DBH

401101

Superfund Records Center
SITE: Covitch Property
BREAK: 1.3
OTHER: 556467

SDMS DocID 556467

ADDITIONAL INVESTIGATIONS

ATF/DAVIDSON ARCADE FACILITY

COVITCH PROPERTIES

MUMFORD RIVER

PREPARED FOR

ATF/DAVIDSON COMPANY

WHITINSVILLE, MASSACHUSETTS

PREPARED BY

CASWELL, EICHLER & HILL, INC.

PORTSMOUTH, NEW HAMPSHIRE

JANUARY 1986

Caswell, Eichler and Hill, Inc.
GEOLOGY HYDROLOGY GEOPHYSICS
P.O. Box 4696
Portsmouth, NH 03801
TEL. (603) 431-4899

January 14, 1986

White Consolidated Industries, Inc.
11770 Berea Road
Cleveland, Ohio 44111

Attn: Mr. Dan Marques, P.E.

Re: Our 10-29-85 letter (concerning the 10-24-85 meeting with DEQE - see copy Appendix A)

Dear Dan:

The purpose of this transmittal is to report the laboratory results for items 2, 3, 4 and 5 of the above referenced letter. Each of these items will be addressed below; copies of our 10-29-85 letter and all laboratory data are appended.

#2

No additional organic compounds were found in any of the Arcade or Covitch property samples. See Appendix B for laboratory results.

#3

Concentrations of arsenic, barium and zinc in soil samples taken from MC-7 and MC-10 are characteristic of expected natural background levels. None show evidence of contamination. See Appendix C for laboratory results.

#4

Conductivities generally dropped or remained the same since our 7-18-85 sampling.

No problem levels of arsenic, barium or zinc were detected; M-5 and M-8, however, still exceeded drinking water standards for barium.

Regarding volatile organic compounds, M-3 improved in water quality; M-6 and M-8, however, degraded. In September of 1986, we will graph the results of all quarterly samples to be taken (See 10-29-85 letter for schedule), and analyse water quality trends. We will, however, be transmitting the quarterly results to you as we receive them.

#5

As the laboratory results indicate, (Appendix E), there is a great deal of chromium present in the Mumford River bottom sediments, but virtually none of it appears to be mobile. The greatest concentrations of chromium (2300 ug/g) were found in B-5 and B-7 which are both located well up-river (west) of the ATF/D Arcade facility. The sketch map included with the laboratory data shows the sampling locations and characterizes the nature of the sediments.

Of particular interest, B-5 was noted to exhibit a distinct color change about a foot below the river/sediment interface. The top layer (B-5A) was light brown silty river/bottom sediments, while the lower layer (B-5B) was dark brown silty river bottom sediments. Each layer was sampled separately, and the results show the greatest occurrance of chromium is in the upper portion of the sediments.

The results of the EP Toxicity testing clearly indicates that a retardation agent is affecting the mobility of the chromium. When this much chromium is present, but virtually none of it is extractable, tannery wastes appear to be the likely source. The oils used in the process are repellent to water by nature. This serves to further reduce the mobility of the chromium that is already chealated with the organic tanning wastes. Textile refining and dying wastes can apparently exhibit similar properties. Both types of industries are reported to have been in operation up-river in the past. We have not attempted to verify these reports.

In that ATF/D does not own the river bottom, and because the source of chromium contamination is clearly up-river of the Arcade facility, we recommend that you make the date available to DEQE, and remove yourselves from any further responsibilities in this regard.

This letter and these appended data serve to answer the DEQE's additional questions regarding the Covitch property. The site's soil and ground water appear to be clean, save the Building 9/Raceway area that you are presently rectifying. No further activity on our part is presently anticipated regarding the Covitch property.

The next quarterly sampling of the Arcade wells is scheduled for February 12, 1986. At that time we will be recording pH, conductivity and temperature, and we will be sampling for volatile organic compounds (EPA 624). We recommend that you ask the DEQE to suspend the need for further arsenic, barium and zinc testing. The results to date do not warrent further investigation. Please let us know of their decision.

Should you have any questions concerning this letter or data, please call.

Very truly yours,
CASWELL, EICHLER & HILL, INC.

Matthew F. Eichler III
Principal

APPENDIX A

Caswell, Eichler and Hill, Inc.
GEOLOGY HYDROLOGY GEOPHYSICS
P.O. Box 4696
Portsmouth, NH 03801
TEL. (603) 431-4899

October 29, 1985

White Consolidated Industries, Inc.
11770 Berea Road
Cleveland, Ohio 44111

Attn: Mr. Dan Marques, P.E.

Re: 10-24-85 Meeting at DEQE Offices, Worcester, MA

Dear Dan:

Per the agreements arrived at during our meeting with DEQE, CEH had been given five action items to pursue. They were:

1. Research the availability of a comprehensive hazardous materials handling text.

2. Instruct RAI to evaluate the ten highest peaks of organic chemicals present (other than those chemical compounds included in the EPA 624 analysis already completed) in each of the Arcade water samples (M-1 through M-8), the three auger probe soil samples (AP-104, S-4; AP-105, S-1; AP-105, S-3) taken from the Building 9/Raceway area, and the Covitch property water samples (MC-1, 2, 3, 7, 10, 11, 12, 13, 14 and 15).

