



**NUS**  
CORPORATION

A Halliburton Company



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New Bedford  
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PROJECT FOR  
PERFORMANCE OF  
REMEDIAL RESPONSE ACTIVITIES AT  
UNCONTROLLED HAZARDOUS  
SUBSTANCE FACILITIES—ZONE 1

NUS CORPORATION  
SUPERFUND DIVISION

U.S. v. AVX Original  
Litigation Document

D-583-5-3-15

FIELD INVESTIGATION  
OF  
COMMONWEALTH ELECTRIC COMPANY  
NEW BEDFORD, MASSACHUSETTS

FINAL REPORT

PREPARED UNDER

TECHNICAL DIRECTIVE DOCUMENT NO. F1-8302-01  
NUS JOB NO. 3200  
CONTRACT NO. 68-01-6699

FOR THE  
REGION I  
U.S. ENVIRONMENTAL PROTECTION AGENCY  
SITE RESPONSE SECTION

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NUS CORPORATION  
SUPERFUND DIVISION

SUBMITTED BY

*Gregory A. Roscoe*

GREGORY A. ROSCOE  
TOXICOLOGIST

APPROVED BY

*Paul F. Clay*

PAUL F. CLAY  
REGION I FIT MANAGER

*Anthony DeMarco*

ANTHONY J. DEMARCO  
QUALITY ASSURANCE OFFICER

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## EXECUTIVE SUMMARY

The Field Investigation Team of the NUS Corporation (NUS/FIT) conducted sampling of surface soil at the Commonwealth Electric Company, New Bedford, Massachusetts, on March 10, 1983. The findings are summarized as follows:

- Polychlorinated biphenyls (PCBs) were not detected in any of the soil samples collected from Commonwealth Electric Company.
- Levels of 800 ppm and 130 ppm were reported for heavy metals vanadium and lead respectively in one surficial soil sample.

## **1.0 INTRODUCTION**

### **1.1 Summary Of FIT Involvement**

NUS/FIT was tasked in February 1983 to conduct sampling at three locations bordering the Acushnet River in New Bedford, Massachusetts. In addition, NUS/FIT was tasked to map industrial properties bordering New Bedford Harbor. In partial fulfillment of Technical Directive Document (TDD) F1-8302-01 (Appendix C) issued by EPA, NUS is submitting a report which summarizes sampling activities at the Commonwealth Electric Company, New Bedford, Massachusetts.

### **1.2 Scope Of Work**

The purpose of this investigation was to conduct surface soil sampling and analysis for polychlorinated biphenyls (PCBs) and metals at the Commonwealth Electric Company.



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## 2.0 COMMONWEALTH ELECTRIC COMPANY INVESTIGATION

On March 10, 1983, NUS/FIT conducted soil sampling activities at Commonwealth Electric Company, New Bedford, Massachusetts (Figure 1). On the day of sampling, ambient air temperature was 35° to 40° F with intermittent precipitation. Three grab soil samples were obtained from a jetty which extended into the Acushnet River (Figure 2). Samples were collected from the top six inches of soil with a stainless steel trowel and placed in glass 8 oz. wide-mouth containers. The trowel was decontaminated between each sample with an alcanox wash, water rinse, methanol rinse, water rinse.

### 2.1 Soil Sampling

The surficial soil samples were obtained from three locations, designated C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub> from the Commonwealth Electric jetty (Figure 2). Sample C<sub>1</sub> was collected from the northeast corner of the jetty, sample C<sub>2</sub> was collected from the edge of the southern perimeter, and sample C<sub>3</sub> was collected from the western portion of the jetty amongst a group of stored transformers. Samples were collected from this area because it was the only area identified which was not paved or developed, and because it contained stored transformers. Sample C<sub>4</sub> represents a soil blank collected from Bedford, Massachusetts.



## 3.0 RESULTS

### 3.1 PCB Analyses

The results of PCB analysis on the soil samples are presented in Table 1. The soil samples obtained from Commonwealth Electric Company exhibited levels of PCB which were non-detectable (at 0.2 ppm limit of detection).

### 3.2 Sample Description

- C<sub>1</sub> Black fine to medium sand, trace silt. Most of the sample had the appearance of coal.
- C<sub>2</sub> Black fine to coarse sand, trace silt. Most of the sample had the appearance of coal.
- C<sub>3</sub> Black fine to coarse sand, trace organics. Most of the sample had the appearance of coal.
- C<sub>4</sub> Soil blank, Bedford, Massachusetts.

### 3.3 Metals Analysis

The results of the metals analysis are found in Table 2. In general, sample C1 contained higher metals levels than samples C<sub>2</sub>, C<sub>3</sub> and the blank. With respect to heavy metals, sample C1 contained 800 ppm and 130 ppm vanadium and lead respectively.

