Surrogate Recoveries:

The Surrogate Percent Recovery (%R) of 2-fluorobiphenyl was below the QC limits of 43-116% in sample 009GW02601. Since only one surrogate recovery was below the QC limits, no action was required.

VI.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS / MSD analyses were not performed in this fraction of the SDG. No action was required.

VII.) Laboratory Control Samples (LCS):

One LCS was analyzed for this SDG. Several LCS Recoveries were outside their respective QC limits. Data validation action based on LCS criteria was not required. No action was taken.

VIII.) Field Duplicates:

There were no field duplicate samples this SDG. No action was required.

IX.) Internal Standards Performance (ISTD):

All ISTD criteria were met. No action was required.

X.) TCL Compound Identification:

All TCL criteria were met. No action was required.

XI.) Compound Quantitation and Reported Contract Required Quantitation Limits (CRQL's):

All CRQL criteria were met. No action was necessary.

XII.) Tentatively Identified Compounds (TIC's):

All TIC Identification criteria were met. No action was required.

XIII.) System Performance:

All System Performance criteria were met. No action was taken.

XIV.) Overall Assessment of Data/General:

All laboratory data were acceptable with qualifications.

PESTICIDES/PCB's

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Instrument Performance:

The Percent Difference (%D) exceeded the 25% QC limit for the PEM analyzed on 8/27/98 at 22:47 on the primary column for 4,4'-DDT (26.0%). All results for this compound in the associated samples, which consisted entirely of non-detects, were flagged as estimated (UJ). The associated samples were 009GW02601, 009GW02901 and 017GW00901.

III.) Calibration:

All Initial and Continuing Calibration criteria were met. No action was required.

IV.) Blanks:

There were no positive detections in the method blanks. No action was required.

V.) Surrogate Recoveries:

All Surrogate Recovery criteria were met. No action was required.

VI.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS / MSD analyses were not performed in this fraction of the SDG. No action was required.

VII.) TCL Compound Identification:

Pesticide/PCB Identification Summary (PIS):

All PIS criteria were met. No action was required.

VIII.) Field Duplicates:

There were no field duplicate samples in this SDG. No action was required.

IX.) Pesticide Cleanup Check:

Florisol Cartridge Check:

Florisol Cleanup data was not submitted for this SDG. No action was taken.

Gel Permeation Chromatography (GPC):

GPC was not required for this SDG. No action was taken.

X.) Overall Assessment of Data/General:

All laboratory data were acceptable with qualifications.

TOTAL METALS AND CYANIDE

I.) Holding Times:

All Holding Time criteria were met. No action was taken.

II.) Calibration:

All Initial and Continuing Calibration criteria were met. No action was necessary.

III.) Blanks:

The following blank results represent the highest detections associated with the samples and were used for data qualification:

| <u>Blank Type/ID#</u> | <u>Analyte</u> | <u>Max. Conc.</u> | <u>Action Level</u> |
|-----------------------|----------------|-------------------|---------------------|
| CCB3 | antimony | 3.50 ug/L | 17.5 ug/L |
| CCB3 | beryllium | 0.70 ug/L | 3.50 ug/L |
| PBW | cadmium | 8.12 ug/L | 40.6 ug/L |
| PBW | chromium | 3.86 ug/L | 19.3 ug/L |
| PBW | copper | 23.8 ug/L | 119 ug/L |
| PBW | lead | 1.85 ug/L | 9.25 ug/L |
| ICB | potassium | 586 ug/L | 2930 ug/L |
| CCB3 | sodium | 497 ug/L | 2485 ug/L |
| PBW | zinc | 16.4 ug/L | 82.0 ug/L |

CCB = Continuing Calibration Blank, ICB = Initial Calibration Blank,
PBW = Preparation Blank (Water)

All results greater than the IDL but less than 5X the blank amounts (Action Level, ug/L for water samples) for which the contaminated blank was an associated calibration or preparation blank were flagged as undetected (U).

The following analytes had negative results with absolute values greater than the IDL:

| <u>Blank Type/ID#</u> | <u>Analyte</u> | <u>Neg. Conc.</u> | <u>5X Conc.</u> |
|-----------------------|----------------|-------------------|-----------------|
| CCB1 | selenium | -4.10 ug/L | 20.5 ug/L |
| CCB1 | cyanide | -2.60 ug/L | 13.0 ug/L |

CCB = Continuing Calibration Blank

All associated positive sample results less than 5X the absolute value of the negative blank results and all associated non-detects were flagged as estimated (J) and (UJ).

IV.) ICP Interference Check Sample Results:

All Percent Recovery criteria were met. No action was taken.

The following analytes were detected in ICS Solution A at concentrations greater than the IDL:

| | |
|-----------|----------|
| barium | 5 ug/L |
| chromium | 3 ug/L |
| copper | 10 ug/L |
| manganese | 6 ug/L |
| sodium | 177 ug/L |

These analytes should not be present. Since neither aluminum, calcium, iron nor magnesium was present in the samples at a concentration comparable to or greater than the amount in Solution A, no action was required.

Negative results were observed in ICS Solution A at an absolute concentration greater than the IDL for the following analytes:

| | |
|-----------|-----------|
| antimony | -15 ug/L |
| beryllium | -1 ug/L |
| cadmium | -20 ug/L |
| cobalt | -3 ug/L |
| nickel | -10 ug/L |
| potassium | -337 ug/L |
| silver | -4 ug/L |
| tin | -25 ug/L |
| vanadium | -19 ug/L |

Since neither aluminum, calcium, iron nor magnesium was present in the samples at a concentration comparable to or greater than the amount in Solution A, no action was required.

V.) ICP Serial Dilution Analysis:

Serial Dilution analysis was not performed in this SDG. No action was required.

VI.) Laboratory Control Samples (LCS):

All LCS Recovery criteria were met. No action was required.

VII.) Duplicate Sample Analysis:

Duplicate Sample Analysis was not performed in this fraction of the SDG. No action was required.

VIII.) Matrix Spike Recoveries:

Matrix Spike Analysis was not performed in this fraction of the SDG. No action was required.

IX.) Field Duplicates:

There were no field duplicate samples in this SDG. No action was required.

X.) Graphite Furnace Atomic Absorption QC (GFAA):

Graphite Furnace analyses were not used for the samples in this SDG. No action was necessary.

XI.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No action was required.

XII.) Quarterly Verification of Instrumental Parameters:

All criteria were met. No action was taken.

XIII.) Overall Assessment of Data/General:

All laboratory data were acceptable with qualifications.

VALIDATA

Chemical Services, Inc.

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DATA VALIDATION SUMMARY REPORT

COMPANY: Ensafe, Inc.
SITE NAME: Charleston Navel Base, Zone H
SERVICE ORDER NUMBER: 0306
CONTRACTED LAB: Southwest Laboratory of Oklahoma, Inc.
QA/QC LEVEL: EPA Level III
EPA METHOD: EPA SOW 3-90 / SW846
VALIDATION GUIDELINES: USEPA CLP National Functional Guidelines for Organic Data Review, 1994; USEPA CLP National Functional Guidelines for Inorganic Data Review, 1994
SAMPLE MATRIX: Water
TYPES OF ANALYSES: Volatile Organics, Semivolatiles, Pesticides/PCB's, Total Metals, Cyanide
SDG NUMBER: 35271 (Level III)

SAMPLES:

| Client | Lab | | Volatile | Semi- | Pesticides/ | Total | |
|-----------------|-----------------|---------------|-----------------|------------------|-------------|---------------|----------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Organics</u> | <u>volatiles</u> | <u>PCBs</u> | <u>Metals</u> | <u>Cyanide</u> |
| 009GW26D01 | 35271-01 | Water | X | X | X | X | X |
| 017GW00701 | 35271-02 | Water | X | X | X | | X |
| 017TW00701 | 35271-03 | Water | X | | | | |

T = TRIP BLANK

DATA REVIEWER(S): Marvin L. Smith, Jean M. Delashmit

RELEASE SIGNATURE:



Data Qualifier Definitions

- J - The associated numerical value is an estimated quantity.
- R - The data are unusable (the compound/analyte may or may not be present). Resampling and reanalysis are necessary for verification.
- U - The compound/analyte was analyzed for, but not detected. The associated numerical value is the sample quantitation limit.
- UJ - The compound/analyte was analyzed for, but not detected. The sample quantitation limit is an estimated quantity.

DATA QUALIFICATION SUMMARY

Southwest Laboratory of Oklahoma, Inc - 35271 CLP Organics and Inorganics

SAMPLES: 009GW26D01, 017GW00701, 017TW00701

VOLATILE ORGANICS

I.) Holding Times:

All Holding Time criteria were met. No action was taken.

II.) GC / MS Tuning:

All GC / MS Tuning criteria were met. No action was required.

III.) Calibration:

Initial Calibration:

The average Relative Response Factor (RRF) was 0.015 for 2-chloroethyl vinyl ether for the standards analyzed on 7/27/98 on instrument C, which was below the 0.050 QC limit. All results for this compound in the two associated samples and trip blank, which consisted entirely of non-detects, were rejected (R).

Continuing Calibration:

The Relative Response Factors (RRF's) were 0.047 and 0.014, respectively, for acetone and 2-chloroethyl vinyl ether for the standard analyzed on 8/18/98 at 08:52 on instrument C, which were below the 0.050 QC limit. The non-detect results for acetone in the two associated samples and trip blank were rejected (R). All results for 2-chloroethyl vinyl ether were previously rejected because of a low RRF in the initial calibration. No further action was taken.

The Percent Differences (%D's) of the following compounds exceeded the 25% QC limit for the standard analyzed on 8/18/98 at 08:52 on instrument C:

| | |
|--------------------|-------|
| chloroethane | 29.5% |
| methylene chloride | 29.9% |
| vinyl acetate | 53.9% |
| 2-butanone | 49.5% |
| bromoform | 27.8% |

The positive and non-detect results for methylene chloride in the two associated samples were flagged as estimated (J) and (UJ). All results for the four other compound in the two samples, which consisted entirely of non-detects, were flagged as estimated (UJ). The associated samples were 009GW26D01 and 017GW00701.

IV.) Blanks:

There were no detections in the method or trip blanks. No action was required.

Tentatively Identified Compounds (TIC):

There were no TIC's detected in the method or trip blanks. No action was necessary.

V.) Surrogate Recoveries:

All Surrogate Recovery criteria were met. No action was required.

VI.) Laboratory Control Samples (LCS):

Two LCS's were analyzed by the laboratory. Six LCS recoveries were outside their respective QC limits. Data validation action based on LCS Recovery criteria was not required. No action was taken.

VII.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS / MSD samples were not analyzed in this SDG. No action was necessary.

VIII.) Field Duplicates:

Field duplicate samples were not analyzed in this SDG. No action was required.

IX.) Internal Standards Performance (ISTD):

All ISTD criteria were met. No action was required.

X.) TCL Compound Identification:

All TCL Compound Identification criteria were met. No action was taken.

XI.) Compound Quantitation and Reported Contract Required Quantitation Limits (CRQL's):

All CRQL criteria were met. No action was necessary.

XII.) Tentatively Identified Compounds (TIC's):

All TIC Identification criteria were met. No action was required.

XIII.) System Performance:

All System Performance criteria were met. No action was taken.

XIV.) Overall Assessment of Data/General:

Six non-detect results for acetone and 2-chloroethyl vinyl ether were rejected in the two SDG samples

and trip blank because of low RRF's in the initial and continuing calibrations. All other laboratory data were acceptable with qualifications.

SEMIVOLATILE ORGANICS

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) GC / MS Tuning:

All GC / MS Tuning criteria were met, so no action was taken.

III.) Calibration:

All Initial and Continuing Calibration criteria were met. No action was required.

IV.) Blanks:

Bis(2-ethylhexyl) phthalate was detected at 2 ug/L in method blank SBLK1. The detection of this compound in sample 009GW26D01, which was less than 10X the blank amount, was flagged as undetected (U) with the analytical result below the CRQL being replaced with the CRQL.

Tentatively Identified Compounds (TIC's):

Dimethyl adamantane was detected in the method blank at a sufficient concentration to eliminate the detection in sample 017GW00701 by applying the 10X Blank Rule.

V.) Surrogate Recoveries:

All Surrogate Recovery criteria were met. No action was necessary.

VI.) Laboratory Control Samples (LCS):

All Recovery criteria were met in the two LCS samples for this SDG. No action was taken.

VII.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS / MSD samples were not analyzed in this SDG. No action was required.

VIII.) Field Duplicates:

Field duplicate samples were not analyzed in this SDG. No action was required.

IX.) Internal Standards Performance:

All Internal Standards Performance criteria were met. No action was taken.

X.) TCL Compound Identification:

All TCL Compound Identification criteria were met. No action was required.

XI.) Compound Quantitation and Reported Contract Required Quantitation Limits (CRQL's):

All CRQL criteria were met. No action was necessary.

XII.) Tentatively Identified Compounds (TIC's):

All TIC criteria were met. No action was necessary.

XIII.) System Performance:

All System Performance criteria were met. No action was taken.

XIV.) Overall Assessment of Data/General:

All laboratory data were acceptable with one qualification.

PESTICIDES/PCB's

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Instrument Performance:

All Pesticide Instrument Performance criteria were met. No action was taken.

III.) Calibration:

All Initial and Continuing Calibration criteria were met. No action was necessary.

IV.) Blanks:

There were no detections in the method blank. No action was required.

V.) Surrogate Recoveries:

All Surrogate Recovery criteria were met. No action was taken.

VI.) Laboratory Control Sample (LCS):

Two LCS's were analyzed by the laboratory. All LCS Recovery criteria were met. No action was necessary.

VII.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS / MSD samples were not analyzed in this SDG. No action was taken.

VIII.) Field Duplicates:

Field duplicate samples were not analyzed in this SDG. No action was required.

IX.) TCL Compound Identification:

Pesticide/PCB Identification Summary (PIS):

All PIS criteria were met. No action was taken.

X.) Pesticide Cleanup Check:

Florisil Cartridge Check:

All criteria were met. No action was taken.

Gel Permeation Chromatography (GPC):

GPC cleanup was not required for this SDG. No action was necessary.

XI.) Overall Assessment of Data/General:

All laboratory data were acceptable without qualification.

TOTAL METALS AND CYANIDE

I.) Holding Times:

All Holding Time criteria were met. No action was taken.

II.) Calibration:

All Initial and Continuing Calibration criteria were met. No action was necessary.

III.) Blanks:

The following blank results represent the highest detections associated with the samples and were used for data qualification:

| <u>Blank Type/ID#</u> | <u>Analyte</u> | <u>Max. Conc.</u> | <u>Action Level</u> <u>ug/L</u> |
|-----------------------|----------------|-------------------|------------------------------------|
| CCB3 | arsenic | 3.50 ug/L | 17.5 |
| CCB3 | beryllium | 0.70 ug/L | 3.50 |

| Blank Type/ID# | Analyte | Max. Conc. | Action Level ug/L |
|-------------------|-----------|------------|----------------------|
| PBW | cadmium | 8.12 ug/L | 40.6 |
| PBW | chromium | 3.86 ug/L | 19.3 |
| PBW | copper | 23.8 ug/L | 119 |
| PBW | lead | 1.85 ug/L | 9.25 |
| CCB7 | magnesium | 34.3 ug/L | 172 |
| ICB | potassium | 586 ug/L | 2930 |
| CCB7 | sodium | 497 ug/L | 2490 |
| PBW | zinc | 16.4 ug/L | 82.0 |

CCB = Continuing Calibration Blank, ICB = Initial Calibration Blank,
PBW = Preparation Blank (Water)

All results greater than the IDL but less than 5X the blank amounts (Action Level, ug/L for water samples) for which the contaminated blank was an associated calibration or preparation blank were flagged as undetected (U).

The following analytes had negative results with absolute values greater than the IDL:

| Blank Type/ID# | Analyte | Neg. Conc. | 5X Conc. |
|-------------------|-----------|------------|-----------|
| CCB4 | beryllium | -0.60 ug/L | 3.00 ug/L |
| CCB1 | selenium | -4.10 ug/L | 20.5 ug/L |
| CCB1 | cyanide | -2.60 ug/L | 13.0 ug/L |

CCB = Continuing Calibration Blank

All associated sample results, which consisted entirely of non-detects, were flagged as estimated (UJ).

IV.) ICP Interference Check Sample Results:

The following analytes were detected in ICS Solution A at concentrations greater than the IDL:

| | |
|-----------|-----------|
| arsenic | 3 ug/L |
| chromium | 2 ug/L |
| copper | 10 ug/L |
| lead | 2 ug/L |
| manganese | 6 ug/L |
| sodium | 1560 ug/L |
| thallium | 9 ug/L |
| zinc | 4 ug/L |

These analytes should not be present. Since neither aluminum, calcium, iron nor magnesium was detected in the samples at a concentration comparable to or greater than that of ICS Solution A, no action was taken.

Negative results were observed for the following analytes in ICS Solution A at absolute concentrations

greater than the IDL:

| | |
|-----------|----------|
| beryllium | -1 ug/L |
| cadmium | -20 ug/L |
| tin | -25 ug/L |
| vanadium | -19 ug/L |

Since neither aluminum, calcium, iron nor magnesium was present in the samples at a concentration comparable to or greater than the amount in Solution A, no action was required.

V.) ICP Serial Dilution Analysis:

Serial Dilution Analysis was not performed in this SDG. No action was required.

VI.) Laboratory Control Samples (LCS):

All LCS Recovery criteria were met. No action was required.

VII.) Duplicate Sample Analysis:

Duplicate Sample Analysis was not performed in this SDG. No action was taken.

VIII.) Matrix Spike Recoveries (MS / MSD):

MS / MSD samples were not analyzed in this SDG. No action was required.

IX.) Field Duplicates:

Field duplicate samples were not analyzed in this SDG. No action was required.

X.) Graphite Furnace Atomic Absorption QC (GFAA):

Graphite Furnace analyses were not used for the samples in this SDG. No action was taken.

XI.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No action was required.

XII.) Quarterly Verification of Instrumental Parameters:

All criteria were met. No action was taken.

XIII.) Overall Assessment of Data/General:

All laboratory data were acceptable with qualifications.



HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#: 40782
Date: December 2, 1999
Client Name: Ensafe
Project/Site Name: Charleston Zone H
Date Sampled: October 19, 1999
Number of Samples: 8 Aqueous Sample(s) with 0 MS/MSD(s)
Laboratory: Southwest Laboratory of Oklahoma
Validation Guidance: National Functional Guidelines for Organic and Inorganic Data, February, 1994
QA/QC Level: EPA DQO Level III
Method(s) Utilized: SW846 Third Edition
Analytical Fraction: Volatiles, Semivolatiles, Metals, Dioxins / Furans, Hydrazine and Tetryl

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Seay
for Paul B. Humburg, President

12-6-99
Date

SDG# 40782

Samples and Fractions Reviewed

Sample Identifications

Analytical Fractions

| ENSAFE ID | MATRIX | VOA | SVOA | MET | DIOX | HYD | EXP | | | | |
|-------------------------------------|--------|-----|------|-----|------|-----|-----|---|---|---|---|
| 009GW001C1 | WATER | X | X | X | X | X | X | | | | |
| 009GW004C1 | WATER | X | X | X | X | X | X | | | | |
| 009GW008C1 | WATER | X | X | X | X | X | X | | | | |
| 009TW008C1 | WATER | X | | | | | | | | | |
| 009EW008C1 | WATER | X | X | X | X | X | X | | | | |
| 009FW008C1 | WATER | X | X | X | X | X | X | | | | |
| 009DW008C1 | WATER | X | X | X | X | X | X | | | | |
| 009GW024C1 | WATER | X | X | X | X | X | X | | | | |
| Total Billable Samples (Water/Soil) | | 8 | 0 | 7 | 0 | 7 | 0 | 7 | 0 | 7 | 0 |

VOA= Volatiles
SVOA= Semivolatiles
MET= Metals
DIOX= Dioxins / Furans
HYD= Hydrazine
EXP= Tetryl

DATA ASSESSMENT NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8260B for GC/MS Volatiles; the National Functional Guidelines for Organic Data Validation, 2/94, and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # 40782

A validation was performed on the Volatile Data from SDG 40782. The data was evaluated based on the following parameters:

- * • Data Completeness
- * • Holding Times
- * • GC/MS Tuning
- * • Calibration
- Blanks
- * • Internal Standard Performance
- * • Surrogate Recoveries
- Matrix Spike/Matrix Spike Duplicates
- * • Field Duplicates
- * • Compound Identification
- * • Compound Quantitation

* - All criteria were met for this parameter.

Blanks

The field QC blanks associated with the field samples in this SDG exhibited contamination for which qualifications were required. The end user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into considerations when applying the 5X and 10X criteria to field samples.

**DATA ASSESSMENT NARRATIVE
VOLATILE ORGANICS**

PAGE 2

Blanks (continued)

| <u>Associated blank</u> | <u>Compound</u> | <u>Concentration</u> | <u>Action Level</u> |
|-------------------------|--------------------|----------------------|---------------------|
| 009EW008C1 | methylene chloride | 1J ug/L | 10 ug/L |
| 009FW008C1 | methylene chloride | 2J ug/L | 20 ug/L |
| | toluene | 1J ug/L | 5 ug/L |
| 009DW008C1 | methylene chloride | 4J ug/L | 40 ug/L |

| <u>Samples</u> | <u>Compound</u> | <u>Qualifications</u> |
|--------------------------|--------------------|-----------------------|
| 009GW004C1 009GW024C1 | methylene chloride | CRQL |
| 009GW001C1 | toluene | CRQL |
| 009GW008C1 | toluene | U |

Matrix Spike/Matrix Spike Duplicates

The MS/MSD pair of the following sample exhibited 0% recoveries for the noted compound. The reported non-detect result in the sample is rejected, UR.

009GW024C1 2-chloroethyl vinyl ether

System Performance and Overall Assessment

The data, as reported, required qualifications/rejections.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

L = Result is estimated and biased low.

K = Result is estimated and biased high.

R = Result is rejected and unusable

D = Result value is based on dilution analysis

BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

| <u>SAMPLE ID</u> | <u>COMPOUND ID</u> | <u>DL</u> | <u>QL</u> |
|--------------------------|---------------------------|-----------|-----------|
| 009GW004C1 009GW024C1 | methylene chloride | + | CRQL |
| 009GW001C1 | toluene | + | CRQL |
| 009GW008C1 | toluene | + | U |
| 009GW024C1 | 2-chloroethyl vinyl ether | - | UR |

- * DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8270C for GC/MS Semivolatiles; the National Functional Guidelines for Organic Data Validation, 2/94, and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # 40782

A validation was performed on the Semivolatile Data from SDG 40782. The data was evaluated based on the following parameters:

- * • Data Completeness
- * • Holding Times
- * • GC/MS Tuning
- Calibration
- Blanks
- * • Internal Standard Performance
- * • Surrogate Recoveries
- * • Matrix Spike/Matrix Spike Duplicates
- * • Field Duplicates
- * • Compound Identification
- * • Compound Quantitation

* - All criteria were met for this parameter.

Calibrations

The continuing calibration M9110402.D exhibited one (1) compound with a %D greater than 20% but less than 50% for which qualifications were required. For the following sample and non-compliant compounds, the reported positive results are qualified as estimated, J.

009GW001C1

2,4-dimethylphenol (21.2%)

**DATA ASSESSMENT NARRATIVE
SEMIVOLATILE ORGANICS**

PAGE 2

Blanks

The method blank associated with the field samples in this SDG exhibited contamination for which qualifications were required. The end user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into considerations when applying the 5X and 10X criteria to field samples.

| <u>Associated blank</u> | <u>Compound</u> | <u>Concentration</u> | <u>Action Level</u> |
|-------------------------|----------------------------|----------------------|---------------------|
| SBLK1 | bis(2-ethylhexyl)phthalate | 4J ug/L | 40 ug/L |
| | di-n-butylphthalate | 1J ug/L | 10 ug/L |

| <u>Samples</u> | <u>Compound</u> | <u>Qualifications</u> |
|----------------|----------------------------|-----------------------|
| 009GW024C1 | bis(2-ethylhexyl)phthalate | CRQL |
| 009GW004C1 | | |
| 009GW001C1 | | |
| 009GW008C1 | | |
| 009GW001C1 | di-n-butylphthalate | CRQL |

System Performance and Overall Assessment

The data, as reported, required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

L = Result is estimated and biased low.

K = Result is estimated and biased high.

R = Result is rejected and unusable

D = Result value is based on dilution analysis

BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

| <u>SAMPLE ID</u> | <u>COMPOUND ID</u> | <u>DL</u> | <u>QL</u> |
|--|----------------------------|-----------|-----------|
| 009GW001C1 | 2,4-dimethylphenol (21.2%) | + | J |
| 009GW024C1 009GW004C1 009GW001C1 009GW008C1 | bis(2-ethylhexyl)phthalate | +B | CRQL |
| 009GW001C1 | di-n-butylphthalate | +B | CRQL |

- * DL denotes the Form I qualifier supplied by the laboratory
- QL denotes the qualifier used by the data validation firm
- + in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

Dioxin/Furans

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard recoveries. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA SW846, Method 8290; National Functional Guidelines for Organic Data Review, and DQO Level III. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # 40782 Level III

A validation was performed on the Dioxin/Furans Data from SDG 40782. The data was evaluated based on the following parameters.

- * • Data Completeness
- * • Holding Times
- * • Mass Resolution Checks
- * • Column Performance
- * • Calibrations
- Internal Standard Performance
- * • Blanks
- * • Field Duplicates
- Congener Identification /Quantitation

* - All criteria were met for this parameter

Internal Standard Performance

Sample 009EW008C1 exhibited non compliant internal standard recoveries for $^{13}\text{C}_{12}$ -2,3,7,8-TCDD (37.46%) and $^{13}\text{C}_{12}$ -2,3,7,8-TCDF (29.32%). Qualify the non detect results for TCDD and TCDF as estimated non detect (UJ).

Congener Identification/Quantitation

Do not report the results for 009EW008C1RE in favor of the original analysis due to poor internal standard recoveries.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on the dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

| <u>SAMPLE ID</u> | <u>CONGENER ID</u> | <u>DL</u> | <u>QL</u> |
|------------------|--------------------|-----------|-----------|
| 009EW008C1 | TCDD, TCDF | - | UJ |
| 009EW008C1RE | all congeners | +/- | DNR |

- * DL denotes the Form I qualifier supplied by the laboratory
- QL denotes the qualifier used by the data validation firm
- + in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

TETRYL

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, calibration data, blank analysis results, surrogate recoveries and LCS recoveries. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8330; the National Functional Guidelines for Organic Data Review, February 1994, where applicable; and EPA DQO Level III requirements. Please refer the specific findings found in each category to the Summary of Data Qualifications table.

SDG# 40782

A validation was performed on the Tetryl data from SDG 40782. The data was evaluated based on the following parameters.

- * • Data Completeness
- Holding Times
- * • HPLC Performance
- * • Calibrations
- * • Blanks
- Surrogate Recoveries
- * • LCS Recoveries
- * • Field Duplicates
- Identification/Quantitation

* - All criteria were met for this parameter.

Holding Times

One (1) sample was re-extracted 7 days outside of the holding time and required qualifications. It is the professional opinion of the data validator that for the following sample, the positive results are qualified as estimated, J, and the non-detect results are qualified as estimated, UJ.

009GW001C1RE

DATA ASSESSMENT NARRATIVE

TETRYL ANALYSIS

PAGE - 2

Surrogate Recoveries

The sample listed below exhibited a low 3,4-DNT recovery. The positive results are qualified as estimated, J, and the non-detect results are qualified as estimated, UJ.

| <u>Sample ID</u> | <u>Surrogate</u> | <u>% Recovery</u> |
|------------------|------------------|-------------------|
| 009GW024C1 | 3,4-DNT | 15% |

Compound Quantitation

Two (2) samples were re-extracted due to low surrogate recoveries. For the following samples, the results are not used in favor of the results reported from the corresponding original or RE analysis due better surrogate recoveries.

009GW001C1
009GW024C1RE

Overall Performance

The data required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

NJ = Result is considered presumptively present at an estimated concentration

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 5X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

| <u>SAMPLE ID</u> | <u>COMPOUND ID</u> | <u>DL</u> | <u>QL</u> |
|----------------------------|--------------------|-----------|------------|
| 009GW001C1RE | ALL | +/- | J/UJ |
| 009GW024C1 | ALL | +/- | J/UJ |
| 009GW001C1 009GW024C1RE | ALL | +/- | do not use |

- * DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE METALS AND HYDRAZINE

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW846 methods: the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDGs # 40782

A validation was performed on the Metals and hydrazine Data from SDG 40782. The data was evaluated based on the following parameters.

- * ● Data Completeness
- * ● Holding Times
- * ● Calibrations
- Blanks
- * ● Interferences
- Matrix Spike Recovery
- Matrix Duplicates
- * ● Field Duplicates
- * ● Laboratory Control Samples
- Serial Dilutions

* - All criteria were met for this parameter.

Preparation and Field Blanks

The preparation, field and calibration blanks exhibited contamination for the following elements.

| <u>Elements</u> | <u>Conc.</u> | <u>Samples affected</u> |
|-----------------|--------------|-----------------------------------|
| Calcium | 238 ug/l | no impact |
| Chromium | 0.73 ug/l | all water samples below 3.65 ug/l |
| Zinc | 65.6 ug/l | all water samples below 328 ug/l |
| Copper | 1.3 ug/l | all water samples below 6.5 ug/l |
| Iron | 29.3 ug/l | no impact |
| Sodium | 33900 ug/l | no impact |

The USEPA requires that all sample values below five times the preparation or calibration blank contamination be qualified as non-detect, "U".

Matrix Spike Recovery results

The matrix spike recoveries for waters for Sodium (61%) and Mercury (72%) were below the lower control limits (>30% but <75%). All positive and non-detect results are qualified as estimated, "J" or "UJ".

The matrix spike recovery for waters for Barium (129%), Calcium (130%), Magnesium (133%) and Tin (267%) were above the upper control limits (>125%). All positive results are qualified as estimated, "J".

Matrix Duplicate results

The matrix duplicate RPD results for waters for Barium (30%), Calcium (30%), Magnesium (31%), Potassium (34%), Sodium (200%) and Tin (93%) were greater than 20%. All positive results are qualified as estimated, "J".

Serial Dilution recovery results

The serial dilution results for waters for Sodium was greater than 10%. All positive results are qualified as estimated, "J".

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B". Value is below the CRDL but greater than the IDL.

SUMMARY OF DATA QUALIFICATIONS

| Sample ID | Analyte | DL | QL |
|-----------------------------------|---------------------------------|-----|------|
| all water samples below 3.65 ug/l | Cr. | + | U |
| all water samples below 328 ug/l | Zn. | | |
| all water samples below 6.5 ug/l | Cu. | | |
| all water samples | Na and Hg. | +/U | J/UJ |
| all water samples | Ba, Ca, Mg and Sn. | + | J |
| all water samples | Ba, Ca, Mg, K, Na and Sn. | + | J |
| all water samples | Na. | + | J |
| all "B" results | all analytes | B | J |



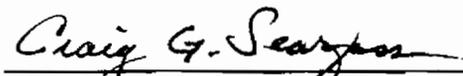
HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#: 40799
Date: December 2, 1999
Client Name: Ensafe
Project/Site Name: Charleston Zone H
Date Sampled: October 20, 1999
Number of Samples: 4 Aqueous Sample(s) with 0 MS/MSD(s)
Laboratory: Southwest Laboratory of Oklahoma
Validation Guidance: National Functional Guidelines for Organic and Inorganic Data, February, 1994
QA/QC Level: EPA DQO Level III
Method(s) Utilized: SW846 Third Edition
Analytical Fraction: Volatiles, Semivolatiles, Metals, Dioxins / Furans, Hydrazine and Tetryl

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:


for Paul B. Humburg, President

12-6-99
Date

SDG# 40799

Samples and Fractions Reviewed

Sample Identifications

Analytical Fractions

| ENSAFE ID | MATRIX | VOA | | SVOA | | MET | | DIOX | | HYD | | EXP | |
|-------------------------------------|--------|-----|---|------|---|-----|---|------|---|-----|---|-----|---|
| 009GW013C1 | WATER | X | | X | | X | | X | | X | | X | |
| 009TW013C1 | WATER | X | | | | | | | | | | | |
| 653GW003C1 | WATER | X | | X | | X | | X | | X | | X | |
| GDHW003C1 | WATER | X | | X | | X | | X | | X | | X | |
| Total Billable Samples (Water/Soil) | | 4 | 0 | 3 | 0 | 3 | 0 | 3 | 0 | 3 | 0 | 3 | 0 |

VOA= Volatiles
SVOA= Semivolatiles
MET= Metals
DIOX= Dioxins / Furans
HYD= Hydrazine
EXP= Tetryl

DATA ASSESSMENT NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8260B for GC/MS Volatiles; the National Functional Guidelines for Organic Data Validation, 2/94, and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # 40799

A validation was performed on the Volatile Data from SDG 40799. The data was evaluated based on the following parameters:

- * • Data Completeness
- * • Holding Times
- * • GC/MS Tuning
- • Calibration
- * • Blanks
- * • Internal Standard Performance
- * • Surrogate Recoveries
- * • Matrix Spike/Matrix Spike Duplicates
- * • Field Duplicates
- * • Compound Identification
- • Compound Quantitation

* - All criteria were met for this parameter.

Calibrations

The continuing calibration I53813.D exhibited one (1) compound with a RRF less than 0.05.. For the following samples and non-compliant compound, the reported positive results are qualified as estimated, J, and the non-detect results are rejected, UR.

| | |
|------------|-----------------------------------|
| GDHW003C1 | 2-chloroethyl vinyl ether (0.032) |
| 653GW003C1 | |
| 009GW013C1 | |

**DATA ASSESSMENT NARRATIVE
VOLATILE ORGANICS**

PAGE 2

Compound Quantitation

For the following sample, the reported results are not used in favor of the results reported from the original analysis of the sample. Both analyses exhibited similar surrogate recoveries.

653GW003C1RE

System Performance and Overall Assessment

The data, as reported, required qualifications/rejections.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

L = Result is estimated and biased low.

K = Result is estimated and biased high.

R = Result is rejected and unusable

D = Result value is based on dilution analysis

BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

| <u>SAMPLE ID</u> | <u>COMPOUND ID</u> | <u>DL</u> | <u>QL</u> |
|--|---------------------------|-----------|------------|
| GDHGW003C1 653GW003C1 009GW013C1 | 2-chloroethyl vinyl ether | +/- | QL |
| 653GW003C1RE | All Compounds | +/- | Do Not Use |

- * DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8270C for GC/MS Semivolatiles; the National Functional Guidelines for Organic Data Validation, 2/94, and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # 40799

A validation was performed on the Semivolatile Data from SDG 40799. The data was evaluated based on the following parameters:

- * • Data Completeness
- * • Holding Times
- * • GC/MS Tuning
- * • Calibration
- Blanks
- * • Internal Standard Performance
- * • Surrogate Recoveries
- * • Matrix Spike/Matrix Spike Duplicates
- * • Field Duplicates
- * • Compound Identification
- * • Compound Quantitation

* - All criteria were met for this parameter.

Blanks

The method blank associated with the field sample in this SDG exhibited contamination for which qualifications were required. The end user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into considerations when applying the 5X and 10X criteria to field samples.

| <u>Associated blank</u> | <u>Compound</u> | <u>Concentration</u> | <u>Action Level</u> |
|-------------------------|----------------------------|----------------------|---------------------|
| SBLK1 | bis(2-ethylhexyl)phthalate | 6J ug/L | 60 ug/L |

**DATA ASSESSMENT NARRATIVE
SEMIVOLATILE ORGANICS**

PAGE 2

Blanks (continued)

| <u>Samples</u> | <u>Compound</u> | <u>Qualifications</u> |
|--------------------------|----------------------------|-----------------------|
| GDHW003C1 | bis(2-ethylhexyl)phthalate | CRQL |
| 653GW003C1 009GW013C1 | bis(2-ethylhexyl)phthalate | U |

System Performance and Overall Assessment

The data, as reported, required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

L = Result is estimated and biased low.

K = Result is estimated and biased high.

R = Result is rejected and unusable

D = Result value is based on dilution analysis

BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

| <u>SAMPLE ID</u> | <u>COMPOUND ID</u> | <u>DL</u> | <u>QL</u> |
|--------------------------|----------------------------|-----------|-----------|
| GDHW003C1 | bis(2-ethylhexyl)phthalate | +B | CRQL |
| 653GW003C1 009GW013C1 | bis(2-ethylhexyl)phthalate | +B | U |

- * DL denotes the Form I qualifier supplied by the laboratory
- QL denotes the qualifier used by the data validation firm
- + in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

TETRYL

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, calibration data, blank analysis results, surrogate recoveries and LCS recoveries. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8330; the National Functional Guidelines for Organic Data Review, February 1994, where applicable; and EPA DQO Level III requirements. Please refer the specific findings found in each category to the Summary of Data Qualifications table.

SDG# 40799

A validation was performed on the Tetryl data from SDG 40799. The data was evaluated based on the following parameters.

- * • Data Completeness
- * • Holding Times
- * • HPLC Performance
- * • Calibrations
- * • Blanks
- * • Surrogate Recoveries
- * • LCS Recoveries
- * • Field Duplicates
- * • Identification/Quantitation

* - All criteria were met for this parameter.

Overall Performance

The data did not require qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

NJ = Result is considered presumptively present at an estimated concentration

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 5X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

| <u>SAMPLE ID</u> | <u>COMPOUND ID</u> | <u>DL</u> | <u>QL</u> |
|------------------|--------------------|-----------|-----------|
|------------------|--------------------|-----------|-----------|

NO QUALIFICATIONS WERE REQUIRED.

- * DL denotes the Form I qualifier supplied by the laboratory
- QL denotes the qualifier used by the data validation firm
- + in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

Dioxin/Furans

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard recoveries. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA SW846, Method 8290; National Functional Guidelines for Organic Data Review, and DQO Level III. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # 40779 Level III

A validation was performed on the Dioxin/Furans Data from SDG 40779. The data was evaluated based on the following parameters.

- * • Data Completeness
- * • Holding Times
- * • Mass Resolution Checks
- * • Column Performance
- * • Calibrations
- * • Internal Standard Performance
- Blanks
- * • Field Duplicates
- * • Congener Identification /Quantitation

* - All criteria were met for this parameter

Blanks

| Blank ID | Congener | Conc. | Action Limit (5X) |
|----------|----------|-------|-------------------|
| DFBLK1 | OCDD | 7.391 | 36.955 |

| Sample ID | Congener | Conc. | Qualifier | Assoc. Blank |
|---------------|----------|-------|-----------|--------------|
| 653-GW003-C1 | OCDD | 20.99 | U | DFBLK1 |
| GDH-G-W003-C1 | OCDD | 15.91 | U | DFBLK1 |

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D= Result value is based on the dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

| <u>SAMPLE ID</u> | <u>CONGENER ID</u> | <u>DL</u> | <u>QL</u> |
|-------------------------------|--------------------|-----------|-----------|
| 653-GW003-C1 GDH-G-W003-C1 | OCDD | +B | U |

- * DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE METALS AND HYDRAZINE

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW846 methods: the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDGs # 40799

A validation was performed on the Metals and hydrazine Data from SDG 40799. The data was evaluated based on the following parameters.

- * ● Data Completeness
- * ● Holding Times
- * ● Calibrations
- * ● Blanks
- * ● Interferences
- * ● Matrix Spike Recovery
- * ● Matrix Duplicates
- * ● Field Duplicates
- * ● Laboratory Control Samples
- * ● Serial Dilutions

* - All criteria were met for this parameter.

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B". Value is below the CRDL but greater than the IDL.

SUMMARY OF DATA QUALIFICATIONS

Sample ID
all "B" results

Analyte
all analytes

DL
B

QL
J



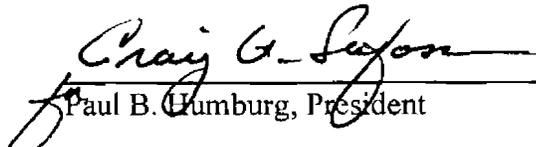
HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#: 38273
Date: June 14, 1999
Client Name: Ensafe
Project/Site Name: Charleston - Zone H
Date Sampled: April 27-28, 1999
Number of Samples: 7 Aqueous Sample(s) with 0 MS/MSD(s)
Laboratory: Southwest Laboratory of Oklahoma
Validation Guidance: National Functional Guidelines for Organic and Inorganic Data,
February, 1994
QA/QC Level: DQO Level III
Method(s) Utilized: SW846 Third Edition
Analytical Fractions: Volatiles, Semivolatiles, Pesticides/PCBs

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:



Paul B. Humburg, President

6-14-99

Date

SDG# 38273

Samples and Fractions Reviewed

Sample Identifications

Analytical Fractions

| ENSAFE ID | MATRIX | VOA | | SVOA | | P/P | |
|-------------------------------------|--------|-----|---|------|---|-----|---|
| 009GW02003 | WATER | X | | X | | X | |
| 009GW02103 | WATER | X | | X | | X | |
| 009GW02203 | WATER | X | | X | | X | |
| 009TW02203 | WATER | X | | | | | |
| 009GW02303 | WATER | X | | X | | X | |
| 009GW23D03 | WATER | X | | X | | X | |
| GELGW01503 | WATER | X | | X | | X | |
| Total Billable Samples (Water/Soil) | | 7 | 0 | 6 | 0 | 6 | 0 |

VOA= Volatiles

SVOA= Semivolatiles

P/P= Pesticides/PCBs

DATA ASSESSMENT NARRATIVES

DATA ASSESSMENT NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8260B; the National Functional Guidelines for Organic Data Validation, February 1994, and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # 38273

A validation was performed on the Volatile Data from SDG 38273. The data was evaluated based on the following parameters:

- * • Data Completeness
- * • Holding Times
- * • GC/MS Tuning
- Calibration
- Blanks
- Surrogate Recoveries
- * • Matrix Spike/Matrix Spike Duplicates
- * • Field Duplicates
- * • Internal Standard Performance
- * • Compound Identification
- Compound Quantitation

* - All criteria were met for this parameter.

**DATA ASSESSMENT NARRATIVE
VOLATILE ANALYSIS**

PAGE - 2

Calibrations

The initial calibration analyzed 04/20/99 on instrument U exhibited two (2) target compounds with RRFs less than 0.05. For the following samples and compounds, the reported positive results are qualified as estimated, J, and the non-detect results are rejected, UR.

| | |
|------------|--------------------|
| 009GW23D03 | acetone (0.026) |
| 009GW02303 | 2-butanone (0.048) |
| 009GW02003 | |
| GELGW01503 | |
| 009GW02103 | |
| 009GW02203 | |

The continuing calibration standard UL9128.D exhibited two (2) target compounds with RRFs less than 0.05. For the following samples and compounds, the reported positive results are qualified as estimated, J, and the non-detect results are rejected, UR.

| | |
|------------|--------------------|
| 009GW23D03 | acetone (0.019) |
| 009GW02303 | 2-butanone (0.035) |
| 009GW02003 | |
| GELGW01503 | |
| 009GW02103 | |
| 009GW02203 | |

Method Blanks

One of the method blanks associated with samples in this SDG exhibited contamination. Several samples required qualification. The end-user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into consideration when applying the 5X or 10X criteria to field samples.

| <u>Associated Blank</u> | <u>Compound</u> | <u>Conc.</u> | <u>Action Level</u> |
|-------------------------|--------------------|----------------------|---------------------|
| VBLK1 | methylene chloride | 1J µg/L | 10 µg/L |
| <u>Samples</u> | <u>Compound</u> | <u>Qualification</u> | |
| 009GW23D03 | methylene chloride | CRQL | |

**DATA ASSESSMENT NARRATIVE
VOLATILE ANALYSIS**

PAGE - 3

Surrogate Recoveries

The following samples exhibited non-compliant surrogate recoveries below the QC limits but above 10%. All reported positive and non-detect acid fraction results are qualified as estimated, J/UJ.

| <u>Samples</u> | <u>Surrogate Compound</u> | <u>%R</u> |
|----------------|---------------------------|-----------|
| GELGW01503 | 4-bromofluorobenzene | 85% |
| 009GW02103 | 4-bromofluorobenzene | 81% |

Compound Quantitation

For the following samples, the E flagged results are not used in favor of the corresponding D flagged results reported in the dilution analyses where corresponding D flagged results are present. All other results reported in the dilution analyses are not used in favor of the results from the undiluted analyses.