3. Select soil samples taken during monitoring well construction from MC-7 and MC-10, and have them tested for barium, arsenic and zinc.

4. Determine a quarterly sampling schedule for the Arcade monitoring wells to include volatile organic compounds (EPA 624, and others to be determined by outcome of #2 above), barium, arsenic, zinc, pH, conductivity and temperature.

5. Take additional benthic samples from the Mumford River, and conduct an EP Toxicity Test on each sample.

To date, the following actions have been taken on the above five items:

1. The hazardous materials text:

   TITLE: MATERIAL SAFETY DATA SHEETS COLLECTION (2 Vols.)

   ORDER: GENIUM PUBLISHERS
   1145 CATALYN STREET
   SCHENECTADY, NY 12303-1836

2. All tasks discussed have been begun. A preliminary progress report should be forthcoming in several weeks.

3. The soil samples were delivered to RAI, and the data should be available in several weeks.

4. The quarterly sampling schedule is as follows:

   1st November 14, 1985
   2nd February 12, 1986
   3rd May 14, 1986
   4th August 13, 1986

5. CEH and RAI will be collecting the benthic samples on November 14, 1985. Laboratory data should be completed several weeks thereafter.

Several other WCI action items were discussed during our meeting. To summarize our notes:

1. <u>Building 9/Raceway area</u>

   a. Prepare a work plan to construct and operate a collection trench/oil separator along the raceway. This plan must include a good reason why WCI is not simply removing all of the contaminated soil and ground water, and transporting it to a secure landfill or other disposal facility.

   b. Obtain a ground water discharge permit for the recycling of water that has been separated from the oil. Forms are available from Susan Corderman.

   c. The work plan should duscuss options for determining the level of oil contamination on the south side of the raceway (monitoring well, deep test pit), and how clean up or containment will be handled should problem levels exist. The work plan should also discuss long term monitoring of the south side of the raceway. The placement of a monitoring well or two should suffice.

   d. The work plan should state that once construction of the trench/separator is completed, the raceway will be once again thoroughly cleaned.

2. River Bottom

a. Have WCI legal personnel establish who owns the Mumford River bottom.

b. If WCI or ATF/D does not own the river bottom, have WCI legal submit a brief to DEQE so stating, and denying responsibility for the presence or clean-up of chromium known to be present in the benthic sediments.

c. Check meaning of Traverse Line across the Mumford River that is labeled White Consolidated Industries on FIGURE 2, PLATE 1 of the Covitch property report. Also check to see if Mr. Covitch owns any of the river bottom on the other side of the traverse should it be determined that WCI or ATF/D owns the river bottom to that point. Mr. Covitch may be a slightly different case in that he owns the dam which creates Whitin Pond.

Should you have any questions regarding the content of this letter, or should you need any assistance with the Building 9/Raceway work plan, please call.

Very truly yours,
CASWELL, EICHLER & HILL, INC.

Matthew F. Eichler III
Principal

MFE/SKK

APPENDIX B

Resource Analysts, Incorporated
Box 4778 Hampton, NH 03842
(603) 926-[illegible]

November 21, 1985

Mr. Matt Eichler
Caswell, Eichler and Hill
P.O. Box 4696
Portsmouth, NH 03801

Dear Matt:

This is to summarize results of our review of GC/MS data from three sets of samples sent to us for volatile organic analysis.

Lab Number	Field ID	Other compounds observed
5008-1	M-1	None
5008-2	M-2	None
5008-3	M-3	None
5008-4	M-4	None
5008-5	M-5	None
5008-6	M-6	None
5008-7	M-7	None
5008-8	M-8	None
5006-6	AP104 S-6	None
5006-7	AP105 S-1	None
5006-9	AP105 S-3	None
5070-15	MC-1	None
5070-16	MC-2	None
5070-17	MC-3	None
5070-18	MC-7	None
5070-19	MC-10	None
5070-20	MC-11	None
5070-21	MC-12	None
5070-22	MC-13	None
5070-23	MC-14	None
5070-24	MC-15	None

Magnetic tapes holding this data were reloaded into our GC/MS data system. The spectral files were used to reconstruct total ion chromatograms for each sample. The chromatograms were examined for peaks whose total ion intensity were greater than or equal to about five percent of that for the nearest internal standard. The internal standards were added to the samples at the 40ug/L level immediately prior to analysis. This would include any compounds whose concentrations were in the 2ug/L range, assuming a similar mass fragmentation behavior to that of the internal standard. Where the peaks proved to be common laboratory contaminants (e.g. methylene chloride, acetone, freon, etc.) results less than two times levels found in laboratory blanks were ignored.

If you have any questions please do not hesitate to call.

Sincerely,
RESOURCE ANALYSTS, INC.