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**4**

## **4.0 SAMPLE HANDLING**

### **4.1 Sample Splits**

On March 8, 1983, NUS/FIT contacted the Commonwealth Electric Company by phone to obtain permission for site access. At this time, NUS/FIT also offered splits of all samples which would be taken. S. Hall of Commonwealth Electric Company indicated that they would accept the offer of sample splits.

On March 10, 1983, the day of the sampling activities, NUS/FIT collected duplicate samples at each sample location. Custody of the duplicate samples was relinquished to D. Best, Environmental Engineer for Commonwealth Electric. The transfer of the duplicate samples was documented on the EPA form Receipt For Samples, which is maintained in the NUS/FIT project file.

### **4.2 Chain Of Custody**

Chain of custody was maintained and documented on an EPA Chain of Custody Record. Collection of the samples was documented on Chain of Custody Record No. 0185. The samples were relinquished by Gregory Roscoe of NUS/FIT on March 14, 1983, to Gerard Porter, NUS/FIT. At this time, the samples for organics analysis were transferred to Chain of Custody Record No. 0186, and the samples for metals analysis were transferred to Chain of Custody Record No. 0187. Samples were shipped on March 14, 1983 and received by the respective analyzing laboratories on March 15, 1983. The Chain of Custody documents are maintained in the NUS/FIT project files.

### **4.3 Storage Conditions**

Samples were maintained on ice from the day of sampling to the day of shipment to the contract laboratories. According to the sample log-in sheet for West Coast Technical Service Inc., all samples were received cold and intact. The samples for PCB analysis were extracted on March 21, 1983, and samples for metals analysis were analyzed on April 11, 1983.

#### 4.4 Analysis And Quality Control

The samples were analyzed under the EPA's National Contract Laboratory Program, Case Number 1569. The PCB analyses were conducted by West Coast Technical Service Inc. of Cerrito, California. The metals analyses were conducted by Versar, Inc. of Springfield, Virginia.

Arthur Clark of the EPA New England Regional Laboratory (NERL) in Lexington, Massachusetts, conducted a preliminary review of the analytical results for this investigation. Copies of the analysis data sheets can be found in Appendices A and B. A. Clark indicated that the identification of the PCB mixtures appeared correct, however a check on the quantitation could not be conducted without more information. It was also noted that the low level PCB analyses had high spike recoveries which were outside the quality control limits as specified by the Contract Laboratory Program Statement of Work for Organic Analysis, January 31, 1983.

Several comments were made by A. Clark regarding the metals analysis. The spike recoveries for lead, selenium, thallium, and tin were quite low. This may indicate there is something in the soil which is binding these metals up or interfering with their analysis. In addition, several lead determinations were made using a standard additions procedure which was not EPA protocol.

All quality control records are maintained in the NUS/FIT project file for New Bedford Harbor.



## 5.0 SUMMARY AND DISCUSSION

On March 19, 1983, surficial soil samples were collected at the Commonwealth Electric Company, New Bedford, Massachusetts.

Analyses were conducted for PCBs and metals. PCBs were not detected in any of the samples collected at Commonwealth Electric Company (0.2 ppm limit of detection). Levels of 800 ppm vanadium and 130 ppm lead were reported for sample location C1 which in general, contained higher metal levels than samples C2, C3, and the soil blank. The results of other metals analyses are found in Table 2.

**TABLE 1  
SUMMARY OF PCB ANALYSIS**

| STA -<br>LAB ID - | <u>C<sub>1</sub></u><br><u>A1402</u> | <u>C<sub>2</sub></u><br><u>A1403</u> | <u>C<sub>3</sub></u><br><u>A1404</u> | <u>C<sub>4</sub></u><br><u>A1405</u> |
|-------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| % M -             | 34.7                                 | 17.6                                 | 6.3                                  | 10.2                                 |

PCB Levels, ppm

Aroclor

|      |                 |                 |                 |                 |     |
|------|-----------------|-----------------|-----------------|-----------------|-----|
| 1242 | ND <sup>1</sup> | ND <sup>1</sup> | ND <sup>1</sup> | ND <sup>1</sup> | WET |
| 1254 | ND <sup>1</sup> | ND <sup>1</sup> | ND <sup>1</sup> | ND <sup>1</sup> |     |

Aroclor

|      |    |    |    |    |     |
|------|----|----|----|----|-----|
| 1242 | ND | ND | ND | ND | DRY |
| 1254 | ND | ND | ND | ND |     |

- STA - Sample Station Number
- LAB ID - Contract Lab Sample Identification Number
- % M - Moisture content of sample, percent
- WET - PCB Content, wet weight basis
- DRY - PCB Content, dry weight basis