009GW02003
009GW02103
GELGW01503

System Performance and Overall Assessment

The data required qualifications/rejections.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

| <u>SAMPLE ID</u> | <u>COMPOUND ID</u> | <u>DL</u> | <u>QL</u> |
|--|---|-----------|------------|
| 009GW23D03 009GW02303 009GW02003 GELGW01503 009GW02103 009GW02203 | acetone (0.026) 2-butanone (0.048) | +/- | J/UR |
| 009GW23D03 009GW02303 009GW02003 GELGW01503 009GW02103 009GW02203 | acetone (0.019) 2-butanone (0.035) | +/- | J/UR |
| 009GW23D03 | methylene chloride | +B | CRQL |
| GELGW01503 009GW02103 | All compounds | +/- | J/UJ |
| 009GW02003 009GW02103 GELGW01503 | All E flagged compounds | +E | Do Not Use |
| 009GW02003DL 009GW02103DL GELGW01503DL | All except corresponding D flagged results | +/- | Do Not Use |

- * DL denotes the Form I qualifier supplied by the laboratory
 QL denotes the qualifier used by the data validation firm
 + in the DL column denotes a positive result
 - in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8270C; the National Functional Guidelines for Organic Data Validation, February 1994, and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # 38273

A validation was performed on the Semivolatile Data from SDG 38273. The data was evaluated based on the following parameters:

- * • Data Completeness
- * • Holding Times
- * • GC/MS Tuning
- * • Calibration
- Blanks
- Surrogate Recoveries
- * • Matrix Spike/Matrix Spike Duplicates
- * • Field Duplicates
- * • Internal Standard Performance
- * • Compound Identification
- Compound Quantitation

* - All criteria were met for this parameter.

Method Blanks

One of the method blanks associated with samples in this SDG exhibited contamination. Several samples required qualification. The end-user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into consideration when applying the 5X or 10X criteria to field samples.

| <u>Associated Blank</u> | <u>Compound</u> | <u>Conc.</u> | <u>Action Level</u> |
|-------------------------|----------------------------|--------------|---------------------|
| SBLK1 | bis(2-ethylhexyl)phthalate | 2J µg/L | 20 µg/L |

**DATA ASSESSMENT NARRATIVE
SEMIVOLATILE ANALYSIS**

PAGE - 2

Method Blanks (continued)

| <u>Associated Blank</u> | <u>Compound</u> | <u>Conc.</u> | <u>Action Level</u> |
|-------------------------|----------------------------|--------------|---------------------|
| SBLK1 | 1,2-dichlorobenzene | 3J µg/L | 15 µg/L |
| SBLK2 | bis(2-ethylhexyl)phthalate | 0.8J µg/L | 8 µg/L |

| <u>Samples</u> | <u>Compound</u> | <u>Qualification</u> |
|----------------|----------------------------|----------------------|
| 009GW23D03 | bis(2-ethylhexyl)phthalate | CRQL |
| GELGW01503 | | |
| 009GW02103 | | |
| 009GW02203 | | |
| 009GW02003 | | |
| 009GW02303RE | | |

Surrogate Recoveries

The following samples exhibited non-compliant surrogate recoveries below the QC limits and below 10% for the noted surrogate compounds. All reported positive acid fraction results are qualified as estimated, J, and all reported non-detect acid fraction results are rejected, UR.

| <u>Samples</u> | <u>Surrogate Compound</u> | <u>%R</u> |
|----------------|---------------------------|-----------|
| 009GW02103 | 2-fluorophenol | 0% |
| | 2-chlorophenol-d4 | 25% |
| GELGW01503 | phenol-d5 | 3% |
| | 2-fluorophenol | 0% |
| | 2-chlorophenol-d4 | 11% |

The following sample exhibited non-compliant surrogate recoveries below the QC limits but above 10%. All reported positive and non-detect acid fraction results are qualified as estimated, J/UJ.

| <u>Samples</u> | <u>Surrogate Compound</u> | <u>%R</u> |
|----------------|---------------------------|-----------|
| 009GW02303RE | 2-fluorophenol | 14% |
| | 2-chlorophenol-d4 | 16% |

**DATA ASSESSMENT NARRATIVE
SEMIVOLATILE ANALYSIS**

PAGE - 3

Compound Quantitation

For the following samples, the E flagged results are not used in favor of the corresponding D flagged results reported in the dilution analyses where corresponding D flagged results are present. All other results reported in the dilution analyses are not used in favor of the results from the undiluted analyses.

009GW02103
GELGW01503

For the following sample, the E flagged result reported for the noted compound is qualified as estimated, J, because it is above the calibration range of the instrument and the dilution analysis did not produce a result for the compound.

GELGW01503 1,3-dichlorobenzene

For the following samples, the reported results are not used in favor of the results reported in the original or RE analyses. Improved or similar surrogate recoveries were noted in the Res.

009GW02103RE
GELGW01503RE
009GW02303

System Performance and Overall Assessment

The data required qualifications/rejections.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

| <u>SAMPLE ID</u> | <u>COMPOUND ID</u> | <u>DL</u> | <u>QL</u> |
|--|---|-----------|------------|
| 009GW23D03 GELGW01503 009GW02103 009GW02203 009GW02003 009GW02303RE | bis(2-ethylhexyl)phthalate | +B | CRQL |
| 009GW02103 GELGW01503 | All acid fraction compounds | +/- | J/UR |
| 009GW02303RE | All acid fraction compounds | +/- | J/UJ |
| 009GW02103 GELGW01503 | All E flagged results where corresponding D flagged results are present | +E | Do Not Use |
| 009GW02103DL GELGW01503DL | All except corresponding D flagged results | +/- | Do Not Use |
| GELGW01503 | 1,3-dichlorobenzene | +E | J |
| 009GW02103RE GELGW01503RE 009GW02303 | All Compounds | +/- | Do Not Use |

* DL denotes the Form I qualifier supplied by the laboratory
 QL denotes the qualifier used by the data validation firm
 + in the DL column denotes a positive result
 - in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

PESTICIDE/PCBs

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance, and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW846 Method 8081A; the National Functional Guidelines for Organic Data Validation, February 1994; and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # 38273

A validation was performed on the Pesticide/PCB Data from SDG 38273. The data was evaluated based on the following parameters:

- * • Data Completeness
- * • Holding Times
- * • GC Performance
- * • Calibration
- * • Blanks
- * • Surrogate Recoveries
- * • Matrix Spike/Matrix Spike Duplicates
- * • Field Duplicates
- * • Compound Identification
- * • Compound Quantitation

* - All criteria were met for this parameter.

Method Deviation

The multi-component compounds Toxaphene and the PCBs were not included in the continuing calibration verification standard as is required by the method SW-846 8081A. However, the compound was included in the initial calibration curve with a single point injection as required. The compound was not identified in the samples in this SDG.

**DATA ASSESSMENT NARRATIVE
PESTICIDES/PCBs ANALYSIS**

PAGE - 2

System Performance and Overall Assessment

The data, as reported, did not require qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

NJ = Result is considered presumptively present at an estimated concentration

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 5X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

| <u>SAMPLE ID</u> | <u>COMPOUND ID</u> | <u>DL</u> | <u>QL</u> |
|------------------|--------------------|-----------|-----------|
|------------------|--------------------|-----------|-----------|

NO QUALIFICATIONS WERE REQUIRED.

- * DL denotes the Form I qualifier supplied by the laboratory
- QL denotes the qualifier used by the data validation firm
- + in the DL column denotes a positive result
- in the DL column denotes a non-detect result



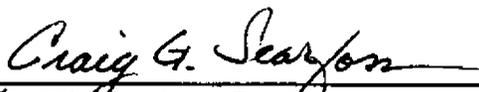
HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#: 39843
Date: September 30, 1999
Client Name: Ensafe
Project/Site Name: Charleston - Zone G
Date Sampled: August 5, 1999
Number of Samples: 10 Aqueous Sample(s) with 0 MS/MSD(s)
Laboratory: Southwest Laboratory of Oklahoma
Validation Guidance: National Functional Guidelines for Organic and Inorganic Data,
February, 1994
QA/QC Level: DQO Level III
Method(s) Utilized: SW846 Third Edition
Analytical Fractions: Volatiles, Semivolatiles and Hydrazine

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:



Paul B. Humburg, President

10-7-99

Date

CHARLESTON - ZONE G
CHARLESTON ZONE G QUARTERLY GW

| HYDRAZINE | | SAMPLE ID -----> | 008-G-SP01-01 | 008-G-SP02-01 | 008-G-SP03-01 | 008-G-SP04-01 | 008-G-SP05-01 | 008-G-SP06-01 | | | | | |
|-----------|-----------|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|-----|-----|--|------|--|
| | | ORIGINAL ID -----> | 008GSP0101 | 008GSP0201 | 008GSP0301 | 008GSP0401 | 008GSP0501 | 008GSP0601 | | | | | |
| | | LAB SAMPLE ID ----> | 39825.02 | 39825.03 | 39825.04 | 39825.05 | 39825.06 | 39825.01 | | | | | |
| | | ID FROM REPORT --> | 008GSP0101 | 008GSP0201 | 008GSP0301 | 008GSP0401 | 008GSP0501 | 008GSP0601 | | | | | |
| | | SAMPLE DATE -----> | 08/04/99 | 08/04/99 | 08/04/99 | 08/04/99 | 08/04/99 | 08/04/99 | | | | | |
| | | DATE ANALYZED ----> | 08/26/99 | 08/26/99 | 08/26/99 | 08/26/99 | 08/26/99 | 08/26/99 | | | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | | | |
| CAS # | Parameter | 39825 | VAL | 39825 | VAL | 39825 | VAL | 39825 | VAL | | | | |
| 302-01-2 | Hydrazine | 76.6 | | 5. U | | 14.6 | | 5. U | | 5.6 | | 5. U | |

CHARLESTON - ZONE G
CHARLESTON ZONE G QUARTERLY GW

| HYDRAZINE | | SAMPLE ID -----> | 008-G-SP07-01 | 008-G-SP08-01 | 008-G-SP09-01 | 008-G-SP10-01 | 008-G-SP11-01 | 008-G-SP12-01 | | | | |
|-----------|-----------|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|-----|-------|-----|------|
| | | ORIGINAL ID -----> | 008GSP0701 | 008GSP0801 | 008GSP0901 | 008GSP1001 | 008GSP1101 | 008GSP1201 | | | | |
| | | LAB SAMPLE ID ----> | 39825.07 | 39825.08 | 39825.09 | 39843.01 | 39843.02 | 39843.03 | | | | |
| | | ID FROM REPORT --> | 008GSP0701 | 008GSP0801 | 008GSP0901 | 008GSP1001 | 008GSP1101 | 008GSP1201 | | | | |
| | | SAMPLE DATE -----> | 08/04/99 | 08/04/99 | 08/04/99 | 08/05/99 | 08/05/99 | 08/05/99 | | | | |
| | | DATE ANALYZED ----> | 08/26/99 | 08/26/99 | 08/26/99 | 08/26/99 | 08/26/99 | 08/26/99 | | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | | |
| CAS # | Parameter | 39825 | VAL | 39825 | VAL | 39825 | VAL | 39843 | VAL | 39843 | VAL | |
| 302-01-2 | Hydrazine | 6.7 | | 5. U | | 5. U | | 5. U | | 5. | | 10.1 |

CHARLESTON - ZONE G
CHARLESTON ZONE G QUARTERLY GW

| HYDRAZINE | | SAMPLE ID -----> 008-G-SP13-01 | 008-G-SP14-01 | 008-G-SP15-01 | 008-G-SP16-01 | 008-G-SP17-01 | 008-G-SP18-01 |
|-----------|---------------------|--------------------------------|---------------|---------------|---------------|---------------|---------------|
| | ORIGINAL ID -----> | 00BGSP1301 | 00BGSP1401 | 00BGSP1501 | 00BGSP1601 | 00BGSP1701 | 00BGSP1801 |
| | LAB SAMPLE ID ----> | 39843.04 | 39843.05 | 39843.06 | 39843.07 | 39843.08 | 39843.09 |
| | ID FROM REPORT --> | 008GSP1301 | 008GSP1401 | 008GSP1501 | 008GSP1601 | 008GSP1701 | 008GSP1801 |
| | SAMPLE DATE -----> | 08/05/99 | 08/05/99 | 08/05/99 | 08/05/99 | 08/05/99 | 08/05/99 |
| | DATE ANALYZED ----> | 08/26/99 | 08/26/99 | 08/26/99 | 08/26/99 | 08/26/99 | 08/26/99 |
| | MATRIX -----> | Water | Water | Water | Water | Water | Water |
| | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L |
| CAS # | Parameter | 39843 | 39843 | 39843 | 39843 | 39843 | 39843 |
| | | VAL | VAL | VAL | VAL | VAL | VAL |
| 302-01-2 | Hydrazine | 6.7 | 5.6 | 7. | 6. | 5.6 | 7.4 |

CHARLESTON - ZONE G
CHARLESTON ZONE G QUARTERLY GW

| SW846-SVOA | | SAMPLE ID -----> | 008-G-SP01-01 | 008-G-SP02-01 | 008-G-SP03-01 | 008-G-SP04-01 | 008-G-SP05-01 | 008-G-SP06-01 RE | | | |
|------------|------------------------------|---------------------|---------------|---------------|---------------|---------------|---------------|------------------|-----|-------|-----|
| | | ORIGINAL ID -----> | 008GSP0101 | 008GSP0201 | 008GSP0301 | 008GSP0401 | 008GSP0501 | 008GSP0601 | | | |
| | | LAB SAMPLE ID ----> | 39785.01 | 39785.02 | 39785.03 | 39785.04 | 39785.05 | 39825.01 | | | |
| | | ID FROM REPORT --> | 008GSP0101 | 008GSP0201 | 008GSP0301 | 008GSP0401 | 008GSP0501 | 008GSP0601 | | | |
| | | SAMPLE DATE -----> | 08/03/99 | 08/03/99 | 08/03/99 | 08/03/99 | 08/03/99 | 08/04/99 | | | |
| | | DATE EXTRACTED --> | 08/05/99 | 08/05/99 | 08/05/99 | 08/05/99 | 08/05/99 | 08/23/99 | | | |
| | | DATE ANALYZED ----> | 08/20/99 | 08/20/99 | 08/20/99 | 08/20/99 | 08/20/99 | 08/25/99 | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | |
| CAS # | Parameter | 39785 | VAL | 39785 | VAL | 39785 | VAL | 39785 | VAL | 39825 | VAL |
| 108-95-2 | Phenol | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 111-44-4 | bis(2-Chloroethyl)ether | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 95-57-8 | 2-Chlorophenol | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 541-73-1 | 1,3-Dichlorobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 106-46-7 | 1,4-Dichlorobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 100-51-6 | Benzyl alcohol | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 95-50-1 | 1,2-Dichlorobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 95-48-7 | 2-Methylphenol (o-Cresol) | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 106-44-5 | 4-Methylphenol (p-Cresol) | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 67-72-1 | Hexachloroethane | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 98-95-3 | Nitrobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 78-59-1 | Isophorone | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 88-75-5 | 2-Nitrophenol | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 105-67-9 | 2,4-Dimethylphenol | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 65-85-0 | Benzoic acid | 1. | J | 1. | J | 10. | U | 1. | J | 12. | UJ |
| 111-91-1 | bis(2-Chloroethoxy)methane | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 120-83-2 | 2,4-Dichlorophenol | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 120-82-1 | 1,2,4-Trichlorobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 91-20-3 | Naphthalene | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 106-47-8 | 4-Chloroaniline | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 87-68-3 | Hexachlorobutadiene | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 59-50-7 | 4-Chloro-3-methylphenol | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 91-57-6 | 2-Methylnaphthalene | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 77-47-4 | Hexachlorocyclopentadiene | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 88-06-2 | 2,4,6-Trichlorophenol | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 95-95-4 | 2,4,5-Trichlorophenol | 25. | U | 25. | U | 25. | U | 25. | U | 29. | UJ |
| 91-58-7 | 2-Chloronaphthalene | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 88-74-4 | 2-Nitroaniline | 25. | U | 25. | U | 25. | U | 25. | U | 29. | UJ |
| 131-11-3 | Dimethyl phthalate | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 208-96-8 | Acenaphthylene | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 606-20-2 | 2,6-Dinitrotoluene | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 99-09-2 | 3-Nitroaniline | 25. | U | 25. | U | 25. | U | 25. | U | 29. | UJ |
| 83-32-9 | Acenaphthene | 2. | J | 2. | J | 1. | J | 1. | J | 1. | J |
| 51-28-5 | 2,4-Dinitrophenol | 25. | U | 25. | U | 25. | U | 25. | U | 29. | UJ |

CHARLESTON - ZONE G
CHARLESTON ZONE G QUARTERLY GW

| SW846-SVDA | | SAMPLE ID -----> | 008-G-SP01-01 | 008-G-SP02-01 | 008-G-SP03-01 | 008-G-SP04-01 | 008-G-SP05-01 | 008-G-SP06-01 RE | | | |
|------------|-----------------------------------|-----------------------|---------------|---------------|---------------|---------------|---------------|------------------|-----|-------|-----|
| | | ORIGINAL ID -----> | 008GSP0101 | 008GSP0201 | 008GSP0301 | 008GSP0401 | 008GSP0501 | 008GSP0601 | | | |
| | | LAB SAMPLE ID -----> | 39785.01 | 39785.02 | 39785.03 | 39785.04 | 39785.05 | 39825.01 | | | |
| | | ID FROM REPORT -----> | 008GSP0101 | 008GSP0201 | 008GSP0301 | 008GSP0401 | 008GSP0501 | 008GSP0601 | | | |
| | | SAMPLE DATE -----> | 08/03/99 | 08/03/99 | 08/03/99 | 08/03/99 | 08/03/99 | 08/04/99 | | | |
| | | DATE EXTRACTED -----> | 08/05/99 | 08/05/99 | 08/05/99 | 08/05/99 | 08/05/99 | 08/23/99 | | | |
| | | DATE ANALYZED -----> | 08/20/99 | 08/20/99 | 08/20/99 | 08/20/99 | 08/20/99 | 08/25/99 | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | |
| CAS # | Parameter | 39785 | VAL | 39785 | VAL | 39785 | VAL | 39785 | VAL | 39825 | VAL |
| 100-02-7 | 4-Nitrophenol | 25. | U | 25. | U | 25. | U | 25. | U | 29. | UJ |
| 132-64-9 | Dibenzofuran | 1. | J | 1. | J | 10. | U | 10. | U | 12. | UJ |
| 121-14-2 | 2,4-Dinitrotoluene | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 84-66-2 | Diethylphthalate | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 7005-72-3 | 4-Chlorophenylphenylether | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 86-73-7 | Fluorene | 2. | J | 2. | J | 1. | J | 1. | J | 1. | J |
| 100-01-6 | 4-Nitroaniline | 25. | U | 25. | U | 25. | U | 25. | U | 29. | UJ |
| 534-52-1 | 2-Methyl-4,6-Dinitrophenol | 25. | U | 25. | U | 25. | U | 25. | U | 29. | UJ |
| 86-30-6 | N-Nitrosodiphenylamine | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 101-55-3 | 4-Bromophenyl-phenylether | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 118-74-1 | Hexachlorobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 87-86-5 | Pentachlorophenol | 25. | U | 25. | U | 25. | U | 25. | U | 29. | UJ |
| 85-01-8 | Phenanthrene | 1. | J | 1. | J | 10. | U | 10. | U | 1. | J |
| 120-12-7 | Anthracene | 1. | J | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 84-74-2 | Di-n-butylphthalate | 1. | J | 1. | J | 1. | J | 1. | J | 12. | UJ |
| 206-44-0 | Fluoranthene | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 129-00-0 | Pyrene | 1. | J | 10. | U | 1. | J | 10. | U | 1. | J |
| 85-68-7 | Butylbenzylphthalate | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 91-94-1 | 3,3'-Dichlorobenzidine | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 56-55-3 | Benzo(a)anthracene | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 218-01-9 | Chrysene | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 117-81-7 | bis(2-Ethylhexyl)phthalate (BEHP) | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 117-84-0 | Di-n-octyl phthalate | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 205-99-2 | Benzo(b)fluoranthene | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 207-08-9 | Benzo(k)fluoranthene | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 50-32-8 | Benzo(a)pyrene | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 53-70-3 | Dibenz(a,h)anthracene | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |
| 191-24-2 | Benzo(g,h,i)perylene | 10. | U | 10. | U | 10. | U | 10. | U | 12. | UJ |

CHARLESTON - ZONE G
CHARLESTON ZONE G QUARTERLY GW

| SW846-SVOA | | SAMPLE ID -----> | 008-G-SP07-01 | 008-G-SP08-01 | 008-G-SP09-01 | 008-G-SP10-01 | 008-G-SP11-01 | 008-G-SP12-01 | | | |
|------------|------------------------------|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|-----|-------|-----|
| | | ORIGINAL ID -----> | 008GSP0701 | 008GSP0801 | 008GSP0901 | 008GSP1001 | 008GSP1101 | 008GSP1201 | | | |
| | | LAB SAMPLE ID ----> | 39825.07 | 39825.08 | 39825.09 | 39843.01 | 39843.02 | 39843.03 | | | |
| | | ID FROM REPORT --> | 008GSP0701 | 008GSP0801 | 008GSP0901 | 008GSP1001 | 008GSP1101 | 008GSP1201 | | | |
| | | SAMPLE DATE -----> | 08/04/99 | 08/04/99 | 08/04/99 | 08/05/99 | 08/05/99 | 08/05/99 | | | |
| | | DATE EXTRACTED --> | 08/06/99 | 08/06/99 | 08/06/99 | 08/07/99 | 08/07/99 | 08/07/99 | | | |
| | | DATE ANALYZED ----> | 08/24/99 | 08/24/99 | 08/24/99 | 08/26/99 | 08/31/99 | 08/31/99 | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | |
| CAS # | Parameter | 39825 | VAL | 39825 | VAL | 39825 | VAL | 39843 | VAL | 39843 | VAL |
| 108-95-2 | Phenol | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 111-44-4 | bis(2-Chloroethyl)ether | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 95-57-8 | 2-Chlorophenol | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 541-73-1 | 1,3-Dichlorobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 106-46-7 | 1,4-Dichlorobenzene | 10. | U | 10. | U | 1. | J | 10. | U | 10. | U |
| 100-51-6 | Benzyl alcohol | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 95-50-1 | 1,2-Dichlorobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 95-48-7 | 2-Methylphenol (o-Cresol) | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 106-44-5 | 4-Methylphenol (p-Cresol) | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 67-72-1 | Hexachloroethane | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 98-95-3 | Nitrobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 78-59-1 | Isophorone | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 88-75-5 | 2-Nitrophenol | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 105-67-9 | 2,4-Dimethylphenol | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 65-85-0 | Benzoic acid | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 111-91-1 | bis(2-Chloroethoxy)methane | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 120-83-2 | 2,4-Dichlorophenol | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 91-20-3 | Naphthalene | 10. | U | 10. | U | 1. | J | 10. | U | 10. | U |
| 106-47-8 | 4-Chloroaniline | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 87-68-3 | Hexachlorobutadiene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 59-50-7 | 4-Chloro-3-methylphenol | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 91-57-6 | 2-Methylnaphthalene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 77-47-4 | Hexachlorocyclopentadiene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10. | U | 10. | U | 10. | U | 10. | UJ | 10. | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 25. | U | 25. | U | 25. | U | 25. | UJ | 25. | U |
| 91-58-7 | 2-Chloronaphthalene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 88-74-4 | 2-Nitroaniline | 25. | U | 25. | U | 25. | U | 25. | U | 25. | U |
| 131-11-3 | Dimethyl phthalate | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 208-96-8 | Acenaphthylene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 606-20-2 | 2,6-Dinitrotoluene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 99-09-2 | 3-Nitroaniline | 25. | U | 25. | U | 25. | U | 25. | U | 25. | U |
| 83-32-9 | Acenaphthene | 1. | J | 1. | J | 1. | J | 10. | U | 10. | U |
| 51-28-5 | 2,4-Dinitrophenol | 25. | U | 25. | U | 25. | U | 25. | UJ | 25. | U |

CHARLESTON - ZONE G
CHARLESTON ZONE G QUARTERLY GW

| SW846-SV0A | | SAMPLE ID -----> | 008-G-SP07-01 | 008-G-SP08-01 | 008-G-SP09-01 | 008-G-SP10-01 | 008-G-SP11-01 | 008-G-SP12-01 | | | | | |
|------------|-----------------------------------|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|-----|-------|-----|-------|-----|
| | | ORIGINAL ID -----> | 008GSP0701 | 008GSP0801 | 008GSP0901 | 008GSP1001 | 008GSP1101 | 008GSP1201 | | | | | |
| | | LAB SAMPLE ID ----> | 39825.07 | 39825.08 | 39825.09 | 39843.01 | 39843.02 | 39843.03 | | | | | |
| | | ID FROM REPORT --> | 008GSP0701 | 008GSP0801 | 008GSP0901 | 008GSP1001 | 008GSP1101 | 008GSP1201 | | | | | |
| | | SAMPLE DATE -----> | 08/04/99 | 08/04/99 | 08/04/99 | 08/05/99 | 08/05/99 | 08/05/99 | | | | | |
| | | DATE EXTRACTED --> | 08/06/99 | 08/06/99 | 08/06/99 | 08/07/99 | 08/07/99 | 08/07/99 | | | | | |
| | | DATE ANALYZED ----> | 08/24/99 | 08/24/99 | 08/24/99 | 08/26/99 | 08/31/99 | 08/31/99 | | | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | | | |
| CAS # | Parameter | 39825 | VAL | 39825 | VAL | 39825 | VAL | 39843 | VAL | 39843 | VAL | 39843 | VAL |
| 100-02-7 | 4-Nitrophenol | 25. | U | 25. | U | 25. | U | 25. | UJ | 25. | U | 25. | U |
| 132-64-9 | Dibenzofuran | 10. | U | 10. | U | 1. | J | 10. | U | 10. | U | 10. | U |
| 121-14-2 | 2,4-Dinitrotoluene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 84-66-2 | Diethylphthalate | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 7005-72-3 | 4-Chlorophenylphenylether | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 86-73-7 | Fluorene | 1. | J | 1. | J | 2. | J | 10. | U | 1. | J | 1. | J |
| 100-01-6 | 4-Nitroaniline | 25. | U | 25. | U | 25. | U | 25. | U | 25. | U | 25. | U |
| 534-52-1 | 2-Methyl-4,6-Dinitrophenol | 25. | U | 25. | U | 25. | U | 25. | UJ | 25. | U | 25. | U |
| 86-30-6 | N-Nitrosodiphenylamine | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 118-74-1 | Hexachlorobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 87-86-5 | Pentachlorophenol | 25. | U | 25. | U | 25. | U | 25. | UJ | 25. | U | 25. | U |
| 85-01-8 | Phenanthrene | 1. | J | 1. | J | 2. | J | 1. | J | 2. | J | 1. | J |
| 120-12-7 | Anthracene | 1. | J | 10. | U | 10. | U | 10. | U | 1. | J | 1. | J |
| 84-74-2 | Di-n-butylphthalate | 1. | J | 1. | J | 1. | J | 1. | J | 1. | J | 10. | U |
| 206-44-0 | Fluoranthene | 10. | U | 10. | U | 10. | U | 10. | U | 2. | J | 1. | J |
| 129-00-0 | Pyrene | 1. | J | 1. | J | 1. | J | 1. | J | 7. | J | 2. | J |
| 85-68-7 | Butylbenzylphthalate | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 56-55-3 | Benzo(a)anthracene | 10. | U | 10. | U | 10. | U | 10. | U | 2. | J | 1. | J |
| 218-01-9 | Chrysene | 10. | U | 10. | U | 10. | U | 1. | J | 3. | J | 1. | J |
| 117-81-7 | bis(2-Ethylhexyl)phthalate (BEHP) | 10. | U | 10. | U | 10. | U | 7. | J | 4. | J | 1. | J |
| 117-84-0 | Di-n-octyl phthalate | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 205-99-2 | Benzo(b)fluoranthene | 10. | U | 10. | U | 10. | U | 10. | U | 1. | J | 10. | U |
| 207-08-9 | Benzo(k)fluoranthene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 50-32-8 | Benzo(a)pyrene | 10. | U | 10. | U | 10. | U | 10. | U | 1. | J | 10. | U |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 53-70-3 | Dibenz(a,h)anthracene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 191-24-2 | Benzo(g,h,i)perylene | 10. | U | 10. | U | 10. | U | 10. | U | 1. | J | 10. | U |

CHARLESTON - ZONE G
CHARLESTON ZONE G QUARTERLY GW

| SW846-SV0A | | SAMPLE ID -----> | 008-G-SP13-01 | 008-G-SP14-01 | 008-G-SP15-01 | 008-G-SP16-01 | 008-G-SP17-01 RE | 008-G-SP18-01 | | | |
|------------|------------------------------|---------------------|---------------|---------------|---------------|---------------|------------------|---------------|-----|-------|-----|
| | | ORIGINAL ID -----> | 008GSP1301 | 008GSP1401 | 008GSP1501 | 008GSP1601 | 008GSP1701 | 008GSP1801 | | | |
| | | LAB SAMPLE ID ----> | 39843.04 | 39843.05 | 39843.06 | 39843.07 | 39843.08 | 39843.09 | | | |
| | | ID FROM REPORT --> | 008GSP1301 | 008GSP1401 | 008GSP1501 | 008GSP1601 | 008GSP1701 | 008GSP1801 | | | |
| | | SAMPLE DATE -----> | 08/05/99 | 08/05/99 | 08/05/99 | 08/05/99 | 08/05/99 | 08/05/99 | | | |
| | | DATE EXTRACTED --> | 08/07/99 | 08/07/99 | 08/07/99 | 08/07/99 | 09/01/99 | 08/07/99 | | | |
| | | DATE ANALYZED ----> | 08/31/99 | 08/26/99 | 08/26/99 | 08/26/99 | 09/02/99 | 08/26/99 | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | |
| CAS # | Parameter | 39843 | VAL | 39843 | VAL | 39843 | VAL | 39843 | VAL | 39843 | VAL |
| 108-95-2 | Phenol | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 111-44-4 | bis(2-Chloroethyl)ether | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 95-57-8 | 2-Chlorophenol | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 541-73-1 | 1,3-Dichlorobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 106-46-7 | 1,4-Dichlorobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 100-51-6 | Benzyl alcohol | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 95-50-1 | 1,2-Dichlorobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 95-48-7 | 2-Methylphenol (o-Cresol) | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 106-44-5 | 4-Methylphenol (p-Cresol) | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 67-72-1 | Hexachloroethane | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 98-95-3 | Nitrobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 78-59-1 | Isophorone | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 88-75-5 | 2-Nitrophenol | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 105-67-9 | 2,4-Dimethylphenol | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 65-85-0 | Benzoic acid | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 111-91-1 | bis(2-Chloroethoxy)methane | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 120-83-2 | 2,4-Dichlorophenol | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 91-20-3 | Naphthalene | 3. | J | 10. | U | 28. | J | 10. | U | 10. | U |
| 106-47-8 | 4-Chloroaniline | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 87-68-3 | Hexachlorobutadiene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 59-50-7 | 4-Chloro-3-methylphenol | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 91-57-6 | 2-Methylnaphthalene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 77-47-4 | Hexachlorocyclopentadiene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 25. | U | 25. | U | 25. | U | 25. | U | 25. | U |
| 91-58-7 | 2-Chloronaphthalene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 88-74-4 | 2-Nitroaniline | 25. | U | 25. | U | 25. | U | 25. | U | 25. | U |
| 131-11-3 | Dimethyl phthalate | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 208-96-8 | Acenaphthylene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 606-20-2 | 2,6-Dinitrotoluene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 99-09-2 | 3-Nitroaniline | 25. | U | 25. | U | 25. | U | 25. | U | 25. | U |
| 83-32-9 | Acenaphthene | 2. | J | 10. | U | 2. | J | 10. | U | 10. | U |
| 51-28-5 | 2,4-Dinitrophenol | 25. | U | 25. | U | 25. | U | 25. | U | 25. | U |

CHARLESTON - ZONE G
CHARLESTON ZONE G QUARTERLY GW

| SUB846-SVOA | | SAMPLE ID -----> | 008-G-SP13-01 | 008-G-SP14-01 | 008-G-SP15-01 | 008-G-SP16-01 | 008-G-SP17-01 RE | 008-G-SP18-01 | | | |
|-------------|-----------------------------------|---------------------|---------------|---------------|---------------|---------------|------------------|---------------|-----|-------|-----|
| | | ORIGINAL ID -----> | 008GSP1301 | 008GSP1401 | 008GSP1501 | 008GSP1601 | 008GSP1701 | 008GSP1801 | | | |
| | | LAB SAMPLE ID ----> | 39843.04 | 39843.05 | 39843.06 | 39843.07 | 39843.08 | 39843.09 | | | |
| | | ID FROM REPORT --> | 008GSP1301 | 008GSP1401 | 008GSP1501 | 008GSP1601 | 008GSP1701 | 008GSP1801 | | | |
| | | SAMPLE DATE -----> | 08/05/99 | 08/05/99 | 08/05/99 | 08/05/99 | 08/05/99 | 08/05/99 | | | |
| | | DATE EXTRACTED --> | 08/07/99 | 08/07/99 | 08/07/99 | 08/07/99 | 09/01/99 | 08/07/99 | | | |
| | | DATE ANALYZED ----> | 08/31/99 | 08/26/99 | 08/26/99 | 08/26/99 | 09/02/99 | 08/26/99 | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | |
| CAS # | Parameter | 39843 | VAL | 39843 | VAL | 39843 | VAL | 39843 | VAL | 39843 | VAL |
| 100-02-7 | 4-Nitrophenol | 25. | U | 25. | U | 25. | U | 25. | U | 25. | U |
| 132-64-9 | Dibenzofuran | 1. | J | 10. | U | 2. | J | 10. | U | 10. | U |
| 121-14-2 | 2,4-Dinitrotoluene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 84-66-2 | Diethylphthalate | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 7005-72-3 | 4-Chlorophenylphenylether | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 86-73-7 | Fluorene | 2. | J | 10. | U | 3. | J | 10. | U | 10. | U |
| 100-01-6 | 4-Nitroaniline | 25. | U | 25. | U | 25. | U | 25. | U | 25. | U |
| 534-52-1 | 2-Methyl-4,6-Dinitrophenol | 25. | U | 25. | U | 25. | U | 25. | U | 25. | U |
| 86-30-6 | N-Nitrosodiphenylamine | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 118-74-1 | Hexachlorobenzene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 87-86-5 | Pentachlorophenol | 25. | U | 25. | U | 25. | U | 25. | U | 25. | U |
| 85-01-8 | Phenanthrene | 2. | J | 10. | U | 3. | J | 10. | U | 10. | U |
| 120-12-7 | Anthracene | 1. | J | 10. | U | 1. | J | 10. | U | 10. | U |
| 84-74-2 | Di-n-butylphthalate | 1. | J | 10. | U | 1. | J | 10. | U | 1. | J |
| 206-44-0 | Fluoranthene | 1. | J | 10. | U | 10. | U | 10. | U | 10. | U |
| 129-00-0 | Pyrene | 1. | J | 1. | J | 1. | J | 10. | U | 10. | U |
| 85-68-7 | Butylbenzylphthalate | 3. | J | 10. | U | 10. | U | 10. | U | 10. | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 56-55-3 | Benzo(a)anthracene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 218-01-9 | Chrysene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 117-81-7 | bis(2-Ethylhexyl)phthalate (BEHP) | 5. | J | 4. | J | 8. | J | 5. | J | 10. | U |
| 117-84-0 | Di-n-octyl phthalate | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 205-99-2 | Benzo(b)fluoranthene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 207-08-9 | Benzo(k)fluoranthene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 50-32-8 | Benzo(a)pyrene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 53-70-3 | Dibenz(a,h)anthracene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |
| 191-24-2 | Benzo(g,h,i)perylene | 10. | U | 10. | U | 10. | U | 10. | U | 10. | U |

CHARLESTON - ZONE G
CHARLESTON ZONE G QUARTERLY GW

| SW846-VOA | | SAMPLE ID -----> | 008-G-SP01-01 | 008-G-SP02-01 | 008-G-SP03-01 | 008-G-SP04-01 | 008-G-SP05-01 | 008-G-SP06-01 | | | |
|------------|-----------------------------|----------------------|---------------|---------------|---------------|---------------|---------------|---------------|-----|-------|-----|
| | | ORIGINAL ID -----> | 008GSP0101 | 008GSP0201 | 008GSP0301 | 008GSP0401 | 008GSP0501 | 008GSP0601 | | | |
| | | LAB SAMPLE ID ----> | 39785.01 | 39785.02 | 39785.03 | 39785.04 | 39785.05 | 39825.01 | | | |
| | | ID FROM REPORT ----> | 008GSP0101 | 008GSP0201 | 008GSP0301 | 008GSP0401 | 008GSP0501 | 008GSP0601 | | | |
| | | SAMPLE DATE -----> | 08/03/99 | 08/03/99 | 08/03/99 | 08/03/99 | 08/03/99 | 08/04/99 | | | |
| | | DATE ANALYZED ----> | 08/05/99 | 08/05/99 | 08/05/99 | 08/05/99 | 08/05/99 | 08/09/99 | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | |
| CAS # | Parameter | 39785 | VAL | 39785 | VAL | 39785 | VAL | 39785 | VAL | 39825 | VAL |
| 74-87-3 | Chloromethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 74-83-9 | Bromomethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-01-4 | Vinyl chloride | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-00-3 | Chloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-09-2 | Methylene chloride | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 67-64-1 | Acetone | 5. | UR | 5. | UR | 5. | UR | 5. | UR | 5. | UR |
| 75-15-0 | Carbon disulfide | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-35-4 | 1,1-Dichloroethene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-34-3 | 1,1-Dichloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 67-66-3 | Chloroform | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 107-06-2 | 1,2-Dichloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 78-93-3 | 2-Butanone (MEK) | 5. | UR | 5. | UR | 5. | UR | 5. | UR | 5. | UR |
| 71-55-6 | 1,1,1-Trichloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 56-23-5 | Carbon tetrachloride | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-27-4 | Bromodichloromethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 78-87-5 | 1,2-Dichloropropane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 79-01-6 | Trichloroethene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 124-48-1 | Dibromochloromethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 71-43-2 | Benzene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-25-2 | Bromoform | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 108-10-1 | 4-Methyl-2-Pentanone (MIBK) | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 591-78-6 | 2-Hexanone | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 127-18-4 | Tetrachloroethene | 1. | J | 5. | U | 5. | U | 5. | U | 5. | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 108-88-3 | Toluene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 108-90-7 | Chlorobenzene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 100-41-4 | Ethylbenzene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 100-42-5 | Styrene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 1330-20-7 | Xylene (Total) | 5. | U | 5. | U | 5. | U | 5. | U | 2. | J |
| 108-05-4 | Vinyl acetate | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 110-75-8 | 2-Chloroethyl vinyl ether | 5. | UJ | 5. | UJ | 5. | UJ | 5. | UJ | 5. | UR |

CHARLESTON - ZONE G
CHARLESTON ZONE G QUARTERLY GW

| SW846-VQA | | SAMPLE ID -----> | 008-G-SP07-01 | 008-G-SP08-01 | 008-G-SP09-01 | 008-G-SP10-01 | 008-G-SP11-01 | 008-G-SP12-01 | | | |
|------------|-----------------------------|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|-----|-------|-----|
| | | ORIGINAL ID -----> | 008GSP0701 | 008GSP0801 | 008GSP0901 | 008GSP1001 | 008GSP1101 | 008GSP1201 | | | |
| | | LAB SAMPLE ID ----> | 39825.07 | 39825.08 | 39825.09 | 39843.01 | 39843.02 | 39843.03 | | | |
| | | ID FROM REPORT --> | 008GSP0701 | 008GSP0801 | 008GSP0901 | 008GSP1001 | 008GSP1101 | 008GSP1201 | | | |
| | | SAMPLE DATE -----> | 08/04/99 | 08/04/99 | 08/04/99 | 08/05/99 | 08/05/99 | 08/05/99 | | | |
| | | DATE ANALYZED ----> | 08/09/99 | 08/09/99 | 08/09/99 | 08/09/99 | 08/09/99 | 08/09/99 | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | |
| CAS # | Parameter | 39825 | VAL | 39825 | VAL | 39825 | VAL | 39843 | VAL | 39843 | VAL |
| 74-87-3 | Chloromethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 74-83-9 | Bromomethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-01-4 | Vinyl chloride | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-00-3 | Chloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-09-2 | Methylene chloride | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 67-64-1 | Acetone | 5. | UR | 5. | UR | 5. | UR | 5. | UR | 5. | UR |
| 75-15-0 | Carbon disulfide | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-35-4 | 1,1-Dichloroethene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-34-3 | 1,1-Dichloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 67-66-3 | Chloroform | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 107-06-2 | 1,2-Dichloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 78-93-3 | 2-Butanone (MEK) | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 71-55-6 | 1,1,1-Trichloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 56-23-5 | Carbon tetrachloride | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-27-4 | Bromodichloromethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 78-87-5 | 1,2-Dichloropropane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 79-01-6 | Trichloroethene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 124-48-1 | Dibromochloromethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 71-43-2 | Benzene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-25-2 | Bromoform | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 108-10-1 | 4-Methyl-2-Pentanone (MIBK) | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 591-78-6 | 2-Hexanone | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 127-18-4 | Tetrachloroethene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 108-88-3 | Toluene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 108-90-7 | Chlorobenzene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 100-41-4 | Ethylbenzene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 100-42-5 | Styrene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 1330-20-7 | Xylene (Total) | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 108-05-4 | Vinyl acetate | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 110-75-8 | 2-Chloroethyl vinyl ether | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |

CHARLESTON - ZONE G
CHARLESTON ZONE G QUARTERLY GW

| SW846-VOA | | SAMPLE ID -----> | 008-G-SP13-01 | 008-G-SP14-01 | 008-G-SP15-01 | 008-G-SP16-01 | 008-G-SP17-01 | 008-G-SP18-01 | | | |
|------------|-----------------------------|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|-----|-------|-----|
| | | ORIGINAL ID -----> | 008GSP1301 | 008GSP1401 | 008GSP1501 | 008GSP1601 | 008GSP1701 | 008GSP1801 | | | |
| | | LAB SAMPLE ID ----> | 39843.04 | 39843.05 | 39843.06 | 39843.07 | 39843.08 | 39843.09 | | | |
| | | ID FROM REPORT --> | 008GSP1301 | 008GSP1401 | 008GSP1501 | 008GSP1601 | 008GSP1701 | 008GSP1801 | | | |
| | | SAMPLE DATE -----> | 08/05/99 | 08/05/99 | 08/05/99 | 08/05/99 | 08/05/99 | 08/05/99 | | | |
| | | DATE ANALYZED --> | 08/09/99 | 08/09/99 | 08/09/99 | 08/09/99 | 08/09/99 | 08/09/99 | | | |
| | | MATRIX -----> | Water | Water | Water | Water | Water | Water | | | |
| | | UNITS -----> | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L | | | |
| CAS # | Parameter | 39843 | VAL | 39843 | VAL | 39843 | VAL | 39843 | VAL | 39843 | VAL |
| 74-87-3 | Chloromethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 74-83-9 | Bromomethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-01-4 | Vinyl chloride | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-00-3 | Chloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-09-2 | Methylene chloride | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 67-64-1 | Acetone | 5. | UR | 5. | UR | 5. | UR | 5. | UR | 5. | UR |
| 75-15-0 | Carbon disulfide | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-35-4 | 1,1-Dichloroethene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-34-3 | 1,1-Dichloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 67-66-3 | Chloroform | 5. | U | 5. | U | 5. | U | 5. | U | 3. | J |
| 107-06-2 | 1,2-Dichloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 78-93-3 | 2-Butanone (MEK) | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 71-55-6 | 1,1,1-Trichloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 56-23-5 | Carbon tetrachloride | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-27-4 | Bromodichloromethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 78-87-5 | 1,2-Dichloropropane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 79-01-6 | Trichloroethene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 124-48-1 | Dibromochloromethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 71-43-2 | Benzene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 75-25-2 | Bromoform | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 108-10-1 | 4-Methyl-2-Pentanone (MIBK) | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 591-78-6 | 2-Hexanone | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 127-18-4 | Tetrachloroethene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 108-88-3 | Toluene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 108-90-7 | Chlorobenzene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 100-41-4 | Ethylbenzene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 100-42-5 | Styrene | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 1330-20-7 | Xylene (Total) | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 108-05-4 | Vinyl acetate | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |
| 110-75-8 | 2-Chloroethyl vinyl ether | 5. | U | 5. | U | 5. | U | 5. | U | 5. | U |



HEARTLAND

ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#: 39825
Date: September 20, 1999
Client Name: Ensafe
Project/Site Name: Charleston - Zone G
Date Sampled: August 4, 1999
Number of Samples: 10 Aqueous Sample(s) with 0 MS/MSD(s)
Laboratory: Southwest Laboratory of Oklahoma
Validation Guidance: National Functional Guidelines for Organic and Inorganic Data, February, 1994
QA/QC Level: DQO Level III
Method(s) Utilized: SW846 Third Edition
Analytical Fractions: Volatiles, Semivolatiles and Hydrazine

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:


for Paul B. Mumburg, President

9-21-99.
Date

SDG# 39825

Samples and Fractions Reviewed

Sample Identifications

Analytical Fraction

| ENSAFE ID | MATRIX | VOA | | SVOA | | HYD | |
|-------------------------------------|--------|-----|---|------|---|-----|---|
| 008GSP0101 | WATER | | | | | X | |
| 008GSP0201 | WATER | | | | | X | |
| 008GSP0301 | WATER | | | | | X | |
| 008GSP0401 | WATER | | | | | X | |
| 008GSP0501 | WATER | | | | | X | |
| 008GSP0601 | WATER | X | | X | | X | |
| 008GSP0701 | WATER | X | | X | | X | |
| 008GSP0801 | WATER | X | | X | | X | |
| 008GSP0901 | WATER | X | | X | | X | |
| 008TSP0901 | WATER | X | | | | | |
| Total Billable Samples (Water/Soil) | | 5 | 0 | 4 | 0 | 9 | 0 |

VOA= Volatiles
SVOA= Semivolatiles
HYD= Hydrazine

DATA ASSESSMENT NARRATIVES

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW846 Method 8260B; the National Functional Guidelines for Organic Data Review, and DQO Level III. All comments made within this report should be considered when examining the analytical results.