Russell D. Foster, Jr.
Technical Director

Enclosure

RDF/myv

APPENDIX C

Resource Analysts, Incorporated
Box 4778 Hampton, NH 03842
(603) 926-7777

TO:

Mr. Matt Eichler
Caswell, Eichler and Hill
P.O. Box 4696
Portsmouth, NH 03801

PO # Verbal

Date Received: 10-30-85 (1115

Lab Number: 5580

Date Reported: 11-20-85

Please find attached results for Arsenic, Barium, and Zinc.

Date 11/20/85

Technical Director

Field Identification: MC-7 5'-6'6" 1.1.1 S-2 Matrix: Solid
Laboratory Number: 5580-1

Parameter	Date analyzed	Method	Ref.	Concentration
Arsenic, recoverable (ug/g)	11-14-85	3050/304	1/2	14
Barium, recoverable (ug/g)	11-15-85	3050/303C	1/2	75
Zinc, recoverable (ug/g)	11-8-85	3050/303A	1/2	100

Field Identification: MC-7 10'-11'6" 8.21.31 S-3 Matrix: Solid
Laboratory Number: 5580-2

Parameter	Date analyzed	Method	Ref.	Concentration
Arsenic, recoverable (ug/g)	11-14-85	3050/304	1/2	6.2
Barium, recoverable (ug/g)	11-15-85	3050/303C	1/2	63
Zinc, recoverable (ug/g)	11-8-85	3050/303A	1/2	76

Field Identification: MC-10 5'-6'6" 5.7.11 S-2 Matrix: Solid
Laboratory Number: 5580-3

Parameter	Date analyzed	Method	Ref.	Concentration
Arsenic, recoverable (ug/g)	11-14-85	3050/304	1/2	6.4
Barium, recoverable (ug/g)	11-15-85	3050/303C	1/2	54
Zinc, recoverable (ug/g)	11-8-85	3050/303A	1/2	67

Field Identification: MC-10' Sample(wash) S-3 Matrix: Solid
Laboratory Number: 5580-4

Parameter	Date analyzed	Method	Ref.	Concentration
Arsenic, recoverable (ug/g)	11-14-85	3050/304	1/2	7.6
Barium, recoverable (ug/g)	11-15-85	3050/303C	1/2	69
Zinc, recoverable (ug/g)	11-8-85	3050/303A	1/2	74

Reference 1: EPA SW 846, 2nd Edition
Reference 2: Standard Methods, 16th Edition

Resource Analysts, Incorporated

APPENDIX D

LOCATION: ATF DAVIDSON, WHITINSVILLE, MA

ENGINEERS: Caswell, Eichler and Hill, Inc.

SAMPLING DATE: 11/13/85

WELL NUMBER	TOTAL DEPTH	DIAMETER	TIME	STATIC LEVEL TO STEEL CASING	COND/TEMP umhos/cm	°C	pH
M-1	14'	1.5"	1455	7.17'	300	15	5.25
M-2	12'	1.5"	1520	7.74'	242	16	8.15
M-3	10'	1.5"	1710	6.48'	208	15	7.40
M-4	10'	1.5"	1650	7.35'	120	16	6.60
M-5	10'	1.5"	1540	7.02'	358	18	6.30
M-6	10'	1.5"	1620	7.08'	230	15	6.36
M-7	9.5'	1.5"	1606	6.24'	229	15	9.55
M-8	9.8'	1.5"	1640	6.71'	170	15	9.13

Total depths come from the well plans.

Resource Analysts, Incorporated
Box 4778 Hampton, NH 03842
(603) 926-[illegible]

TO:

Mr. Matt Eichler
Caswell, Eichler, and Hill
P.O. Box 4696
Portsmouth, NH 03801

PO # ATF/Davidson

Date Received: 11-14-85 (1030)

Lab Number: 5665

Date Reported: 11-29-85

Please find attached results for Volatile Organic Compounds, Arsenic, Barium, and Zinc.

Russell [illegible]

Technical Director

Date 11-29-85

CHAIN OF CUSTODY DOCUMENTATION

CLIENT _____

ADDRESS _____

JOB NAME/NUMBER _____

PROJECT CONTACT _____

SAMPLING LOCATION _____

SAMPLE COLLECTOR _____

FIELD IDENTIFICATION (List each container separately)	LAB #	SAMPLE MATRIX	CONTAINER TYPE/VOLUME	FILTRATION	FIELD PRESERVATION	REMARKS/ANALYSIS REQUESTED
Date Time		○ Solid ◉ Liquid ○ Other	◉ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ◉ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		

Relinquished By:	Date	Time	Received By:	Date	Time
Relinquished By:	**Date**	**Time**	**Received for Laboratory By:**	**Date**	**Time**
			Maria Clarke	11/14/	

Resource Analysts, Incorporated

Resource Analysts, Incorporated

page ____ of ____

CHAIN OF CUSTODY DOCUMENTATION

CLIENT ____

ADDRESS ____

JOB NAME/NUMBER ____

PROJECT CONTACT ____

SAMPLING LOCATION ____

SAMPLE COLLECTOR ____

FIELD IDENTIFICATION (list each container separately)	LAB #	SAMPLE MATRIX	CONTAINER TYPE/VOLUME	FILTRATION	FIELD PRESERVATION	REMARKS/ANALYSIS REQUESTED
Date ____ Time 1455		○ Solid ● Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	● field ○ lab ○ none		
Date ____ Time 1520		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date ____ Time 1710		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date ____ Time ____		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date ____ Time ____		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date ____ Time ____		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date ____ Time ____		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date ____ Time ____		○ Solid ○ Liquid ○ Other ✓	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		