- ND - Not Detectable
- 1 - at 0.2 ppm limit of detection

**TABLE 2  
SUMMARY OF METALS ANALYSIS**

| <u>METAL</u> | Concentration* at Location |                      |                      |                      |
|--------------|----------------------------|----------------------|----------------------|----------------------|
|              | <u>C<sub>1</sub></u>       | <u>C<sub>2</sub></u> | <u>C<sub>3</sub></u> | <u>C<sub>4</sub></u> |
| Al           | 1300                       | 300                  | 270                  | 4310                 |
| Ba           | 40                         | 25                   | 25                   | 10                   |
| Be           | 1                          | 0.5                  | 0.5                  | < 0.25               |
| B            | < 5                        | < 5                  | < 5                  | < 5                  |
| Cr           | 8.5                        | 4.0                  | 3.5                  | 5.5                  |
| Co           | 2.5                        | < 2.5                | < 2.5                | < 2.5                |
| Cu           | 20                         | 7.5                  | 10                   | 5.0                  |
| Fe           | 4940                       | 2160                 | 1900                 | 4080                 |
| Mn           | 39                         | 3.75                 | 4.5                  | 42                   |
| Ni           | 314                        | 26                   | 8                    | 4.0                  |
| Ag           | < 0.5                      | 0.5                  | < 0.5                | < 0.5                |
| V            | 800                        | 80                   | 50                   | 10.0                 |
| Zn           | 36.5                       | 5                    | 6.5                  | 8.5                  |
| Sb           | < 1                        | < 1                  | < 1                  | < 1                  |
| As           | 5                          | 3.5                  | 3.5                  | 4.5                  |
| Cd           | 0.1                        | < 0.05               | 0.05                 | < 0.05               |
| Pb           | 130                        | 10                   | 18.2                 | 4.8 <sup>a</sup>     |
| Hg           | 0.9                        | < 0.1                | < 0.1                | < 0.1                |
| Se           | 0.3                        | 0.8                  | 1                    | < 0.1 <sup>s</sup>   |
| Tl           | < 0.5                      | < 0.5                | < 0.5                | < 0.5                |
| Sn           | < 1                        | < 1                  | < 1                  | < 1 <sup>s</sup>     |

\* Concentrations in ppm, on a wet weight basis

a Analyzed by standard additions method; however, not EPA protocol

s Analyzed by standard additions method



APPENDIX A

Case #/SAS #: 1569/439A  
Date Rec'd: 3/15/83

Laboratory: WCTS, Inc.  
Contract #: SAS#439A

Sample #: METHOD BLANK  
% Moisture: NA

Organics Analysis Data Sheet

Level/Matrix: \_\_\_\_\_  
QC Report #: \_\_\_\_\_  
Spl → Extract: \_\_\_\_\_  
Lab Std ID: NO SAMPLE  
Lab ID: \_\_\_\_\_  
Date Analyzed: \_\_\_\_\_  
Circle Units: ug/Kg, ug/L

Level/Matrix: LOW SOIL  
QC Report #: SAS#439A-2  
Spl → Extract: BASED ON 5.0g → 10mls  
Lab Std ID: 8882-94  
Lab ID: 8883-98  
Date Extracted: 3/21/83  
Date Analyzed: 3/29/83  
Circle Units: (ug/Kg) ug/L

Volatile Compounds

|     |                            |    |
|-----|----------------------------|----|
| 2V  | acrolein                   | NA |
| 3V  | acrylonitrile              |    |
| 4V  | benzene                    |    |
| 6V  | carbon tetrachloride       |    |
| 7V  | chlorobenzene              |    |
| 10V | 1,2-dichloroethane         |    |
| 11V | 1,1,1-trichloroethane      |    |
| 13V | 1,1-dichloroethane         |    |
| 14V | 1,1,2-trichloroethane      |    |
| 15V | 1,1,2,2-tetrachloroethane  |    |
| 16V | chloroethane               |    |
| 17V | bis(chloromethyl)ether     |    |
| 19V | 2-chloroethylvinyl ether   |    |
| 23V | chloroform                 |    |
| 29V | 1,1-dichloroethylene       |    |
| 30V | 1,2-trans-dichloroethylene |    |
| 32V | 1,2-dichloropropane        |    |
| 33V | 1,3-dichloropropane        |    |
| 38V | ethylbenzene               |    |
| 44V | methylene chloride         |    |
| 45V | methyl chloride            |    |
| 46V | methyl bromide             |    |
| 47V | bromoform                  |    |
| 48V | dichlorobromomethane       |    |
| 49V | trichlorofluoromethane     |    |
| 50V | dichlorodifluoromethane    |    |
| 51V | chlorodibromomethane       |    |
| 85V | tetrachloroethylene        |    |
| 86V | toluene                    |    |
| 87V | trichloroethylene          |    |
| 88V | vinyl chloride             | ↓  |