SDG # 39825

A validation was performed on the Volatile Data from SDG 39825. The data was evaluated based on the following parameters.

- * Data Completeness
- * Holding Times
- * GC/MS Tuning
- Calibrations
- * Internal Standard Performance
- * Blanks
- * Surrogate Recoveries
- * Laboratory Control Samples
- Matrix Spike / Matrix Spike Duplicate
- * Field Duplicates
- * Compound Identification /Quantitation

* - All criteria were met for this parameter

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 2

Continuing Calibration

The continuing calibrations, I52555, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as rejected (UR).

All Samples acetone (0.048)

Matrix Spike / Matrix Spike Duplicate

The matrix spike for sample 008GSP0601 exhibited low recovery for compound 2-chloroethyl vinyl ether (12%) and the matrix spike duplicate exhibited no recovery for 2-chloroethyl vinyl ether. Qualify the sample non detect result as rejected (UR).

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

| <u>SAMPLE ID</u> | <u>COMPOUND ID</u> | <u>DL</u> | <u>QL</u> |
|------------------|---------------------------|-----------|-----------|
| All Samples | acetone | +/- | J/UR |
| 008GSP0601 | 2-chloroethyl vinyl ether | - | UR |

- * DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW846 Method 8270C; the National Functional Guidelines for Organic Data Review, and DQO Level III. All comments made within this report should be considered when examining the analytical results.

SDG # 39825

A validation was performed on the Semivolatile Data from SDG 39825. The data was evaluated based on the following parameters.

- * Data Completeness
Holding Times
- * GC/MS Tuning
Calibrations
- * Internal Standard Performance
Blanks
- * Surrogate Recoveries
- * Laboratory Control Samples
- * Matrix Spike / Matrix Spike Duplicate
- * Field Duplicates
Compound Identification / Quantitation

* - All criteria were met for this parameter

Holding Times

Sample 008GSP0601RE exceeded the seven day extraction holding time by 12 days. Qualify all positive results as estimated (J) and non detects as estimated (UJ).

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ANALYSIS

PAGE - 2

Continuing Calibration

The continuing calibration, A9082503, contained compounds with %Ds greater than 50% and less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

008GSP0601RE bis(2-ethylhexyl)phthalate (57.9%)

Blank

The end user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into considerations when applying the 5X and 10X criteria to field samples.

Method Blank

| <u>Associated blank</u> | <u>Compound</u> | <u>Concentration</u> | <u>Action Level</u> |
|-------------------------|----------------------------|----------------------|---------------------|
| SBLK1 | bis(2-ethylhexyl)phthalate | 5J ug/L | 50 ug/L |
| SBLK2 | bis(2-ethylhexyl)phthalate | 1J ug/L | 10 ug/L |

| <u>Samples</u> | <u>Compound</u> | <u>Qualification</u> |
|--|----------------------------|----------------------|
| 008GSP0701 008GSP0801 008GSP0901 008GSP0601RE | bis(2-ethylhexyl)phthalate | CRQL |

Compound Identification / Quantitation

Do not use sample 008GSP0601, in favor of the re-extraction, due to non compliant surrogates below 10% recovery.

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

| <u>SAMPLE ID</u> | <u>COMPOUND ID</u> | <u>DL</u> | <u>QL</u> |
|--|----------------------------|-----------|------------|
| 008GSP0601RE | all compounds | +/- | J/UJ |
| 008GSP0601RE | bis(2-ethylhexyl)phthalate | +/- | J/UJ |
| 008GSP0701 008GSP0801 008GSP0901 008GSP0601RE | bis(2-ethylhexyl)phthalate | + | CRQL |
| 008GSP0601 | all results | +/- | do not use |

- * DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

HYDRAZINE

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW846 Methods; the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDGs # 39825

A validation was performed on the hydrazine Data from SDG 39825. The data was evaluated based on the following parameters.

- * ● Data Completeness
- * ● Holding Times
- * ● Calibrations
- * ● Blanks
- * ● Field Duplicates
- * ● Laboratory Control Samples

* - All criteria were met for this parameter.

SUMMARY OF DATA QUALIFICATIONS

| Sample ID | Analyte | DL | QL |
|--|---------|----|----|
| data stands as reported without qualification. | | | |

SDG# 39843

Samples and Fractions Reviewed

Sample Identifications

Analytical Fractions

| ENSAFE ID | MATRIX | VOA | | SVOA | | HYD | |
|-------------------------------------|--------|-----|---|------|---|-----|---|
| 008GSP1001 | WATER | X | | X | | X | |
| 008GSP1101 | WATER | X | | X | | X | |
| 008GSP1201 | WATER | X | | X | | X | |
| 008GSP1301 | WATER | X | | X | | X | |
| 008GSP1401 | WATER | X | | X | | X | |
| 008GSP1501 | WATER | X | | X | | X | |
| 008GSP1601 | WATER | X | | X | | X | |
| 008GSP1701 | WATER | X | | X | | X | |
| 008GSP1801 | WATER | X | | X | | X | |
| 008TSP1801 | WATER | X | | | | | |
| Total Billable Samples (Water/Soil) | | 10 | 0 | 9 | 0 | 9 | 0 |

VOA= Volatiles
SVOA= Semivolatiles
HYD= Hydrazine

DATA ASSESSMENT NARRATIVES

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW846 Method 8260B; the National Functional Guidelines for Organic Data Review, and DQO Level III. All comments made within this report should be considered when examining the analytical results.

SDG # 39843

A validation was performed on the Volatile Data from SDG 39843. The data was evaluated based on the following parameters.

- * Data Completeness
- * Holding Times
- * GC/MS Tuning
- Calibrations
- * Internal Standard Performance
- * Blanks
- * Surrogate Recoveries
- * Laboratory Control Samples
- * Field Duplicates
- * Compound Identification /Quantitation

* - All criteria were met for this parameter

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 2

Continuing Calibration

The continuing calibration, I52555, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as rejected (UR).

All Samples acetone (0.048)

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

| <u>SAMPLE ID</u> | <u>COMPOUND ID</u> | <u>DL</u> | <u>QL</u> |
|------------------|--------------------|-----------|-----------|
| All Samples | acetone | +/- | J/UR |

- * DL denotes the Form I qualifier supplied by the laboratory
- QL denotes the qualifier used by the data validation firm
- + in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW846 Method 8270C; the National Functional Guidelines for Organic Data Review, and DQO Level III. All comments made within this report should be considered when examining the analytical results.

SDG # 39843

A validation was performed on the Semivolatile Data from SDG 39843. The data was evaluated based on the following parameters.

- * Data Completeness
- Holding Times
- * GC/MS Tuning
- * Calibrations
- * Internal Standard Performance
- Blanks
- Surrogate Recoveries
- * Laboratory Control Samples
- * Matrix Spike / Matrix Spike Duplicate
- * Field Duplicates
- Compound Identification / Quantitation

* - All criteria were met for this parameter

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ANALYSIS

PAGE - 2

Holding Times

Sample 008GSP1701RE exceeded the seven day extraction holding time by 20 days. Qualify all positive results as estimated (J) and non detects as rejected (UR).

Blank

The end user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into considerations when applying the 5X and 10X criteria to field samples.

Method Blank

| <u>Associated blank</u> | <u>Compound</u> | <u>Concentration</u> | <u>Action Level</u> |
|-------------------------|----------------------------|----------------------|---------------------|
| SBLK2 | bis(2-ethylhexyl)phthalate | 1J ug/L | 10 ug/L |

| <u>Samples</u> | <u>Compound</u> | <u>Qualification</u> |
|----------------|----------------------------|----------------------|
| 008GSP1701RE | bis(2-ethylhexyl)phthalate | CRQL |

Surrogates

Sample 008GSP1001 exhibited low surrogate recoveries for 2-fluorophenol (20%) and 2-chlorophenol-d4 (28%). Qualify all acid fraction compound results as estimated (J/UJ).

Compound Identification / Quantitation

Do not use sample 008GSP1701, in favor of the re-extraction, due all surrogate recoveries below 5% recovery.

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

| <u>SAMPLE ID</u> | <u>COMPOUND ID</u> | <u>DL</u> | <u>QL</u> |
|------------------|-----------------------------|-----------|------------|
| 008GSP1701RE | all compounds | +/- | J/UR |
| 008GSP1701RE | bis(2-ethylhexyl)phthalate | + | CRQL |
| 008GSP1001 | all acid fraction compounds | +/- | J/UJ |
| 008GSP1701 | all results | +/- | do not use |

- * DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

HYDRAZINE

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW846 Methods; the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDGs # 39843

A validation was performed on the hydrazine Data from SDG 39843. The data was evaluated based on the following parameters.

- * ● Data Completeness
- * ● Holding Times
- * ● Calibrations
- * ● Blanks
- * ● Matrix Spike Recovery
- * ● Matrix Duplicates
- * ● Field Duplicates
- * ● Laboratory Control Samples

* - All criteria were met for this parameter.

SUMMARY OF DATA QUALIFICATIONS

| Sample ID | Analyte | DL | QL |
|--|---------|----|----|
| Data stands as reported without qualification. | | | |



HEARTLAND

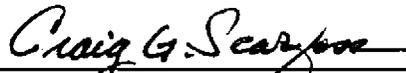
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#: 39785
Date: September 14, 1999
Client Name: Ensafe
Project/Site Name: Charleston Zone G
Date Sampled: August 3, 1999
Number of Samples: 6 Aqueous Sample(s) with 0 MS/MSD(s)
Laboratory: Southwest Laboratory of Oklahoma
Validation Guidance: National Functional Guidelines for Organic and Inorganic Data, February, 1994
QA/QC Level: EPA DQO Level III
Method(s) Utilized: SW846 Third Edition
Analytical Fraction: Volatiles and Semivolatiles

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:


for Paul B. Mumburg, President

9-14-99

Date

SDG# 39785

Samples and Fractions Reviewed

Sample Identifications

Analytical Fractions

| ENSAFE ID | MATRIX | VOA | | SVOA | |
|-------------------------------------|--------|-----|---|------|---|
| 008GSP0101 | WATER | X | | X | |
| 008GSP0201 | WATER | X | | X | |
| 008GSP0301 | WATER | X | | X | |
| 008GSP0401 | WATER | X | | X | |
| 008GSP0501 | WATER | X | | X | |
| 008TSP0501 | WATER | X | | | |
| Total Billable Samples (Water/Soil) | | 6 | 0 | 5 | 0 |

VOA= Volatiles
SVOA= Semivolatiles

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW846 Method 8260B; the National Functional Guidelines for Organic Data Review, and DQO Level III. All comments made within this report should be considered when examining the analytical results.

SDG # 39785

A validation was performed on the Volatile Data from SDG 39785. The data was evaluated based on the following parameters.

- * Data Completeness
- * Holding Times
- * GC/MS Tuning
- Calibrations
- * Internal Standard Performance
- * Blanks
- * Surrogate Recoveries
- * Laboratory Control Samples
- * Field Duplicates
- * Compound Identification /Quantitation

* - All criteria were met for this parameter

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 2

Continuing Calibration

The continuing calibration, UL10136, contained compounds with %Ds greater than 50% and less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

All Samples 2-chloroethyl vinyl ether (59.6%)

The continuing calibration, UL10136, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as rejected (UR).

All Samples acetone (0.044)
 2-butanone (0.048)

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

| <u>SAMPLE ID</u> | <u>COMPOUND ID</u> | <u>DL</u> | <u>QL</u> |
|------------------|---------------------------|-----------|-----------|
| All Samples | 2-chloroethyl vinyl ether | +/- | J/UJ |
| All Samples | acetone 2-butanone | +/- | J/UR |

- * DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW846 Method 8270C; the National Functional Guidelines for Organic Data Review, and DQO Level III. All comments made within this report should be considered when examining the analytical results.

SDG # 39785

A validation was performed on the Semivolatile Data from SDG 39785. The data was evaluated based on the following parameters.

- * Data Completeness
- * Holding Times
- * GC/MS Tuning
- * Calibrations
- * Internal Standard Performance
- * Blanks
- * Surrogate Recoveries
- * Laboratory Control Samples
- * Matrix Spike / Matrix Spike Duplicate
- * Field Duplicates
- * Compound Identification / Quantitation

* - All criteria were met for this parameter

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ANALYSIS

PAGE - 2

Blank

The end user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into considerations when applying the 5X and 10X criteria to field samples.

Method Blank

| <u>Associated blank</u> | <u>Compound</u> | <u>Concentration</u> | <u>Action Level</u> |
|-------------------------|----------------------------|----------------------|---------------------|
| SBLK1 | bis(2-ethylhexyl)phthalate | 1J ug/L | 10 ug/L |

| <u>Samples</u> | <u>Compound</u> | <u>Qualification</u> |
|----------------|----------------------------|----------------------|
| 008GSP0101 | bis(2-ethylhexyl)phthalate | CRQL |
| 008GSP0201 | | |
| 008GSP0301 | | |
| 008GSP0401 | | |
| 008GSP0501 | | |

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

| <u>SAMPLE ID</u> | <u>COMPOUND ID</u> | <u>DL</u> | <u>QL</u> |
|------------------|----------------------------|-----------|-----------|
| 008GSP0101 | bis(2-ethylhexyl)phthalate | + | CRQL |
| 008GSP0201 | | | |
| 008GSP0301 | | | |
| 008GSP0401 | | | |
| 008GSP0501 | | | |

- * DL denotes the Form I qualifier supplied by the laboratory
- QL denotes the qualifier used by the data validation firm
- + in the DL column denotes a positive result
- in the DL column denotes a non detect result

CHAIN OF CUSTODY RECORD

800-588-7962
 MEMPHIS, TENNESSEE
 CHARLESTON, SC; CINCINNATI, OH; DALLAS, TX; JACKSON, TN; KNOXVILLE, TN;
 LANCASTER, PA; NASHVILLE, TN; NORFOLK, VA; PADUCAH, KY; PENSACOLA, FL;
 RALEIGH, NC; COLOGNE, GERMANY

COC NO: _____
 PO NO: 4
 REL NO: 119
 LAB NAME: SVL

CLIENT Naval Base Charleston PROJECT MANAGER Charlie Verney
 LOCATION Zone G, SWMU 8 TELE/FAX NO. (843) 884-0029 / 856-0107
 SAMPLERS: (SIGNATURE) Andrew Wertz

ANALYSIS REQUIRED

NO. OF CONTAINERS
 VOAs
 SVOAs
 Hydrazine

| FIELD SAMPLE NUMBER | DATE | TIME | SAMPLE TYPE | TYPE/SIZE OF CONTAINER | PRESERVATION | | NO. OF CONTAINERS | VOAs | SVOAs | Hydrazine | REMARKS |
|---------------------|--------|------|-------------|--|--------------|-------------|-------------------|------|-------|-----------|---|
| | | | | | TEMP. | CHEMICAL | | | | | |
| NBCG 008GSP1001 | 8/5/99 | 0945 | W | 2-40mL vial, 2-1L amber 1-500mL amber | 4°C | See remarks | 5 | X | X | X | 40mL vial - HCl 1L amber - None 500mL amber - HCl |
| NBCG 008GSP1101 | | 1015 | | | | | 5 | X | X | X | |
| NBCG 008GSP1201 | | 1100 | | | | | 5 | X | X | X | |
| NBCG 008GSP1301 | | 1130 | | | | | 5 | X | X | X | |
| NBCG 008GSP1401 | | 1335 | | | | | 5 | X | X | X | |
| NBCG 008GSP1501 | | 1400 | | | | | 5 | X | X | X | |
| NBCG 008GSP1601 | | 1420 | | | | | 5 | X | X | X | |
| NBCG 008GSP1701 | | 1445 | | | | | 5 | X | X | X | |
| NBCG 008GSP1801 | | 1535 | | | | | 5 | X | X | X | |
| NBCG 008TSP1801 | | | | 2-40mL vial | | HCl | 2 | X | | | |

Andrew Wertz
 8/5/99

RELINQUISHER: Andrew Wertz DATE: 8/5/99 RECEIVER: _____ DATE: _____
 PRINTED: ANDREW WERTZ TIME: 1730 PRINTED: _____ TIME: _____
 COMPANY: _____ COMPANY: _____

METHOD OF SHIPMENT: FEDEX
 SHIPMENT NO. 4849148754
 SEND RESULTS TO: Charlie Verney

COMMENTS: DQO III STANDARD TAT

ANALYTICAL DATA RECEIVED BY (INITIALS/DATE) _____

CLIENT Naval Base Charleston

PROJECT MANAGER Charlie Verney

LOCATION Zone G, SIMMU 9

TELE/FAX NO. (843) 884-0029 / 856-0107

SAMPLERS: (SIGNATURE) Andrew Wert

| ANALYSIS REQUIRED | |
|-------------------|---------|
| NO. OF CONTAINERS | REMARKS |
| VOA | |
| SVOA | |

| FIELD SAMPLE NUMBER | DATE | TIME | SAMPLE TYPE | TYPE/SIZE OF CONTAINER | PRESERVATION | | NO. OF CONTAINERS | VOA | SVOA | REMARKS |
|----------------------------------|--------|------|-------------|---------------------------|--------------|---------------------|-------------------|-----|------|---------|
| | | | | | TEMP. | CHEMICAL | | | | |
| NBCG 008GSP0101 | 8/3/99 | 1120 | W | 2-40mL vial 2-1L amber | 4°C | 40mL-HCl 1L-none | 4 | X | X | |
| NBCG 008GSP0201 | | 1355 | | | | | 4 | X | X | |
| NBCG 008GSP0301 | | 1425 | | | | | 4 | X | X | |
| NBCG 008GSP0401 | | 1445 | | | | | 4 | X | X | |
| NBCG 008GSP0501 | | 1505 | | | | | 4 | X | X | |
| NBCG 008G ^(S) TSP0501 | | - | | 2-40 mL vial | | HCl | 2 | X | | |

Andrew Wert
8/3/99

| | | | |
|----------------------------------|---------------------|-----------------|----------------|
| RELINQUISHER: <u>Andrew Wert</u> | DATE: <u>8/3/99</u> | RECEIVER: _____ | DATE: _____ |
| PRINTED: <u>ANDREW WERTZ</u> | TIME: <u>1630</u> | PRINTED: _____ | TIME: _____ |
| COMPANY: <u>EnSafe</u> | | COMPANY: _____ | COMPANY: _____ |

| | |
|--|---------------------------------------|
| METHOD OF SHIPMENT: <u>FEDEX</u> | COMMENTS: <u>DQO III standard TAT</u> |
| SHIPMENT NO. <u>4949148802</u> | |
| SEND RESULTS TO: <u>Charlie Verney</u> | |



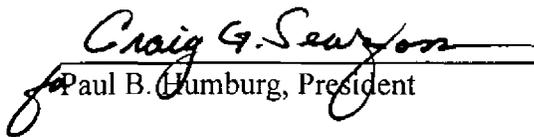
HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#: 39715
Date: October 15, 1999
Client Name: Ensafe
Project/Site Name: Charleston Zone G
Date Sampled: July 28 & 29, 1999
Number of Samples: 22 Non-Aqueous Sample(s) with 0 MS/MSD(s)
1 Aqueous Sample(s) with 0 MS/MSD(s)
Laboratory: Southwest Laboratory of Oklahoma, Inc.
Validation Guidance: National Functional Guidelines for Organic and Inorganic Data,
February, 1994
QA/QC Level: DQO Level III
Method(s) Utilized: SW846 Third Edition
Analytical Fractions: Volatiles, Semivolatiles, Pesticides, PCBs, SPLP Pesticides, SPLP
PCBs, Metals, SPLP Metals and Total Organic Carbons

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:


Paul B. Gumburg, President

10-18-99.
Date

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)

| SPLP-METAL | | SAMPLE ID -----> 642-S-8011-02 | | | | | |
|------------|----------------|--------------------------------|-----|---|--|--|--|
| | | ORIGINAL ID -----> 642SB01102 | | | | | |
| | | LAB SAMPLE ID ----> 39726.01 | | | | | |
| | | ID FROM REPORT --> 642SB01102 | | | | | |
| | | SAMPLE DATE -----> 07/29/99 | | | | | |
| | | DATE EXTRACTED --> 08/03/99 | | | | | |
| | | DATE ANALYZED ----> 08/04/99 | | | | | |
| | | MATRIX -----> Soil | | | | | |
| | | UNITS -----> UG/L | | A | | | |
| CAS # | Parameter | 39715 | VAL | | | | |
| 7439-97-6 | Mercury (Hg) | 1.4 | J | | | | |
| 7429-90-5 | Aluminum (Al) | 307. | | | | | |
| 7440-36-0 | Antimony (Sb) | 5. | U | | | | |
| 7440-38-2 | Arsenic (As) | 3.3 | U | | | | |
| 7440-39-3 | Barium (Ba) | 288. | | | | | |
| 7440-41-7 | Beryllium (Be) | 0.3 | U | | | | |
| 7440-43-9 | Cadmium (Cd) | 1.4 | J | | | | |
| 7440-70-2 | Calcium (Ca) | 1860. | | | | | |
| 7440-47-3 | Chromium (Cr) | 0.5 | U | | | | |
| 7440-48-4 | Cobalt (Co) | 1.7 | U | | | | |
| 7440-50-8 | Copper (Cu) | 10.3 | J | | | | |
| 7439-89-6 | Iron (Fe) | 159. | | | | | |
| 7439-92-1 | Lead (Pb) | 6.5 | J | | | | |
| 7439-95-4 | Magnesium (Mg) | 216. | J | | | | |
| 7439-96-5 | Manganese (Mn) | 1.6 | J | | | | |
| 7440-02-0 | Nickel (Ni) | 1.3 | J | | | | |
| 7782-49-2 | Selenium (Se) | 2.9 | U | | | | |
| 7440-22-4 | Silver (Ag) | 2. | U | | | | |
| 7440-28-0 | Thallium (Tl) | 2.3 | U | | | | |
| 7440-62-2 | Vanadium (V) | 1.1 | J | | | | |
| 7440-66-6 | Zinc (Zn) | 74.6 | U | | | | |
| 7440-31-5 | Tin (Sn) | 29.5 | U | | | | |
| 7440-09-7 | Potassium (K) | 353. | U | | | | |
| 7440-23-5 | Sodium (Na) | 3450. | | | | | |

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)

| SW846-META | | SAMPLE ID -----> | 642-S-B011-02 | | | | |
|------------|----------------|---------------------|---------------|---|--|--|--|
| | | ORIGINAL ID -----> | 642SB01102 | | | | |
| | | LAB SAMPLE ID ----> | 40420.01 | | | | |
| | | ID FROM REPORT --> | 642SB01102 | | | | |
| | | SAMPLE DATE -----> | 07/29/99 | | | | |
| | | DATE EXTRACTED --> | 09/23/99 | | | | |
| | | MATRIX -----> | Soil | | | | |
| | | UNITS -----> | MG/KG | A | | | |
| CAS # | Parameter | 39715 | VAL | | | | |
| 7429-90-5 | Aluminum (Al) | 4820. | | | | | |
| 7440-36-0 | Antimony (Sb) | 0.38 | J | | | | |
| 7440-38-2 | Arsenic (As) | 1.7 | | | | | |
| 7440-39-3 | Barium (Ba) | 14. | | | | | |
| 7440-41-7 | Beryllium (Be) | 0.15 | J | | | | |
| 7440-43-9 | Cadmium (Cd) | 0.26 | J | | | | |
| 7440-70-2 | Calcium (Ca) | 579. | J | | | | |
| 7440-47-3 | Chromium (Cr) | 8.5 | | | | | |
| 7440-48-4 | Cobalt (Co) | 0.49 | J | | | | |
| 7440-50-8 | Copper (Cu) | 47.6 | | | | | |
| 7439-89-6 | Iron (Fe) | 4920. | | | | | |
| 7439-92-1 | Lead (Pb) | 32.8 | | | | | |
| 7439-95-4 | Magnesium (Mg) | 258. | | | | | |
| 7439-96-5 | Manganese (Mn) | 16.1 | | | | | |
| 7439-97-6 | Mercury (Hg) | 0.36 | | | | | |
| 7440-02-0 | Nickel (Ni) | 2.3 | J | | | | |
| 7440-09-7 | Potassium (K) | 119. | J | | | | |
| 7782-49-2 | Selenium (Se) | 0.39 | U | | | | |
| 7440-22-4 | Silver (Ag) | 0.14 | U | | | | |
| 7440-23-5 | Sodium (Na) | 362. | | | | | |
| 7440-28-0 | Thallium (Tl) | 0.4 | U | | | | |
| 7440-31-5 | Tin (Sn) | 6.2 | U | | | | |
| 7440-62-2 | Vanadium (V) | 10.3 | | | | | |
| 7440-66-6 | Zinc (Zn) | 59.3 | | | | | |

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)

| | | | | | | | |
|--------------|----------------------------|--|-----|--|--|--|--|
| TOC | | SAMPLE ID -----> 642-S-8011-02 ORIGINAL ID -----> 642SB01102 LAB SAMPLE ID ---> 40420.01 ID FROM REPORT --> 642SB01102 SAMPLE DATE -----> 07/29/99 DATE EXTRACTED --> 09/23/99 DATE ANALYZED ---> 09/27/99 MATRIX -----> Soil UNITS -----> MG/KG | A | | | | |
| CAS # | Parameter | 39715 | VAL | | | | |
| 9999900-01-4 | Total Organic Carbon (TOC) | 4420. | | | | | |
| 9999900-04-2 | TOC (EPA 415.1) | ?????????? | | | | | |

SDG# 39715

Samples and Fractions Reviewed

Sample Identifications

Analytical Fractions

| ENSAFE ID | MATRIX | VOA | SVOA | PEST | PCB | SP-PEST | SP-PCB | MET | SP-MET | TOC | | | | | | | | | |
|-------------------------------------|--------|-----|------|------|-----|---------|--------|-----|--------|-----|---|---|---|---|----|---|---|---|---|
| FDSTB03101 | WATER | X | | | | | | | | | | | | | | | | | |
| FDSSH02801 | SOIL | X | X | X | | | | X | | | | | | | | | | | |
| FDSSH02802 | SOIL | X | X | X | | | | X | | | | | | | | | | | |
| FDSSH02901 | SOIL | X | X | X | | | | X | | | | | | | | | | | |
| FDSSH02902 | SOIL | X | X | X | | | | X | | | | | | | | | | | |
| FDSSH03001 | SOIL | X | X | X | | | | X | | | | | | | | | | | |
| FDSCH03001 | SOIL | X | X | X | | | | X | | | | | | | | | | | |
| FDSSH03002 | SOIL | X | X | X | | | | X | | | | | | | | | | | |
| FDSSH03101 | SOIL | X | X | X | | | | X | | | | | | | | | | | |
| FDSCH03101 | SOIL | X | X | X | | | | X | | | | | | | | | | | |
| FDSSH03102 | SOIL | X | X | X | | | | X | | | | | | | | | | | |
| 003SB01101 | SOIL | | | X | | | | | | | | | | | | | | | |
| 003SB01102 | SOIL | | | X | | | | | | | | | | | | | | | |
| 003SB01201 | SOIL | | | X | | | | | | | | | | | | | | | |
| 003CB01201 | SOIL | | | X | | | | | | | | | | | | | | | |
| 003SB01202 | SOIL | | | X | | | | | | | | | | | | | | | |
| 003SB01402 | SOIL | | | X | | X | | | | X | | | | | | | | | |
| 633SB01101 | SOIL | | | X | | | | | | | | | | | | | | | |
| 633CB01101 | SOIL | | | X | | | | | | | | | | | | | | | |
| 633SB01102 | SOIL | | | X | | | | | | | | | | | | | | | |
| 633SB01202 | SOIL | | | | X | | X | | | X | | | | | | | | | |
| 643SB01302 | SOIL | | | X | | X | | X | X | X | | | | | | | | | |
| 642SB01102 | SOIL | | | | | | | X | X | X | | | | | | | | | |
| Total Billable Samples (Water/Soil) | | 1 | 10 | 0 | 10 | 0 | 20 | 0 | 1 | 0 | 2 | 0 | 1 | 0 | 12 | 0 | 2 | 0 | 4 |

VOA= Volatiles
 SVOA= Semivolatiles
 PEST= Pesticides
 PCB= PCBs
 SP-PEST= SPLP Pesticides

SP-PCB= SPLP PCBs
 MET= Metals
 SP-MET= SPLP Metals
 TOC= Total Organic Carbons

DATA ASSESSMENT NARRATIVES

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW846 Method 8260B; the National Functional Guidelines for Organic Data Review, and DQO Level III. All comments made within this report should be considered when examining the analytical results.

SDG # 39715

A validation was performed on the Volatile Data from SDG 39715. The data was evaluated based on the following parameters.

- * Data Completeness
- * Holding Times
- * GC/MS Tuning
Calibrations
- * Internal Standard Performance
- * Blanks
- * Surrogate Recoveries
- * Laboratory Control Samples
- * Matrix Spike / Matrix Spike Duplicate
- * Field Duplicates
- * Compound Identification / Quantitation

* - All criteria were met for this parameter

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 2

Continuing Calibration

The continuing calibration, R34039, contained compounds with %Ds greater than 50% and less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

| | |
|------------|-----------------------|
| FDSSH02801 | chloromethane (54.3%) |
| FDSCH03101 | bromomethane (77.9%) |
| FDSSH02902 | chloroethane (70.6%) |

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

| <u>SAMPLE ID</u> | <u>COMPOUND ID</u> | <u>DL</u> | <u>QL</u> |
|------------------|--------------------|-----------|-----------|
| FDSSH02801 | chloromethane | +/- | J/UJ |
| FDSCH03101 | bromomethane | | |
| FDSSH02902 | chloroethane | | |

- * DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW846 Method 8270C; the National Functional Guidelines for Organic Data Review, and DQO Level III. All comments made within this report should be considered when examining the analytical results.

SDG # 39715

A validation was performed on the Semivolatile Data from SDG 39715. The data was evaluated based on the following parameters.

- * Data Completeness
- * Holding Times
- * GC/MS Tuning
- * Calibrations
- * Internal Standard Performance
- Blanks
- * Surrogate Recoveries
- * Laboratory Control Samples
- * Matrix Spike / Matrix Spike Duplicate
- Field Duplicates
- Compound Identification / Quantitation

* - All criteria were met for this parameter

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ANALYSIS

PAGE - 2

Blank

The end user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into considerations when applying the 5X and 10X criteria to field samples.

Method Blank

| <u>Associated blank</u> | <u>Compound</u> | <u>Concentration</u> | <u>Action Level</u> |
|-------------------------|----------------------------|----------------------|---------------------|
| SBLK2 | bis(2-ethylhexyl)phthalate | 28 I ug/Kg | 280 ug/Kg |

| <u>Samples</u> | <u>Compound</u> | <u>Qualification</u> |
|--|----------------------------|----------------------|
| FDSSH03101 FDSCH03101 FDSSH03102 FDSSH02901 FDSSH02902 | bis(2-ethylhexyl)phthalate | CRQL |

Field Duplicate

Sample FDSSH03001 and duplicate sample FDSCH03001 did not exhibit comparable results for the compounds listed below. Qualify these compounds as estimated (J).

- anthracene (38%)
- fluoranthene (85%)
- pyrene (76%)
- benzo(a)anthracene (96%)
- chrysene (94%)
- benzo(b)fluoranthene (81%)
- benzo(k)fluoranthene (114%)
- benzo(a)pyrene (114%)
- indeno(1,2,3-cd)pyrene (96%)
- dibenz(a,h)anthracene (89%)
- benzo(g,h,i)perylene (74%)

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ANALYSIS

PAGE - 3

Compound Identification / Quantitation

Do not use the E-flagged compounds in the samples listed below, in favor of the D-flagged compound results in the dilution.

FDSSH02901
FDSSH02802
FDSSH02801
FDSSH03001

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

| <u>SAMPLE ID</u> | <u>COMPOUND ID</u> | <u>DL</u> | <u>QL</u> |
|--|---|-----------|------------|
| FDSSH03101 FDSCH03101 FDSSH03102 FDSSH02901 FDSSH02902 | bis(2-ethylhexyl)phthalate | + | CRQL |
| FDSSH03001 FDSCH03001 | anthracene fluoranthene pyrene benzo(a)anthracene chrysene benzo(b)fluoranthene benzo(k)fluoranthene benzo(a)pyrene indeno(1,2,3-cd)pyrene dibenz(a,h)anthracene benzo(g,h,i)perylene | + | J |
| FDSSH02901 FDSSH02802 FDSSH02801 FDSSH03001 | all E-flagged compounds | + | do not use |
| FDSSH02901DL FDSSH02802DL FDSSH02801DL FDSSH03001DL | all results except D-flagged compounds | +/- | do not use |

- * DL denotes the Form I qualifier supplied by the laboratory
 QL denotes the qualifier used by the data validation firm
 + in the DL column denotes a positive result
 - in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

PESTICIDES/PCBs

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance, and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Methods 8081/8082; the National Functional Guidelines for Organic Data Validation, 2/93, and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # 39715

A validation was performed on the Pesticide/PCB Data from SDG 39715. The data was evaluated based on the following parameters:

- * • Data Completeness
- * • Holding Times
- * • GC Performance
- Calibration
- * • Blanks
- Surrogate Recoveries
- * • Matrix Spike/Matrix Spike Duplicates
- Field Duplicates
- Compound Identification
- Compound Quantitation

* - All criteria were met for this parameter.

Calibrations

The continuing calibration standards INDAL34O, 8/24/99, 0847, on both columns, exhibited %Ds greater than 15% but less than 50% for which qualifications were required. For the following samples and compound, the reported positive results are qualified as estimated, J.

| | |
|------------|------------------------|
| 003SB01102 | 4,4'-DDT (30.7%/20.2%) |
| FDSSH02801 | |
| FDSSH02901 | |
| FDSSH02902 | |

**DATA ASSESSMENT NARRATIVE
PESTICIDES/PCBs**

PAGE 2

Calibrations (continued)

The continuing calibration standards INDBL315Z, 8/17/99, 1410, exhibited a %D greater than 15% but less than 50% for which qualifications were required. For the following samples and compound, the reported positive results are qualified as estimated, J.

FDSSH03101 endosulfan sulfate (35.6%)
FDSCH03101

The continuing calibration standard INDBL315U, 8/11/99, 1722, on both columns, exhibited %Ds greater than 15% but less than 50% for which qualifications were required. For the following samples and compound, the reported positive results are qualified as estimated, J.

003SB01201 4,4'-DDE (16.9%/19.5%)
003CB01201
003SB01202

Surrogate Recoveries

The following samples exhibited non-compliant surrogate recoveries above the QC limits. All reported positive results are qualified as estimated, J.

| <u>Sample</u> | <u>Surrogate</u> | <u>%R</u> | <u>Compounds</u> |
|---------------|------------------|-------------|------------------|
| FDSCH03101 | DCB | 185% | pesticides |
| FDSSH02901 | DCB | 2618%/2081% | pesticides |

Field Duplicates

The field duplicate pair of the following samples exhibited non-compliant RPDs for the noted compounds. The reported positive and non-detect results are qualified as estimated, J/UJ.

FDSSH03001 dieldrin (200%)
FDCSH03001 4,4'-DDD (200%)

**DATA ASSESSMENT NARRATIVE
PESTICIDES/PCBs**

PAGE 3

Field Duplicates (continued)

The field duplicate pair of the following samples exhibited non-compliant RPDs for the noted compounds. The reported positive and non-detect results are qualified as estimated, J/UJ.

| | |
|------------|---------------------------|
| FDSSH03101 | heptachlor (67%) |
| FDCSH03101 | heptachlor epoxide (200%) |
| | 4,4'-DDT (76%) |
| | Methoxychlor (101%) |
| | Alpha-chlordane (98%) |
| | Gamma-chlordane (98%) |

Compound Identification

Several samples exhibited column quantitation %Ds greater than 40%. The following guidelines were used to qualify the data:

1. No qualifications are required for positive sample results which exhibited column quantitation differences <40%. The "P" flag is removed from the result.
2. The positive sample result which exhibited a column quantitation difference >40%, but ≤100% is qualified as estimated, J.
3. The positive single component pesticide sample result which exhibited a column quantitation difference >100% and is <10X the respective compound CRQL, is qualified as non-detect, U. (All multi-component results are exempt from this rule.)
4. The positive single component pesticide sample result which exhibited a column quantitation difference >100% and >10X the respective compound CRQL, is qualified as presumptively present at an estimated concentration, NJ. (All multi-component results are exempt from this rule.)
5. The positive multi-component pesticide sample result which exhibited a column quantitation difference >100% and <10X the respective multi-component CRQL is qualified as presumptively present at an estimated concentration, NJ.

**DATA ASSESSMENT NARRATIVE
PESTICIDE/PCB ANALYSIS**

PAGE - 4

Compound Identification, Continued

The following samples and compounds have been qualified for high column quantitation %Ds.

| <u>Sample ID</u> | <u>Compound</u> | <u>%D</u> | <u>Lab Qual.</u> | <u>HESI Qual.</u> | <u>Ref. #</u> |
|------------------|--------------------|-----------|------------------|-------------------|---------------|
| 003SB01101DL | 4,4'-DDT | 56.9% | P | J | 2 |
| 003SB01201DL | 4,4'-DDD | 190% | P | NJ | 4 |
| 003CB01201 | 4,4'-DDD | 54.0% | P | J | 2 |
| | Gamma-chlordane | 324% | P | U | 3 |
| 003SB01202DL | 4,4'-DDD | 197% | P | NJ | 4 |
| 003SB01402 | gamma-chlordane | 999.9% | P | U | 3 |
| 643SB01302 | 4,4'-DDT | 34.9% | P | | 1 |
| | Gamma-chlordane | 30.4% | P | | 1 |
| FDSSH02801 | 4,4'-DDE | 492% | P | U | 3 |
| | 4,4'-DDD | 78.4% | P | J | 2 |
| | 4,4'-DDT | 101% | P | U | 3 |
| | Endrin aldehyde | 37.5% | P | | 1 |
| | Gamma-chlordane | 28.0% | P | | 1 |
| FDSSH02901 | 4,4'-DDE | 320% | P | U | 3 |
| | 4,4'-DDT | 41.6% | P | J | 2 |
| | Endrin aldehyde | 55.1% | P | J | 2 |
| FDSSH03001 | 4,4'-DDT | 153% | P | U | 3 |
| | Gamma-chlordane | 148% | P | U | 3 |
| FDSCH03001 | 4,4'-DDT | 186% | P | U | 3 |
| | Endrin aldehyde | 75% | P | J | 2 |
| | Gamma-chlordane | 44.8% | P | J | 2 |
| FDSSH03101 | heptachlor epoxide | 99.6% | P | J | 2 |
| | Endosulfan sulfate | 356% | P | U | 3 |

**DATA ASSESSMENT NARRATIVE
PESTICIDE/PCB ANALYSIS**

PAGE - 5

Compound Identification, Continued

The following samples and compounds have been qualified for high column quantitation %Ds.

| <u>Sample ID</u> | <u>Compound</u> | <u>%D</u> | <u>Lab Qual.</u> | <u>HESI Qual.</u> | <u>Ref. #</u> |
|------------------|--------------------|-----------|------------------|-------------------|---------------|
| FDSCH03101 | endosulfan sulfate | 304% | P | NJ | 4 |
| FDSSH03102 | heptachlor epoxide | 123% | P | NJ | 4 |
| | 4,4'-DDE | 268% | P | U | 3 |

Compound Quantitation

For the following samples, the E flagged results (with corresponding D flagged results) are not used in favor of the corresponding D flagged results reported from the dilution analyses. All other results reported in the dilution analyses are not used in favor of the results reported from the undiluted or lessor dilution analyses.

003SB01101
003SB01201
003CB01201
003SB01202
643SB01302
FDSSH03101
FDSCH03101
FDSSH03102

For the following samples, the reported results are not used in favor fo the results reported from the undiluted analyses. The dilutions were not required because there were no compounds reported in the samples that were above the calibration curve range.

003SB01102DL
633SB01101DL
633CB01101DL
633SB01102DL
FDSSH02801DL
FDSSH02802DL
FDSSH03001DL
FDSCH03001DL
FDSSH03002DL

**DATA ASSESSMENT NARRATIVE
PESTICIDE/PCB ANALYSIS**

PAGE - 6

Compound Identification (continued)

For the following samples and noted compounds, the laboratory reported the greater quantitated result rather than the lesser quantitated result. The reviewer has amended the sample results to reflect the lesser quantitated result based on the results reported on the Form 10.

| | |
|------------|----------------------|
| FDSSH02901 | 4,4'-DDE |
| FDSSH02801 | 4,4'-DDE 4,4'-DDT |
| FDSSH03101 | endosulfan sulfate |
| FDSCH03101 | endosulfan sulfate |

For the following samples, the reported E flagged results for the compounds noted below are qualified as estimated, J, because they are above the calibration range of the instrument, but were diluted out of the corresponding dilution analysis of the sample.

| | |
|------------|----------|
| 003SB01201 | 4,4'-DDE |
| 003CB01201 | |
| 003SB01202 | |
| 003CB01201 | 4,4'-DDD |
| FDSSH03101 | 4,4'-DDT |
| FDSCH03101 | |

For the following samples, the reported E flagged results for the compounds noted below are qualified as estimated, J, because they are above the calibration range of the instrument, but were diluted out of the corresponding dilution analysis of the sample.

| | |
|------------|----------------------------------|
| FDSSH03101 | 4,4'-DDT |
| FDSCH03101 | heptachlor endosulfan sulfate |
| FDSSH03101 | heptachlor epoxide |
| FDSSH03102 | |

**DATA ASSESSMENT NARRATIVE
PESTICIDE/PCB ANALYSIS**

PAGE - 6

System Performance and Overall Assessment

The data, as reported, did require qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

L = Result is estimated and biased low.

K = Result is estimated and biased high.

R = Result is rejected and unusable

D = Result value is based on dilution analysis

BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

| <u>SAMPLE ID</u> | <u>COMPOUND ID</u> | <u>DL</u> | <u>QL</u> |
|--|--|-----------|-----------|
| 003SB01102 FDSSH02801 FDSSH02901 FDSSH02902 | 4,4'-DDT (30.7%/20.2%) | + | J |
| FDSSH03101 FDSCH03101 | endosulfan sulfate (35.6%) | + | J |
| 003SB01201 003CB01201 003SB01202 | 4,4'-DDE (16.9%/19.5%) | + | J |
| FDSCH03101 FDSSH02901 | pesticides | + | J |
| FDSSH03001 FDCSH03001 | dieldrin (200%) 4,4'-DDD (200%) | +/- | J/UJ |
| FDSSH03101 FDCSH03101 | heptachlor (67%) heptachlor epoxide (200%) 4,4'-DDT (76%) Methoxychlor (101%) Alpha-chlordane (98%) Gamma-chlordane (98%) | +/- | J/UJ |
| ALL | All P < 40% | + | |
| ALL | All P > 40% But ≤ 100% | + | J |
| ALL | single component pests All P > 100% And < 10X CRQL | + | U |

SUMMARY OF DATA QUALIFICATIONS

| <u>SAMPLE ID</u> | <u>COMPOUND ID</u> | <u>DL</u> | <u>QL</u> |
|--|---|-----------|------------|
| ALL | single component pests All P > 100% And > 10X CRQL | + | NJ |
| ALL | multi-component pests All P > 100% And < 10X CRQL | + | NJ |
| 003SB01101 003SB01201 003CB01201 003SB01202 643SB01302 FDSSH03101 FDSCH03101 FDSSH03102 | E flagged results with corresponding D flagged results present | +E | Do Not Use |
| 003SB01101DL 003SB01201DL 003CB01201DL 003SB01202DL 643SB01302DL FDSSH03101DL FDSCH03101DL FDSSH03102DL | All except corresponding D flagged results | +/- | Do Not Use |
| 003SB01102DL 633SB01101DL 633CB01101DL 633SB01102DL FDSSH02801DL FDSSH02802DL FDSSH03001DL FDSCH03001DL FDSSH03002DL | All Compounds | +/- | Do Not Use |

SUMMARY OF DATA QUALIFICATIONS

| <u>SAMPLE ID</u> | <u>COMPOUND ID</u> | <u>DL</u> | <u>QL</u> |
|------------------|----------------------------------|-----------|-----------|
| FDSSH02901 | 4,4'-DDE | +120E | + 28.1 |
| FDSSH02801 | 4,4'-DDE | +29 | +4.9P |
| | 4,4'-DDT | +46 | +23P |
| FDSSH03101 | endosulfan sulfate | +56E | +12.4P |
| FDSCH03101 | endosulfan sulfate | +170E | +42P |
| 003SB01201 | 4,4'-DDE | +E | J |
| 003CB01201 | | | |
| 003SB01202 | | | |
| 003CB01201 | 4,4'-DDD | +E | J |
| FDSSH03101 | 4,4'-DDT | +E | J |
| FDSCH03101 | | | |
| FDSSH03101 | 4,4'-DDT | +E | J |
| FDSCH03101 | heptachlor endosulfan sulfate | | |
| FDSSH03101 | heptachlor epoxide | +E | J |
| FDSSH03102 | | | |

- * DL denotes the Form I qualifier supplied by the laboratory
 QL denotes the qualifier used by the data validation firm
 + in the DL column denotes a positive result
 - in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

SPLP PESTICIDES/PCBs

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance, and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Methods 8081/8082; the National Functional Guidelines for Organic Data Validation, 2/93, and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # 39715A

A validation was performed on the Pesticide/PCB Data from SDG 39715A. The data was evaluated based on the following parameters:

- * • Data Completeness
- Holding Times
- * • GC Performance
- Calibration
- * • Blanks
- Surrogate Recoveries
- * • Matrix Spike/Matrix Spike Duplicates
- * • Field Duplicates
- * • Compound Identification
- * • Compound Quantitation

* - All criteria were met for this parameter.