Relinquished By:	Date	Time	Received By:	Date	Time
Relinquished By:	**Date**	**Time**	**Received For Laboratory By:**	**Date**	**Time**
			Laurie Clarke	11/14	

Resource Analysts, Incorporated

Resource Analysts, Incorporated

page ____ of ____

CHAIN OF CUSTODY DOCUMENTATION

CLIENT [illegible]

ADDRESS

JOB NAME/NUMBER

PROJECT CONTACT [illegible]

SAMPLING LOCATION [illegible]

SAMPLE COLLECTOR [illegible]

FIELD IDENTIFICATION List each container separately	LAB #	SAMPLE MATRIX	CONTAINER TYPE/VOLUME	FILTRATION	FIELD PRESERVATION	REMARKS/ANALYSIS REQUESTED
Date M-1 Time 1455		○ Solid ● Liquid ○ Other	○ P/ mL ○ G/ mL ● G/T/ mL	○ field ○ lab ● none	[illegible]	[illegible]
Date M-2 Time 1520		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date M-3 Time 1710		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date M-4 Time 1650		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date M-5 Time 1540		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date M-6 Time [illegible]		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date [illegible] Time [illegible]		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date [illegible] Time [illegible]		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		

Relinquished By:	Date	Time	Received By:	Date	Time
[illegible]	[illegible]				
Relinquished By:	Date	Time	Received For Laboratory By: Laura Clarke	Date [illegible]	Time [illegible]

Resource Analysts, Incorporated

Resource Analysts, Incorporated

Field Identification: M-1 Matrix: Water
Laboratory Number: 5665-9

Parameter	Date analyzed	Method	Ref.	Concentration
Arsenic, dissolved (mg/L)	11-15-85	303A	1	<0.01
Barium, dissolved (mg/L)	11-15-85	303C	1	<0.2
Zinc, dissolved (mg/L)	11-20-85	303A	1	<0.005

Field Identification: M-2 Matrix: Water
Laboratory Number: 5665-10

Parameter	Date analyzed	Method	Ref.	Concentration
Arsenic, dissolved (mg/L)	11-15-85	303A	1	<0.01
Barium, dissolved (mg/L)	11-15-85	303C	1	<0.2
Zinc, dissolved (mg/L)	11-20-85	303A	1	<0.005

Field Identification: M-3 Matrix: Water
Laboratory Number: 5665-11

Parameter	Date analyzed	Method	Ref.	Concentration
Arsenic, dissolved (mg/L)	11-15-85	303A	1	<0.01
Barium, dissolved (mg/L)	11-15-85	303C	1	<0.2
Zinc, dissolved (mg/L)	11-20-85	303A	1	0.005

Field Identification: M-4 Matrix: Water
Laboratory Number: 5665-12

Parameter	Date analyzed	Method	Ref.	Concentration
Arsenic, dissolved (mg/L)	11-15-85	303A	1	<0.01
Barium, dissolved (mg/L)	11-15-85	303C	1	0.72
Zinc, dissolved (mg/L)	11-20-85	303A	1	<0.005

Reference 1: Standard Methods, 16th Edition

Field Identification: M-5
Laboratory Number: 5665-13

Matrix: Water

Parameter	Date analyzed	Method	Ref.	Concentration
Arsenic, dissolved (mg/L)	11-15-85	303A	1	<0.01
Barium, dissolved (mg/L)	11-15-85	303C	1	3.1
Zinc, dissolved (mg/L)	11-20-85	303A	1	0.011

Field Identification: M-6
Laboratory Number: 5665-14

Matrix: Water

Parameter	Date analyzed	Method	Ref.	Concentration
Arsenic, dissolved (mg/L)	11-15-85	303A	1	<0.01
Barium, dissolved (mg/L)	11-15-85	303C	1	0.73
Zinc, dissolved (mg/L)	11-20-85	303A	1	<0.005

Field Identification: M-7
Laboratory Number: 5665-15

Matrix: Water

Parameter	Date analyzed	Method	Ref.	Concentration
Arsenic, dissolved (mg/L)	11-15-85	303A	1	<0.01
Barium, dissolved (mg/L)	11-15-85	303C	1	<0.2
Zinc, dissolved (mg/L)	11-20-85	303A	1	<0.005

Field Identification: M-8
Laboratory Number: 5665-16

Matrix: Water

Parameter	Date analyzed	Method	Ref.m	Concentration
Arsenic, dissolved (mg/L)	11-15-85	303A	1	<0.01
Barium, dissolved (mg/L)	11-15-85	303C	1	1.4
Zinc, dissolved (mg/L)	11-20-85	303A	1	<0.005