| Pesticides |                    |      |
|------------|--------------------|------|
| 89P        | aldrin             | NA   |
| 90P        | dieldrin           |      |
| 91P        | chlordan           |      |
| 92P        | 4,4'-DDT           |      |
| 93P        | 4,4'-DDE           |      |
| 94P        | 4,4'-DDD           |      |
| 95P        | alpha-endosulfan   |      |
| 96P        | beta-endosulfan    |      |
| 97P        | endosulfan sulfate |      |
| 98P        | endrin             |      |
| 99P        | endrin aldehyde    |      |
| 100P       | heptachlor         |      |
| 101P       | heptachlor epoxide |      |
| 102P       | alpha-BHC          |      |
| 103P       | beta-BHC           |      |
| 104P       | gamma-BHC          |      |
| 105P       | delta-BHC          |      |
| 106P       | PCB-1242           | 200u |
| 107P       | PCB-1254           |      |
| 108P       | PCB-1221           |      |
| 109P       | PCB-1232           |      |
| 110P       | PCB-1248           |      |
| 111P       | PCB-1260           |      |
| 112P       | PCB-1016           |      |
| 113P       | toxaphene          | ↓    |

U- Analyzed for but not detected  
K- Detected below quantitation limit  
\*\* Detected below GC/MS detection limit

Case #/SAS #: 1569/439A  
Date Rec'd: 3/15/83

Laboratory: WCTS, Inc.  
Contract #: SAS#439A

Sample #: A1402  
% Moisture: 34.7%

Organics Analysis Data Sheet

Level/Matrix: \_\_\_\_\_  
QC Report #: \_\_\_\_\_  
Spl → Extract: \_\_\_\_\_  
Lab Std ID: NO SAMPLE  
Lab ID: \_\_\_\_\_  
Date Analyzed: \_\_\_\_\_  
Circle Units: ug/Kg, ug/L

Level/Matrix: LOW SOIL  
QC Report #: SAS#439A-2  
Spl → Extract: 5.0g → 10ml  
Lab Std ID: 8894-156  
Lab ID: 8895-159  
Date Extracted: 3/21/83  
Date Analyzed: 3/31/83  
Circle Units: ug/Kg, ug/L

Volatile Compounds

Pesticides

|     |                            |    |
|-----|----------------------------|----|
| 2V  | acrolein                   | NA |
| 3V  | acrylonitrile              |    |
| 4V  | benzene                    |    |
| 6V  | carbon tetrachloride       |    |
| 7V  | chlorobenzene              |    |
| 10V | 1,2-dichloroethane         |    |
| 11V | 1,1,1-trichloroethane      |    |
| 13V | 1,1-dichloroethane         |    |
| 14V | 1,1,2-trichloroethane      |    |
| 15V | 1,1,2,2-tetrachloroethane  |    |
| 16V | chloroethane               |    |
| 17V | bis(chloromethyl)ether     |    |
| 19V | 2-chloroethylvinyl ether   |    |
| 23V | chloroform                 |    |
| 29V | 1,1-dichloroethylene       |    |
| 30V | 1,2-trans-dichloroethylene |    |
| 32V | 1,2-dichloropropane        |    |
| 33V | 1,3-dichloropropane        |    |
| 38V | ethylbenzene               |    |
| 44V | methylene chloride         |    |
| 45V | methyl chloride            |    |
| 46V | methyl bromide             |    |
| 47V | bromoform                  |    |
| 48V | dichlorobromomethane       |    |
| 49V | trichlorofluoromethane     |    |
| 50V | dichlorodifluoromethane    |    |
| 51V | chlorodibromomethane       |    |
| 85V | tetrachloroethylene        |    |
| 86V | toluene                    |    |
| 87V | trichloroethylene          |    |
| 88V | vinyl chloride             | ↓  |

|      |                    |      |
|------|--------------------|------|
| 89P  | aldrin             | NA   |
| 90P  | dieldrin           |      |
| 91P  | chlordan           |      |
| 92P  | 4,4'-DDT           |      |
| 93P  | 4,4'-DDE           |      |
| 94P  | 4,4'-DDD           |      |
| 95P  | alpha-endosulfan   |      |
| 96P  | beta-endosulfan    |      |
| 97P  | endosulfan sulfate |      |
| 98P  | endrin             |      |
| 99P  | endrin aldehyde    |      |
| 100P | heptachlor         |      |
| 101P | heptachlor epoxide |      |
| 102P | alpha-BHC          |      |
| 103P | beta-BHC           |      |
| 104P | gamma-BHC          |      |
| 105P | delta-BHC          | ↓    |
| 106P | PCB-1242           | 200U |
| 107P | PCB-1254           |      |
| 108P | PCB-1221           |      |
| 109P | PCB-1232           |      |
| 110P | PCB-1248           |      |
| 111P | PCB-1260           |      |
| 112P | PCB-1016           |      |
| 113P | toxaphene          | ↓    |