Holding Times

The following samples were extracted thirty-one (31) to thirty-two (32) days outside the extraction holding time. The reported non-detect results are rejected, UR.

003SB01402

633SB01202

643SB01302

**DATA ASSESSMENT NARRATIVE
SPLP PESTICIDES/PCBs**

PAGE 2

Calibrations

The continuing calibration standard INDAL314L exhibited a %D greater than 50% but less than 90%. For the following samples and compound, the reported positive and non-detect results are qualified as estimated, J/UJ.

All Samples Endrin (80.1%)

Surrogate Recoveries

The following samples exhibited non-compliant surrogate recoveries below the QC limits. All reported positive and non-detect results are qualified as estimated, J/UJ.

| <u>Sample</u> | <u>Surrogate</u> | <u>%R</u> | <u>Compounds</u> |
|---------------|------------------|-----------|------------------|
| 643SB01302 | DCB | 26%/29% | pesticides |
| 003SB01402 | DCB | 42%/45% | pesticides |
| 643SB01302 | DCB | 38% | PCBs |
| 003SB01402 | DCB | 26% | PCBs |

System Performance and Overall Assessment

The data, as reported, did require qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

L = Result is estimated and biased low.

K = Result is estimated and biased high.

R = Result is rejected and unusable

D = Result value is based on dilution analysis

BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

| <u>SAMPLE ID</u> | <u>COMPOUND ID</u> | <u>DL</u> | <u>QL</u> |
|--|--|-----------|-----------|
| 003SB01402 633SB01202 643SB01302 | All Compounds | - | UR |
| All Samples | Endrin (80.1%) | +/- | J/UJ |
| 643SB01302 003SB01402 643SB01302 003SB01402 | pesticides pesticides PCBs PCBs | +/- | J/UJ |

- * DL denotes the Form I qualifier supplied by the laboratory
 QL denotes the qualifier used by the data validation firm
 + in the DL column denotes a positive result
 - in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

METALS

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW 846 Methods; the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDGs # 39726

A validation was performed on the Metals Data from SDG 39726. The data was evaluated based on the following parameters.

- * ● Data Completeness
- * ● Holding Times
- * ● Calibrations
- Blanks
- * ● Interferences
- Matrix Spike Recovery
- * ● Matrix Duplicates
- * ● Field Duplicates
- * ● Laboratory Control Samples
- * ● Serial Dilutions

* - All criteria were met for this parameter.

Preparation and Field Blanks

The preparation and calibration blanks exhibited contamination for the following elements.

| <u>Elements</u> | <u>Conc.</u> | <u>Samples affected</u> |
|-----------------|--------------|-----------------------------------|
| Copper | 0.36 mg/kg | all soil samples below 1.8 mg/kg |
| Zinc | 1.47 mg/kg | no impact |
| Tin | 2.66 mg/kg | all soil samples below 13.5 mg/kg |
| Calcium | 394 ug/l | no impact |
| Copper | 1.0 ug/l | no impact |
| Thallium | 2.6 ug/l | no impact |
| Zinc | 34.3 ug/l | all water samples below 172 ug/l |

800-588-7862
 MEMPHIS, TENNESSEE
 CHARLESTON, SC; CHATTANOOGA, TN; DALLAS, TX; JACKSON, TN; KNOXVILLE, TN;
 LANCASTER, PA; NASHVILLE, TN; NORFOLK, VA; PADUCAH, KY; PENSACOLA, FL;
 RALEIGH, NC; COLOGNE, GERMANY

CHAIN OF CUSTODY RECORD

Revised
 7/30/99
 CHU

COC NO: 79
 PO NO: 4
 REL NO: 118
 LAB NAME: Southwest Labs

CLIENT: EnSafe-Zone G
 LOCATION: Naubase Chas
 SAMPLERS: (SIGNATURE) PB Hardy

PROJECT MANAGER: Craig Smith
 TELE/FAX NO.: (850) 434-2230 ph
(850) 434-2288

| FIELD SAMPLE NUMBER | DATE | TIME | SAMPLE TYPE | TYPE/SIZE OF CONTAINER | PRESERVATION | | NO. OF CONTAINERS | ANALYSIS REQUIRED | | | | | | | | | | REMARKS | | | | | | | |
|---------------------|---------|-----------------|------------------|------------------------|--------------|----------|-------------------|-------------------|----------------|---------------|------------|-------------|------------------|-----|--------|-----|------|---------|--|--|--|--|--|--|------------|
| | | | | | TEMP. | CHEMICAL | | SPL Metals | SPL Pests/PCBs | SPL PCBs ONLY | Pests/PCBs | Metals/PCBs | Reactivity SVOCs | VOA | Metals | TOC | PCBs | | | | | | | | |
| NBCG-6425B01102 | 7/29/99 | 0910 | Soil | 9 02 Jar | 4°C | — | 1 | X | | | | | | | | | | | | | | | | | |
| NBCG-6435B01302 | ↑ | 0945 | ↑ | 9 02 Jar | 4°C | — | 1 | X | X | | | | | | | | | | | | | | | | |
| NBCG-6335B01202 | | 1135 | | 9 02 Jar | 4°C | — | 1 | | X | | | | | | | | | | | | | | | | |
| NBCG-6335B01101 | | 1140 | | 9 02 Jar | 4°C | — | 1 | | | | X | | | | | | | | | | | | | | |
| NBCG-6335B01102 | | 1145 | | 9 02 Jar | 4°C | — | 1 | | | | X | | | | | | | | | | | | | | |
| NBCG-FDSSH03101 | | 1445 | | 2 02 Jar | 4°C | — | 1 | | | | | | X | | | | | | | | | | | | |
| " " " | | 1445 | | Encore VOA | 4°C | — | 3 | | | | | | X | | | | | | | | | | | | |
| " " " | | 1445 | | 9 02 Jar | 4°C | — | 2 | | | | X | X | | | | | | | | | | | | | |
| NBCG-FDSSH03101 | | 1445 | | 2 02 Jar | 4°C | — | 1 | | | | | | X | | | | | | | | | | | | |
| " " " | | 1445 | | Encore VOA | 4°C | — | 3 | | | | | | X | | | | | | | | | | | | |
| " " " | | 1445 | | 9 02 Jar | 4°C | — | 2 | | | | X | X | | | | | | | | | | | | | |
| NBCG-FDSSH03102 | | 1505 | | 2 02 Jar | 4°C | — | 1 | | | | | | X | | | | | | | | | | | | |
| " " " | | 1505 | ✓ | Encore VOA | 4°C | — | 3 | | | | | | X | | | | | | | | | | | | |
| " " " | | 1505 | ✓ | Soil | 4°C | — | 3 | | | | X | X | | | | | | | | | | | | | |
| NBCG-FDSTB03101 | 7/29/99 | 1630 | H ₂ O | 40 ml VOA | 4°C | HCL | 3 | | | | | | | X | | | | | | | | | | | trip Blank |

| | | | |
|----------------------------------|----------------------|-----------------|----------------|
| RELINQUISHER: <u>PB Hardy</u> | DATE: <u>7/29/99</u> | RECEIVER: _____ | DATE: _____ |
| PRINTED: <u>PB Hardy</u> | TIME: _____ | PRINTED: _____ | TIME: _____ |
| COMPANY: <u>EnSafe Inc. 1700</u> | COMPANY: _____ | COMPANY: _____ | COMPANY: _____ |

METHOD OF SHIPMENT: FEDEX
 SHIPMENT NO. 484 9148905
 SEND RESULTS TO: EnSafe Inc. Charlie Vernoy

COMMENTS: DDG Level III + TICs

ANALYTICAL DATA RECEIVED BY (INITIALS/DATE) _____

APPENDIX B

Groundwater Contaminants of Concern Isocons

APPENDIX C

Monitored Natural Attenuation Interim Report

1.0 MNA GROUNDWATER SAMPLING PROTOCOL

1.1 Groundwater Sampling Procedures for Onsite and Offsite Laboratory Analyses

The MNA investigation involved using both onsite and offsite laboratories which required separate sampling techniques for the analytical parameters. It was determined that the onsite laboratory contractor, a joint venture between Target Environmental Services, Inc. (acquired by Columbia Environmental Technologies, LLC in 1999) and Microseeps, Inc., would be designated as the first crew to purge and sample the designated wells for the onsite parameters and dissolved gases, and EnSafe personnel would then sample the purged wells within 24 hours for the offsite parameters. The offsite parameters were sampled according to Section 3.2.4.2 of the *Zone A RFI Report (EnSafe, 1998)*. The onsite sampling procedures for hydrogen, fixed gases, and anions and cations adhered to the following steps:

1. Record well number, date, time, diameter, screen length, and total depth.
2. Calibrate water quality meters (done at start of each day).
3. Record the depth to water using a resistive-type water level indicator.
4. Insert a new piece of Teflon tubing into the well until the inlet was directly at the center of the screened interval.
5. Connect the Teflon sampling tube to the silicone tubing around the peristaltic pump head.
6. Cut a one to two foot section of the Teflon tubing to connect the outlet of the peristaltic to the inlet of the flow-through cell and meter.
7. Place the outlet tube from the flow cell into a drum to catch the water.
8. Turn on the pump and adjust the flow rate to 300-600 ml/min. Flow rate was determined by measuring the time required to collect a known volume of water.
9. Monitor the water level within the well during purging with the water level indicator. Flow rates were adjusted to insure that groundwater level did not fall below the top of the well screen.
10. Record groundwater measurements once the flow rate had been established, including temperature, pH, oxidation-reduction potential, conductivity, and ground water level for every one to three liters of groundwater purged. Groundwater was be considered stable and ready for sampling when three consecutive measurements of the above listed parameters

were within 10% of each other.

11. Prepare appropriate sample containers and labels while purging was being conducted. Prepare three syringes for dissolved gas sampling by purging each syringe three to four times with laboratory grade helium. One syringe was used to inject the initial bubble and the other two were used to collect the dissolved gas samples.
12. Turn off the pump once groundwater had stabilized and disconnect flow through cell and meter.
13. Connect the outlet tube of the pump to the inlet of the dissolved gas sampling bulb (Chapelle-type). Turn on pump and fill bulb with water while making sure that all air was removed from the bulb.
14. Position the sampling bulb at a 45 degree angle with the inlet side higher than the outlet.
15. Inject 30 ml of laboratory grade helium into the bulb.
16. Allow groundwater to flow through the sampling bulb for 30 minutes prior to sampling.
17. Collect the first sample after the appropriate amount of bubbling time, using a gas tight syringe with a stopcock.
18. Purge the helium from the syringe into the atmosphere.
19. Pierce the septum with the needle and extracting 1-2 ml of gas from the bubble.
20. Remove the syringe and expelling the gas into the atmosphere.
21. Reinsert the needle through the septum, and collecting a sample from the bubble.
22. Label the syringe with the sample ID and time of collection.
23. Collect a duplicate sample after five minutes using a second gas tight syringe with a stopcock, using the above procedure.
24. Turn off the pump and detaching the sample bulb, then allowing the water contained inside to drain into the drum.
25. Turn the pump on and fill the remaining sample containers (anions and cations) through the pump outlet; record the sample ID and the time of collection.
26. Transfer the samples to the mobile laboratory for analysis as quickly as possible to maintain sample integrity, and analyze them quickly to provide accurate results.

1.2 Groundwater Sample Preparation, Packaging, and Shipment

Section 3.2.4.3 of the *Zone A RFI Report* (EnSafe, 1998) report details preparation, packaging, and shipment of groundwater samples collected at CNC and shipped to an offsite laboratory. This procedure was followed during the MNA investigation. The offsite samples (VOCs, sulfate, nitrate, chloride, and total organic carbon) were shipped priority overnight via FedEx to the Southwest Laboratory of Oklahoma in Tulsa for all three sampling rounds. For Round 2 samples, the heterotrophic plate count (HPC) samples were analyzed by General Engineering Laboratories in Charleston, SC and the BTEX and chlorobenzene degraders were analyzed by Retec in Seattle, WA.

1.3 Groundwater Sample Analyses

The offsite groundwater samples were analyzed per USEPA Method SW-846 at Data Quality Objectives (DQO) Level II as follows:

- VOCs USEPA Method 8260
- Sulfate USEPA Method 375.1
- Nitrate USEPA Method 352.1
- Chloride USEPA Method 325.1
- Total Organic Carbon USEPA Method 415.1
- Heterotrophic plate count
- BTEX and chlorobenzene degraders

The onsite groundwater samples were analyzed as follows:

- Dissolved Oxygen Gas chromatography with thermal conductivity detector
- Iron II and III Ion chromatography with absorbance detector
- Methane Gas chromatography with flame ionization detector
- Ethane Gas chromatography with flame ionization detector

- Ethene Gas chromatography with flame ionization detector
- Alkalinity HACH alkalinity test kit
- Oxidation-reduction potential Field probe with direct meter reading
- pH Field probe with direct meter reading
- Temperature Field probe with direct meter reading
- Conductivity Field probe with direct meter reading
- Hydrogen Equilibrium with gas in the field; Gas chromatography with reducing gas detector
- Carbon dioxide Gas chromatography with thermal conductivity detector
- Manganese Ion chromatography with absorbance detector

2.0 Scope of MNA at Combined SWMU 9

The area investigated during the MNA evaluation included wells associated with Combined SWMU 9 and SWMU 196, which was separated from Combined SWMU 9 during the CMS due to different site usage in the past. Although it is understood that SWMU 196 data is not the focus of this report, it is included in this evaluation since it was collected synoptically with that from Combined SWMU 9 and assists in presenting the extent of contamination overall. These sites were considered suitable for baseline MNA data collection due to the presence of BTEX and chlorinated aliphatic hydrocarbons (CAHs) in shallow groundwater during their sampling histories. VOC results from each RFI sampling event were plotted by well location in Figures 1-4.

Samples were collected from nine Combined SWMU 9 well locations for the first round in March 1998. During Round 2 in September-October 1998, thirty-six wells were sampled to provide additional data coverage for the remainder of Combined SWMU 9 and SWMU 196. VOC results for these rounds are presented in Figures 5 and 6.

Synoptic shallow groundwater elevations were measured prior to the second MNA sampling round in order to evaluate piezometric and analytical data concurrently (Figure 6b).

3.0 MNA Sampling Results

Analytical data results from both sampling rounds were screened using the preliminary ranking system established by the EPA guidance document entitled *Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater* (referred to herein as Technical Protocol, 1998), which is summarized in Tables 1 and 2. Table 3 presents the analytical results (VOC, geochemical, and dissolved gas data) and preliminary rank based on points accrued for each parameter. The preliminary screening rank are not relevant for those wells where VOCs are solely BTEX compounds and/or chlorobenzene since the screening system only concerns CAHs. However, the rankings may be useful should CAHs ever migrate to these well locations. Background determinations are provided for those parameters and analytes requiring comparison to background locations for awarding points in the system.

Note that these rankings are biased by the points awarded for methane concentrations. Methane is naturally generated at the site due to the prevalence of organic-rich muds and clays (marsh clay) and the site's role as a landfill. Thus, it is impossible to separate the percentage of methane produced from these mechanisms compared to that from CAH reductive dechlorination.

Table 1
Analytical Parameters and Weighting for Preliminary Screening
for Anaerobic Biodegradation Processes

| Analysis | Concentration in Most Contaminated Zone | Value |
|-------------------------------|---|-------|
| Oxygen | <0.5 mg/L | 3 |
| | >5.0 mg/L | -3 |
| Nitrate | <1.0 mg/L | 2 |
| Iron(II) | >1.0 mg/L | 3 |
| Sulfate | <20 mg/L | 2 |
| Sulfide | > 1.0 mg/L | 3 |
| Methane | < 0.5 mg/L | 0 |
| | > 0.5 mg/L | 3 |
| Oxidation Reduction Potential | < 50 millivolts (mv) | 1 |
| | < -100 mv | 2 |
| pH | 5.0 < pH < 9.0 | 0 |
| | 5.0 > pH > 9.0 | -2 |
| Total Organic Carbon | > 20.0 mg/L | 2 |

Table 1
Analytical Parameters and Weighting for Preliminary Screening
for Anaerobic Biodegradation Processes

| Analysis | Concentration in Most Contaminated Zone | Value |
|---------------------------|--|--------------|
| Temperature | > 20°C | 1 |
| Carbon Dioxide | > 2x background | 1 |
| Alkalinity | > 2x background | 1 |
| Chloride | > 2x background | 2 |
| Hydrogen | > 1.0 nanomole (nM) | 3 |
| | < 1.0 nM | 0 |
| BTEX | > 0.1 mg/L | 2 |
| PCE | Released material | 0 |
| TCE | Released material | 0 |
| | Daughter product | 2 |
| DCE | Released material | 0 |
| | Daughter product | 2 |
| VC | Released material | 0 |
| | Daughter product | 2 |
| 1,1,1-Trichloethane (TCA) | Released material | 0 |
| Dichloroethane (DCA) | Daughter product of 1,1,1-TCA under reducing conditions. | 2 |
| Carbon Tetrachloride | Released material | 0 |
| Chloroethane | Daughter product of DCA under reducing conditions. | 2 |
| Ethane/Ethene | >0.01 mg/L | 2 |
| | >0.1 mg/L | 3 |
| Chloroform | Released material | 0 |
| | Daughter product of carbon tetrachloride | 2 |
| Dichloromethane | Released material | 0 |
| | Daughter product of chloroform | 2 |

Table 2
Interpretation of Total Points from Site Ranking

| Score | Interpretation |
|--------------|---|
| 0 | No evidence for biodegradation of chlorinated organics. |
| 1 to 5 | Inadequate evidence for biodegradation of chlorinated organics. |
| 6 to 14 | Limited evidence for biodegradation of chlorinated organics. |
| 15 to 20 | Adequate evidence for biodegradation of chlorinated organics. |

Table 2
Interpretation of Total Points from Site Ranking

| Score | Interpretation |
|--------------|---|
| >20 | Strong evidence for biodegradation of chlorinated organics. |

Table 3
SWMU 9 MNA Data and Preliminary Ranking

| | Analyte | units | 008002 | 009001 | | 009002 | 009003 | 009004 | 009005 | 009006 |
|--------------------------------------|-------------------------|-----------|---------|---------|---------|--------|---------|---------|---------|---------|
| | | | Rd 2 | Rd 1 | Rd 2 | Rd 2 | Rd 2 | Rd 2 | Rd 2 | Rd 2 |
| VOCs | Benzene | µg/L | | 2 | 1 | | 2 | | | |
| | Toluene | µg/L | | 120 | 2 | | | | | |
| | Ethylbenzene | µg/L | | 7 | 52 | | 4 | | | |
| | Xylene | µg/L | | 260 | 140 | | 14 | | | |
| | Chlorobenzene | µg/L | | | | | | | | |
| | Methyl tert-butyl ether | µg/L | | | | | | | | |
| | PCE | µg/L | | | | | | | | |
| | TCE | µg/L | | | | | | | | |
| | cis-1,2-DCE | µg/L | | | | | | | | |
| | trans-1,2-DCE | µg/L | | | | | | | | |
| | 1,2-DCE total | µg/L | | | | | | | | |
| | VC | µg/L | | | | | | | | |
| | 1,1-DCA | µg/L | | | | | | | | |
| | 1,1-DCE | µg/L | | | | | | | | |
| 1,2-DCA | µg/L | | | | | | | | | |
| Acetone | µg/L | | | | | 2 | 11 | | | |
| Dissolved Gases | Carbon Dioxide | mg/L | 37.0 | NA | 1.43 | 99.2 | 374 | 31.0 | 64.5 | 21.8 |
| | LOG Carbon Dioxide | | 1.57 | | 0.15 | 2.00 | 2.57 | 1.49 | 1.81 | 1.34 |
| | Dissolved Oxygen | mg/L | 0.55 | 0.15 U | 2.4 | 1.2 | 1.6 | 0.80 | 0.62 | 1.0 |
| | Hydrogen | nmol/L | 1.61 | 5.44 | 1.84 | 0.79 | 4.36 | 0.83 | 2.99 | 0.56 |
| | Nitrogen | mg/L | 6.25 | 1.22 | 4.40 | 10.9 | 2.45 | 3.01 | 1.92 | 13.9 |
| | Methane | µg/L | 12100 | 17261 | 11900 | 4270 | 3585 | 1585 | 15000 | 1980 |
| | LOG Methane | | 4.083 | 4.237 | 4.076 | 3.63 | 3.55 | 3.20 | 4.18 | 3.30 |
| | Ethane | ng/L | 2875 | 3.00 U | 427 | 102 | 145 | 203 | 274 | 235 |
| | Ethene | ng/L | 5.00 U | 3.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U |
| Geochemical Parameters | pH | std units | 7.09 | 9.14 | 8.32 | 6.82 | 8.22 | 6.87 | 6.84 | 6.81 |
| | Redox Potential | mV | -352 | 133 | 185 | -261 | 47 | -383 | 249 | 70 |
| | Alkalinity | mg/L | 250 | 42 | 85 | 330 | 230 | 250 | 325 | 120 |
| | Nitrate as N | mg/L | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U |
| | Manganese (II) | mg/L | 0.500 U | NA | 0.500 U | 1.49 | 0.500 U | 0.500 U | 0.500 U | 0.500 U |
| | Iron (II) | mg/L | 0.500 U | 0.500 U | 0.500 U | 2.75 | 0.500 U | 0.500 U | 5.78 | 0.500 U |
| | Iron (III) | mg/L | 0.500 U | NA | 0.500 U | 3.98 | 0.500 U | 0.500 U | 0.507 | 0.500 U |
| | Sulfate | mg/L | 58 | 0.27 | 12 | 340 | 4.8 | 920 | 9.0 | 26 |
| | LOG Sulfate | | 1.76 | -0.57 | 1.08 | 2.53 | 0.68 | 2.96 | 0.95 | 1.41 |
| | Sulfide | mg/L | 8.2 | NA | 1.00 U | 1.00 U | 1.00 U | 37 | 1.00 U | 1.00 U |
| | Total Organic Carbon | mg/L | 17 | 13 | 21 | 16 | 29 | 6.6 | 15 | 3.1 |
| | Nitrogen (TKN) | mg/L | 9.5 | NA | 20 | 7.6 | 26 | 4.2 | 7.6 | 1.4 |
| | Total Phosphorus | mg/L | 0.18 | NA | 0.10 U | 1.7 | 2.7 | 0.21 | 0.31 | 0.15 |
| | Chloride | mg/L | NA | 554 | NA | NA | NA | NA | NA | NA |
| Specific Conductivity | mmho/cm | 9.95 | 1.93 | 1.72 | 4.08 | 3.19 | 23 | 5.27 | 0.388 | |
| Temperature | °C | 25.3 | 16.5 | 25.0 | 23.9 | 26.8 | 26.5 | 25.0 | 25.4 | |
| Preliminary Screening Ranking | Dissolved Oxygen | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Nitrate | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | Iron (II) | | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 0 |
| | Sulfate | | 0 | 2 | 2 | 0 | 2 | 0 | 2 | 0 |
| | Methane | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| | Redox Potential | | 2 | 0 | 2 | 2 | 1 | 2 | 2 | 0 |
| | pH | | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Total Organic Carbon | | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 |
| | Temperature | | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Carbon Dioxide * | | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| | Alkalinity* | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Hydrogen | | 3 | 3 | 3 | 0 | 3 | 0 | 3 | 0 |
| | BTEX | | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 |
| | TCE | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | DCE | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | VC | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | DCA | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Ethane | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Ethene | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Points | | 11 | 10 | 17 | 11 | 15 | 8 | 16 | 6 | |
| NA evidence? | | L | L | A | L | A | L | A | L | |

Table 3
SWMU 9 MNA Data and Preliminary Ranking

| | Analyte | units | 009007 | | 009008 | 009009 | | 009010 | | |
|--------------------------------------|-------------------------|---------------|--------|---------|--------|--------|---------|--------|---------|----|
| | | | Rd 1 | Rd 2 | Rd 2 | Rd 1 | Rd 2 | Rd 1 | Rd 2 | |
| VOCs | Benzene | µg/L | 17 | 13 | | 2 | | 180 | 200 | |
| | Toluene | µg/L | 200 | 27 | | | | 20 | 2 | |
| | Ethylbenzene | µg/L | 65 | 76 | | | | 3 | 12 | |
| | Xylene | µg/L | 1250 | 270 | | | | 8 | 2 | |
| | Chlorobenzene | µg/L | | 47 | | | | | 730 | |
| | Methyl tert-butyl ether | µg/L | | | | | | | | |
| | PCE | µg/L | 3 | | | | | | | |
| | TCE | µg/L | 360 | 120 | | | | | | |
| | cis-1,2-DCE | µg/L | | 1300 | | | | | | |
| | trans-1,2-DCE | µg/L | | 75 | | | | | | |
| | 1,2-DCE total | µg/L | 3500 | 1375 | | | | 1 | | |
| | VC | µg/L | 3000 | 1800 | | | | 1 | | |
| | 1,1-DCA | µg/L | 121 | 7 | | | | | | |
| | 1,1-DCE | µg/L | | 8 | | | | | | |
| | 1,2-DCA | µg/L | | 96 | | | | | | |
| Acetone | µg/L | | 8 | | | | | | | |
| Dissolved Gases | Carbon Dioxide | mg/L | 277 | 334 | 125 | 142 | 130 | 173 | 311 | |
| | LOG Carbon Dioxide | | 2.44 | 2.52 | 2.10 | 2.15 | 2.11 | 2.24 | 2.49 | |
| | Dissolved Oxygen | mg/L | 0.15 U | 1.3 | 0.55 | 0.15 | 0.70 | 0.25 | 0.78 | |
| | Hydrogen | nmol/L | 1.21 | 7.51 | 4.28 | 0.16 | 2.06 | 0.25 | 2.45 | |
| | Nitrogen | mg/L | 0.63 | 2 | 1.83 | 0.38 | 2 | 0.48 | 1.34 | |
| | Methane | µg/L | 12820 | 4115 | 15100 | 3605 | 11750 | 2213 | 4755 | |
| | LOG Methane | | 4.11 | 3.61 | 4.18 | 3.56 | 4.07 | 3.34 | 3.68 | |
| | Ethane | ng/L | 1600 | 626945 | 5.00 U | 277 | 12 | 633 | 1075 | |
| | Ethene | ng/L | 1600 | 1464033 | 5.00 U | 3.00 U | 5.00 U | 245 | 261 | |
| Geochemical Parameters | pH | std units | 8.29 | 6.59 | 6.69 | 6.26 | 6.63 | 7.18 | 6.28 | |
| | Redox Potential | mV | -84 | -225 | -244 | -85 | -86 | -307 | -545 | |
| | Alkalinity | mg/L | 96 | 175 | 400 | 55 | 350 | 73 | 350 | |
| | Nitrate as N | mg/L | 14.9 | 0.12 | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | |
| | Manganese (II) | mg/L | NA | 0.500 U | 0.743 | NA | 0.500 U | NA | 0.500 U | |
| | Iron (II) | mg/L | 19.9 | 18.5 | 19.9 | 26.0 | 16.6 | 16.8 | 26.4 | |
| | Iron (III) | mg/L | NA | 10.2 | 1.65 | NA | 7.19 | NA | 1.49 | |
| | Sulfate | mg/L | 0.2 U | 48 | 58 | 27 | 28 | 45 | 63 | |
| | LOG Sulfate | | | 1.68 | 1.76 | 0.43 | 1.55 | 1.66 | 1.80 | |
| | Sulfide | mg/L | NA | 1.00 U | 1.00 U | NA | 1.00 U | NA | 2.6 | |
| | Total Organic Carbon | mg/L | 60 | 30 | 53 | 19 | 19 | 14 | 17 | |
| | Nitrogen (TKN) | mg/L | NA | 38 | 10 | NA | 16 | NA | 21 | |
| | Total Phosphorus | mg/L | NA | 2.8 | 1.0 | NA | 0.28 | NA | 0.81 | |
| | Chloride | mg/L | 5830 | NA | NA | 71 | NA | 3700 | NA | |
| | Specific Conductivity | mmho/cm | 15.0 | 4.39 | 10.9 | 0.210 | 1.32 | 1.85 | 9.60 | |
| Temperature | °C | 16.6 | 26.3 | 26.2 | 18.6 | 24.2 | 16.9 | 26.1 | | |
| Preliminary Screening Ranking | Dissolved Oxygen | POINTS | 0 | 0 | 0 | 0 | 0 | 3 | 0 | |
| | Nitrate | | 0 | 2 | 2 | 2 | 2 | 2 | 2 | |
| | Iron (II) | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| | Sulfate | | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| | Methane | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| | Redox Potential | | 1 | 2 | 2 | 1 | 1 | 2 | 2 | 2 |
| | pH | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Total Organic Carbon | | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 |
| | Temperature | | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 |
| | Carbon Dioxide * | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Alkalinity* | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Hydrogen | | 3 | 3 | 3 | 0 | 3 | 0 | 0 | 3 |
| | BTEX | | 2 | 2 | 0 | 0 | 0 | 2 | 2 | 2 |
| | TCE | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | DCE | | 2 | 2 | 0 | 0 | 0 | 2 | 0 | 0 |
| | VC | | 2 | 2 | 0 | 0 | 0 | 2 | 0 | 0 |
| | DCA | | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Ethane | | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Ethene | | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Total Points | | | 23 | 31 | 17 | 15 | 14 | 20 | 17 |
| NA evidence? | | S | S | A | A | L | A | A | | |

Table 3
SWMU 9 MNA Data and Preliminary Ranking

| | Analyte | units | 009011 | | 009012 | 009013 | 009014 | | 009015 |
|--------------------------------------|-------------------------|---------------|--------|--------|--------|--------|--------|--------|--------|
| | | | Rd 1 | Rd 2 | Rd 2 | Rd 2 | Rd 1 | Rd 2 | Rd 2 |
| VOCs | Benzene | µg/L | | | | | 3 | 2 | |
| | Toluene | µg/L | | | | | | | |
| | Ethylbenzene | µg/L | | | | | | | |
| | Xylene | µg/L | | | | | | | |
| | Chlorobenzene | µg/L | | | 13 | 17 | | 50 | |
| | Methyl tert-butyl ether | µg/L | | | | | | | |
| | PCE | µg/L | | | | | | | |
| | TCE | µg/L | 2 | | | | | | |
| | cis-1,2-DCE | µg/L | | | | | | | |
| | trans-1,2-DCE | µg/L | | | | | | | |
| | 1,2-DCE total | µg/L | | | | | | | |
| | VC | µg/L | | | | | | | |
| | 1,1-DCA | µg/L | | | | | | | |
| | 1,1-DCE | µg/L | | | | | | | |
| | 1,2-DCA | µg/L | | | | | | | |
| Acetone | µg/L | | | 2 | | | | | |
| Dissolved Gases | Carbon Dioxide | mg/L | 165 | 209 | 392 | 405 | 337 | 499 | 130 |
| | LOG Carbon Dioxide | | 2.22 | 2.32 | 2.59 | 2.61 | 2.53 | 2.70 | 2.11 |
| | Dissolved Oxygen | mg/L | 0.28 | 0.63 | 0.70 | 0.50 | 0.22 | 1.2 | 0.85 |
| | Hydrogen | nmol/L | 0.29 | 0.74 | 1.34 | 1.20 | 0.28 | 7.80 | 1.37 |
| | Nitrogen | mg/L | 2.65 | 7.70 | 1.25 | 0.800 | 0.424 | 1.95 | 11.5 |
| | Methane | µg/L | 7415 | 5805 | 3720 | 4600 | 2723 | 4485 | 2625 |
| | LOG Methane | | 3.87 | 3.76 | 3.57 | 3.66 | 3.44 | 3.65 | 3.42 |
| | Ethane | ng/L | 3.00 U | 5.00 U | 546 | 5.00 U | 283 | 207 | 251 |
| Ethene | ng/L | 3.00 U | 5.00 U | 5.00 U | 5.00 U | 3.00 U | 5.00 U | 5.00 U | |
| Geochemical Parameters | pH | std units | 6.30 | 6.28 | 6.68 | 6.45 | 7.95 | 6.40 | 6.63 |
| | Redox Potential | mV | -125 | -250 | -232 | -242 | -138 | -222 | -206 |
| | Alkalinity | mg/L | 72 | 180 | 700 | 180 | 55 | 350 | 250 |
| | Nitrate as N | mg/L | 0.10 U | 0.98 | 0.11 | 0.10 U | 0.10 U | 0.11 | 0.10 U |
| | Manganese (II) | mg/L | NA | 1.61 | 1.11 | 0.609 | NA | 0.602 | 0.626 |
| | Iron (II) | mg/L | 16.3 | 18.1 | 11.2 | 6.93 | 13.2 | 18.2 | 5.24 |
| | Iron (III) | mg/L | NA | 1.02 | 4.71 | 3.13 | NA | 1.34 | 0.513 |
| | Sulfate | mg/L | 0.2 U | 200 | 48 | 23 | 0.2 U | 25 | 76 |
| | LOG Sulfate | | | 2.30 | 1.68 | 1.36 | | 1.40 | 1.88 |
| | Sulfide | mg/L | NA | 1.00 U | 1.00 U | 1.00 U | NA | 1.00 U | 67 |
| | Total Organic Carbon | mg/L | 19 | 17 | 39 | 30 | 15 | 20 | 23 |
| | Nitrogen (TKN) | mg/L | NA | 16 | 21 | 18 | NA | 21 | 30 |
| | Total Phosphorus | mg/L | NA | 0.28 | 2.1 | 0.89 | NA | 2.2 | 0.30 |
| | Chloride | mg/L | 450 | NA | NA | NA | 2180 | NA | NA |
| | Specific Conductivity | mmho/cm | 1.40 | 2.09 | 3.59 | 3.88 | 4.58 | 8.30 | 1.68 |
| Temperature | °C | 17.2 | 25.3 | 25.2 | 23.8 | 17.0 | 25.4 | 25.3 | |
| Preliminary Screening Ranking | Dissolved Oxygen | POINTS | 3 | 0 | 0 | 0 | 3 | 0 | 0 |
| | Nitrate | | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | Iron (II) | | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| | Sulfate | | 2 | 0 | 0 | 0 | 2 | 0 | 0 |
| | Methane | | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| | Redox Potential | | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | pH | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Total Organic Carbon | | 0 | 0 | 2 | 2 | 0 | 2 | 2 |
| | Temperature | | 0 | 1 | 1 | 1 | 0 | 1 | 1 |
| | Carbon Dioxide * | | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Alkalinity* | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Hydrogen | | 0 | 0 | 3 | 3 | 0 | 3 | 3 |
| | BTEX | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | TCE | | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| | DCE | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | VC | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | DCA | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Ethane | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Ethene | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Points | | 18 | 12 | 17 | 17 | 16 | 17 | 17 | |
| NA evidence? | | A | L | A | A | A | A | A | |

Table 3
SWMU 9 MNA Data and Preliminary Ranking

| | Analyte | units | 009016 | | 009017 | 009018 | 009019 | 009020 | 009021 | 009022 |
|--------------------------------------|-------------------------|-----------|--------|---------|---------|---------|--------|---------|---------|---------|
| | | | Rd 1 | Rd 2 | Rd 2 | Rd 2 | Rd 2 | Rd 2 | Rd 2 | Rd 2 |
| VOCs | Benzene | µg/L | 1 | | | | | 43 | 160 | |
| | Toluene | µg/L | 1 | | | | | | 23 | 1 |
| | Ethylbenzene | µg/L | | | | | 2 | | | |
| | Xylene | µg/L | | | | | | | | |
| | Chlorobenzene | µg/L | | 6 | | | 14 | 26000 | 17000 | 5 |
| | Methyl tert-butyl ether | µg/L | | | | | | | | |
| | PCE | µg/L | | | | | | | 7 | |
| | TCE | µg/L | | | | | | | 4 | |
| | cis-1,2-DCE | µg/L | | | | | | | 160 | |
| | trans-1,2-DCE | µg/L | | | | | | | 9 | |
| | 1,2-DCE total | µg/L | | | | | | | 169 | |
| | VC | µg/L | | | | | | | 26 | |
| | 1,1-DCA | µg/L | | | | | | | | |
| | 1,1-DCE | µg/L | | | | | | | | |
| 1,2-DCA | µg/L | | | | | | | 2 | | |
| Acetone | µg/L | | | | | | | | | |
| Dissolved Gases | Carbon Dioxide | mg/L | 39.8 | 74.8 | 72.1 | 18.3 | 240 | 198 | 116 | 106 |
| | LOG Carbon Dioxide | | 1.60 | 1.87 | 1.86 | 1.26 | 2.38 | 2.30 | 2.06 | 2.02 |
| | Dissolved Oxygen | mg/L | 0.15 U | 0.50 | 0.45 | 0.80 | 0.65 | 1.1 | 0.85 | 0.90 |
| | Hydrogen | nmol/L | 5.65 | 21.5 | 1.68 | 3.41 | 1.64 | 11.7 | 1.46 | NA |
| | Nitrogen | mg/L | 0.183 | 0.900 | 4.35 | 2.1 | 3.6 | 11.2 | 5.30 | 13.6 |
| | Methane | µg/L | 2169 | 13500 | 11350 | 16250 | 10950 | 693 | 315 | 848 |
| | LOG Methane | | 3.34 | 4.13 | 4.05 | 4.21 | 4.04 | 2.84 | 2.50 | 2.93 |
| | Ethane | ng/L | 278 | 1705 | 1660 | 1350 | 100 U | 3170 | 1350 | 230 |
| | Ethene | ng/L | 3.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 18800 | 263 |
| Geochemical Parameters | pH | std units | 8.99 | 6.99 | 6.59 | 7.54 | 6.45 | 6.41 | 6.63 | 6.47 |
| | Redox Potential | mV | -191 | -176 | -166 | -291 | -130 | -77 | 67 | 67 |
| | Alkalinity | mg/L | 83 | 300 | 225 | 280 | 480 | 300 | 180 | 180 |
| | Nitrate as N | mg/L | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.13 | 0.10 U | 0.10 U | 0.10 U |
| | Manganese (II) | mg/L | NA | 0.500 U | 0.500 U | 0.500 U | 0.799 | 1.14 | 1.42 | 0.500 U |
| | Iron (II) | mg/L | 10.0 | 8.98 | 1.79 | 0.500 U | 5.10 | 7.33 | 2.08 | 4.18 |
| | Iron (III) | mg/L | NA | 8.47 | 0.998 | 0.500 U | 2.49 | 0.500 U | 0.500 U | 0.644 |
| | Sulfate | mg/L | 1.4 | 35 | 34 | 24 | 34 | 2700 | 87 | 36 |
| | LOG Sulfate | | 0.15 | 1.54 | 1.53 | 1.38 | 1.53 | 3.43 | 1.94 | 1.56 |
| | Sulfide | mg/L | NA | 1.00 U | 1.6 | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| | Total Organic Carbon | mg/L | 17 | 22 | 14 | 19 | 21 | 12 | 17 | 17 |
| | Nitrogen (TKN) | mg/L | NA | 1.0 | 4.5 | 11 | 13 | 24 | 7.8 | 5.0 |
| | Total Phosphorus | mg/L | NA | 0.43 | 0.10 U | 0.40 | 0.15 | 0.17 | 0.20 | 0.10 U |
| | Chloride | mg/L | 2480 | NA | NA | NA | NA | NA | NA | NA |
| | Specific Conductivity | mmho/cm | 6.93 | 3.54 | 2.72 | 16.5 | 1.00 | 1.07 | 2.99 | 0.550 |
| Temperature | °C | 15.8 | 24.5 | 26.2 | 25.6 | 25.1 | 24.8 | 24.4 | 23.5 | |
| Preliminary Screening Ranking | Dissolved Oxygen | | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 |
| | Nitrate | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | Iron (II) | | 3 | 3 | 3 | 0 | 3 | 3 | 3 | 3 |
| | Sulfate | | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Methane | | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 3 |
| | Redox Potential | | 2 | 2 | 2 | 2 | 2 | 1 | 0 | 0 |
| | pH | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Total Organic Carbon | | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 |
| | Temperature | | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Carbon Dioxide * | | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 |
| | Alkalinity* | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Hydrogen | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 |
| | BTEX | | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| | TCE | | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| | DCE | | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| | VC | | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| | DCA | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Ethane | | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| | Ethene | | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| Total Points | | 15 | 16 | 17 | 11 | 17 | 14 | 22 | 9 | |
| NA evidence? | | A | A | A | L | A | L | S | L | |

Table 3
SWMU 9 MNA Data and Preliminary Ranking

| | Analyte | units | 009023 | 009024 | 009025 | 009026 | 009027 | 009028 | 009029 | 009030 |
|--------------------------------------|-------------------------|---------------|---------|---------|---------|---------|---------|---------|---------|---------|
| | | | Rd 2 |
| VOCs | Benzene | µg/L | | | 1 | 16 | 4 | | | 20 |
| | Toluene | µg/L | | | | | | | | |
| | Ethylbenzene | µg/L | | | | | | | | 1 |
| | Xylene | µg/L | | | | | | | | 5 |
| | Chlorobenzene | µg/L | 2 | 2 | 22 | 75 | 6 | 11 | 15 | 66 |
| | Methyl tert-butyl ether | µg/L | | | | | | | | |
| | PCE | µg/L | | | | | | | | |
| | TCE | µg/L | | | | | | | | |
| | cis-1,2-DCE | µg/L | | | | | | | | |
| | trans-1,2-DCE | µg/L | | | | | | | | |
| | 1,2-DCE total | µg/L | | | | | | | | |
| | VC | µg/L | | | | | | | | |
| | 1,1-DCA | µg/L | | | | | | | | |
| | 1,1-DCE | µg/L | | | | | | | | |
| 1,2-DCA | µg/L | | | | | | | | | |
| Acetone | µg/L | | | | | | | | | 4 |
| Dissolved Gases | Carbon Dioxide | mg/L | 85.3 | 138 | 377 | 492 | 250 | 158 | 163 | 374 |
| | LOG Carbon Dioxide | | 1.93 | 2.14 | 2.58 | 2.69 | 2.40 | 2.20 | 2.21 | 2.57 |
| | Dissolved Oxygen | mg/L | 4.6 | 1.1 | 0.88 | 0.35 | 0.85 | 0.75 | 0.85 | 1.6 |
| | Hydrogen | nmol/L | NA | 1.51 | 1.44 | 1.71 | 1.99 | 3.75 | 3.32 | 4.36 |
| | Nitrogen | mg/L | 14.3 | 2.55 | 1.30 | 0.506 | 1.35 | 1.2 | 1.45 | 2.45 |
| | Methane | µg/L | 76 | 11250 | 3885 | 3375 | 5755 | 6760 | 6890 | 3585 |
| | LOG Methane | | 1.88 | 4.05 | 3.59 | 3.53 | 3.76 | 3.83 | 3.84 | 3.55 |
| | Ethane | ng/L | 242 | 647 | 523 | 5.00 U | 872 | 1900 | 2730 | 4345 |
| | Ethene | ng/L | 42 | 5.00 U | 562 | 5.00 U | 5.00 U | 5.00 U | 4150 | 5.00 U |
| Geochemical Parameters | pH | std units | 6.29 | 6.50 | 6.14 | 6.10 | 6.57 | 6.96 | 6.77 | 6.58 |
| | Redox Potential | mV | 61 | -361 | -234 | -224 | -358 | -336 | -352 | -234 |
| | Alkalinity | mg/L | 160 | 400 | 250 | 570 | 600 | 750 | 580 | 450 |
| | Nitrate as N | mg/L | 0.39 | 0.10 U | 0.11 |
| | Manganese (II) | mg/L | 0.636 | 0.500 U |
| | Iron (II) | mg/L | 1.09 | 0.500 U | 38.4 | 43.6 | 0.500 U | 0.500 U | 0.500 U | 13.7 |
| | Iron (III) | mg/L | 0.500 U | 0.500 U | 1.87 | 2.92 | 0.500 U | 0.500 U | 0.500 U | 9.51 |
| | Sulfate | mg/L | 10 | 66 | 54 | 78 | 32 | 34 | 22 | 22 |
| | LOG Sulfate | | 1.00 | 1.82 | 1.73 | 1.89 | 1.51 | 1.53 | 1.34 | 1.34 |
| | Sulfide | mg/L | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 7.6 | 8.6 | 16 | 1.00 U |
| | Total Organic Carbon | mg/L | 7.3 | 11 | 15 | 18 | 26 | 25 | 23 | 40 |
| | Nitrogen (TKN) | mg/L | 1.0 | 5.9 | 18 | 25 | 26 | 33 | 29 | 66 |
| | Total Phosphorus | mg/L | 1.1 | 0.60 | 0.10 U | 0.34 | 0.57 | 0.53 | 0.51 | 0.26 |
| | Chloride | mg/L | NA |
| | Specific Conductivity | mmho/cm | 0.460 | 3.52 | 2.06 | 3.68 | 15.4 | 16.9 | 16.3 | 12.6 |
| Temperature | °C | 23.4 | 24.7 | 25.0 | 25.1 | 25.3 | 25.5 | 25.4 | 27.3 | |
| Preliminary Screening Ranking | Dissolved Oxygen | POINTS | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| | Nitrate | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | Iron (II) | | 3 | 0 | 3 | 3 | 0 | 0 | 0 | 3 |
| | Sulfate | | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Methane | | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| | Redox Potential | | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | pH | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Total Organic Carbon | | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 2 |
| | Temperature | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Carbon Dioxide * | | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Alkalinity* | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Hydrogen | | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| | BTEX | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | TCE | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | DCE | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | VC | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | DCA | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Ethane | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Ethene | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Points | | 8 | 12 | 15 | 18 | 14 | 14 | 14 | 17 | |
| NA evidence? | | L | L | A | A | L | L | L | A | |