Reference 1: Standard Methods, 16th Edition

Resource Analysts, Incorporated

Lab Number: 5665-1
Sample Designation: M-1
Date analyzed: 11-16-85

VOLATILE ORGANICS	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
CHLOROMETHANE	BDL	10
VINYL CHLORIDE	BDL	10
CHLOROETHANE	BDL	5
BROMOMETHANE	BDL	10
METHYLENE CHLORIDE	BDL	5
TRICHLOROFLUOROMETHANE	BDL	5
1,1-DICHLOROETHYLENE	BDL	5
1,1-DICHLOROETHANE	BDL	5
1,2-trans-DICHLOROETHYLENE	BDL	5
CHLOROFORM	BDL	5
1,2-DICHLOROETHANE	BDL	5
1,1,1-TRICHLOROETHANE	BDL	5
CARBON TETRACHLORIDE	BDL	5
BROMODICHLOROMETHANE	BDL	5
1,2-DICHLOROPROPANE	BDL	5
1,3-trans-DICHLOROPROPENE	BDL	5
TRICHLOROETHYLENE	BDL	5
BENZENE	BDL	5
1,3-cis-DICHLOROPROPENE	BDL	5
1,1,2-TRICHLOROETHANE	BDL	5
2-CHLOROETHYL VINYL ETHER	BDL	5
DIBROMOCHLOROMETHANE	BDL	5
BROMOFORM	BDL	5
TETRACHLOROETHYLENE	BDL	5
1,1,2,2-TETRACHLOROETHANE	BDL	5
TOLUENE	BDL	5
CHLOROBENZENE	BDL	5
ETHYLBENZENE	BDL	5
ACETONE	BDL	25
CARBON DISULFIDE	BDL	5
THF	BDL	25
MEK	BDL	25
MIBK	BDL	25
STYRENE	BDL	5
XYLENES	BDL	5

BDL = BELOW DETECTION LIMIT
METHOD REFERENCE: EPA 600/4-82-057 METHOD 624

Resource Analysts, Incorporated

Lab Number: 5665-2
Sample Designation: M-2
Date analyzed: 11-16-85

VOLATILE ORGANICS	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
CHLOROMETHANE	BDL	10
VINYL CHLORIDE	BDL	10
CHLOROETHANE	BDL	5
BROMOMETHANE	BDL	10
METHYLENE CHLORIDE	BDL	5
TRICHLOROFLUOROMETHANE	BDL	5
1,1-DICHLOROETHYLENE	BDL	5
1,1-DICHLOROETHANE	BDL	5
1,2-trans-DICHLOROETHYLENE	BDL	5
CHLOROFORM	BDL	5
1,2-DICHLOROETHANE	BDL	5
1,1,1-TRICHLOROETHANE	BDL	5
CARBON TETRACHLORIDE	BDL	5
BROMODICHLOROMETHANE	BDL	5
1,2-DICHLOROPROPANE	BDL	5
1,3-trans-DICHLOROPROPENE	BDL	5
TRICHLOROETHYLENE	BDL	5
BENZENE	BDL	5
1,3-cis-DICHLOROPROPENE	BDL	5
1,1,2-TRICHLOROETHANE	BDL	5
2-CHLOROETHYL VINYL ETHER	BDL	5
DIBROMOCHLOROMETHANE	BDL	5
BROMOFORM	BDL	5
TETRACHLOROETHYLENE	BDL	5
1,1,2,2-TETRACHLOROETHANE	BDL	5
TOLUENE	BDL	5
CHLOROBENZENE	BDL	5
ETHYLBENZENE	BDL	5
ACETONE	BDL	25
CARBON DISULFIDE	BDL	5
THF	BDL	25
MEK	BDL	25
MIBK	BDL	25
STYRENE	BDL	5
XYLENES	BDL	5

BDL = BELOW DETECTION LIMIT
METHOD REFERENCE: EPA 600/4-82-057 METHOD 624

Resource Analysts, Incorporated

Lab Number: 5665-2 (Laboratory Duplicate)
Sample Designation: M-2
Date analyzed: 11-16-85

VOLATILE ORGANICS	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
CHLOROMETHANE	BDL	10
VINYL CHLORIDE	BDL	10
CHLOROETHANE	BDL	5
BROMOMETHANE	BDL	10
METHYLENE CHLORIDE	BDL	5
TRICHLOROFLUOROMETHANE	BDL	5
1,1-DICHLOROETHYLENE	BDL	5
1,1-DICHLOROETHANE	BDL	5
1,2-trans-DICHLOROETHYLENE	BDL	5
CHLOROFORM	BDL	5
1,2-DICHLOROETHANE	BDL	5
1,1,1-TRICHLOROETHANE	BDL	5
CARBON TETRACHLORIDE	BDL	5
BROMODICHLOROMETHANE	BDL	5
1,2-DICHLOROPROPANE	BDL	5
1,3-trans-DICHLOROPROPENE	BDL	5
TRICHLOROETHYLENE	BDL	5
BENZENE	BDL	5
1,3-cis-DICHLOROPROPENE	BDL	5
1,1,2-TRICHLOROETHANE	BDL	5
2-CHLOROETHYL VINYL ETHER	BDL	5
DIBROMOCHLOROMETHANE	BDL	5
BROMOFORM	BDL	5
TETRACHLOROETHYLENE	BDL	5
1,1,2,2-TETRACHLOROETHANE	BDL	5
TOLUENE	BDL	5
CHLOROBENZENE	BDL	5
ETHYLBENZENE	BDL	5
ACETONE	BDL	25
CARBON DISULFIDE	BDL	5
THF	BDL	25
MEK	BDL	25
MIBK	BDL	25
STYRENE	BDL	5
XYLENES	BDL	5