U- Analyzed for but not detected

K- Detected below quantitation limit

\*\* Detected below GC/MS detection limit

Case #/SAS #: 1569/439A Laboratory: WCTS, Inc. Sample #: A1403  
 Date Rec'd: 3/15/83 Contract #: SAS#439A % Moisture: 17.6%

Organics Analysis Data Sheet

Level/Matrix: \_\_\_\_\_  
 QC Report #: \_\_\_\_\_  
 Spl → Extract: \_\_\_\_\_  
 Lab Std ID: NO SAMPLE  
 Lab ID: \_\_\_\_\_  
 Date Analyzed: \_\_\_\_\_  
 Circle Units: ug/Kg, ug/L

Level/Matrix: LOW SOIL  
 QC Report #: SAS#439A-2  
 Spl → Extract: 5.0g → 10mls  
 Lab Std ID: 8894-156  
 Lab ID: 8895-160  
 Date Extracted: 3/21/83  
 Date Analyzed: 3/31/83  
 Circle Units: ug/Kg, ug/L

Volatile Compounds

|     |                            |    |
|-----|----------------------------|----|
| 2V  | acrolein                   | NA |
| 3V  | acrylonitrile              |    |
| 4V  | benzene                    |    |
| 6V  | carbon tetrachloride       |    |
| 7V  | chlorobenzene              |    |
| 10V | 1,2-dichloroethane         |    |
| 11V | 1,1,1-trichloroethane      |    |
| 13V | 1,1-dichloroethane         |    |
| 14V | 1,1,2-trichloroethane      |    |
| 15V | 1,1,2,2-tetrachloroethane  |    |
| 16V | chloroethane               |    |
| 17V | bis(chloromethyl)ether     |    |
| 19V | 2-chloroethylvinyl ether   |    |
| 23V | chloroform                 |    |
| 29V | 1,1-dichloroethylene       |    |
| 30V | 1,2-trans-dichloroethylene |    |
| 32V | 1,2-dichloropropane        |    |
| 33V | 1,3-dichloropropane        |    |
| 38V | ethylbenzene               |    |
| 44V | methylene chloride         |    |
| 45V | methyl chloride            |    |
| 46V | methyl bromide             |    |
| 47V | bromoform                  |    |
| 48V | dichlorobromomethane       |    |
| 49V | trichlorofluoromethane     |    |
| 50V | dichlorodifluoromethane    |    |
| 51V | chlorodibromomethane       |    |
| 85V | tetrachloroethylene        |    |
| 86V | toluene                    |    |
| 87V | trichloroethylene          |    |
| 88V | vinyl chloride             | ↓  |

Pesticides

|      |                    |      |
|------|--------------------|------|
| 89P  | aldrin             | NA   |
| 90P  | dieldrin           |      |
| 91P  | chlordan           |      |
| 92P  | 4,4'-DDT           |      |
| 93P  | 4,4'-DDE           |      |
| 94P  | 4,4'-DDD           |      |
| 95P  | alpha-endosulfan   |      |
| 96P  | beta-endosulfan    |      |
| 97P  | endosulfan sulfate |      |
| 98P  | endrin             |      |
| 99P  | endrin aldehyde    |      |
| 100P | heptachlor         |      |
| 101P | heptachlor epoxide |      |
| 102P | alpha-BHC          |      |
| 103P | beta-BHC           |      |
| 104P | gamma-BHC          |      |
| 105P | delta-BHC          | ↓    |
| 106P | PCB-1242           | 2000 |
| 107P | PCB-1254           |      |
| 108P | PCB-1221           |      |
| 109P | PCB-1232           |      |
| 110P | PCB-1248           |      |
| 111P | PCB-1260           |      |
| 112P | PCB-1016           |      |
| 113P | toxaphene          | ↓    |

U- Analyzed for but not detected  
 K- Detected below quantitation limit  
 \*\* Detected below GC/MS detection limit

Case #/SAS #: 1569/439A Laboratory: WCTS, Inc. Sample #: A1404  
 Date Rec'd: 3/15/83 Contract #: SAS#439A % Moisture: 6.3%

Organics Analysis Data Sheet

Level/Matrix: \_\_\_\_\_  
 QC Report #: \_\_\_\_\_  
 Spl → Extract: \_\_\_\_\_  
 Lab Std ID: NO SAMPLE  
 Lab ID: \_\_\_\_\_  
 Date Analyzed: \_\_\_\_\_  
 Circle Units: ug/Kg, ug/L