Table 3
SWMU 9 MNA Data and Preliminary Ranking

| | Analyte | units | 009121 | 637001 | | 637002 | 637003 | GDG001 | |
|--------------------------------------|-------------------------|-----------|---------|--------|---------|---------|---------|---------|---------|
| | | | Rd 2 | Rd 1 | Rd 2 | Rd 2 | Rd 2 | Rd 1 | Rd 2 |
| VOCs | Benzene | µg/L | | 8 | 17 | | 2 | | |
| | Toluene | µg/L | | 9 | 7 | | 1 | | 1 |
| | Ethylbenzene | µg/L | | 120 | 100 | | 2 | | |
| | Xylene | µg/L | | 1300 | 820 | | 8 | | 3 |
| | Chlorobenzene | µg/L | | 42 | 44 | 5 | | | |
| | Methyl tert-butyl ether | µg/L | | | | | | | |
| | PCE | µg/L | | | | | | | |
| | TCE | µg/L | | | | | | 5 | |
| | cis-1,2-DCE | µg/L | | | | | | | |
| | trans-1,2-DCE | µg/L | | | | | | | |
| | 1,2-DCE total | µg/L | | | | | | | |
| | VC | µg/L | | | | | | | |
| | 1,1-DCA | µg/L | | | | | | | |
| | 1,1-DCE | µg/L | | | | | | | |
| | 1,2-DCA | µg/L | | | | | | | |
| Acetone | µg/L | | | 2 | 2 | | | | |
| Dissolved Gases | Carbon Dioxide | mg/L | 320 | 30.9 | 44.5 | 194 | 1.00 | 9.25 | 27.7 |
| | LOG Carbon Dioxide | | 2.51 | 1.49 | 1.65 | 2.29 | 0.00 | 0.97 | 1.44 |
| | Dissolved Oxygen | mg/L | 0.55 | 0.15 U | 0.65 | 0.85 | 0.55 | 0.15 U | 0.30 |
| | Hydrogen | nmol/L | 1.70 | 0.61 | 8.78 | 5.49 | 6.54 | 0.19 | 1.27 |
| | Nitrogen | mg/L | 1.00 | 0.119 | 1.2 | 1.3 | 2.35 | 0.745 | 2.64 |
| | Methane | µg/L | 13250 | 3699 | 15650 | 12800 | 14400 | 2682 | 13850 |
| | LOG Methane | | 4.12 | 3.57 | 4.19 | 4.11 | 4.16 | 3.43 | 4.14 |
| | Ethane | ng/L | 5.00 U | 2583 | 11500 | 5.00 U | 2535 | 383 | 1770 |
| | Ethene | ng/L | 5.00 U | 3.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U |
| Geochemical Parameters | pH | std units | 6.52 | 8.60 | 7.04 | 6.48 | 9.50 | 8.12 | 7.45 |
| | Redox Potential | mV | -50 | -163 | -158 | -111 | -308 | -309 | -300 |
| | Alkalinity | mg/L | 400 | 40 | 220 | 275 | 23 | 73 | 300 |
| | Nitrate as N | mg/L | 0.12 | 0.10 U | 0.11 | 0.12 | 0.10 U | 0.10 U | 0.10 U |
| | Manganese (II) | mg/L | 0.500 U | NA | 0.500 U | 0.500 U | 0.500 U | NA | 0.500 U |
| | Iron (II) | mg/L | 0.500 U | 3.46 | 7.08 | 8.18 | 0.500 U | 0.500 U | 0.500 U |
| | Iron (III) | mg/L | 0.835 | NA | 0.621 | 0.646 | 0.500 U | NA | 0.500 U |
| | Sulfate | mg/L | 23 | 0.2 U | 22 | 21 | 4.0 | 116 | 20 |
| | LOG Sulfate | | 1.36 | | 1.34 | 1.32 | 0.60 | 2.06 | 1.30 |
| | Sulfide | mg/L | 1.00 U | NA | 1.00 U | 1.00 U | 1.00 U | NA | 4.6 |
| | Total Organic Carbon | mg/L | 27 | 26 | 31 | 21 | 22 | 44 | 37 |
| | Nitrogen (TKN) | mg/L | 26 | NA | 43 | 26 | 11 | NA | 20 |
| | Total Phosphorus | mg/L | 3.1 | NA | 0.29 | 0.26 | 0.10 U | NA | 3.5 |
| | Chloride | mg/L | NA | 3570 | NA | NA | NA | 1870 | NA |
| | Specific Conductivity | mmho/cm | 7.73 | 5.01 | 10.4 | 7.69 | 7.46 | 6.65 | 5.30 |
| Temperature | °C | 26.3 | 16.0 | 25.9 | 26.5 | 25.9 | 15.6 | 26.1 | |
| Preliminary Screening Ranking | Dissolved Oxygen | | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| | Nitrate | | -2 | 2 | 2 | 2 | 2 | 0 | 2 |
| | Iron (II) | | 0 | 3 | 3 | 3 | 0 | 0 | 0 |
| | Sulfate | | 0 | 2 | 0 | 0 | 2 | 0 | 0 |
| | Methane | | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| | Redox Potential | | -1 | 2 | 2 | -2 | 2 | 2 | -2 |
| | pH | | 0 | 0 | 0 | 0 | -2 | 0 | 0 |
| | Total Organic Carbon | | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | Temperature | | 1 | 0 | 1 | 1 | 1 | 0 | 1 |
| | Carbon Dioxide * | | -1 | 0 | 0 | 1 | 0 | 0 | 0 |
| | Alkalinity* | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Hydrogen | | 3 | 0 | 3 | 3 | 3 | 0 | 3 |
| | BTEX | | 0 | 2 | 2 | 0 | 0 | 0 | 0 |
| | TCE | | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| | DCE | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | VC | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | DCA | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Ethane | | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| Ethene | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Total Points | | 13 | 16 | 20 | 17 | 13 | 11 | 16 | |
| NA evidence? | | L | A | A | A | L | L | A | |

3.1 Data Analysis

Analysis of the MNA data at Combined SWMU 9 and SWMU 196 to date has been confined to evaluation of shallow groundwater flow at the site and the spatial analysis of VOCs and geochemical parameters using isopleth maps.

3.1.1 Shallow Groundwater Flow

High groundwater elevations in the center portion of the site indicate that groundwater recharge is predominant in this portion of Combined SWMU 9 (Figure 6b). Shallow groundwater migrates radially away from this high point and discharges to the many marshes and wetlands associated with the Shipyard Creek drainage pattern. This pattern is more complicated to the west where the creek channel separates Combined SWMU 9 from SWMU 196.

3.1.2 Isopleth Maps

Isopleths of VOCs and several geochemical parameters and analytes were constructed to provide insight into their spatial distribution at the site during each MNA sampling round. Round 1 isopleths are presented in Figures 7-21 and Round 2 isopleths are presented in Figures 22-41. The major trends will be discussed briefly.

3.1.2.1 VOCs

No coherent CAH plumes exist at either site since CAHs are limited to two isolated locations, 009007 in Combined SWMU 9, and 009021 in SWMU 196 (wells 637001 and 009010 had CAH detections at estimated concentrations in Rounds 2 and 1, respectively). Contamination at 009021 and the other wells in the vicinity Building 1838 led to additional delineation studies as part of the *SWMU 196 Work Plan Addendum* (EnSafe, 1999). These data will be summarized in subsequent SWMU 196 reports.

Three primary BTEX plumes are apparent at Combined SWMU 9 and SWMU 196. A smaller, more coherent plume is present north of Bainbridge Avenue in Combined SWMU 9 and has been well-delineated. A larger, more amorphous plume covers the remainder of Combined SWMU 9 and has three apparent source areas at 009010, 009001, and 009007. A smaller coherent BTEX plume is

located at SWMU 196 centered around 009021.

Chlorobenzene contamination is similar to BTEX contamination as three separate plumes are evident at these sites. The highest concentrations were found in the plume at SWMU 196, centered around 009020. Chlorobenzene contamination at Combined SWMU 9 was represented as two separate plumes, one in the northern portion of the site and the other covering much of the remainder of the site. This larger plume may actually be two separate plumes, but were contoured as one for this evaluation. Concentrations were greater in the southern lobe of this plume.

Ethene, a benign end-product of CAH degradation, was elevated at two Combined SWMU 9 locations (central region around 009025 and 009010 and at 009007) and at SWMU 196 (009021) indicating that significant degradation is occurring in-situ at these isolated locations.

3.1.2.2 Geochemical and Microbial Parameters

DO concentrations varied from 0.15 - 4.6 mg/L in both rounds, indicating that anaerobic and aerobic zones are present at these sites. DO tended to be lower in the interior of the site, higher closer to the marshes and creek at Combined SWMU 9, and the greatest along the western portion of SWMU 196. Redox potentials (ORP) at Combined SWMU 9 did not correlated well with DO, however. The ORP data indicated that the majority of the site has reducing to extremely reducing conditions due to the strongly negative values, which would be expected to result in no DO. At SWMU 196, however, ORP data correlated much better since the positive values there suggest less reducing conditions and more oxygenated groundwater. Iron (III) reduction appears to be the primary redox function sitewide based on the limited nitrate available for denitrification and the elevated iron (II) concentrations prevalent in the center of Combined SWMU 9 and in the vicinity of 009007. Isolated locations along the northern and southern perimeter of Combined SWMU 9 appear to have progressed to sulfate reduction based on the production of sulfide. Groundwater pH values are high, ranging from 6.14 to 9.50 in both rounds, the high end of which greatly hinders microbial activity. Alkalinity was highest from 009007 trending SE toward the center of the site. High TOC values sitewide indicate that plenty of organic carbon is available for microbial use, not surprising given the presence of organic-rich clay and landfill refuse. Microbial populations varied greatly across the

site with the largest populations measured at SWMU 196 (009022) and 009030 in Combined SWMU 9. BTEX degrader populations tended to be greatest at locations closer to Shipyard Creek (009029, 009013, and 009001) although populations were not quantified at every well location.

4.0 Current Status of MNA Evaluation at Combined SWMU 9

The scope of the MNA study throughout CNC has changed frequently due to parallel CMS efforts involving Treatability Studies and additional contaminant delineation. This was best summarized in two memoranda sent to the Project Team (January 29, 1999 and April 14, 1999) in which the status of the evaluation, interpretation, and documentation of the MNA data is discussed. These are included at the end of this attachment for background information.

At issue for Combined SWMU 9 and SWMU 196 is the co-mingling of three distinctly different VOC contaminants – CAHs, BTEX, and chlorobenzene – which each degrade under different scenarios. BTEX compounds will favor aerobic degradation, but have been shown to degrade under anaerobic conditions (Weidemeier et al, 1995). The most chlorinated of the aliphatic hydrocarbons, such as PCE and TCE, will undergo reductive dechlorination under anaerobic conditions. DCE and vinyl chloride that result from PCE and TCE degradation may be further reduced under exceedingly anaerobic conditions, or possibly oxidized under aerobic conditions. Chlorobenzene has been found to only degrade in aerobic conditions (Technical Protocol, 1998). Obviously, a unique scenario would be required at this site for all of these VOCs to be naturally attenuated in-situ.

As discussed in the April 14, 1999 memorandum, there are three primary reasons why a monitored natural attenuation evaluation is not currently feasible at Combined SWMU 9 and SWMU 196. These three reasons will be discussed in turn.

First, it is apparent that VOCs exist at points of compliance. The two locations with CAH, BTEX, and chlorobenzene contamination, 009007 in Combined SWMU 9 and 009021 in SWMU 196, lie immediately adjacent to ecological receptors (marshes). A same occurs at 009001, although only BTEX contamination is prevalent. The entire premise behind MNA is the ability of the natural system to degrade contaminants in a timely fashion before endangering any receptor. This cannot

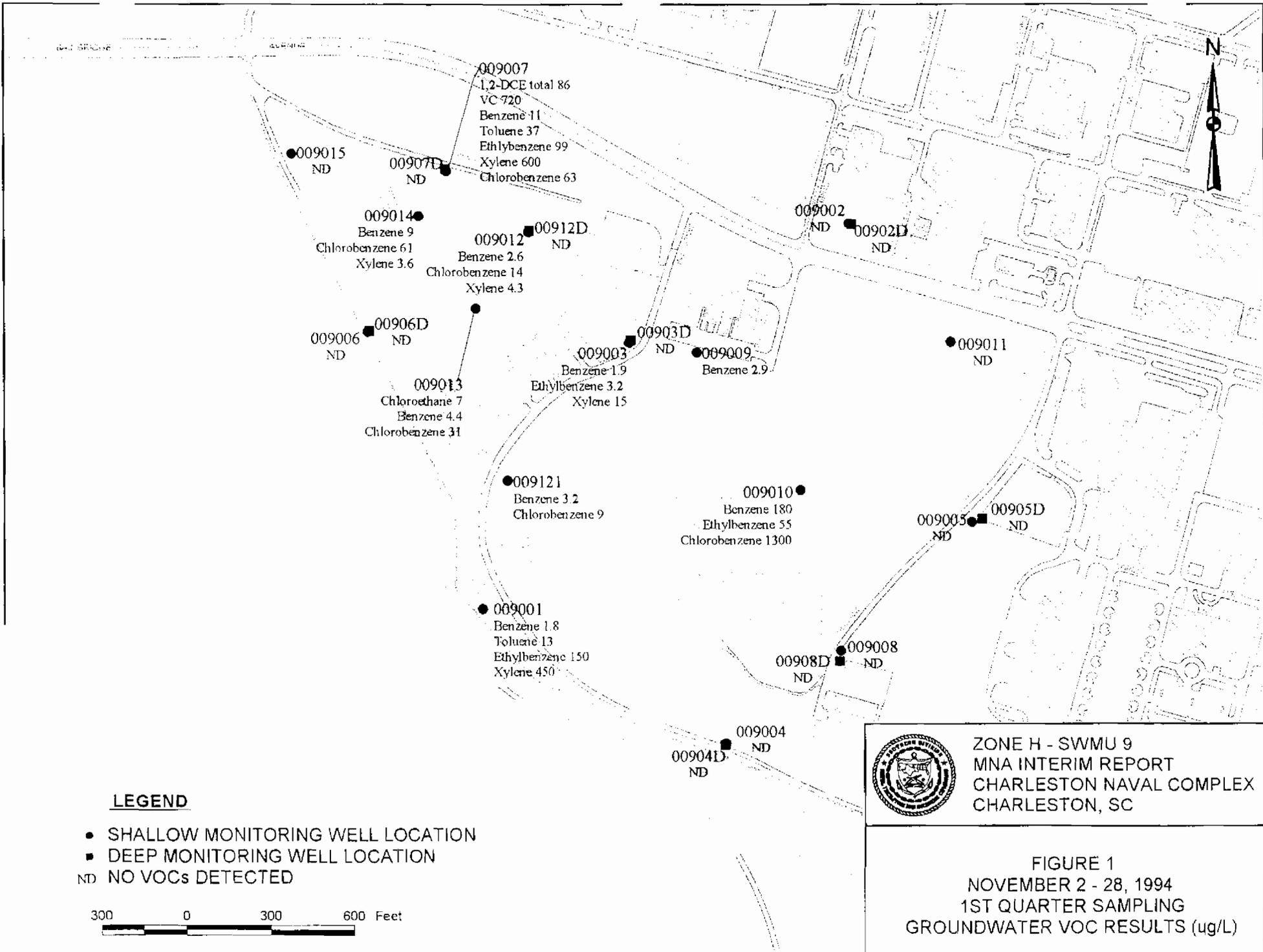
be accomplished at these locations, rendering an MNA evaluation impractical.

Second, the VOC plumes (CAH, BTEX, and chlorobenzene) cannot be discretized into coherent and feasible groundwater flowpaths. This is problematic for any MNA evaluation since contaminant degradation over time must be demonstrated at a representative groundwater flowpath within each plume. This is primarily a consequence of the monitoring well network implemented at the site, which is a typical landfill monitoring design in that the entire perimeter is monitored as are selected "hot spots" within its interior. Due to the scale of the site, the resulting groundwater flowpaths are too long to be evaluated with any certainty.

In an attempt to establish a viable groundwater flowpath from the worst CAH- contaminated well at the site, 009007, four shallow wells (009027 - 030) were installed downgradient, three of which lie directly in the marsh. As shown in Table 3, no CAHs were detected in any of these wells, indicating that these contaminants are not mobile. Contaminant retardation is suspected to be great at this locale since organic-rich marsh clay underlies the shallow aquifer throughout all of Combined SWMU 9 and SWMU 196 and provides the necessary fraction of organic carbon for sorption. The high concentrations of breakdown products like DCE, vinyl chloride, and ethene encountered at this location support retardation. It is equally possible that contaminants from 009007 may have discharged to the marsh before reaching the downgradient wells. This issue relates back to the appearance of VOCs at points of compliance.

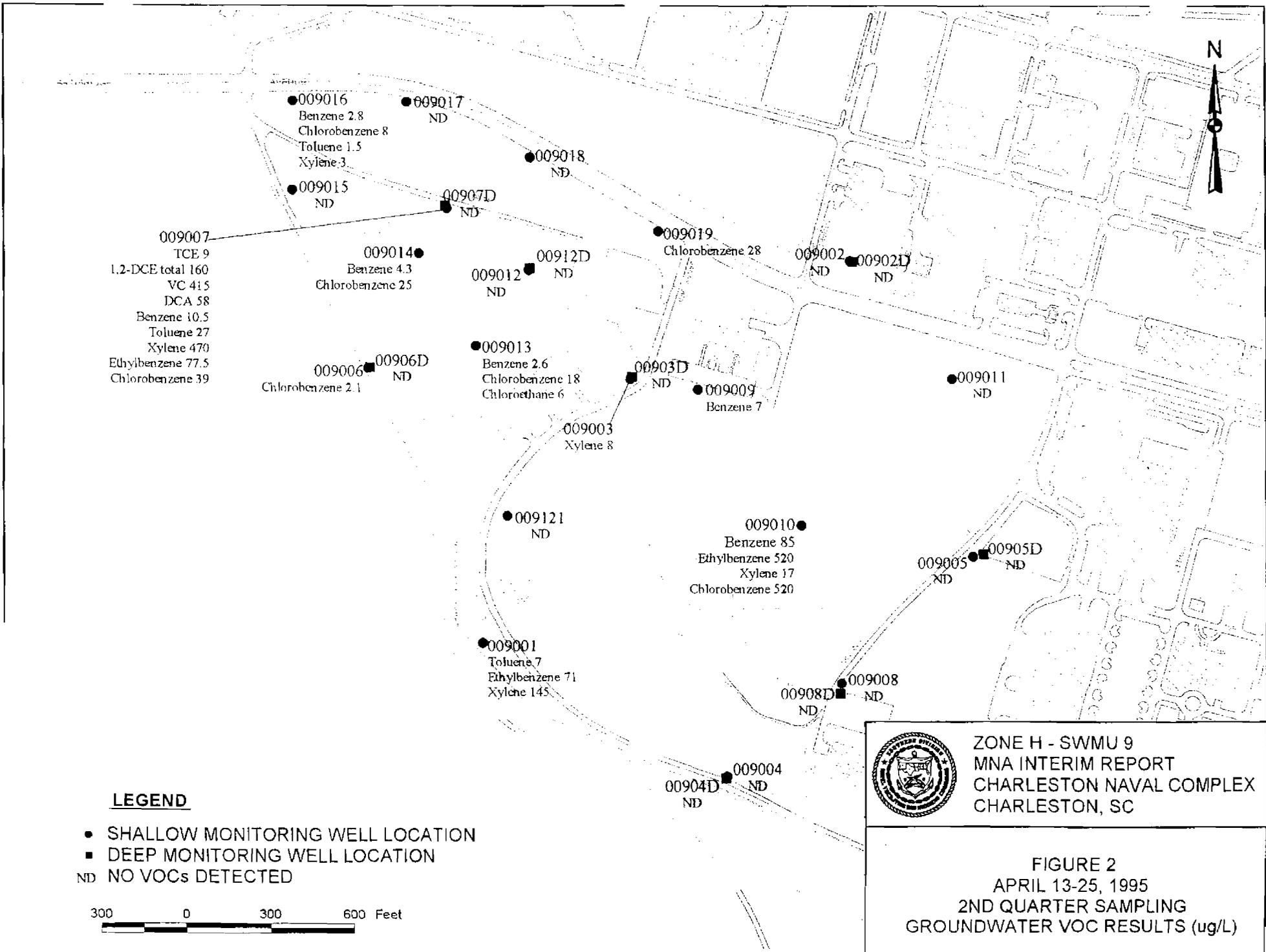
Third, there is limited data regarding the source strength or size at any of these locations. There is no indication whether or not LNAPLs or DNAPLs are present to account for the high dissolved concentrations, particularly at 009007 and 009021. This greatly hinders the predictability of MNA since it is predicated on source control or removal. Without these controls, there is no certainty that MNA will ever fully be accomplished since there may always be residual contaminant mass present at the site.

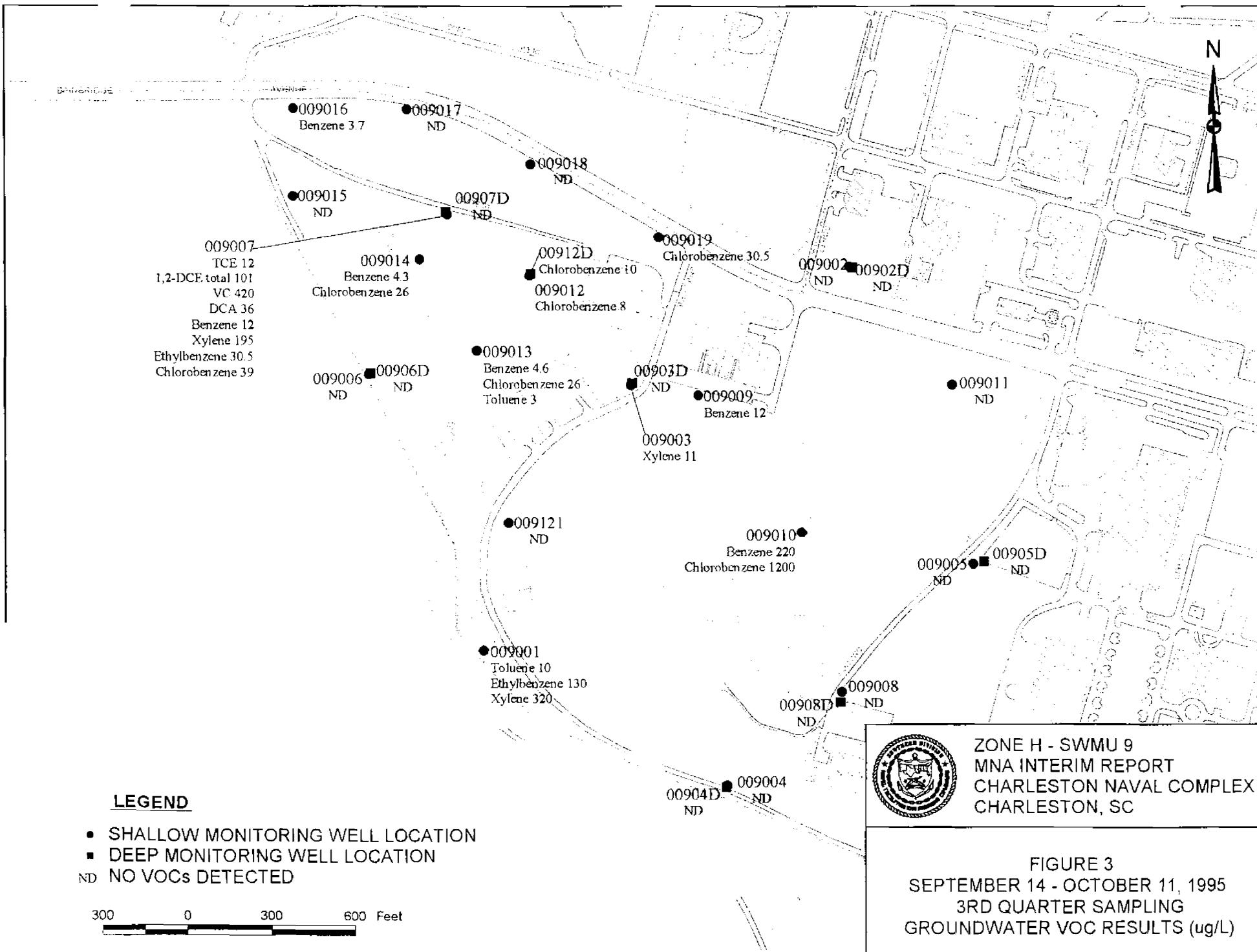
For these reasons, no additional MNA data collection or evaluation was conducted at these sites.

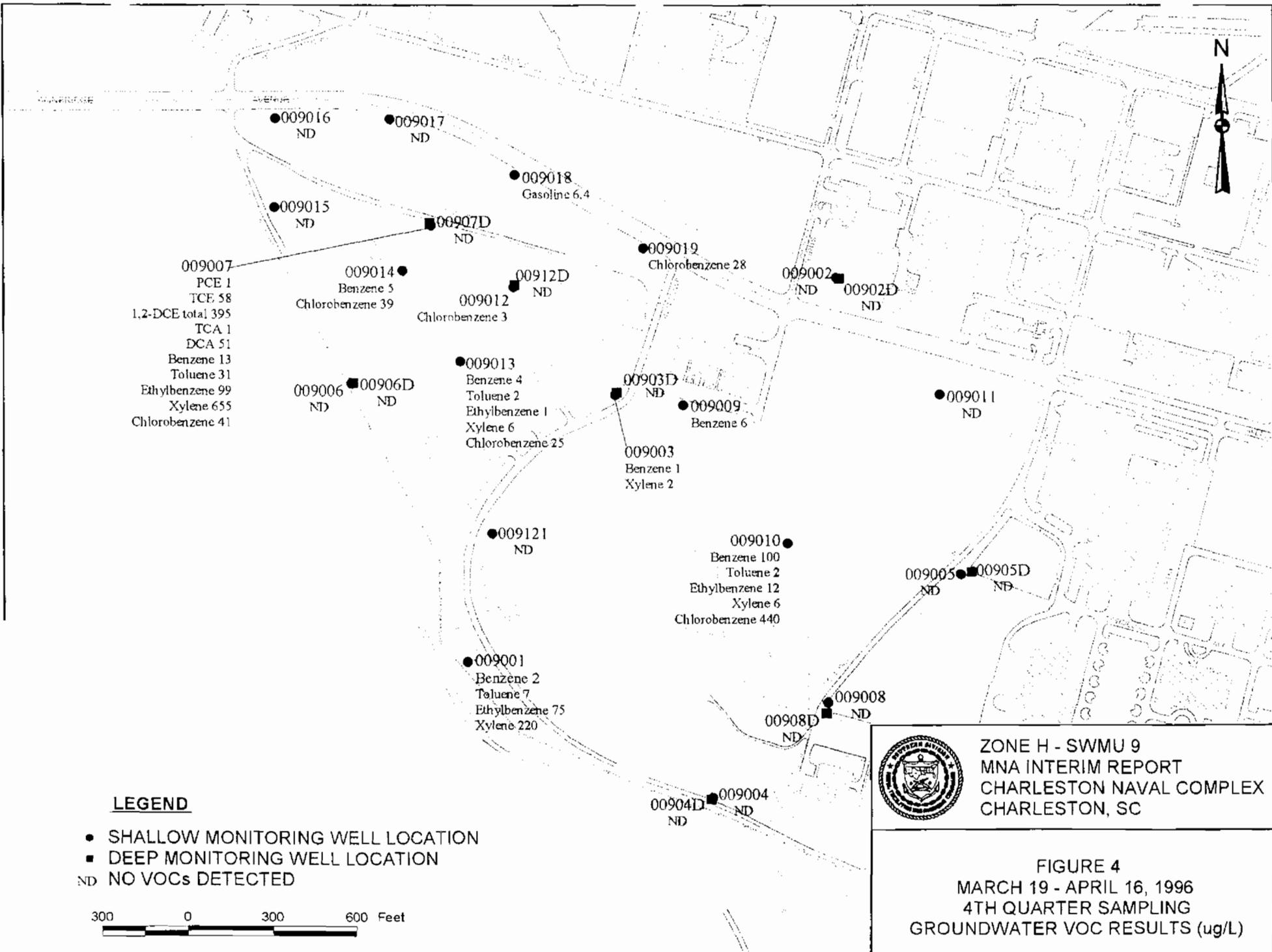


ZONE H - SWMU 9
 MNA INTERIM REPORT
 CHARLESTON NAVAL COMPLEX
 CHARLESTON, SC

FIGURE 1
 NOVEMBER 2 - 28, 1994
 1ST QUARTER SAMPLING
 GROUNDWATER VOC RESULTS (ug/L)

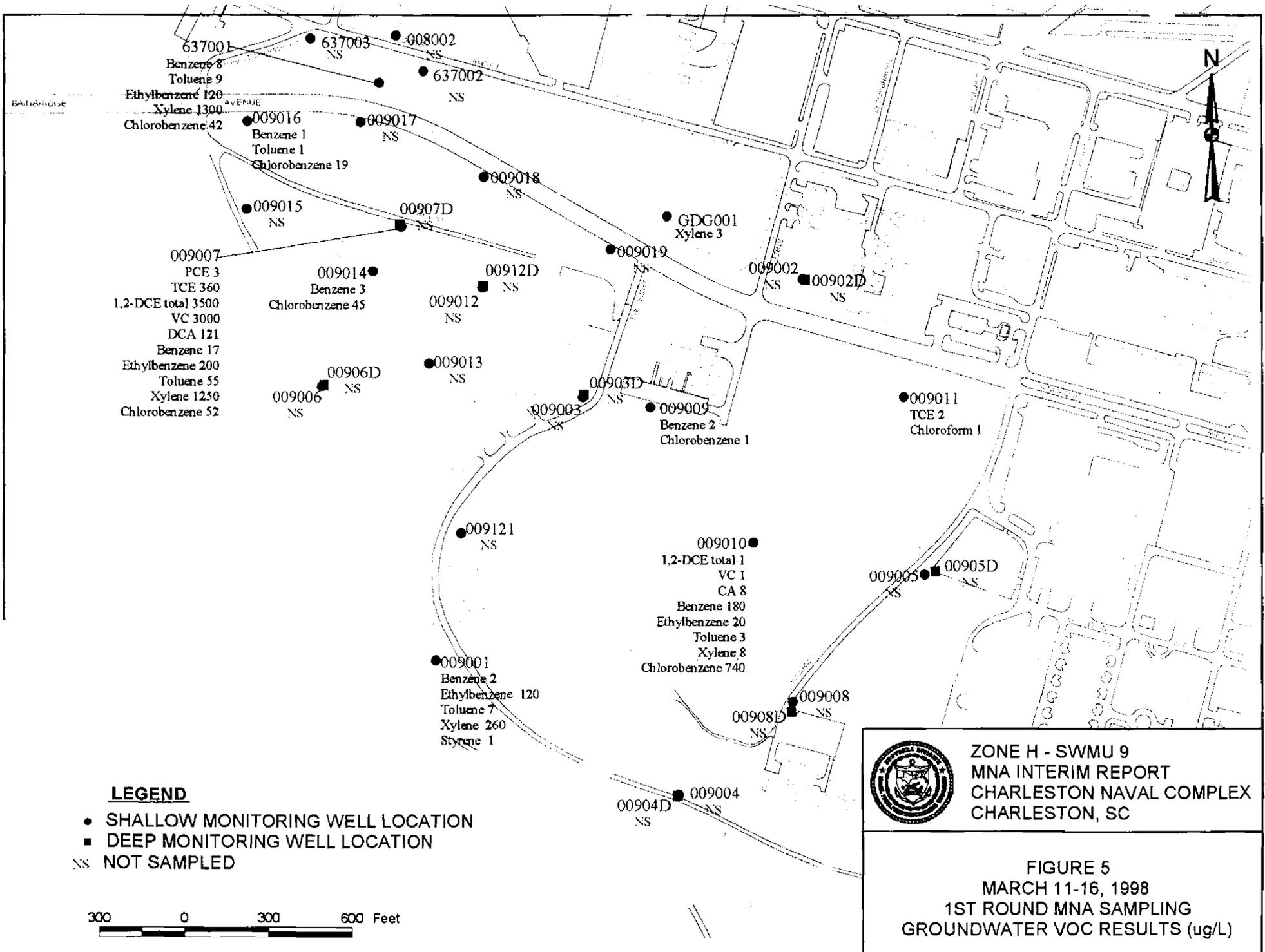






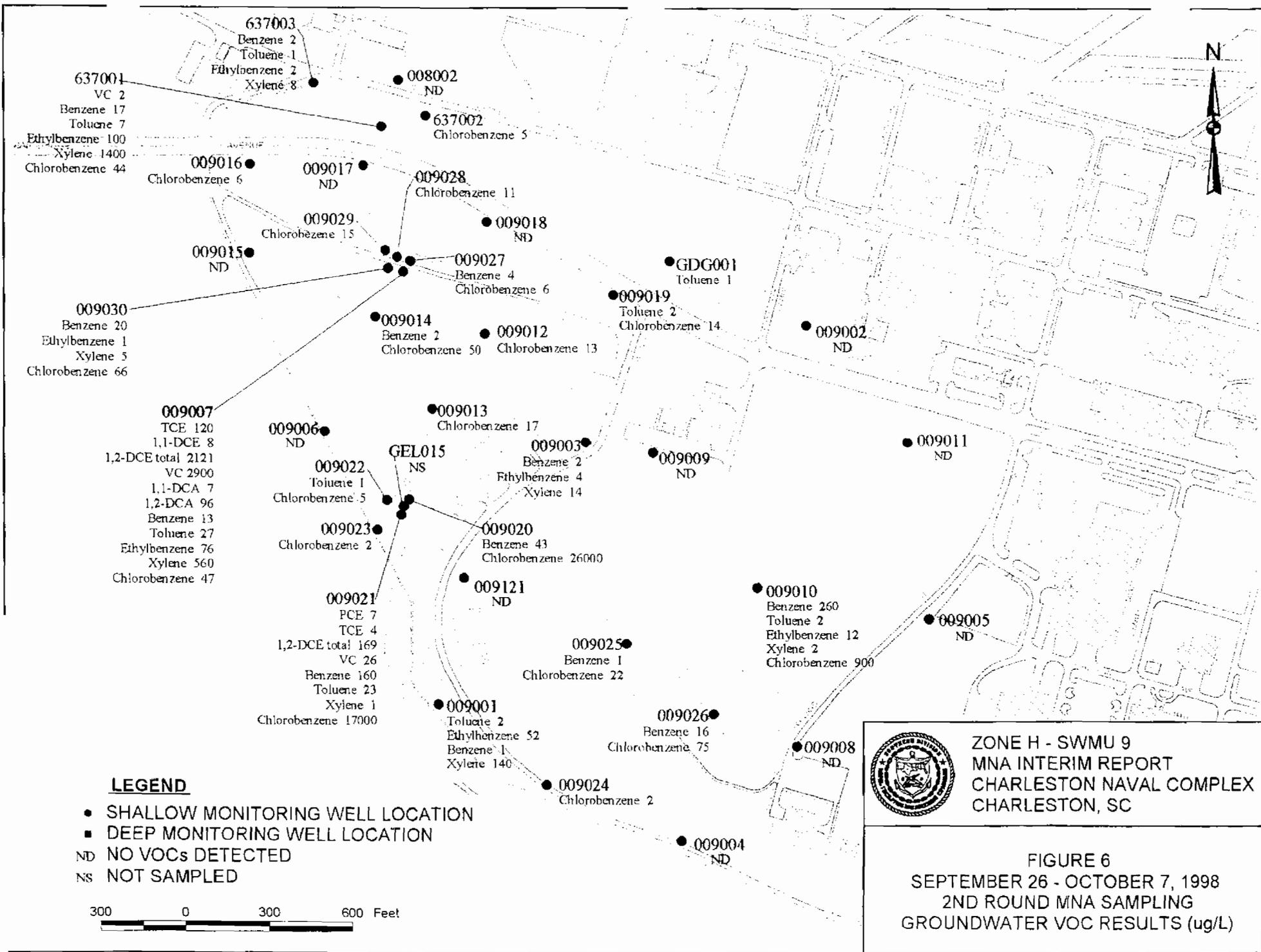
ZONE H - SWMU 9
MNA INTERIM REPORT
CHARLESTON NAVAL COMPLEX
CHARLESTON, SC

FIGURE 4
MARCH 19 - APRIL 16, 1996
4TH QUARTER SAMPLING
GROUNDWATER VOC RESULTS (ug/L)



**ZONE H - SWMU 9
MNA INTERIM REPORT
CHARLESTON NAVAL COMPLEX
CHARLESTON, SC**

**FIGURE 5
MARCH 11-16, 1998
1ST ROUND MNA SAMPLING
GROUNDWATER VOC RESULTS (ug/L)**



637001
VC 2
Benzene 17
Toluene 7
Ethylbenzene 100
Xylene 1400
Chlorobenzene 44

637003
Benzene 2
Toluene 1
Ethylbenzene 2
Xylene 8

009016
Chlorobenzene 6

009017
ND

009029
Chlorobenzene 15

009015
ND

008002
ND

637002
Chlorobenzene 5

009028
Chlorobenzene 11

009018
ND

009027
Benzene 4
Chlorobenzene 6

009014
Benzene 2
Chlorobenzene 50

009012
Chlorobenzene 13

GDG001
Toluene 1

009019
Toluene 2
Chlorobenzene 14

009002
ND

009007
TCE 120
1,1-DCE 8
1,2-DCE total 2121
VC 2900
1,1-DCA 7
1,2-DCA 96
Benzene 13
Toluene 27
Ethylbenzene 76
Xylene 560
Chlorobenzene 47

009006
ND

GEL015
NS

009022
Toluene 1
Chlorobenzene 5

009023
Chlorobenzene 2

009020
Benzene 43
Chlorobenzene 26000

009121
ND

009025
Benzene 1
Chlorobenzene 22

009001
Toluene 2
Ethylbenzene 52
Benzene 1
Xylene 140

009013
Chlorobenzene 17

009003
Benzene 2
Ethylbenzene 4
Xylene 14

009009
ND

009011
ND

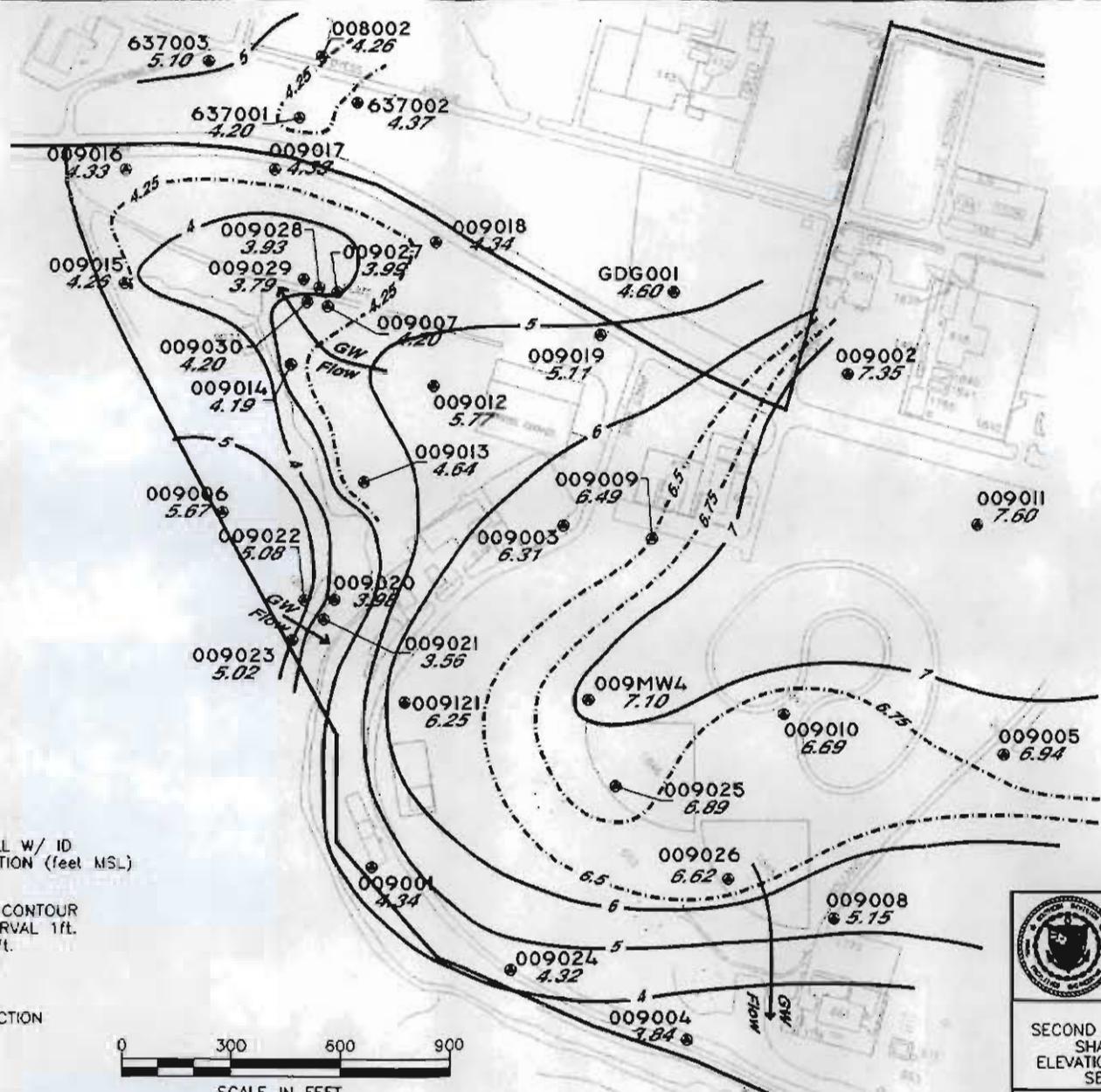
009010
Benzene 260
Toluene 2
Ethylbenzene 12
Xylene 2
Chlorobenzene 900

009005
ND

009026
Benzene 16
Chlorobenzene 75

009008
ND

009004
ND



LEGEND:

009121
6.25 ● SHALLOW MONITORING WELL w/ ID
AND GROUNDWATER ELEVATION (feet MSL)

— 5 — GROUNDWATER ELEVATION CONTOUR
(feet MSL) CONTOUR INTERVAL 1ft.
WITH SUPPLEMENTAL 0.25ft.
CONTOUR (--- 4.25 ---)