BDL = BELOW DETECTION LIMIT
METHOD REFERENCE: EPA 600/4-82-057 METHOD 624

Resource Analysts, Incorporated

Lab Number: 5665-3
Sample Designation: M-3
Date analyzed: 11-16-85

VOLATILE ORGANICS	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
CHLOROMETHANE	BDL	10
VINYL CHLORIDE	80	10
CHLOROETHANE	BDL	5
BROMOMETHANE	BDL	10
METHYLENE CHLORIDE	BDL	5
TRICHLOROFLUOROMETHANE	BDL	5
1,1-DICHLOROETHYLENE	BDL	5
1,1-DICHLOROETHANE	BDL	5
1,2-trans-DICHLOROETHYLENE	20	5
CHLOROFORM	BDL	5
1,2-DICHLOROETHANE	BDL	5
1,1,1-TRICHLOROETHANE	BDL	5
CARBON TETRACHLORIDE	BDL	5
BROMODICHLOROMETHANE	BDL	5
1,2-DICHLOROPROPANE	BDL	5
1,3-trans-DICHLOROPROPENE	BDL	5
TRICHLOROETHYLENE	BDL	5
BENZENE	BDL	5
1,3-cis-DICHLOROPROPENE	BDL	5
1,1,2-TRICHLOROETHANE	BDL	5
2-CHLOROETHYL VINYL ETHER	BDL	5
DIBROMOCHLOROMETHANE	BDL	5
BROMOFORM	BDL	5
TETRACHLOROETHYLENE	BDL	5
1,1,2,2-TETRACHLOROETHANE	BDL	5
TOLUENE	BDL	5
CHLOROBENZENE	BDL	5
ETHYLBENZENE	BDL	5
ACETONE	BDL	25
CARBON DISULFIDE	BDL	5
THF	BDL	25
MEK	BDL	25
MIBK	BDL	25
STYRENE	BDL	5
XYLENES	BDL	5

BDL = BELOW DETECTION LIMIT
METHOD REFERENCE: EPA 600/4-82-057 METHOD 624

Lab Number: 5665-4
Sample Designation: M-4
Date analyzed: 11-16-85

VOLATILE ORGANICS	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
CHLOROMETHANE	BDL	10
VINYL CHLORIDE	BDL	10
CHLOROETHANE	Trace	5
BROMOMETHANE	BDL	10
METHYLENE CHLORIDE	BDL	5
TRICHLOROFLUOROMETHANE	BDL	5
1,1-DICHLOROETHYLENE	BDL	5
1,1-DICHLOROETHANE	Trace	5
1,2-trans-DICHLOROETHYLENE	BDL	5
CHLOROFORM	BDL	5
1,2-DICHLOROETHANE	BDL	5
1,1,1-TRICHLOROETHANE	BDL	5
CARBON TETRACHLORIDE	BDL	5
BROMODICHLOROMETHANE	BDL	5
1,2-DICHLOROPROPANE	BDL	5
1,3-trans-DICHLOROPROPENE	BDL	5
TRICHLOROETHYLENE	BDL	5
BENZENE	BDL	5
1,3-cis-DICHLOROPROPENE	BDL	5
1,1,2-TRICHLOROETHANE	BDL	5
2-CHLOROETHYL VINYL ETHER	BDL	5
DIBROMOCHLOROMETHANE	BDL	5
BROMOFORM	BDL	5
TETRACHLOROETHYLENE	BDL	5
1,1,2,2-TETRACHLOROETHANE	BDL	5
TOLUENE	BDL	5
CHLOROBENZENE	BDL	5
ETHYLBENZENE	BDL	5
ACETONE	BDL	25
CARBON DISULFIDE	BDL	5
THF	BDL	25
MEK	BDL	25
MIBK	BDL	25
STYRENE	BDL	5
XYLENES	BDL	5

"Trace" denotes probable presence below listed detection limit.