Level/Matrix: LOW SOIL  
 QC Report #: SAS#439A-2  
 Spl → Extract: 5.0g → 10mls  
 Lab Std ID: 8882-94  
 Lab ID: 8883-111  
 Date Extracted: 3/21/83  
 Date Analyzed: 3/29/83  
 Circle Units: ug/Kg, ug/L

Volatile Compounds

|     |                            |    |
|-----|----------------------------|----|
| 2V  | acrolein                   | NA |
| 3V  | acrylonitrile              |    |
| 4V  | benzene                    |    |
| 6V  | carbon tetrachloride       |    |
| 7V  | chlorobenzene              |    |
| 10V | 1,2-dichloroethane         |    |
| 11V | 1,1,1-trichloroethane      |    |
| 13V | 1,1-dichloroethane         |    |
| 14V | 1,1,2-trichloroethane      |    |
| 15V | 1,1,2,2-tetrachloroethane  |    |
| 16V | chloroethane               |    |
| 17V | bis(chloromethyl)ether     |    |
| 19V | 2-chloroethylvinyl ether   |    |
| 23V | chloroform                 |    |
| 29V | 1,1-dichloroethylene       |    |
| 30V | 1,2-trans-dichloroethylene |    |
| 32V | 1,2-dichloropropane        |    |
| 33V | 1,3-dichloropropane        |    |
| 38V | ethylbenzene               |    |
| 44V | methylene chloride         |    |
| 45V | methyl chloride            |    |
| 46V | methyl bromide             |    |
| 47V | bromoform                  |    |
| 48V | dichlorobromomethane       |    |
| 49V | trichlorofluoromethane     |    |
| 50V | dichlorodifluoromethane    |    |
| 51V | chlorodibromomethane       |    |
| 85V | tetrachloroethylene        |    |
| 86V | toluene                    |    |
| 87V | trichloroethylene          |    |
| 88V | vinyl chloride             | Y  |

Pesticides

|      |                    |      |
|------|--------------------|------|
| 89P  | aldrin             | NA   |
| 90P  | dieldrin           |      |
| 91P  | chlordan           |      |
| 92P  | 4,4'-DDT           |      |
| 93P  | 4,4'-DDE           |      |
| 94P  | 4,4'-DDD           |      |
| 95P  | alpha-endosulfan   |      |
| 96P  | beta-endosulfan    |      |
| 97P  | endosulfan sulfate |      |
| 98P  | endrin             |      |
| 99P  | endrin aldehyde    |      |
| 100P | heptachlor         |      |
| 101P | heptachlor epoxide |      |
| 102P | alpha-BHC          |      |
| 103P | beta-BHC           |      |
| 104P | gamma-BHC          |      |
| 105P | delta-BHC          | ↓    |
| 106P | PCB-1242           | 200U |
| 107P | PCB-1254           |      |
| 108P | PCB-1221           |      |
| 109P | PCB-1232           |      |
| 110P | PCB-1248           |      |
| 111P | PCB-1260           |      |
| 112P | PCB-1016           |      |
| 113P | toxaphene          | ↓    |

U- Analyzed for but not detected  
 K- Detected below quantitation limit  
 \*\* Detected below GC/MS detection limit

Case #/SAS #: 1569/439A  
Date Rec'd: 3/15/83

Laboratory: WCTS, Inc.  
Contract #: SAS#439A

Sample #: A1405  
% Moisture: 10.2%

Organics Analysis Data Sheet

Level/Matrix: \_\_\_\_\_  
QC Report #: \_\_\_\_\_  
Spl→Extract: \_\_\_\_\_  
Lab Std ID: NO SAMPLE  
Lab ID: \_\_\_\_\_  
Date Analyzed: \_\_\_\_\_  
Circle Units: ug/Kg, ug/L

Level/Matrix: LOW SOIL  
QC Report #: SAS#439A-2  
Spl→Extract: 5.0g → 10mls  
Lab Std ID: 8882-101  
Lab ID: 8883-105  
Date Extracted: 3/21/83  
Date Analyzed: 3/29/83  
Circle Units: (ug/Kg) ug/L