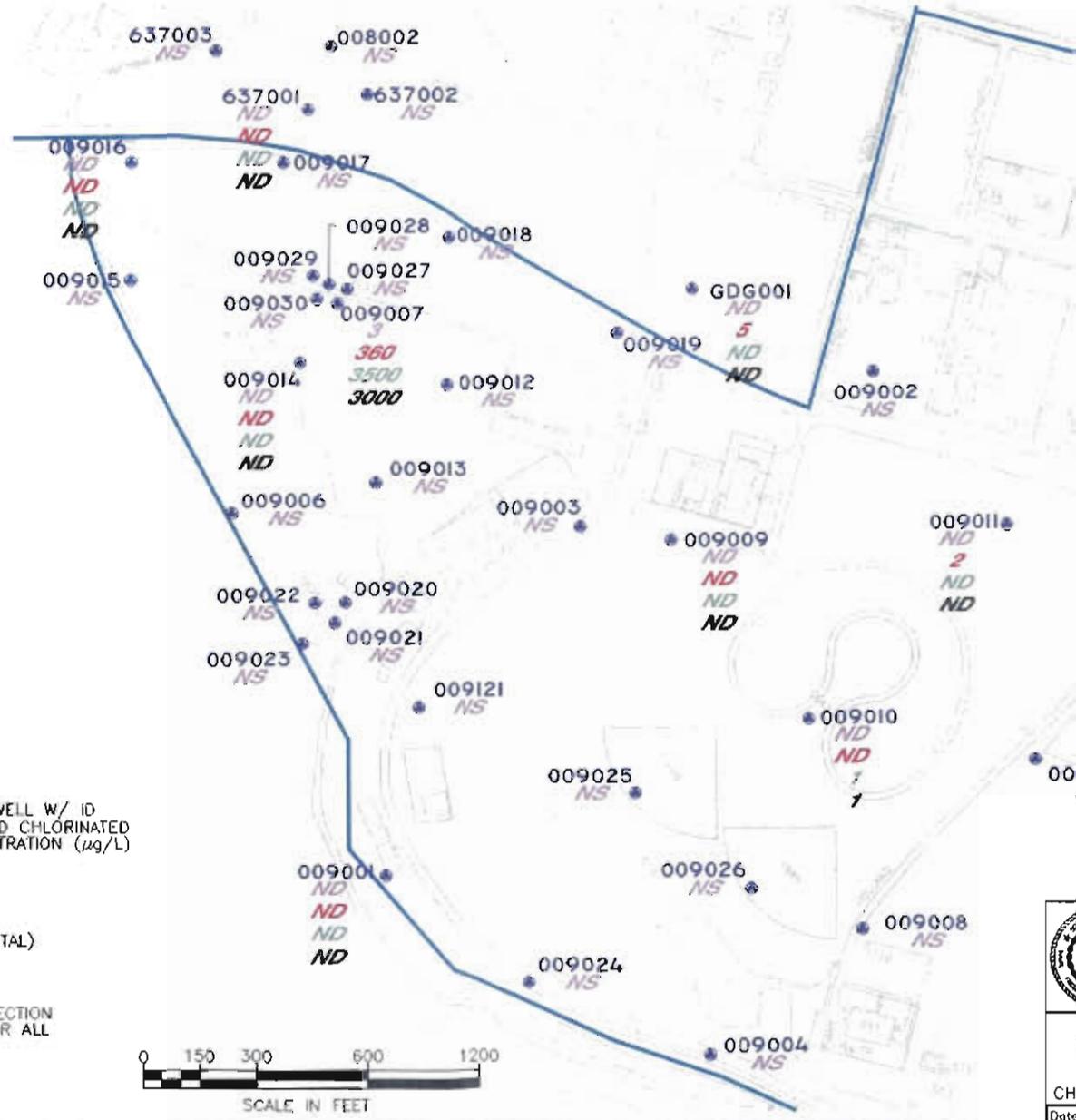
GW
Flow → GROUNDWATER FLOW DIRECTION



 ZONE H - SWMU 9
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CHARLESTON, SC

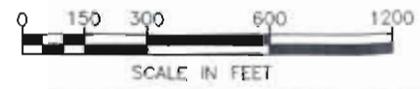
FIGURE 6b
SECOND ROUND - MNA SAMPLING
SHALLOW GROUNDWATER
ELEVATION CONTOURS (feet MSL)
SEPTEMBER 22, 1998

Date: 04/23/99 DWG Name: 2908HQ16



LEGEND:

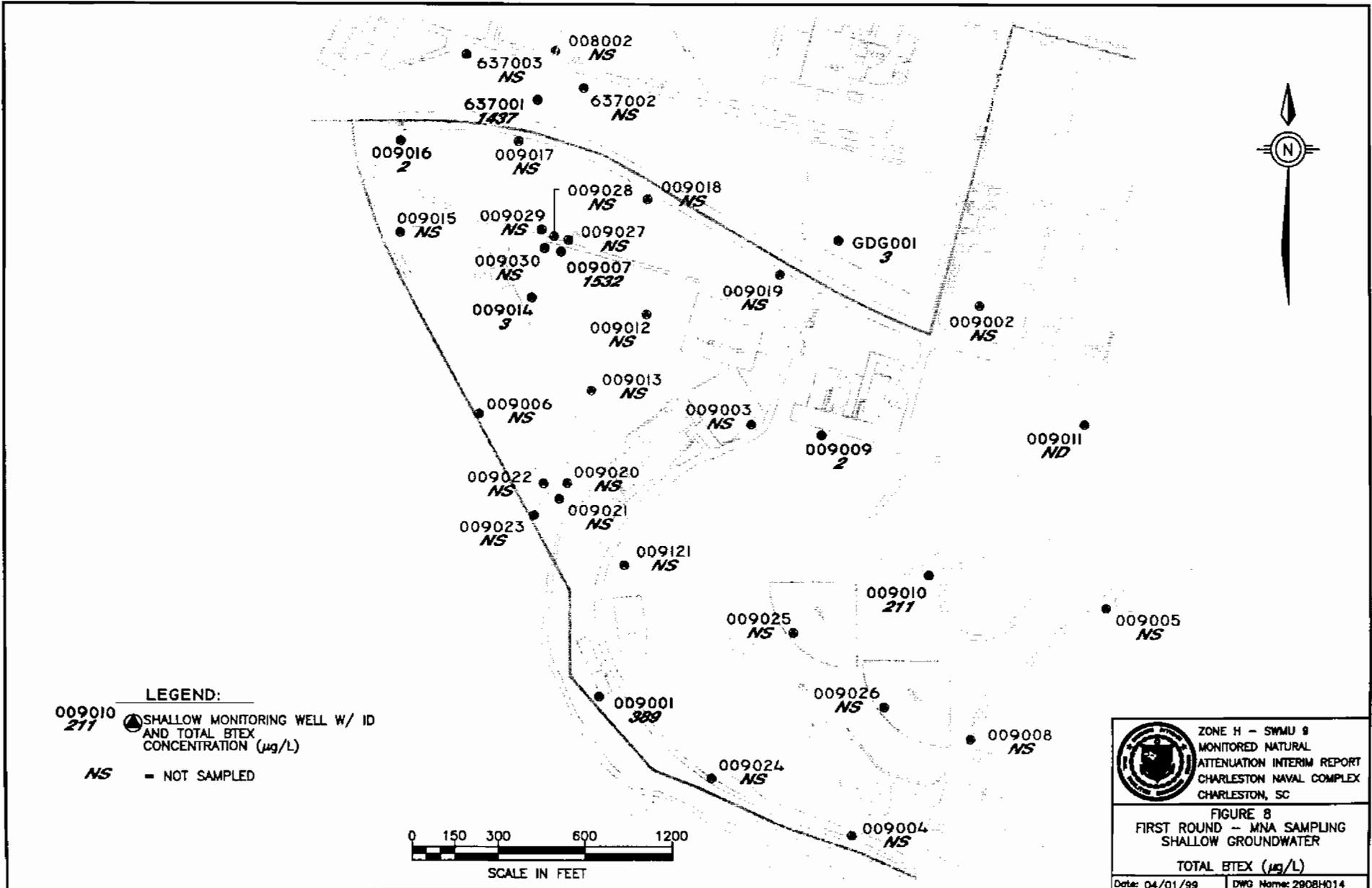
- 009007 SHALLOW MONITORING WELL W/ ID NUMBER AND DISSOLVED CHLORINATED HYDROCARBON CONCENTRATION ($\mu\text{g/L}$)
- 3** = PCE
- 360** = TCE
- 3500** = 1,2-DCE (TOTAL)
- 3000** = VC
- ND** = NOT DETECTED (DETECTION LEVEL $5 \mu\text{g/L}$ - FOR ALL 4 COMPOUNDS)
- NS** = NOT SAMPLED



ZONE H - SWMU 9
MONITORED NATURAL
ATTENUATION INTERIM REPORT
CHARLESTON NAVAL COMPLEX
CHARLESTON, SC

FIGURE 7
FIRST ROUND - MNA SAMPLING
SHALLOW GROUNDWATER
DISSOLVED
CHLORINATED HYDROCARBONS ($\mu\text{g/L}$)

Date: 04/01/99 DWG Name: 2908H015



008002
NS

637003
NS

637001
1437

637002
NS

009016
2

009017
NS

009028
NS

009018
NS

009015
NS

009029
NS

009027
NS

009030
NS

009007
1532

009014
3

009012
NS

009019
NS

009002
NS

009006
NS

009013
NS

009003
NS

009009
2

009011
ND

009022
NS

009020
NS

009021
NS

009121
NS

009010
211

009005
NS

009025
NS

009001
389

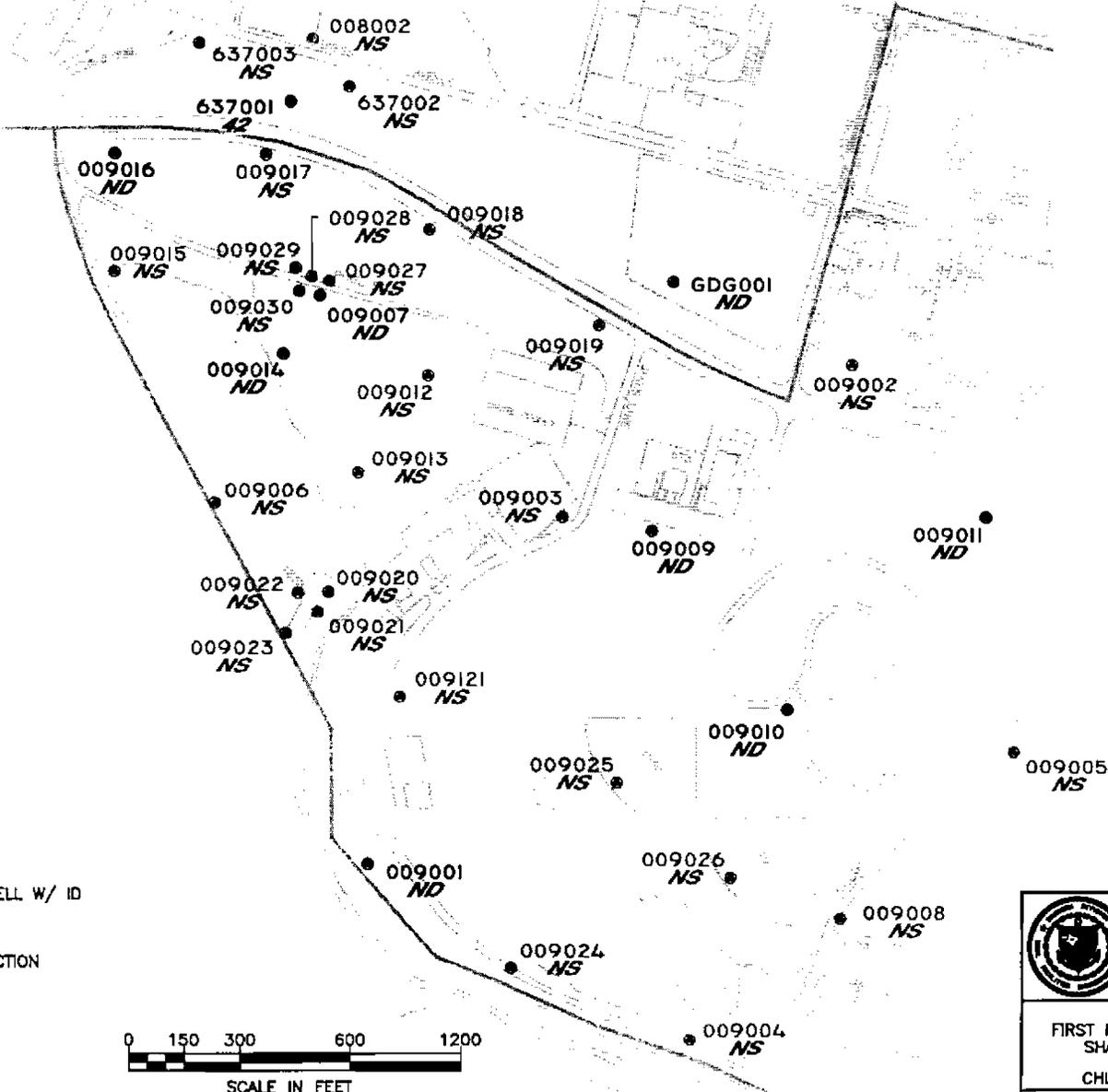
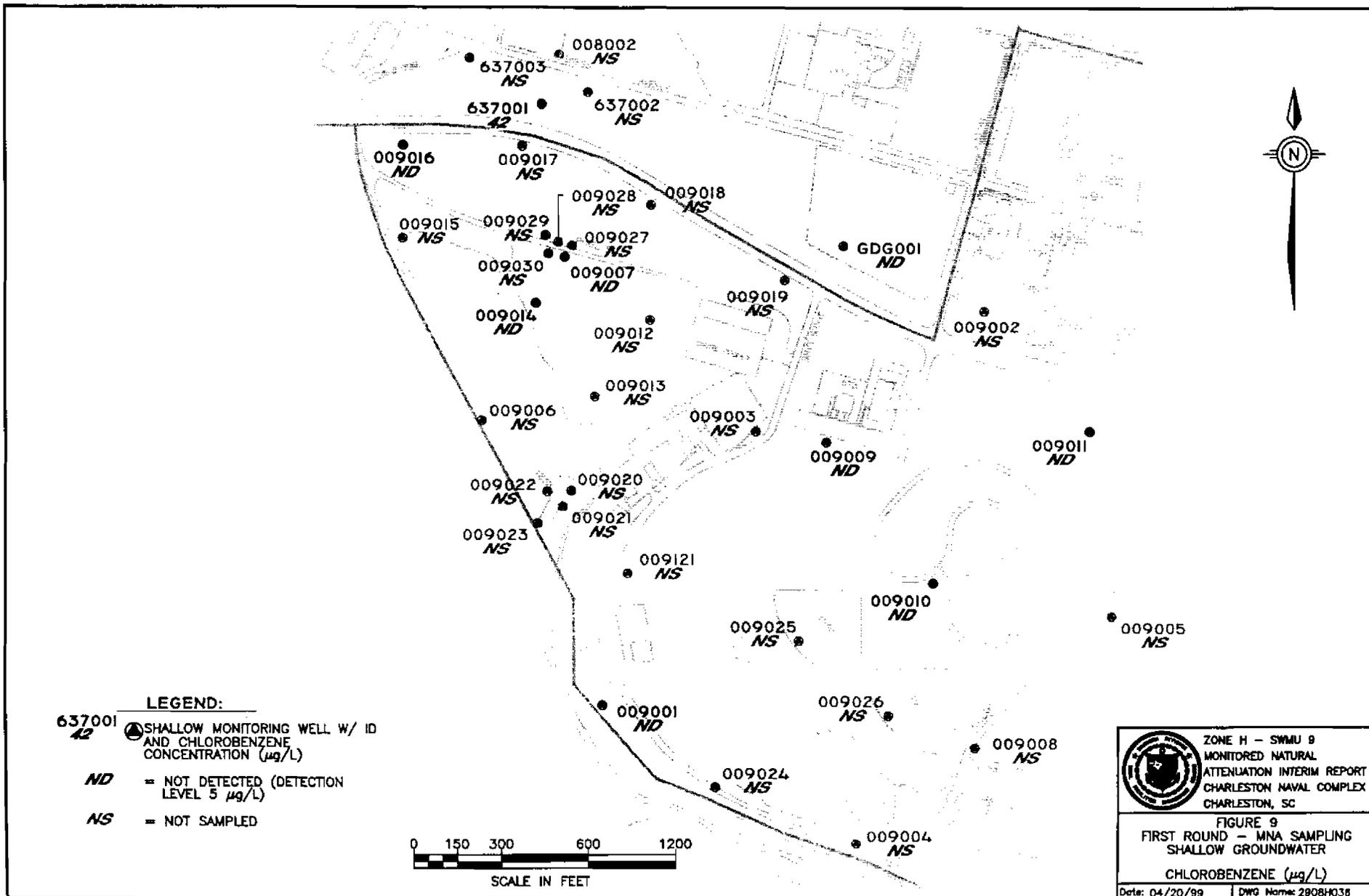
009026
NS

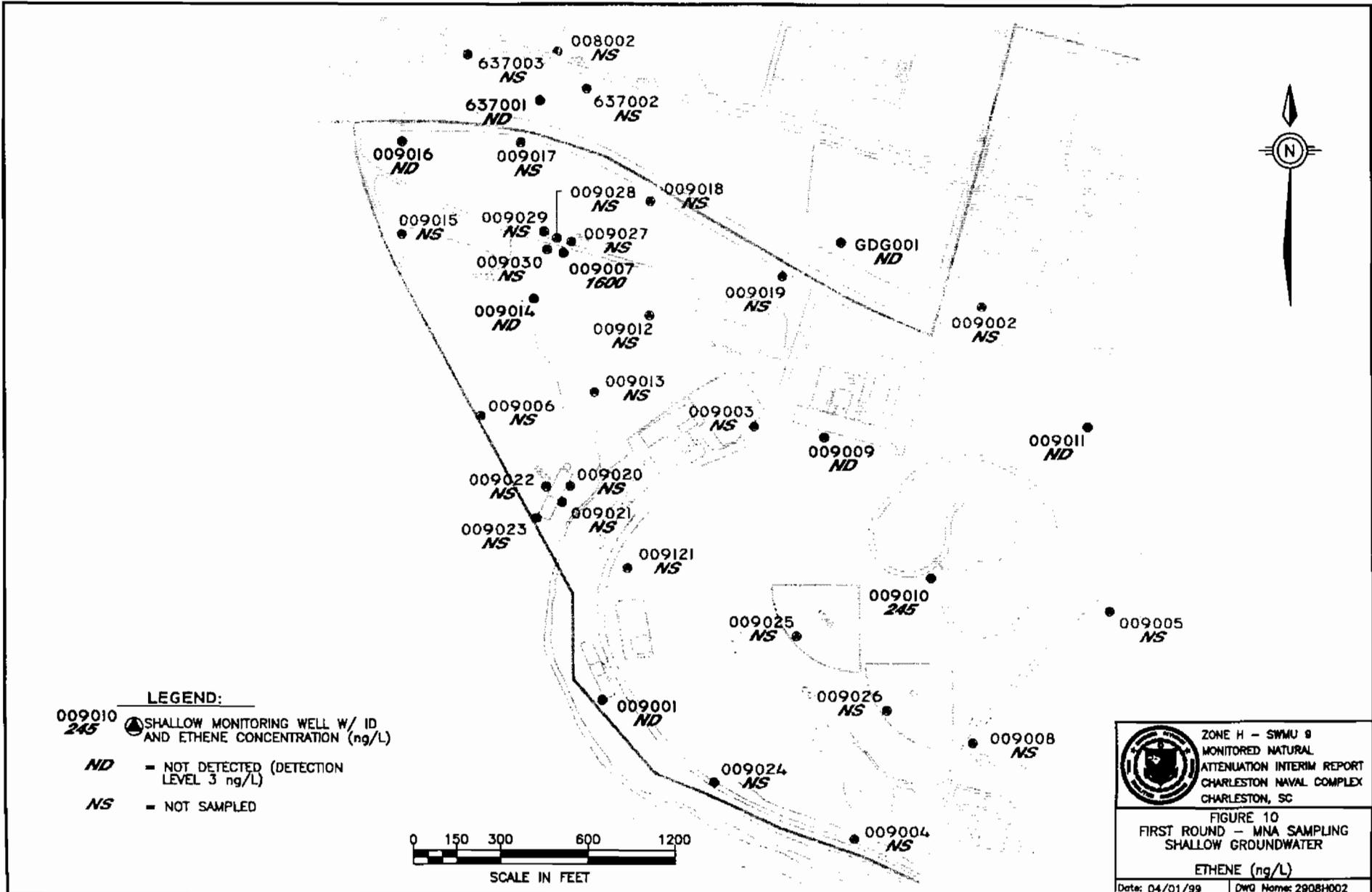
009008
NS

009024
NS

009004
NS

GDG001
3



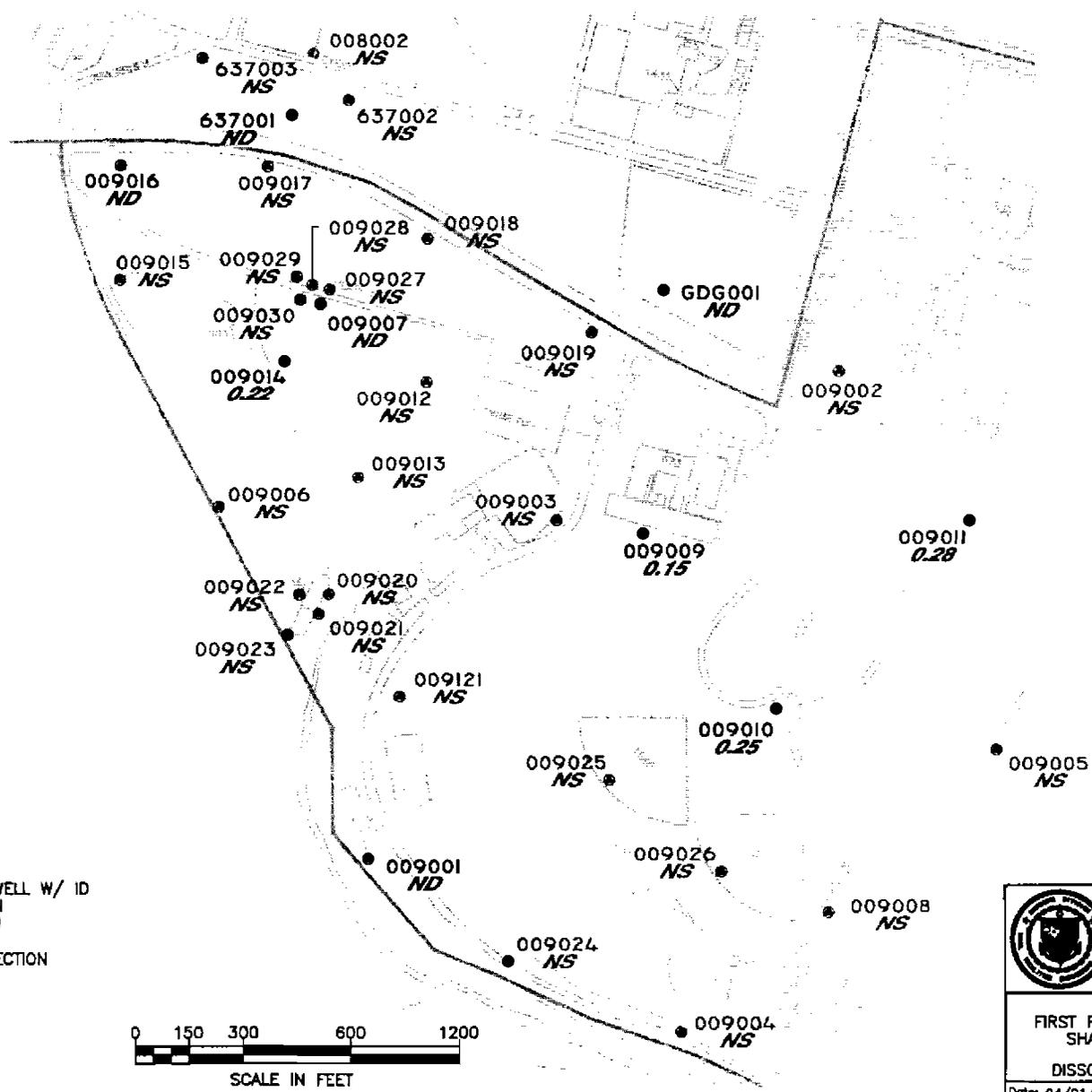


LEGEND:

- 009010 245 ● SHALLOW MONITORING WELL W/ ID AND ETHENE CONCENTRATION (ng/L)
- ND* = NOT DETECTED (DETECTION LEVEL 3 ng/L)
- NS* = NOT SAMPLED



| | |
|--|--|
| | ZONE H - SWMU 9 MONITORED NATURAL ATTENUATION INTERIM REPORT CHARLESTON NAVAL COMPLEX CHARLESTON, SC |
| | FIGURE 10 FIRST ROUND - MNA SAMPLING SHALLOW GROUNDWATER ETHENE (ng/L) |
| | Date: 04/01/99 DWG Name: 2908H002 |

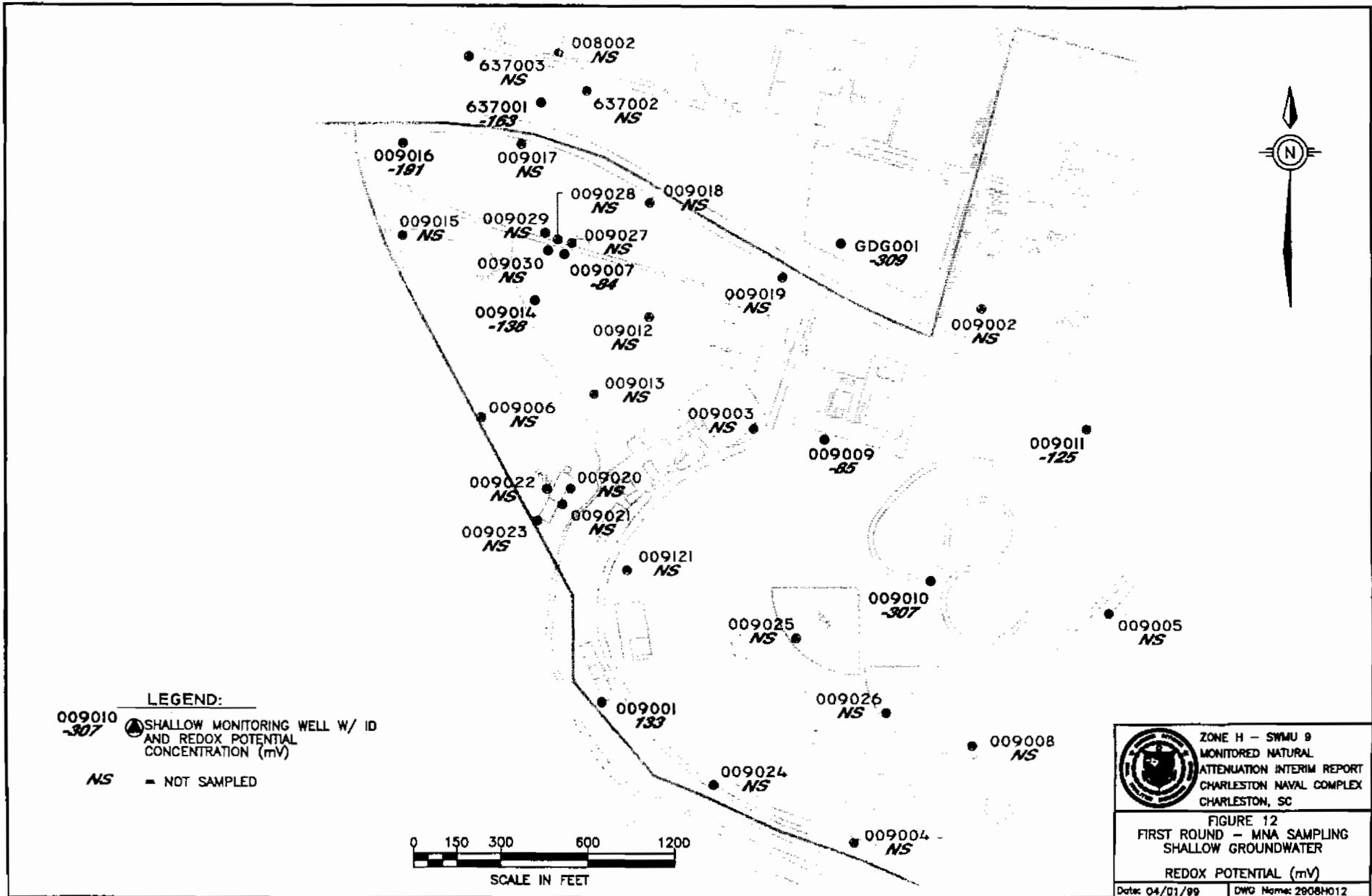


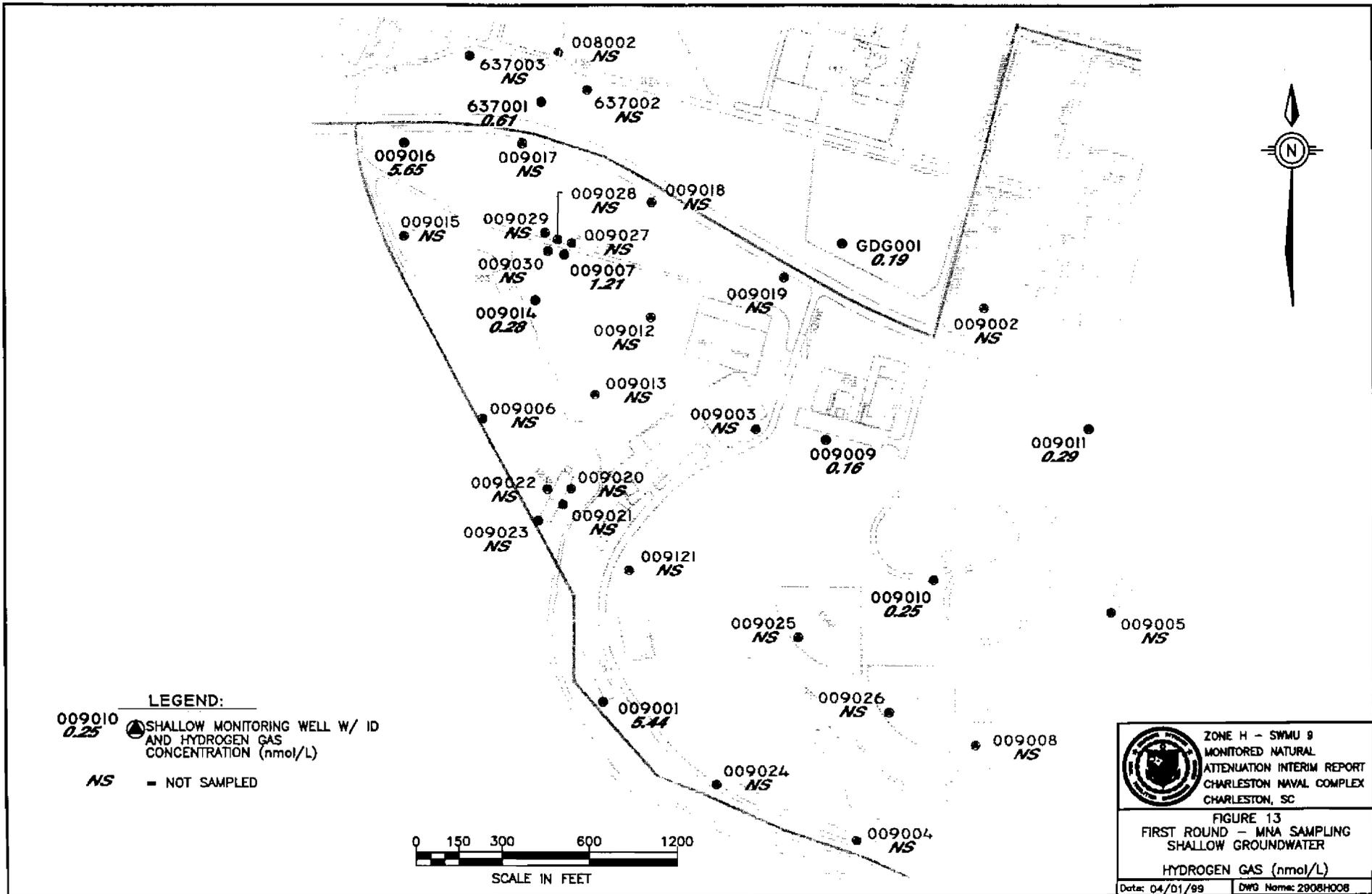
LEGEND:

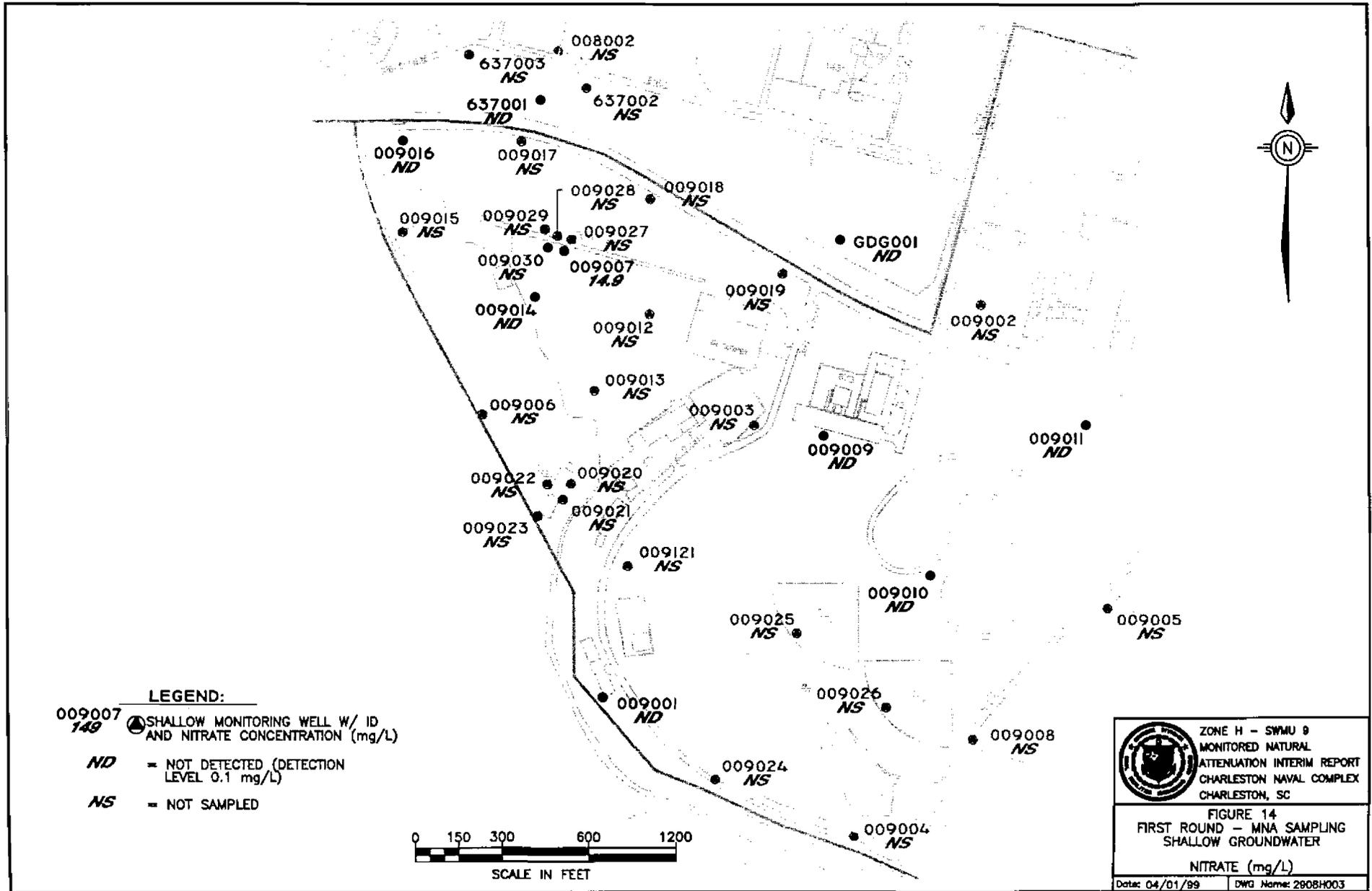
- 009010
0.25 SHALLOW MONITORING WELL W/ ID AND DISSOLVED OXYGEN CONCENTRATION (mg/L)
- ND** - NOT DETECTED (DETECTION LEVEL 0.15 mg/L)
- NS** - NOT SAMPLED



| | |
|--|--|
| | ZONE H - SWMU 9 MONITORED NATURAL ATTENUATION INTERIM REPORT CHARLESTON NAVAL COMPLEX CHARLESTON, SC |
| | FIGURE 11 FIRST ROUND - MNA SAMPLING SHALLOW GROUNDWATER DISSOLVED OXYGEN (mg/L) |
| | Date: 04/01/99 DWG Name: 2908H011 |