BDL = BELOW DETECTION LIMIT
METHOD REFERENCE: EPA 600/4-82-057 METHOD 624

Resource Analysts, Incorporated

Lab Number: 5665-5
Sample Designation: M-5
Date analyzed: 11-16-85

VOLATILE ORGANICS	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
CHLOROMETHANE	BDL	10
VINYL CHLORIDE	BDL	10
CHLOROETHANE	BDL	5
BROMOMETHANE	BDL	10
METHYLENE CHLORIDE	BDL	5
TRICHLOROFLUOROMETHANE	BDL	5
1,1-DICHLOROETHYLENE	BDL	5
1,1-DICHLOROETHANE	BDL	5
1,2-trans-DICHLOROETHYLENE	BDL	5
CHLOROFORM	BDL	5
1,2-DICHLOROETHANE	BDL	5
1,1,1-TRICHLOROETHANE	BDL	5
CARBON TETRACHLORIDE	BDL	5
BROMODICHLOROMETHANE	BDL	5
1,2-DICHLOROPROPANE	BDL	5
1,3-trans-DICHLOROPROPENE	BDL	5
TRICHLOROETHYLENE	BDL	5
BENZENE	BDL	5
1,3-cis-DICHLOROPROPENE	BDL	5
1,1,2-TRICHLOROETHANE	BDL	5
2-CHLOROETHYL VINYL ETHER	BDL	5
DIBROMOCHLOROMETHANE	BDL	5
BROMOFORM	BDL	5
TETRACHLOROETHYLENE	BDL	5
1,1,2,2-TETRACHLOROETHANE	BDL	5
TOLUENE	BDL	5
CHLOROBENZENE	BDL	5
ETHYLBENZENE	BDL	5
ACETONE	BDL	25
CARBON DISULFIDE	BDL	5
THF	BDL	25
MEK	BDL	25
MIBK	BDL	25
STYRENE	BDL	5
XYLENES	BDL	5

BDL = BELOW DETECTION LIMIT
METHOD REFERENCE: EPA 600/4-82-057 METHOD 624

Resource Analysts, Incorporated

Lab Number: 5665-6
Sample Designation: M-6
Date analyzed: 11-19-85

VOLATILE ORGANICS	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
CHLOROMETHANE	BDL	10
VINYL CHLORIDE	180	10
CHLOROETHANE	BDL	5
BROMOMETHANE	BDL	10
METHYLENE CHLORIDE	BDL	5
TRICHLOROFLUOROMETHANE	BDL	5
1,1-DICHLOROETHYLENE	BDL	5
1,1-DICHLOROETHANE	BDL	5
1,2-trans-DICHLOROETHYLENE	330	5
CHLOROFORM	BDL	5
1,2-DICHLOROETHANE	BDL	5
1,1,1-TRICHLOROETHANE	BDL	5
CARBON TETRACHLORIDE	BDL	5
BROMODICHLOROMETHANE	BDL	5
1,2-DICHLOROPROPANE	BDL	5
1,3-trans-DICHLOROPROPENE	BDL	5
TRICHLOROETHYLENE	13	5
BENZENE	BDL	5
1,3-cis-DICHLOROPROPENE	BDL	5
1,1,2-TRICHLOROETHANE	BDL	5
2-CHLOROETHYL VINYL ETHER	BDL	5
DIBROMOCHLOROMETHANE	BDL	5
BROMOFORM	BDL	5
TETRACHLOROETHYLENE	27	5
1,1,2,2-TETRACHLOROETHANE	BDL	5
TOLUENE	BDL	5
CHLOROBENZENE	BDL	5
ETHYLBENZENE	BDL	5
ACETONE	BDL	25
CARBON DISULFIDE	BDL	5
THF	BDL	25
MEK	BDL	25
MIBK	BDL	25
STYRENE	BDL	5
XYLENES	BDL	5

BDL = BELOW DETECTION LIMIT
METHOD REFERENCE: EPA 600/4-82-057 METHOD 624

Resource Analysts, Incorporated

Lab Number: 5665-7
Sample Designation: M-7
Date analyzed: 11-19-85

VOLATILE ORGANICS	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
CHLOROMETHANE	BDL	10
VINYL CHLORIDE	BDL	10
CHLOROETHANE	BDL	5
BROMOMETHANE	BDL	10
METHYLENE CHLORIDE	BDL	5
TRICHLOROFLUOROMETHANE	BDL	5
1,1-DICHLOROETHYLENE	9	5
1,1-DICHLOROETHANE	BDL	5
1,2-trans-DICHLOROETHYLENE	BDL	5
CHLOROFORM	BDL	5
1,2-DICHLOROETHANE	BDL	5
1,1,1-TRICHLOROETHANE	BDL	5
CARBON TETRACHLORIDE	BDL	5
BROMODICHLOROMETHANE	BDL	5
1,2-DICHLOROPROPANE	BDL	5
1,3-trans-DICHLOROPROPENE	BDL	5
TRICHLOROETHYLENE	Trace	5
BENZENE	Trace	5
1,3-cis-DICHLOROPROPENE	BDL	5
1,1,2-TRICHLOROETHANE	BDL	5
2-CHLOROETHYL VINYL ETHER	BDL	5
DIBROMOCHLOROMETHANE	BDL	5
BROMOFORM	BDL	5
TETRACHLOROETHYLENE	BDL	5
1,1,2,2-TETRACHLOROETHANE	BDL	5
TOLUENE	BDL	5
CHLOROBENZENE	BDL	5
ETHYLBENZENE	BDL	5
ACETONE	BDL	25
CARBON DISULFIDE	BDL	5
THF	BDL	25
MEK	BDL	25
MIBK	BDL	25
STYRENE	BDL	5
XYLENES	BDL	5

"Trace" denotes probable presence below listed detection limit.