Volatile Compounds

Pesticides

|     |                            |    |
|-----|----------------------------|----|
| 2V  | acrolein                   | NA |
| 3V  | acrylonitrile              |    |
| 4V  | benzene                    |    |
| 6V  | carbon tetrachloride       |    |
| 7V  | chlorobenzene              |    |
| 10V | 1,2-dichloroethane         |    |
| 11V | 1,1,1-trichloroethane      |    |
| 13V | 1,1-dichloroethane         |    |
| 14V | 1,1,2-trichloroethane      |    |
| 15V | 1,1,2,2-tetrachloroethane  |    |
| 16V | chloroethane               |    |
| 17V | bis(chloromethyl)ether     |    |
| 19V | 2-chloroethylvinyl ether   |    |
| 23V | chloroform                 |    |
| 29V | 1,1-dichloroethylene       |    |
| 30V | 1,2-trans-dichloroethylene |    |
| 32V | 1,2-dichloropropane        |    |
| 33V | 1,3-dichloropropane        |    |
| 38V | ethylbenzene               |    |
| 44V | methylene chloride         |    |
| 45V | methyl chloride            |    |
| 46V | methyl bromide             |    |
| 47V | bromoform                  |    |
| 48V | dichlorobromomethane       |    |
| 49V | trichlorofluoromethane     |    |
| 50V | dichlorodifluoromethane    |    |
| 51V | chlorodibromomethane       |    |
| 85V | tetrachloroethylene        |    |
| 86V | toluene                    |    |
| 87V | trichloroethylene          |    |
| 88V | vinyl chloride             | ✓  |

|      |                    |      |
|------|--------------------|------|
| 89P  | aldrin             | NA   |
| 90P  | dieldrin           |      |
| 91P  | chlordan           |      |
| 92P  | 4,4'-DDT           |      |
| 93P  | 4,4'-DDE           |      |
| 94P  | 4,4'-DDD           |      |
| 95P  | alpha-endosulfan   |      |
| 96P  | beta-endosulfan    |      |
| 97P  | endosulfan sulfate |      |
| 98P  | endrin             |      |
| 99P  | endrin aldehyde    |      |
| 100P | heptachlor         |      |
| 101P | heptachlor epoxide |      |
| 102P | alpha-BHC          |      |
| 103P | beta-BHC           |      |
| 104P | gamma-BHC          |      |
| 105P | delta-BHC          | ✓    |
| 106P | PCB-1242           | 200u |
| 107P | PCB-1254           |      |
| 108P | PCB-1221           |      |
| 109P | PCB-1232           |      |
| 110P | PCB-1248           |      |
| 111P | PCB-1260           |      |
| 112P | PCB-1016           |      |
| 113P | toxaphene          | ✓    |

U- Analyzed for but not detected

K- Detected below quantitation limit

\*\* Detected below GC/MS detection limit

1  
7

**APPENDIX B**



INORGANICS ANALYSIS DATA SHEET

LAB NAME VERSAR INC.  
LAB SAMPLE # 9906

CASE 1569  
QC REPORT 58

PROJECT-TASK 793.0000  
BATCH NO. 58

TASK 1

|           | MG/KG   |           | MG/KG    |
|-----------|---------|-----------|----------|
| ALUMINUM  | 300.000 | IRON      | 2160.000 |
| BARIUM    | 25.000  | MANGANESE | 3.750    |
| BERYLLIUM | 0.500   | NICKEL    | 26.000   |
| BORON     | < 5.000 | SILVER    | < 0.500  |
| CHROMIUM  | 4.000   | VANADIUM  | 80.000   |
| COBALT    | < 2.500 | ZINC      | 5.000    |
| COPPER    | 7.500   |           |          |

TASK 2

|          | MG/KG           |          | MG/KG          |
|----------|-----------------|----------|----------------|
| ANTIMONY | <u>&lt;1.</u>   | MERCURY  | <u>&lt;0.1</u> |
| ARSENIC  | <u>3.5</u>      | SELENIUM | <u>0.8</u>     |
| CADMIUM  | <u>&lt;0.05</u> | THALLIUM | <u>&lt;0.5</u> |
| LEAD     | <u>10.</u>      | TIN      | <u>&lt;1.</u>  |

TASK 3  
MG/KG

|                |          |
|----------------|----------|
| OIL AND GREASE | <u>—</u> |
| CYANIDE        | <u>—</u> |
| PHENOLICS      | <u>—</u> |

COMMENTS

- "C" - BLANK CORRECTED CONC.
- "ND/B" - NOT DETECTED DUE TO BLANK
- "S" - SAMPLES ANALYZED BY THE STD. ADDITION METHOD.
- WITH A DETECTION LIMIT OF
- 5. WITH A DETECTION LIMIT OF
- 6. WITH A DETECTION LIMIT OF
- 7. INSUFFICIENT SAMPLE ALIQUOT
- 8. INTERFERENCE

W. W. Wiers for RM  
ROBERT MAXFIELD, INORG. BRANCH MANAGER.



C4

## INORGANICS ANALYSIS DATA SHEET

LAB NAME VERSAR INC.  
LAB SAMPLE # 9908

CASE 1569  
QC REPORT 58

PROJECT-TASK 793.0000  
BATCH NO. 58

## TASK 1

|           | MG/KG    |           | MG/KG    |
|-----------|----------|-----------|----------|
| ALUMINUM  | 4310.000 | IRON      | 4080.000 |
| BARIUM    | 10.000   | MANGANESE | 42.000   |
| BERYLLIUM | < 0.250  | NICKEL    | 4.000    |
| BORON     | < 5.000  | SILVER    | < 0.500  |
| CHROMIUM  | 5.500    | VANADIUM  | < 10.000 |
| COBALT    | < 2.500  | ZINC      | 8.500    |
| COPPER    | 5.000    |           |          |