008002 NS

637003 NS

637001 ND

637002 NS

009016 ND

009017 NS

009015 NS

009029 NS

009028 NS

009018 NS

009027 NS

009030 NS

009007 14.9

009014 ND

009012 NS

009019 NS

009002 NS

009013 NS

009006 NS

009003 NS

009009 ND

009011 ND

009022 NS

009020 NS

009021 NS

009008 NS

009023 NS

009121 NS

009010 ND

009005 NS

009025 NS

009026 NS

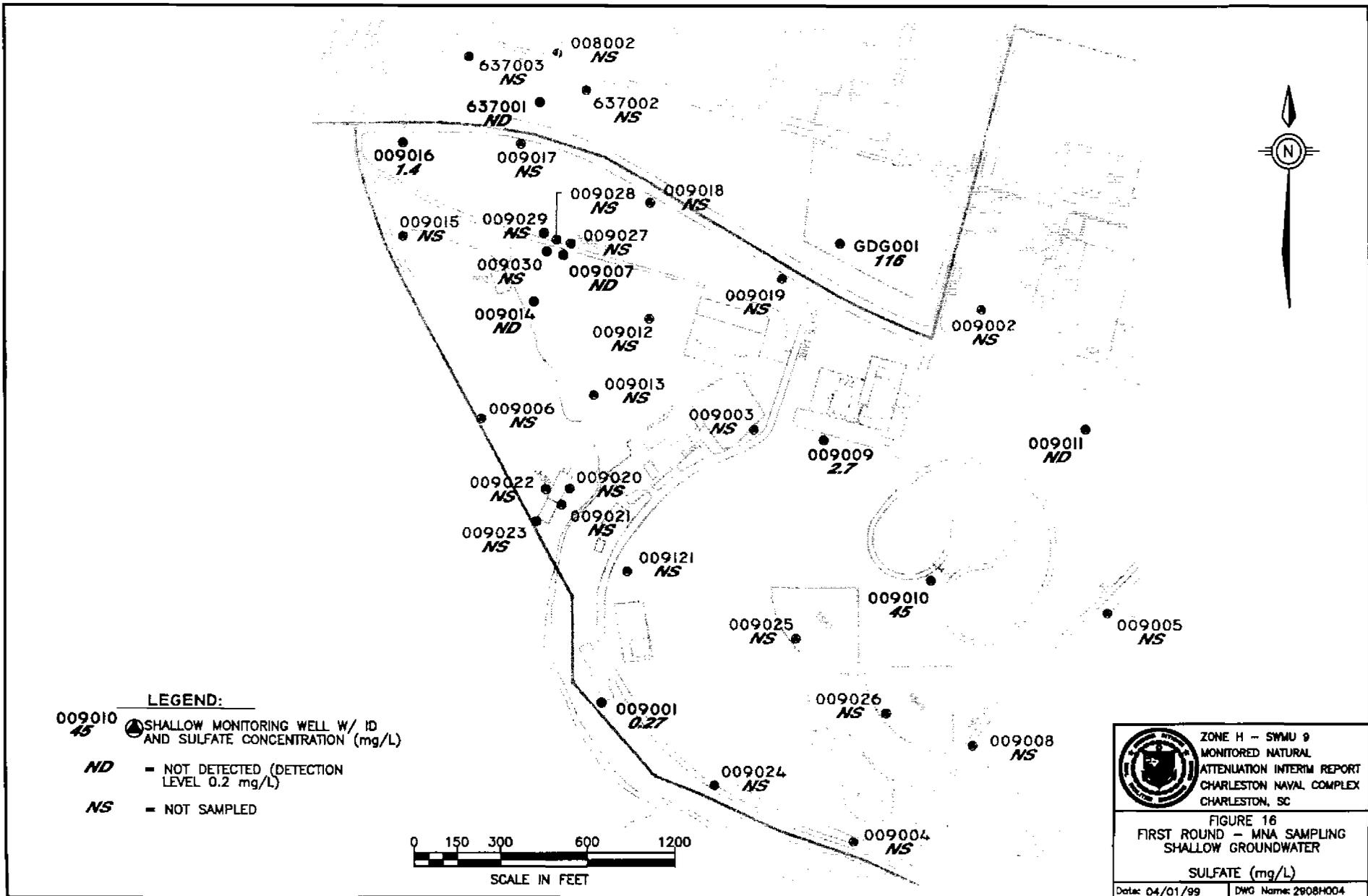
009004 NS

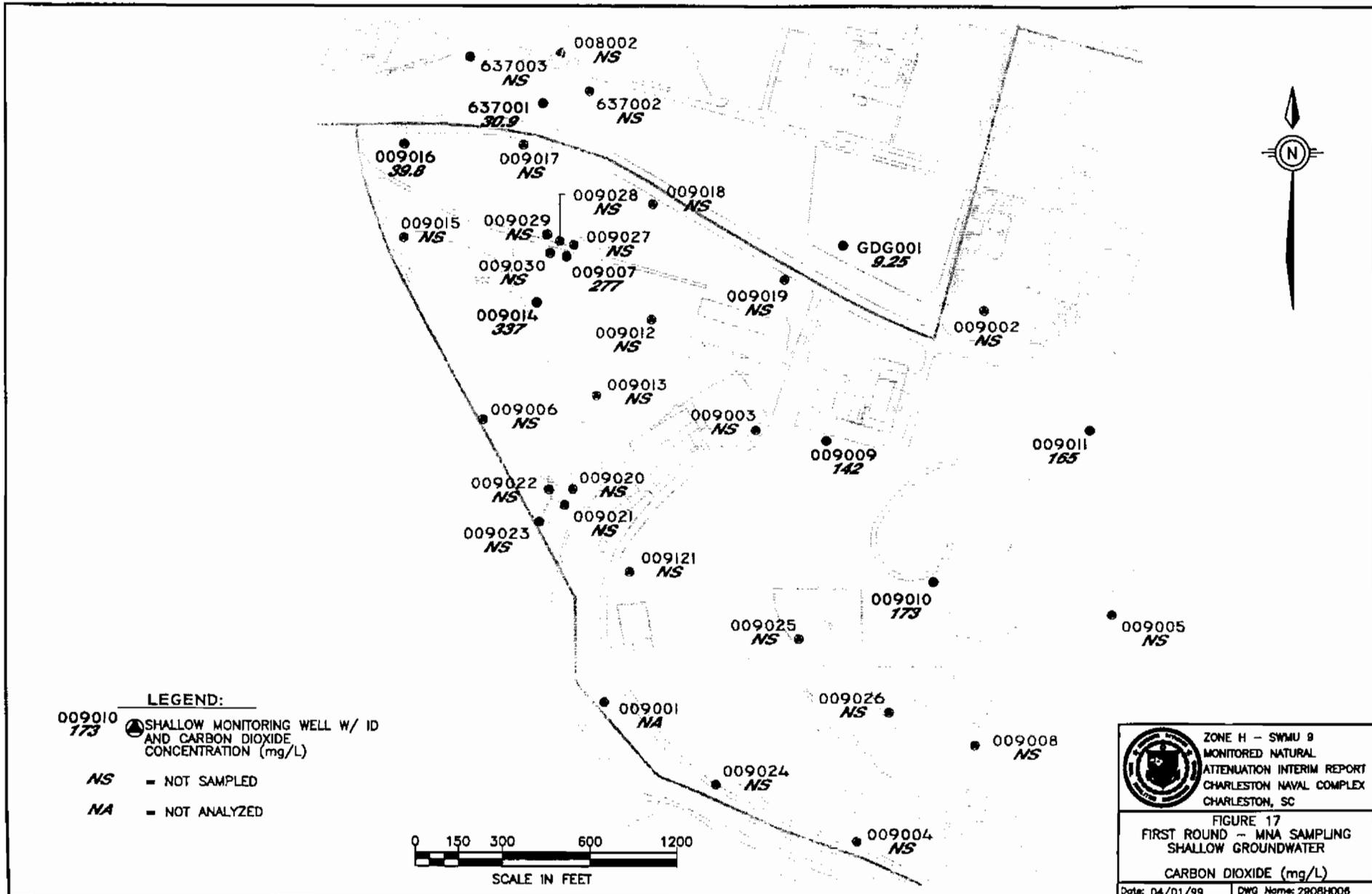
009001 ND

009024 NS

009004 NS

GDG001 ND





008002
NS

637003
NS

637001
30.9

637002
NS

009016
39.8

009017
NS

009028
NS

009018
NS

009015
NS

009029
NS

009027
NS

009030
NS

009007
277

009014
337

009012
NS

009013
NS

009006
NS

009003
NS

009019
NS

GDG001
9.25

009002
NS

009009
142

009011
165

009022
NS

009020
NS

009021
NS

009121
NS

009010
173

009025
NS

009005
NS

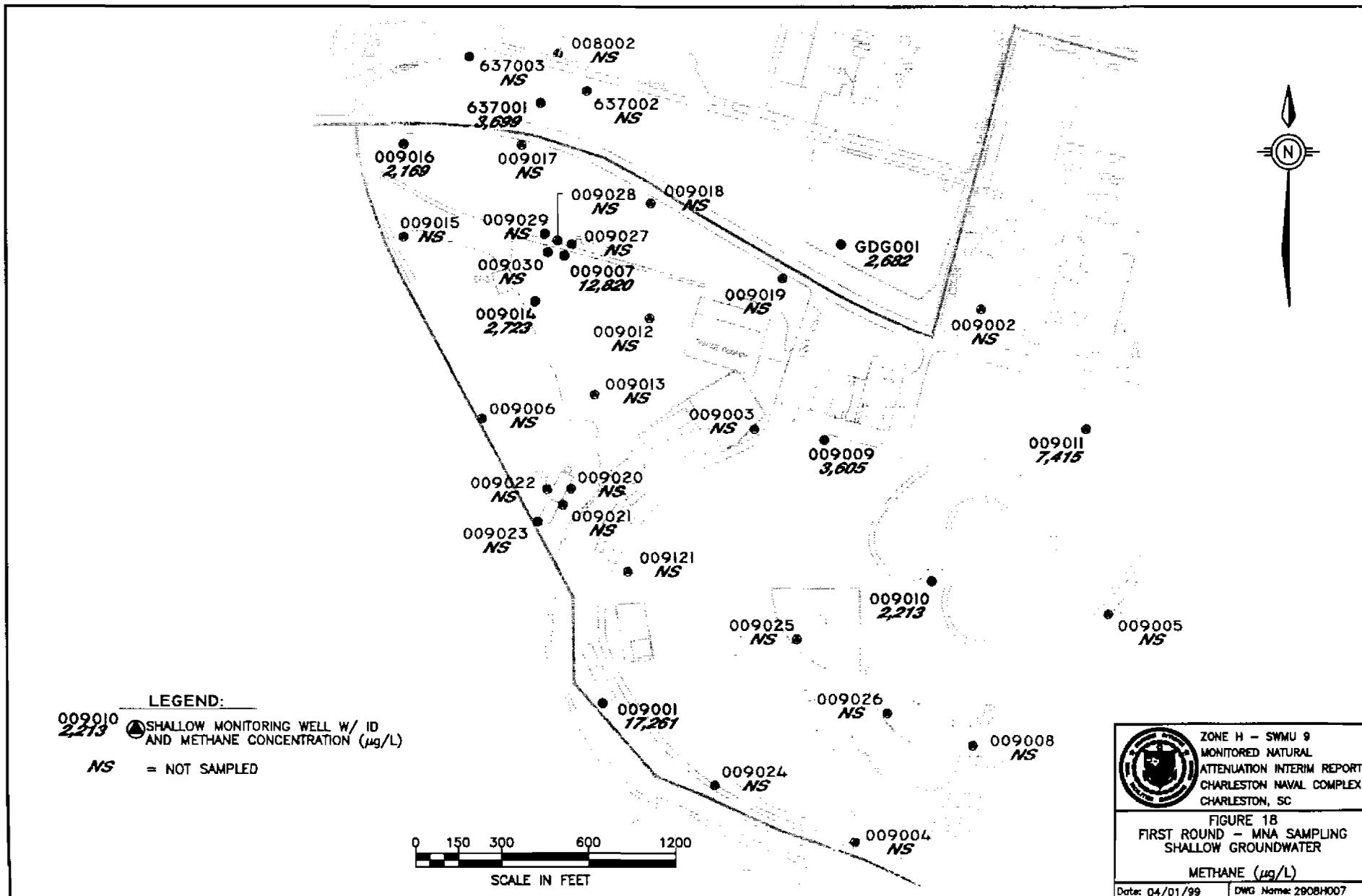
009001
NA

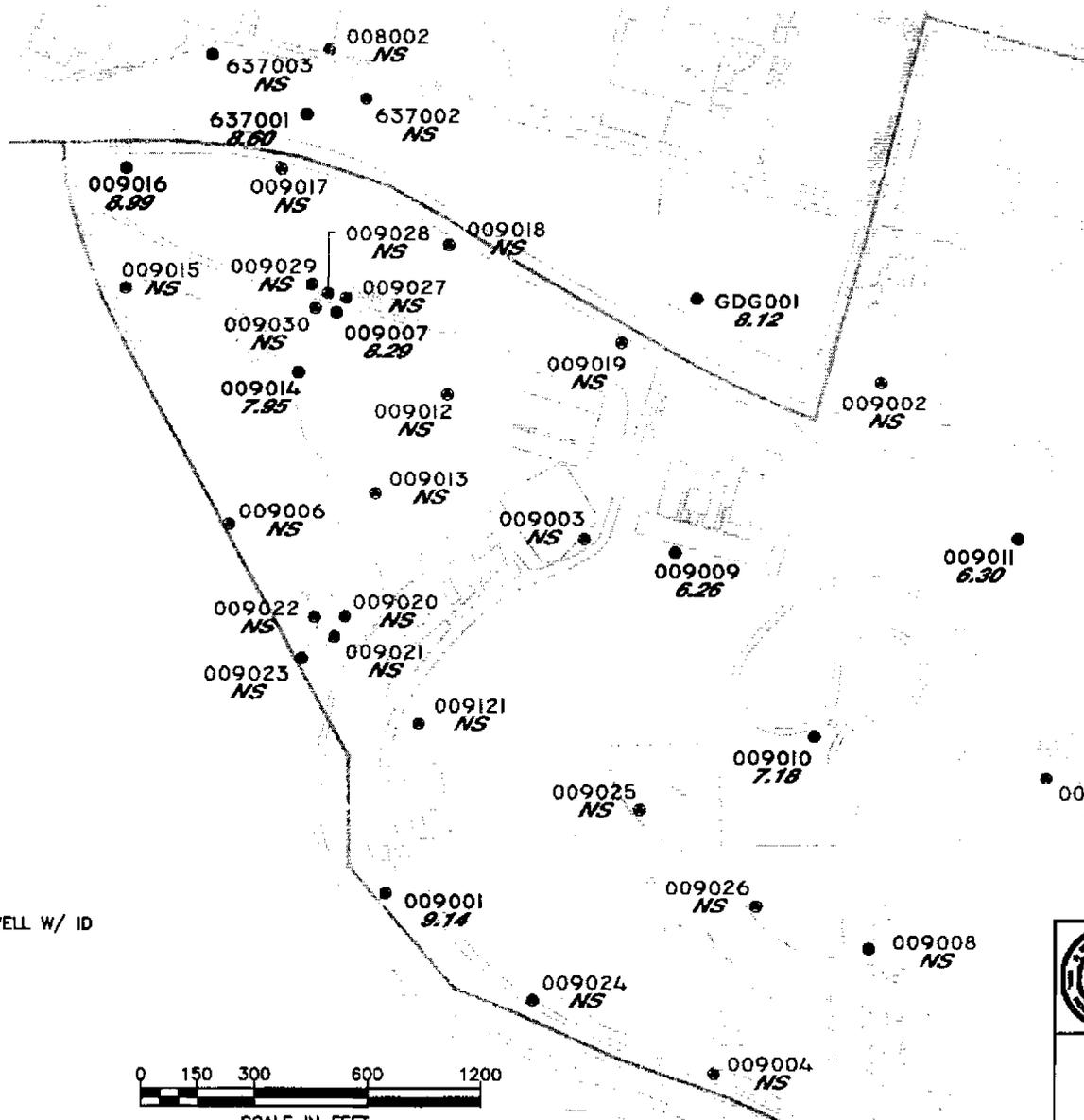
009026
NS

009008
NS

009024
NS

009004
NS

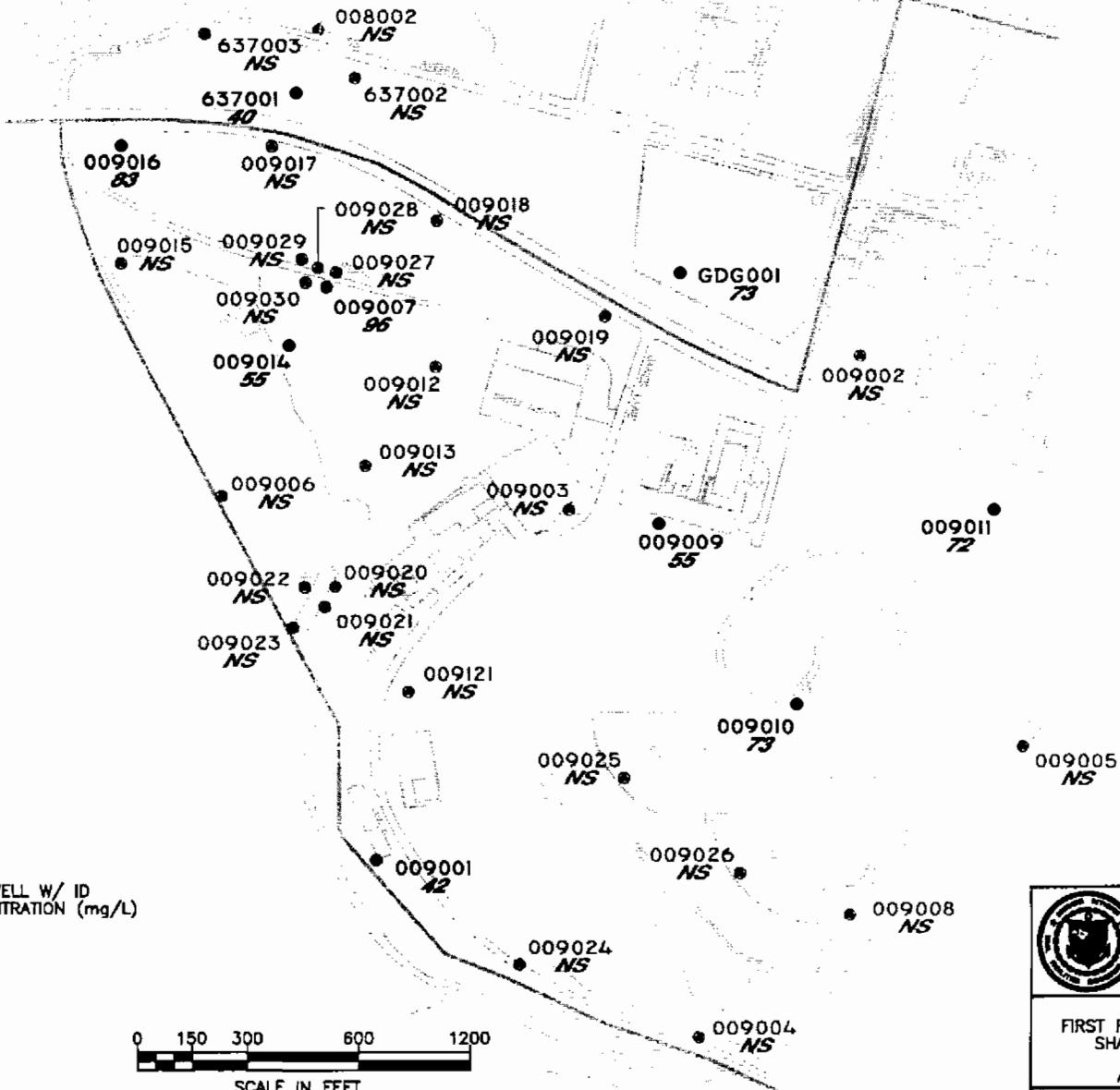
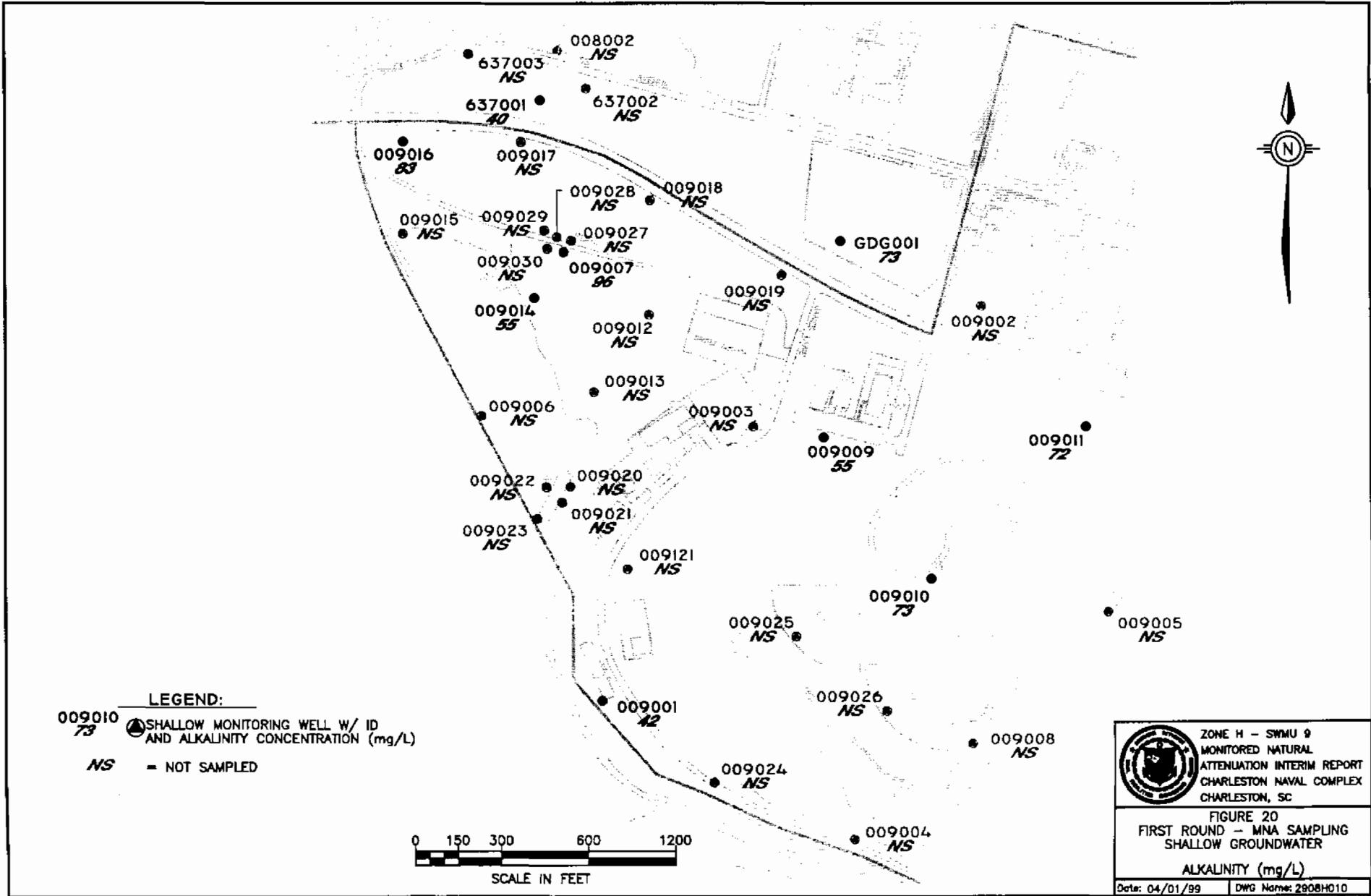


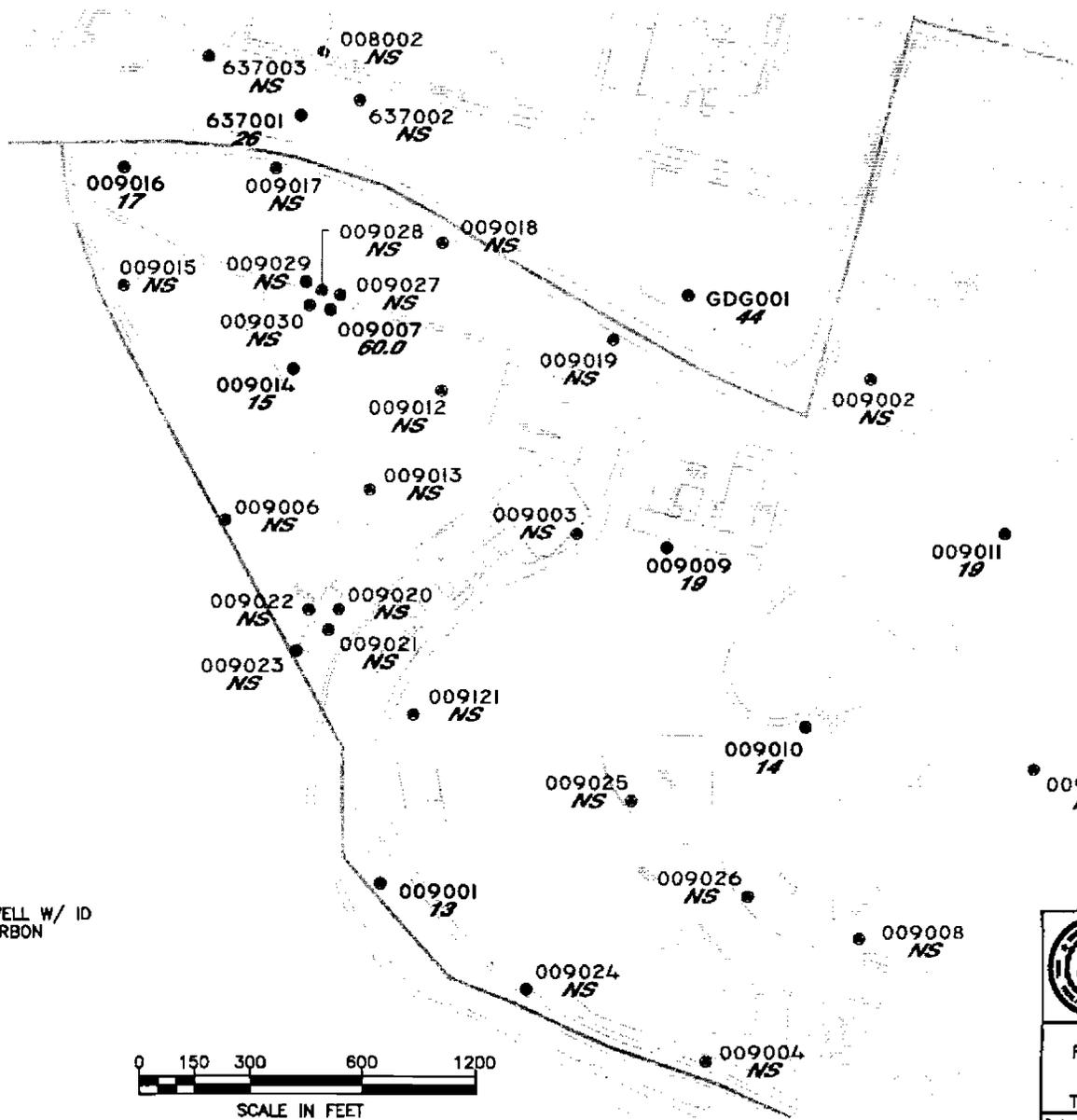


LEGEND:
 009010 7.18 SHALLOW MONITORING WELL W/ ID AND pH (S.U.)
 NS = NOT SAMPLED



| | |
|--|--|
| | ZONE H - SWMU 9 MONITORED NATURAL ATTENUATION INTERIM REPORT CHARLESTON NAVAL COMPLEX CHARLESTON, SC |
| | FIGURE 19 FIRST ROUND - MNA SAMPLING SHALLOW GROUNDWATER pH (STANDARD UNITS) |
| | Date: 04/01/99 DWG Name: 2908H008 |

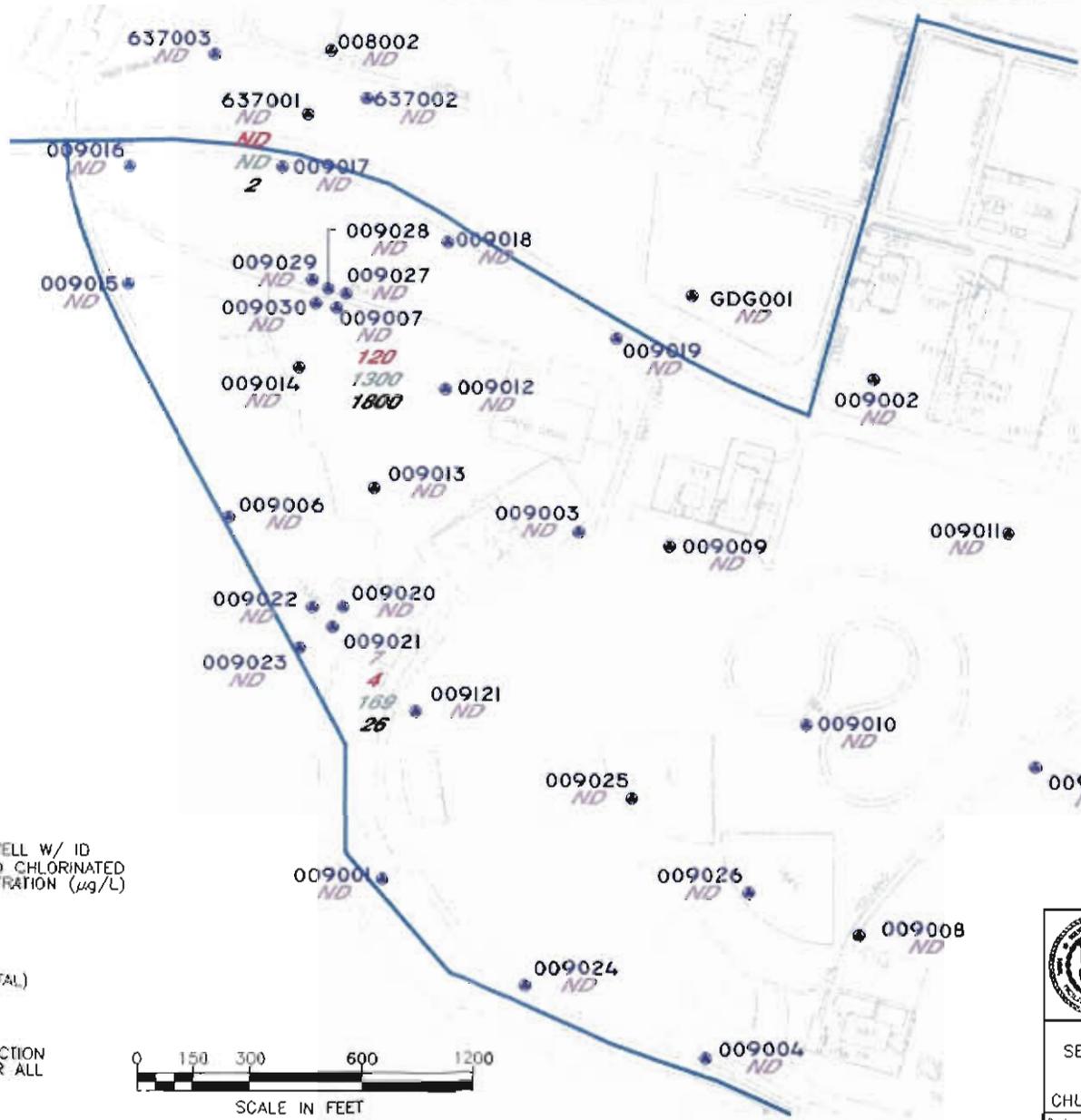




LEGEND:
 009010 14.2 ● SHALLOW MONITORING WELL W/ ID AND TOTAL ORGANIC CARBON CONCENTRATION (mg/L)
 NS = NOT SAMPLED



| | |
|---|--|
|  | ZONE H - SWMU 9 MONITORED NATURAL ATTENUATION INTERIM REPORT CHARLESTON NAVAL COMPLEX CHARLESTON, SC |
| | FIGURE 21 FIRST ROUND - MNA SAMPLING SHALLOW GROUNDWATER |
| | TOTAL ORGANIC CARBON (mg/L) |
| Date: 04/01/99 DWG Name: 2908H013 | |

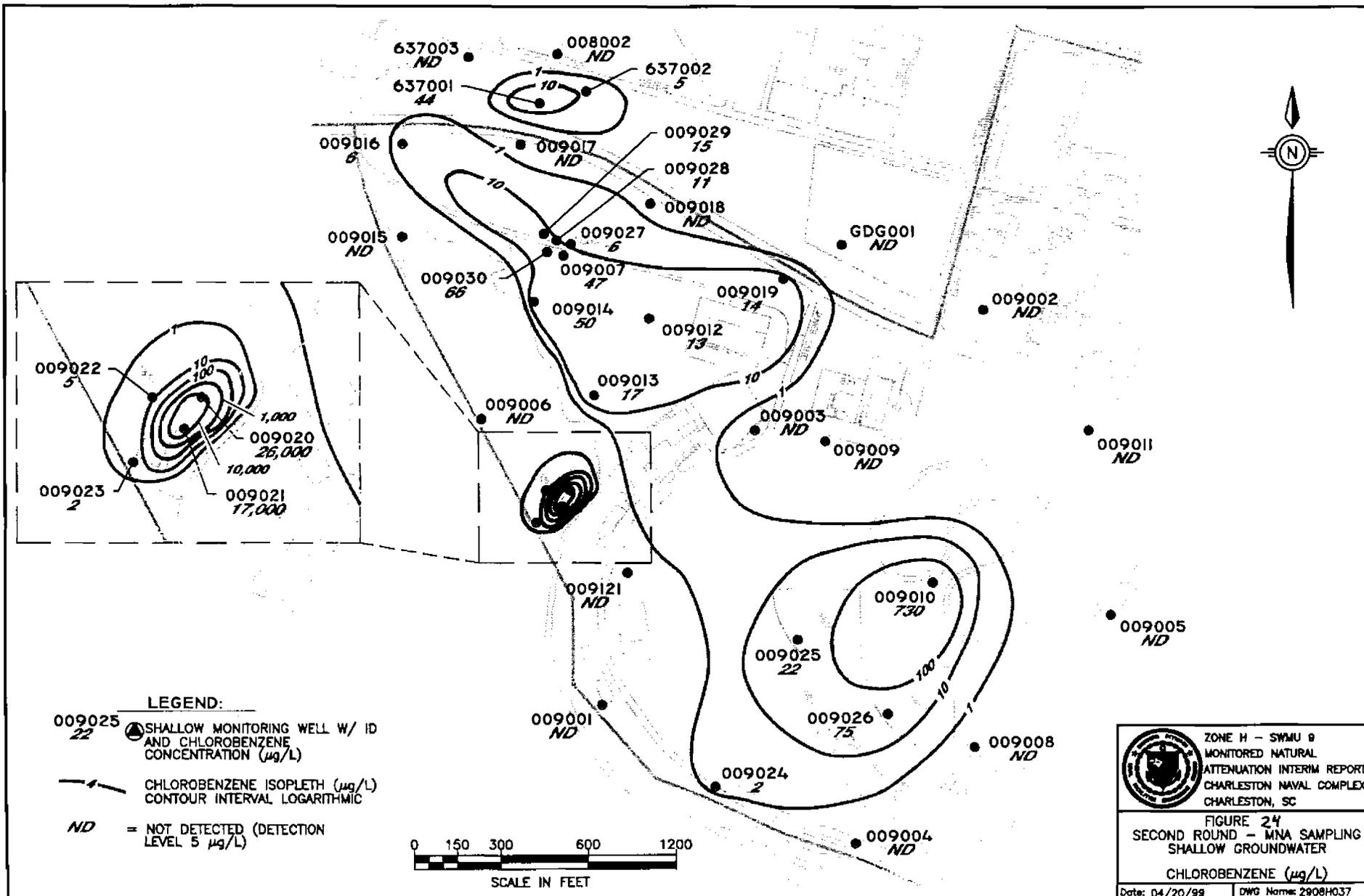


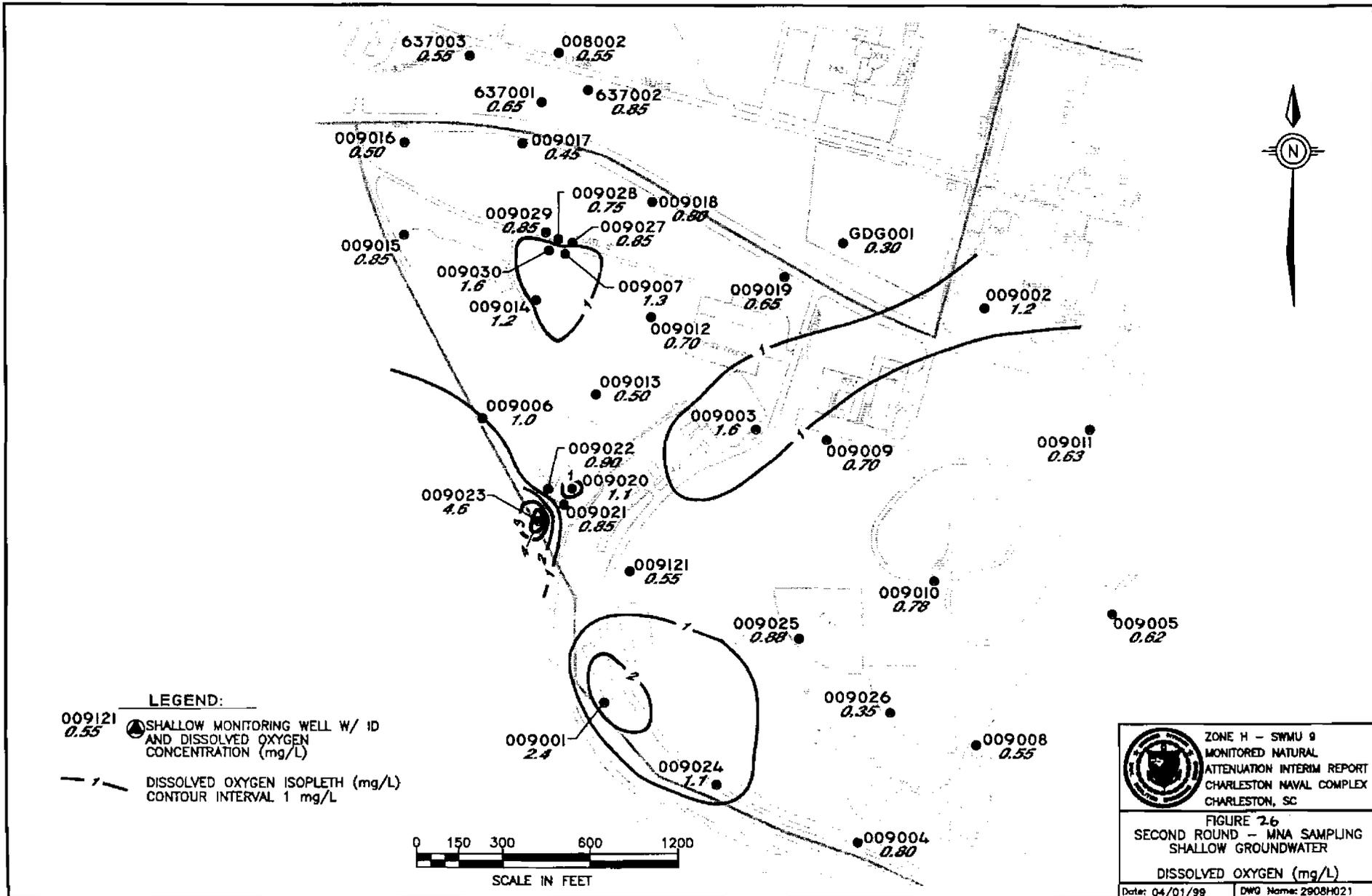
LEGEND:

009021 SHALLOW MONITORING WELL W/ ID NUMBER AND DISSOLVED CHLORINATED HYDROCARBON CONCENTRATION ($\mu\text{g/L}$)
 7 = PCE
 4 = TCE
 169 = 1,2-DCE (TOTAL)
 26 = VC
 ND = NOT DETECTED (DETECTION LEVEL 5 $\mu\text{g/L}$ - FOR ALL 4 COMPOUNDS)



| | |
|----------------|---|
| | ZONE H - SWMU 9 MONITORED NATURAL ATTENUATION INTERIM REPORT CHARLESTON NAVAL COMPLEX CHARLESTON, SC |
| | FIGURE 22 SECOND ROUND - MNA SAMPLING SHALLOW GROUNDWATER DISSOLVED CHLORINATED HYDROCARBONS ($\mu\text{g/L}$) |
| Date: 04/01/99 | DWG Name: 2908H023 |

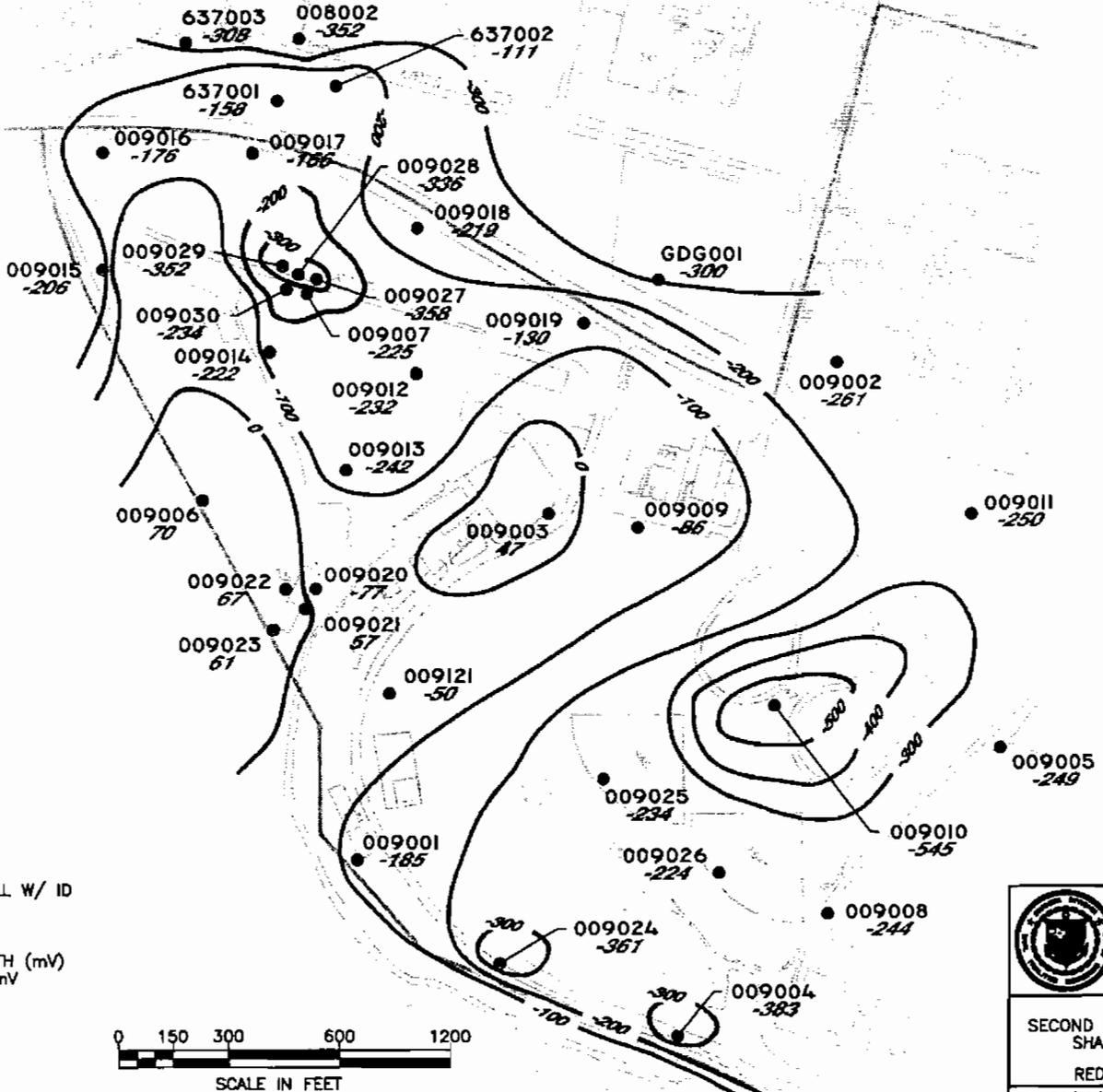
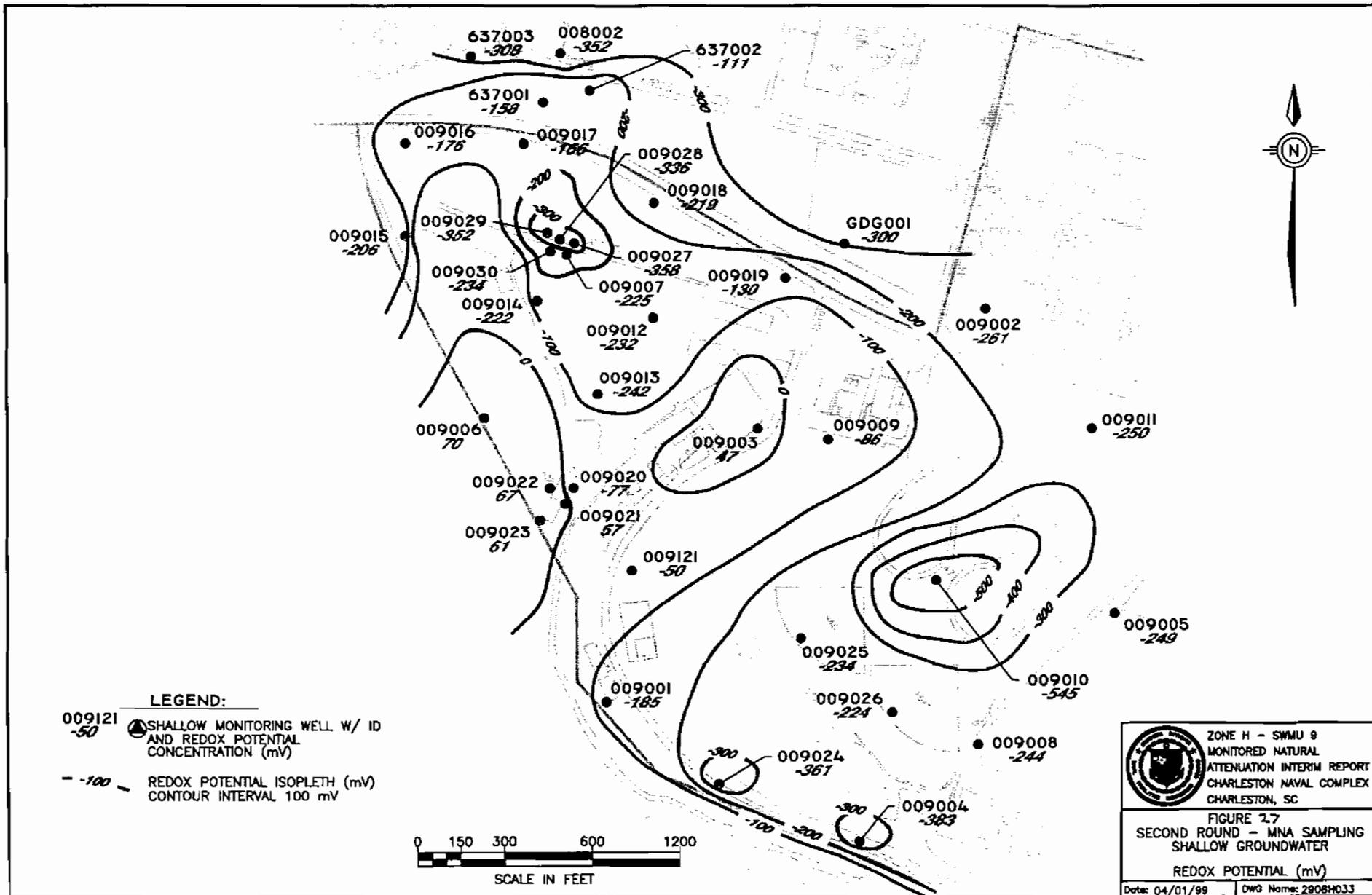


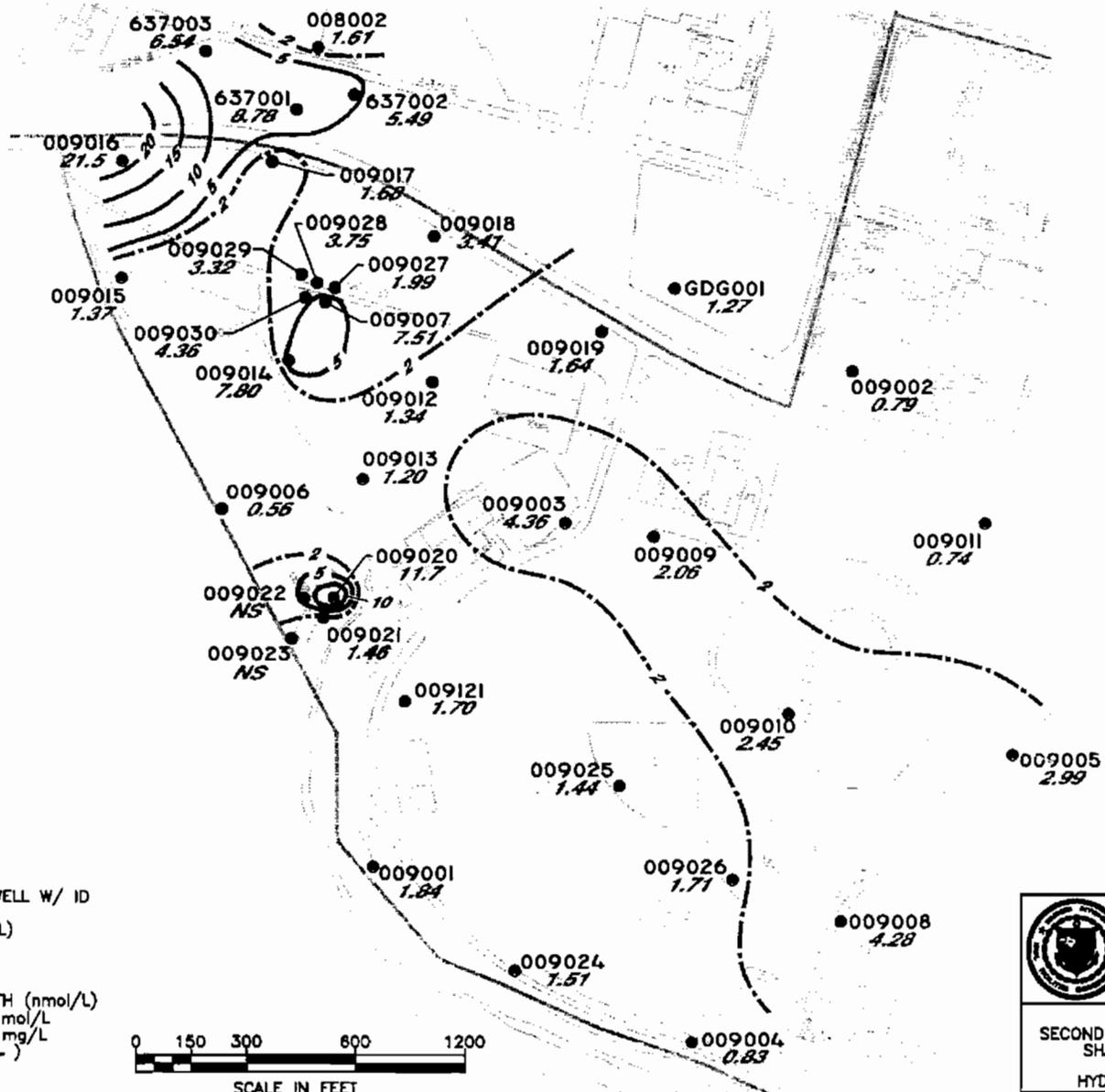



 ZONE H - SWMU 9
 MONITORED NATURAL
 ATTENUATION INTERIM REPORT
 CHARLESTON NAVAL COMPLEX
 CHARLESTON, SC

FIGURE 26
 SECOND ROUND - MNA SAMPLING
 SHALLOW GROUNDWATER
 DISSOLVED OXYGEN (mg/L)

Date: 04/01/99 DWG Name: 2908H021



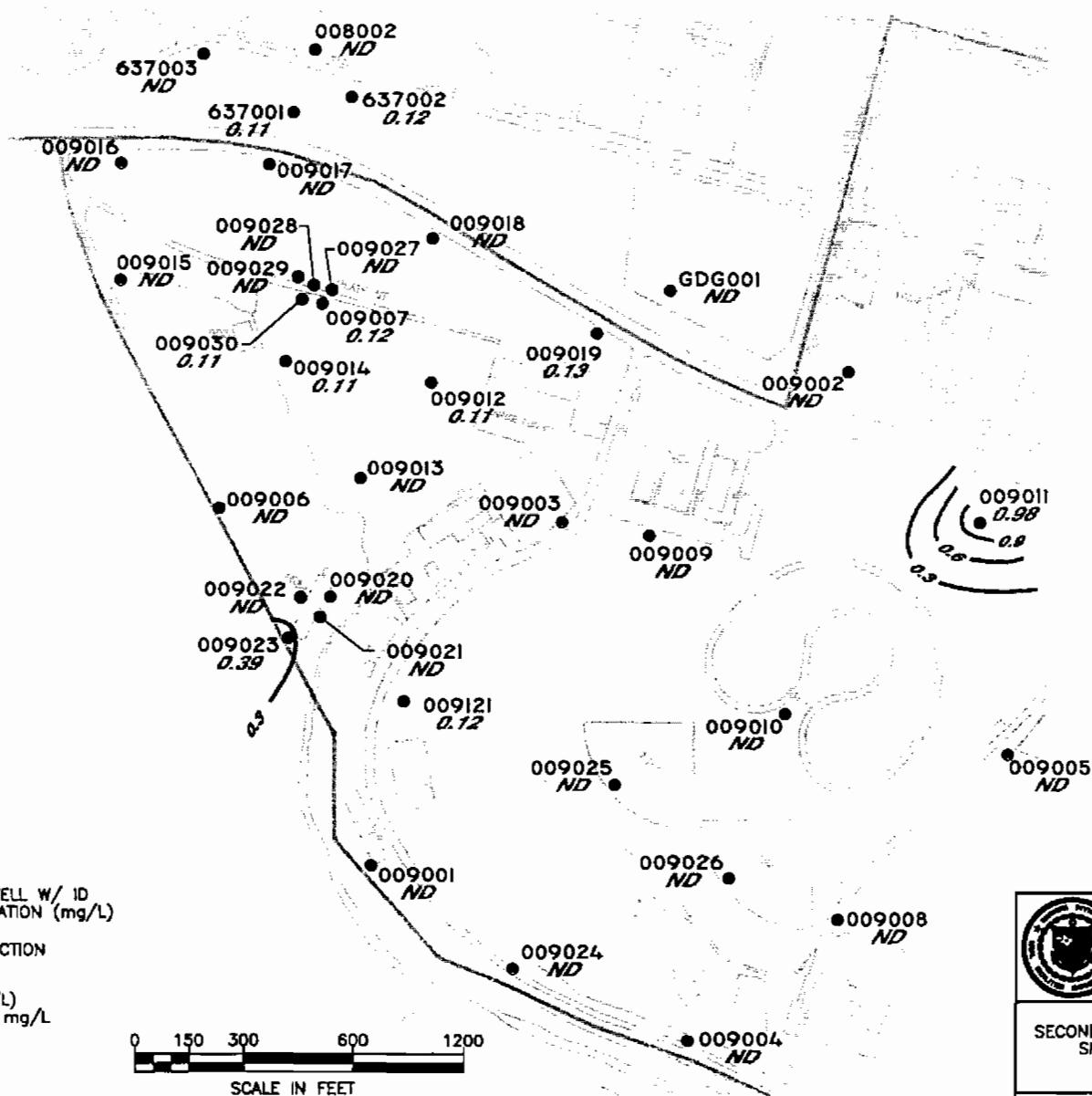


LEGEND:

- SHALLOW MONITORING WELL W/ ID AND HYDROGEN GAS CONCENTRATION (nmol/L)
- NS = NOT SAMPLED
- 5 — HYDROGEN GAS ISOPLETH (nmol/L) CONTOUR INTERVAL 5 nmol/L WITH SUPPLEMENTAL 2 mg/L CONTOUR (- - - - -)

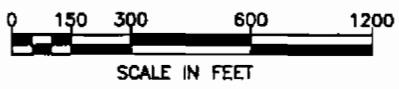


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| | ZONE H - SWMU 9 MONITORED NATURAL ATTENUATION INTERIM REPORT CHARLESTON NAVAL COMPLEX CHARLESTON, SC |
| | FIGURE 2B SECOND ROUND - MNA SAMPLING SHALLOW GROUNDWATER |
| | HYDROGEN GAS (nmol/L) |
| Date: D4/Q1/99 DWG Name: 2908HD18 | |



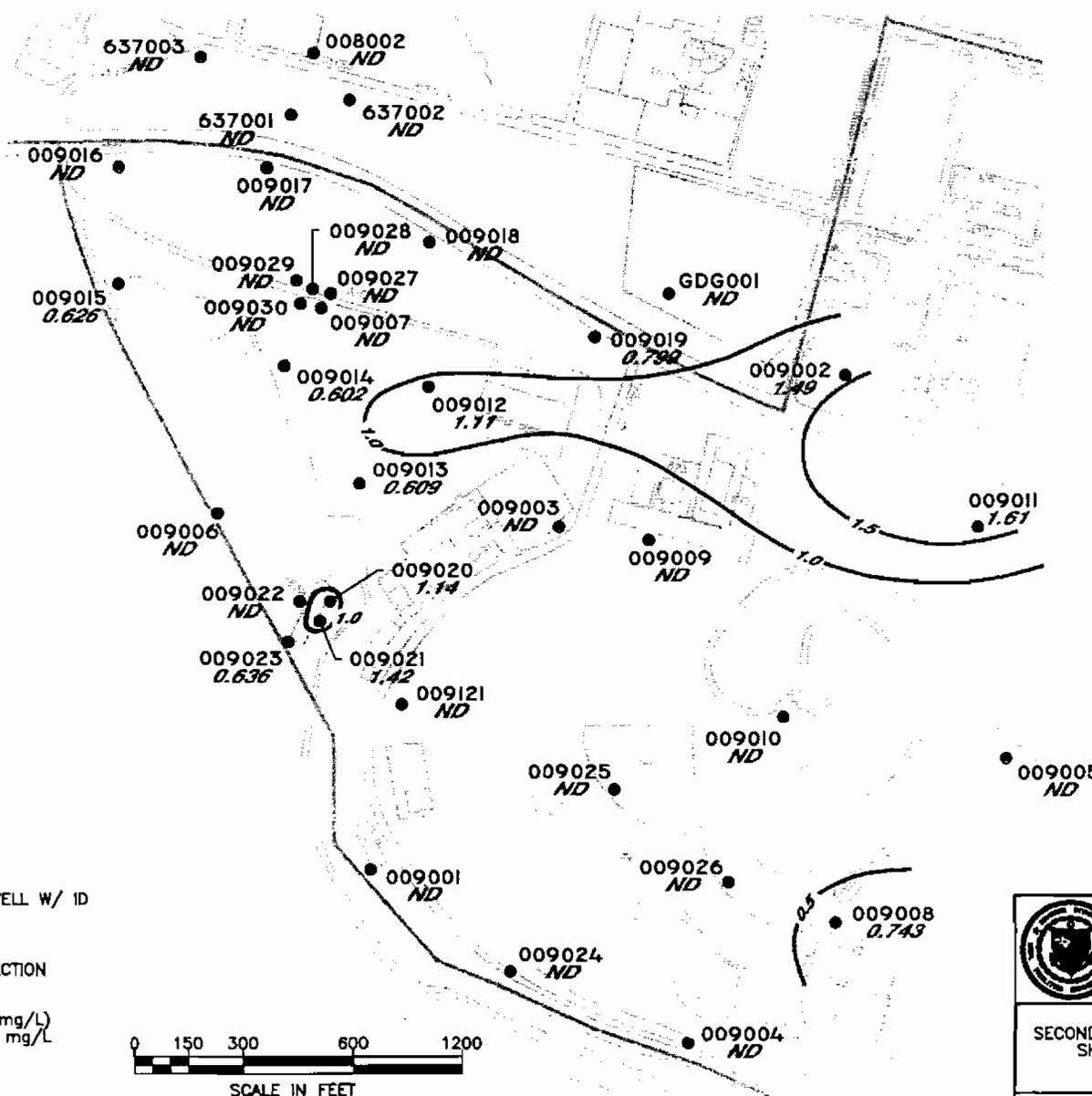
LEGEND:

- 009121
0.12  SHALLOW MONITORING WELL W/ ID AND NITRATE CONCENTRATION (mg/L)
- ND - NOT DETECTED (DETECTION LEVEL 0.1 mg/L)
- 0.3 - NITRATE ISOPLETH (mg/L) CONTOUR INTERVAL 0.3 mg/L



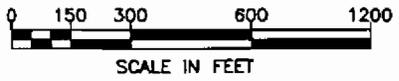
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|  | ZONE H - SWMU 9 MONITORED NATURAL ATTENUATION INTERIM REPORT CHARLESTON NAVAL COMPLEX CHARLESTON, SC |
| | FIGURE 19 SECOND ROUND - MNA SAMPLING SHALLOW GROUNDWATER |
| | NITRATE (mg/L) |

Date: 04/01/99 DWG Name: 2808H018



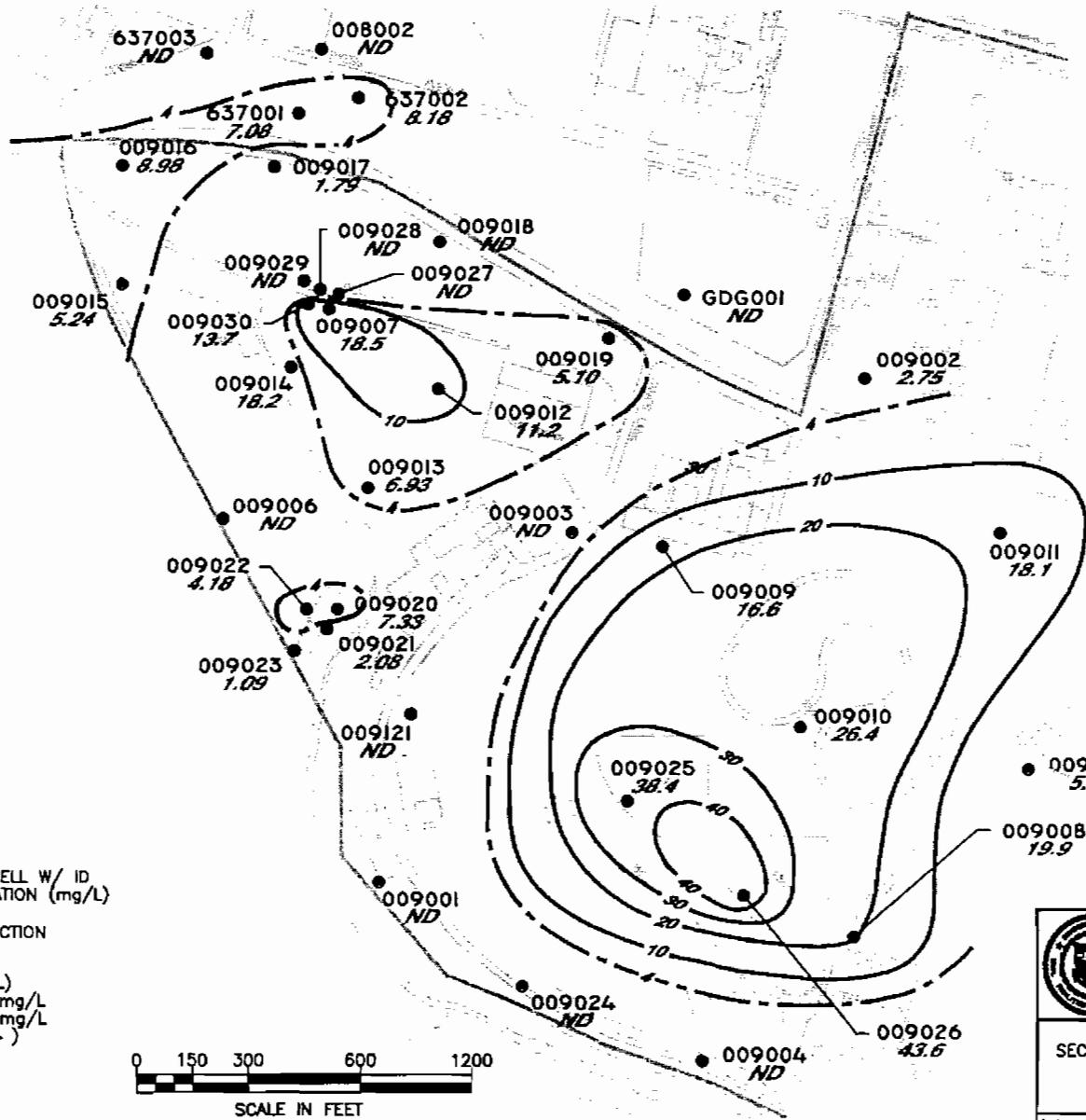
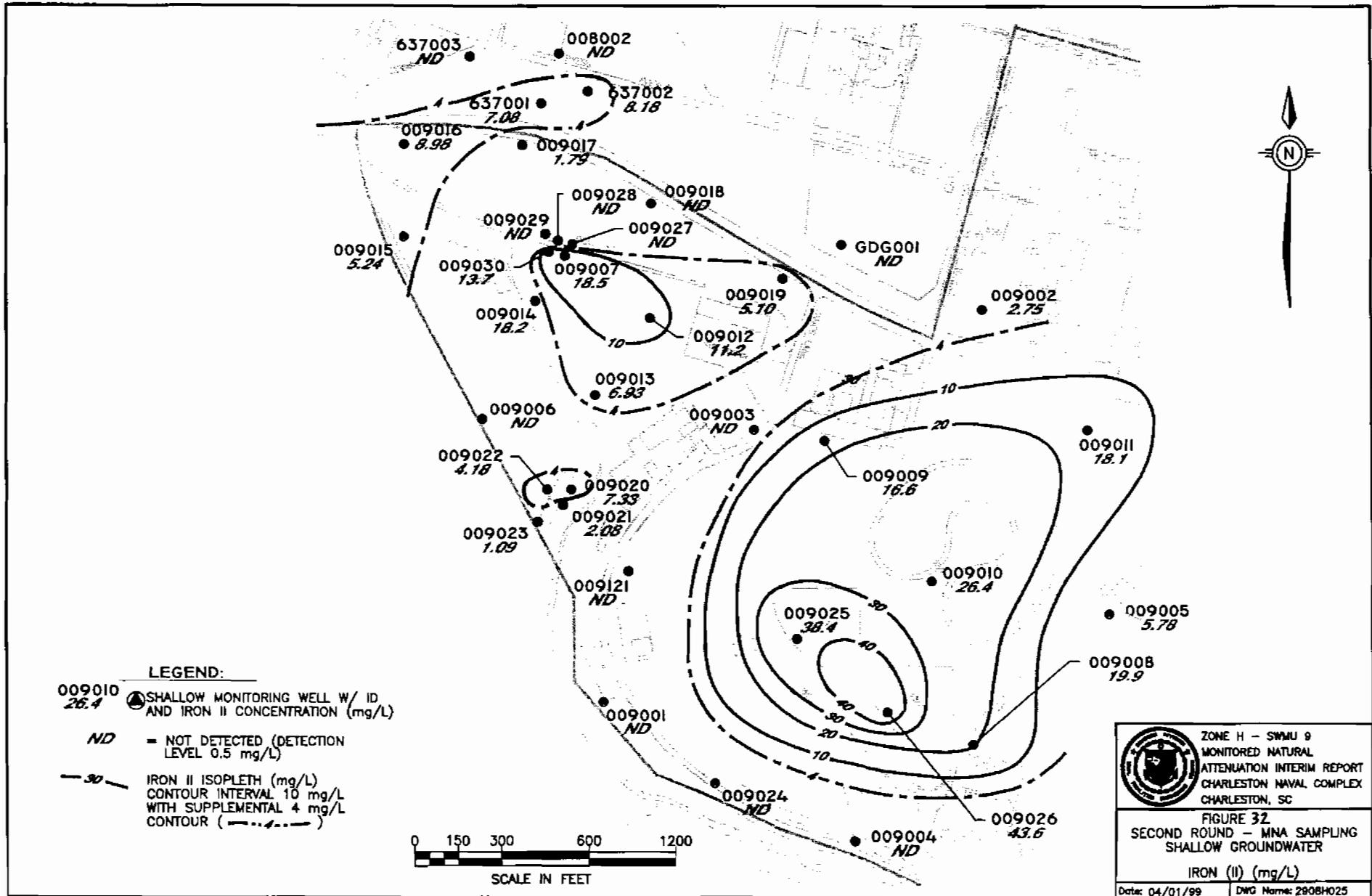
LEGEND:

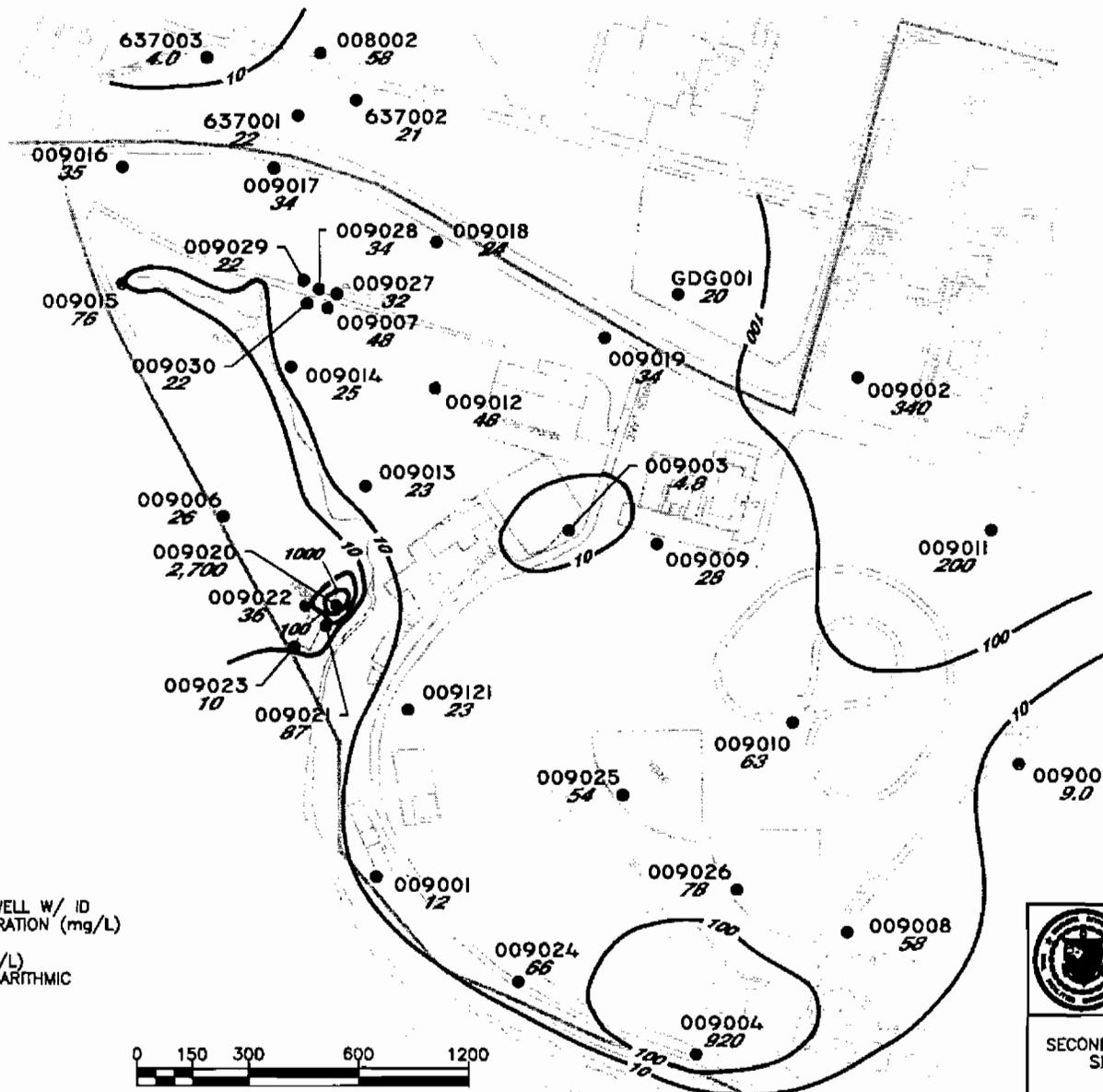
- 009008
0.74 ● SHALLOW MONITORING WELL W/ ID AND MANGANESE CONCENTRATION (mg/L)
- ND - NOT DETECTED (DETECTION LEVEL 0.5 mg/L)
- 1.0 — MANGANESE ISOPLETH (mg/L) CONTOUR INTERVAL 0.5 mg/L



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| | ZONE H - SWMU 2 MONITORED NATURAL ATTENUATION INTERIM REPORT CHARLESTON NAVAL COMPLEX CHARLESTON, SC |
| | FIGURE 30 SECOND ROUND - MNA SAMPLING SHALLOW GROUNDWATER |
| | MANGANESE (mg/L) |

Date: 04/01/99 DWG Name: 2808H027

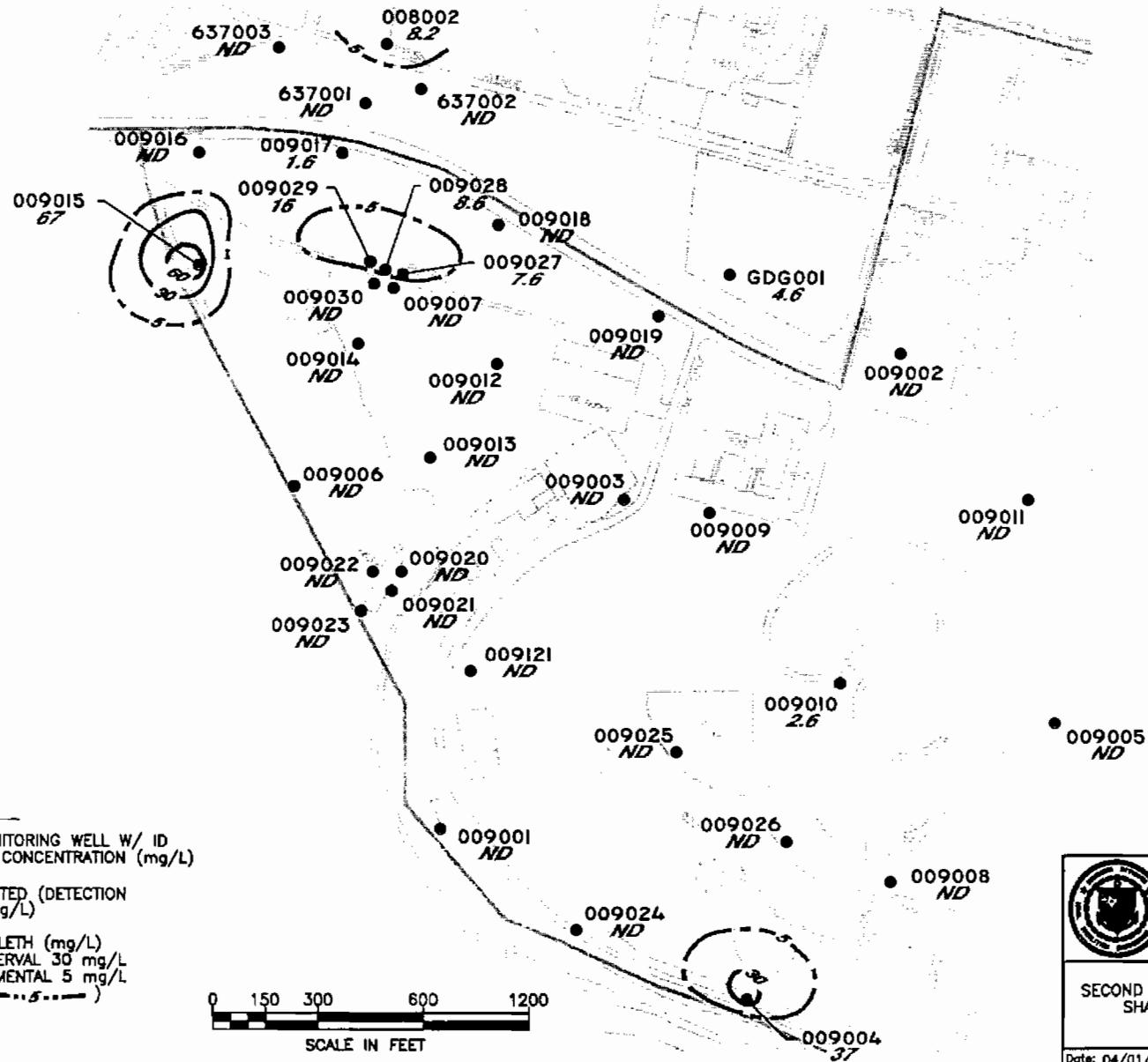




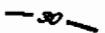
LEGEND:
 009121 23 SHALLOW MONITORING WELL W/ ID AND SULFATE CONCENTRATION (mg/L)
 - 100 - SULFATE ISOPLETH (mg/L) CONTOUR INTERVAL LOGARITHMIC

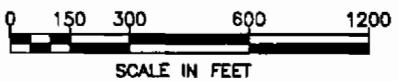


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| | ZONE H - SWMU 9 MONITORED NATURAL ATTENUATION INTERIM REPORT CHARLESTON NAVAL COMPLEX CHARLESTON, SC |
| | FIGURE 33 SECOND ROUND - MNA SAMPLING SHALLOW GROUNDWATER SULFATE (mg/L) |
| Date: 04/01/99 | DWG Name: 2908H028 |

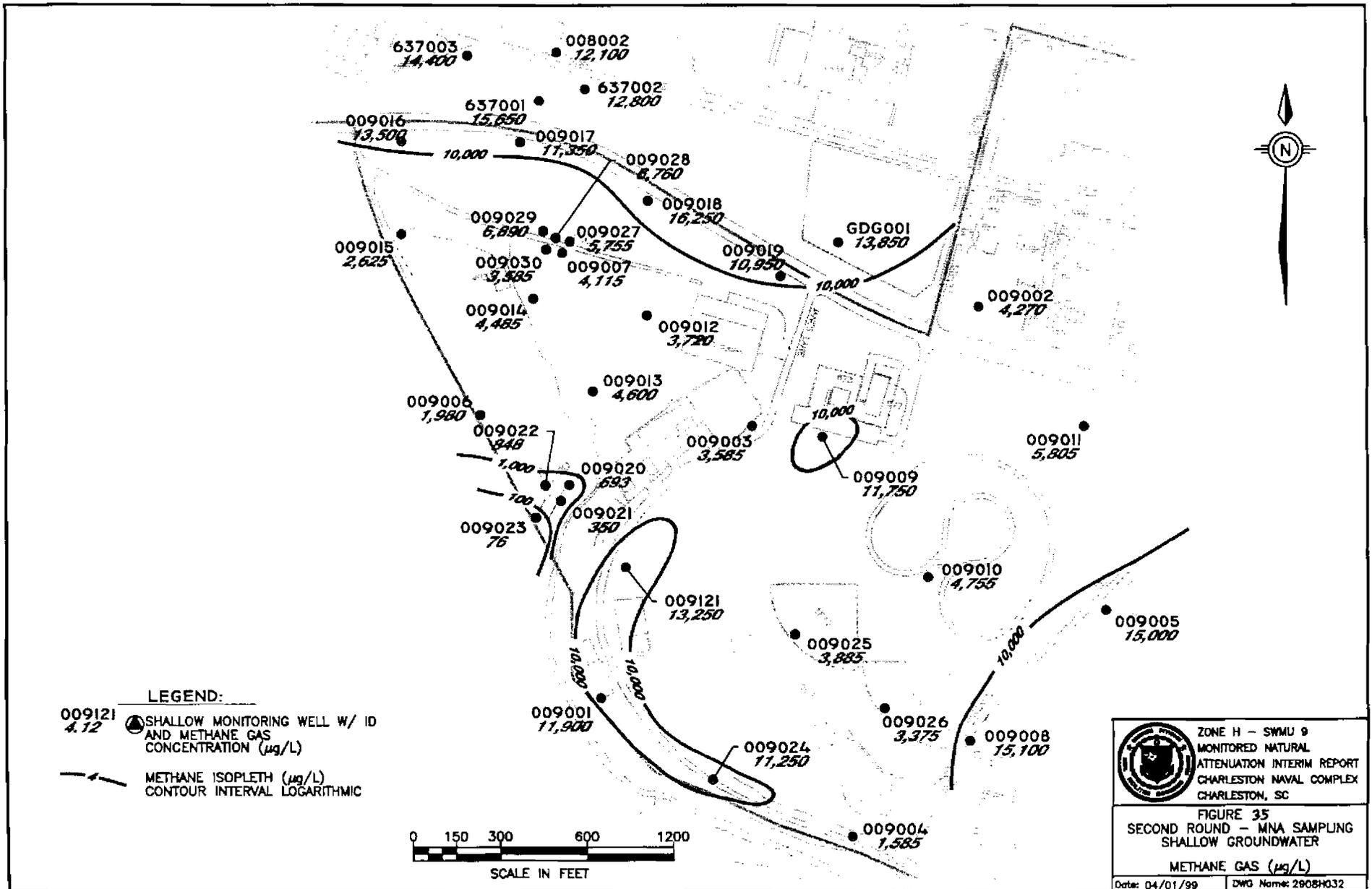


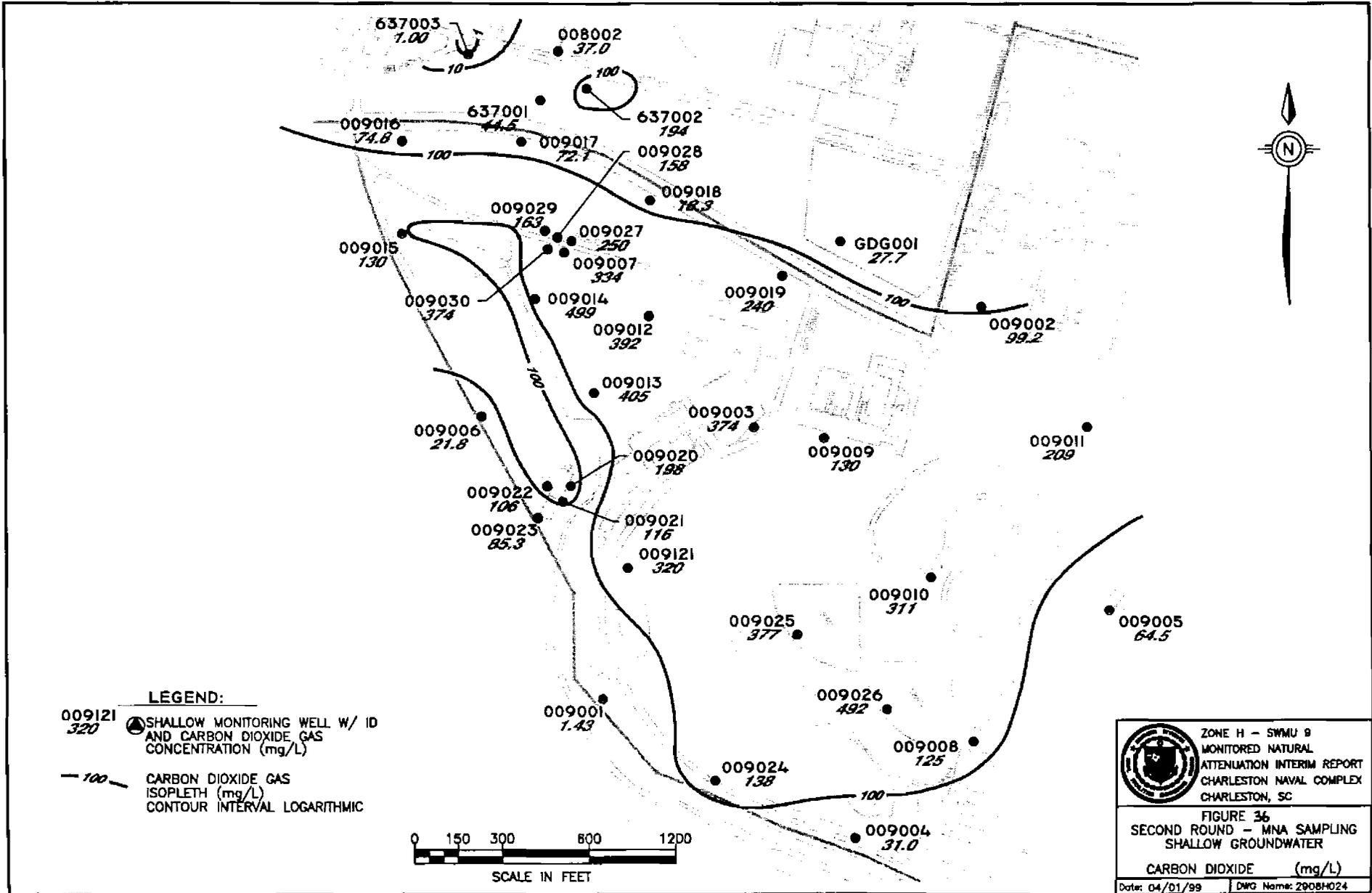
LEGEND:

- 009010
2.6  SHALLOW MONITORING WELL W/ ID AND SULFIDE CONCENTRATION (mg/L)
- ND = NOT DETECTED (DETECTION LEVEL 1 mg/L)
-  SULFIDE ISOPLETH (mg/L)
CONTOUR INTERVAL 30 mg/L
WITH SUPPLEMENTAL 5 mg/L
CONTOUR (---5---)



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|  | ZONE H - SWMU 8 MONITORED NATURAL ATTENUATION INTERIM REPORT CHARLESTON NAVAL COMPLEX CHARLESTON, SC |
| | FIGURE 34 SECOND ROUND - MNA SAMPLING SHALLOW GROUNDWATER |
| | SULFIDE (mg/L) |
| Date: 04/01/99 DWG Name: 2908M028 | |

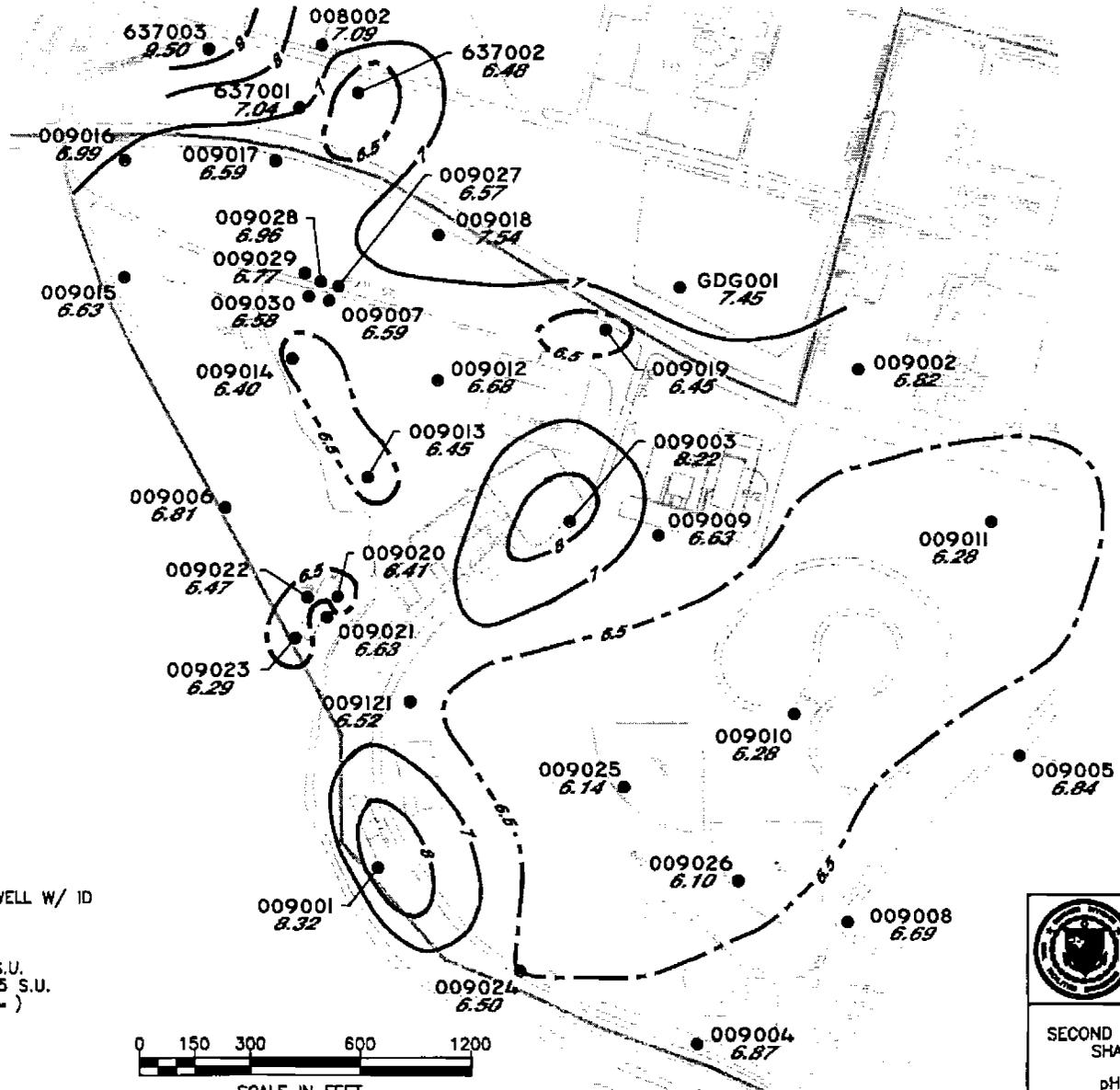
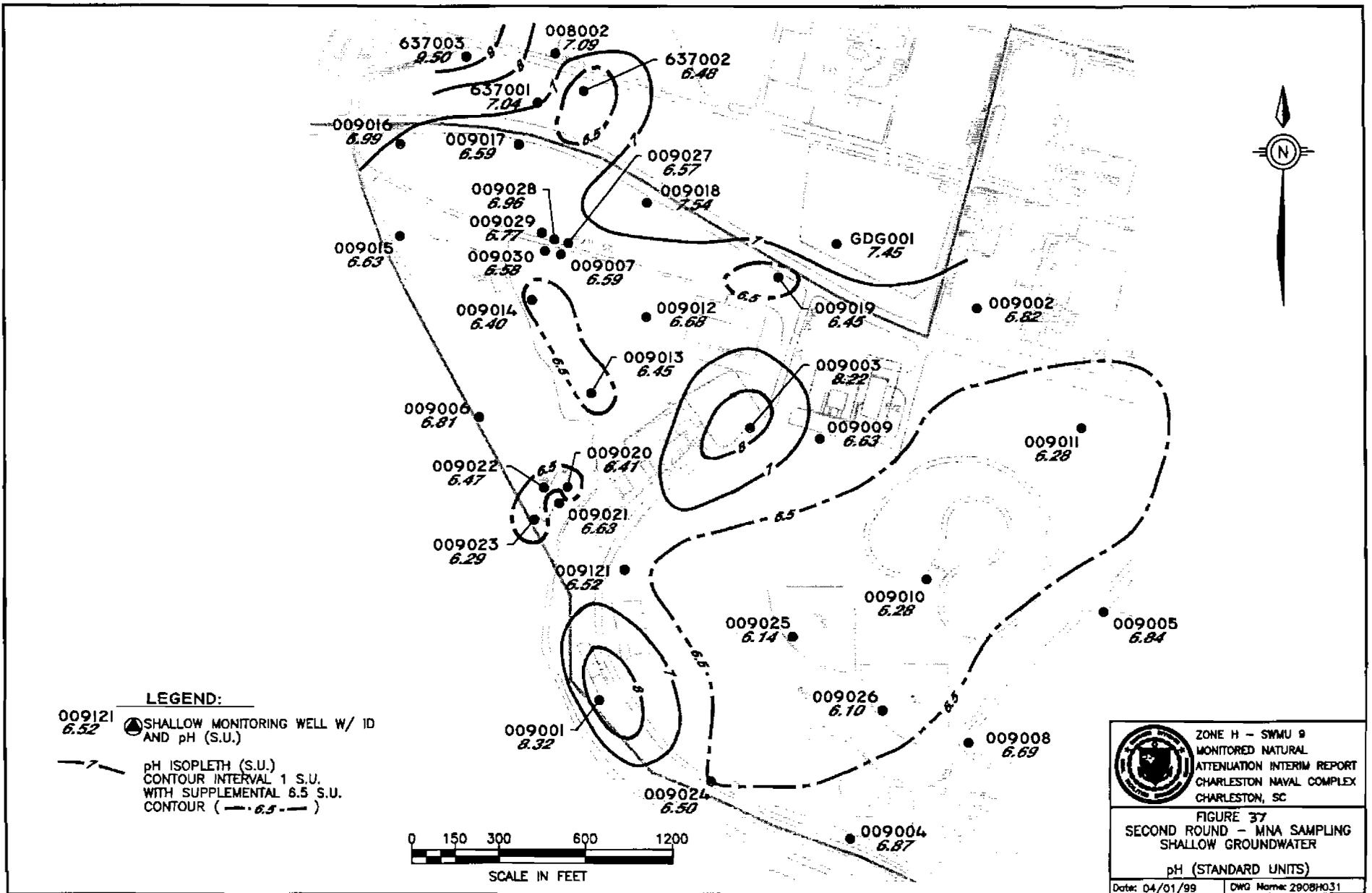


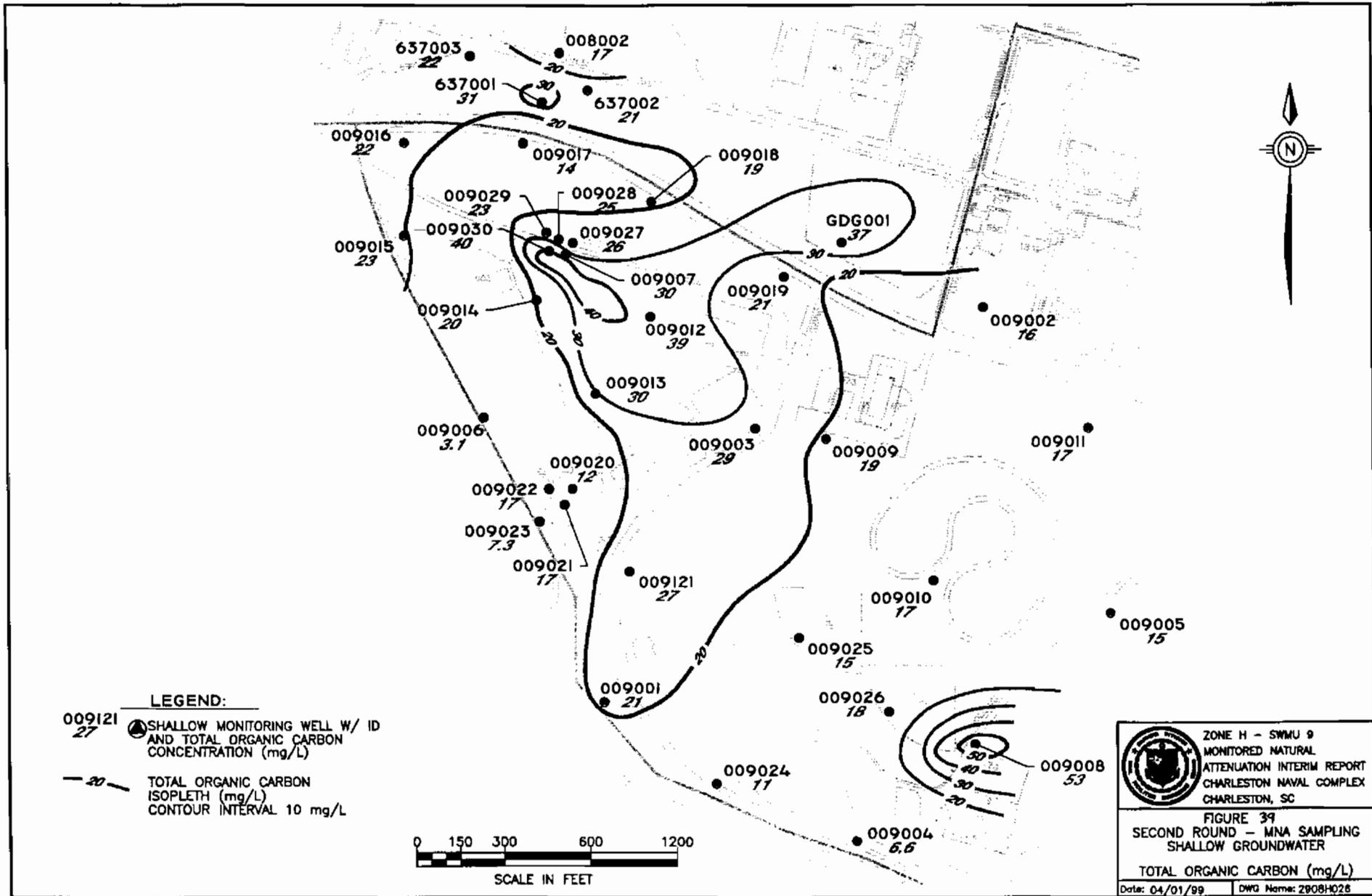


ZONE H - SWMU 9
 MONITORED NATURAL
 ATTENUATION INTERIM REPORT
 CHARLESTON NAVAL COMPLEX
 CHARLESTON, SC

FIGURE 36
 SECOND ROUND - MNA SAMPLING
 SHALLOW GROUNDWATER
 CARBON DIOXIDE (mg/L)

Date: 04/01/99 | DWG Name: 2908H024





ZONE H - SWMU 9
 MONITORED NATURAL
 ATTENUATION INTERIM REPORT
 CHARLESTON NAVAL COMPLEX
 CHARLESTON, SC
 FIGURE 39
 SECOND ROUND - MNA SAMPLING
 SHALLOW GROUNDWATER
 TOTAL ORGANIC CARBON (mg/L)