## TASK 2

|          | MG/KG            |          | MG/KG               |
|----------|------------------|----------|---------------------|
| ANTIMONY | <u>&lt; 1.</u>   | MERCURY  | <u>&lt; 0.1</u>     |
| ARSENIC  | <u>4.5</u>       | SELENIUM | <u>&lt; 0.1</u> "S" |
| CADMIUM  | <u>&lt; 0.05</u> | THALLIUM | <u>&lt; 0.5</u>     |
| LEAD     | <u>4.8</u> "S" * | TIN      | <u>&lt; 1.</u> "S"  |

TASK 3  
MG/KG

OIL AND GREASE \_\_\_\_\_  
CYANIDE \_\_\_\_\_  
PHENOLICS \_\_\_\_\_

\* Not a true std additions procedure as defined in EPA manual  
- unspiked sample value = 3.0 with 68% recovery on spiked portion.

## COMMENTS

- |   |                                |
|---|--------------------------------|
| "C" - BLANK CORRECTED CONC.                         | 5. WITH A DETECTION LIMIT OF   |
| "ND/B" - NOT DETECTED DUE TO BLANK                  | 6. WITH A DETECTION LIMIT OF   |
| "S" - SAMPLES ANALYZED BY THE STD. ADDITION METHOD. | 7. INSUFFICIENT SAMPLE ALIQUOT |
| WITH A DETECTION LIMIT OF                           | 8. INTERFERENCE                |

W. Maxfield for RM  
ROBERT MAXFIELD, INORG. BRANCH MANAGER.



APPENDIX C

|   |  |   |   |                                      |                                    |  |
|---|--|---|---|--------------------------------------|------------------------------------|--|
| 1. COST CENTER  |  | REM/FIT ZONE CONTRACT<br>TECHNICAL DIRECTIVE DOCUMENT (TDD) |   |                                      | 2. NO.:<br><br>F1-8302-01          |  |
| ACCOUNT NO.:  |  | 4. ESTIMATE OF TECHNICAL HOURS:<br><br>100                  |   | 5. EPA SITE ID:<br><br>MAD 980731335 | 6. COMPLETION DATE:<br><br>4-29-83 | 7. REFERENCE INFO.:<br><br><input checked="" type="checkbox"/> YES <input type="checkbox"/> NO<br><input checked="" type="checkbox"/> ATTACHED<br><input type="checkbox"/> PICK UP |
| PRIORITY:<br><br><input checked="" type="checkbox"/> HIGH<br><input type="checkbox"/> MEDIUM<br><input type="checkbox"/> LOW  |  | 4A. ESTIMATE OF SUBCONTRACT COST:                           | 5A. EPA SITE NAME:<br><u>New Bedford</u><br><br><u>Harbor</u> |                                      |                                    |  |
| 8. GENERAL TASK DESCRIPTION: <u>Site inspections of 3 facilities, Develop a property Map</u>  |  |   |   |                                      |                                    |  |
| SPECIFIC ELEMENTS:<br><u>1. Sampling and analysis at Acushnet Process Co.</u><br><u>2. Sampling and analysis at New Bedford Gas and Edison Light Co.</u><br><u>3. Sampling and analysis at conrail yard, New Bedford</u><br><u>4. Map shoreline in industrial properties in New Bedford, Acushnet and fairhaven. list properties owners from 1940 to present.</u> |  |   |   |                                      |                                    | 10. INTERIM DEADLINES:<br><br>_____<br>_____<br>_____<br>_____<br>_____  |
| DESIRED REPORT FORM: <input type="checkbox"/> FORMAL REPORT <input type="checkbox"/> LETTER REPORT <input type="checkbox"/> BRIEFING <input type="checkbox"/>   |  |   |   |                                      |                                    |  |
| OTHER (SPECIFY): _____  |  |   |   |                                      |                                    |  |
| 2. COMMENTS: <u>Coordinate with Gerry Sotolango (223-5775)</u>  |  |   |   |                                      |                                    |  |
| 3. AUTHORIZING RPO: <u><i>Donald R. Smith</i></u><br>(SIGNATURE)<br>Donald R. Smith   |  |   |   |                                      | 14. DATE:<br><u>2-14-83</u>        |  |
| 5. RECEIVED BY: <u><i>Paul F. Clay</i></u><br>(CONTRACTOR RPM SIGNATURE)<br>Paul F. Clay  |  |   |   |                                      | 16. DATE:<br><u>2/14/83</u>        |  |