BDL = BELOW DETECTION LIMIT
METHOD REFERENCE: EPA 600/4-82-057 METHOD 624

Resource Analysts, Incorporated

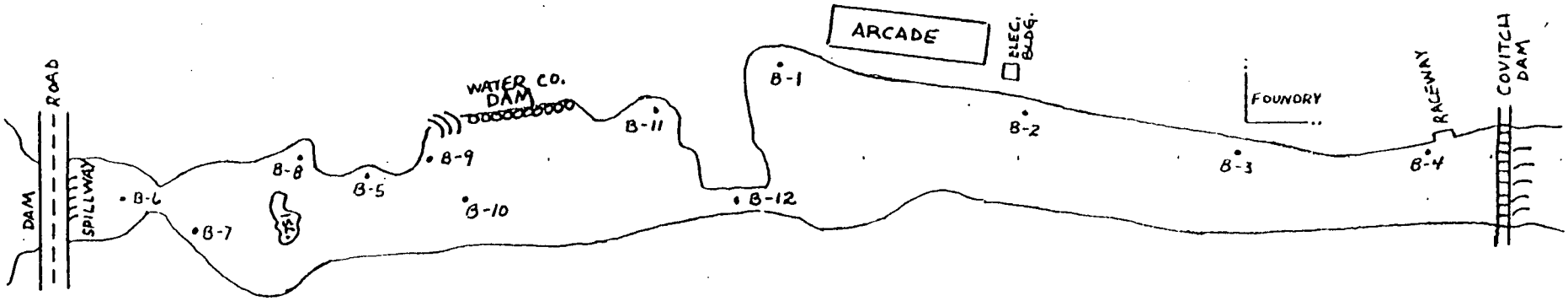
Lab Number: 5665-8
Sample Designation: M-8
Date analyzed: 11-19-85

VOLATILE ORGANICS	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
CHLOROMETHANE	BDL	50
VINYL CHLORIDE	380	50
CHLOROETHANE	BDL	25
BROMOMETHANE	BDL	50
METHYLENE CHLORIDE	BDL	25
TRICHLOROFLUOROMETHANE	BDL	25
1,1-DICHLOROETHYLENE	BDL	25
1,1-DICHLOROETHANE	BDL	25
1,2-trans-DICHLOROETHYLENE	1100	25
CHLOROFORM	BDL	25
1,2-DICHLOROETHANE	BDL	25
1,1,1-TRICHLOROETHANE	BDL	25
CARBON TETRACHLORIDE	BDL	25
BROMODICHLOROMETHANE	BDL	25
1,2-DICHLOROPROPANE	BDL	25
1,3-trans-DICHLOROPROPENE	BDL	25
TRICHLOROETHYLENE	Trace	25
BENZENE	BDL	25
1,3-cis-DICHLOROPROPENE	BDL	25
1,1,2-TRICHLOROETHANE	BDL	25
2-CHLOROETHYL VINYL ETHER	BDL	25
DIBROMOCHLOROMETHANE	BDL	25
BROMOFORM	BDL	25
TETRACHLOROETHYLENE	BDL	25
1,1,2,2-TETRACHLOROETHANE	BDL	25
TOLUENE	BDL	25
CHLOROBENZENE	BDL	25
ETHYLBENZENE	BDL	25
ACETONE	BDL	120
CARBON DISULFIDE	BDL	25
THF	BDL	120
MEK	BDL	120
MIBK	BDL	120
STYRENE	BDL	25
XYLENES	BDL	25

"Trace" denotes probable presence below listed detection limit.

BDL = BELOW DETECTION LIMIT
METHOD REFERENCE: EPA 600/4-82-057 METHOD 624

APPENDIX E



LOCATIONS OF MUMFORD RIVER BOTTOM SEDIMENT SAMPLES (11-13-85)

B-1	BLACK	SILTY	RIVER	BOTTOM	SEDIMENTS
B-2	"	"	"	"	"
B-3	"	"	"	"	"
B-4	"	"	"	"	"
B-5A	LT. BRN	"	"	"	"
B-5B	DK. BRN	"	"	"	"
B-6	SANDY	RIVER	BOTTOM	SEDIMENTS	
B-7	BROWN	SILTY	RIVER	BOTTOM	SEDIMENTS
B-8	"	"	"	"	"
B-9	"	"	"	"	"
B-10	SANDY	RIVER	BOTTOM	SEDIMENTS	(NO SAMPLE SAVED)
B-11	BROWN	SILTY	RIVER	BOTTOM	SEDIMENTS
B-12	ROCKY	BOTTOM	(NO SAMPLE	OBTAINABLE)	

NOTE: B-1 THROUGH B-5 TAKEN ON 7-18-85 AND REPORTED IN OUR OCTOBER 1985 ARCADE FACILITY REPORT WERE TAKEN AT THE SAME LOCATIONS AS THOSE SAMPLES TAKEN ON 11-13-85 SHOWN ABOVE

CEH

Resource Analysts, Incorporated
Box 4778 Hampton, NH 03842
(603) 926-7777

PO # AFT Davidson

TO:

Mr. Matt Eichler
Caswell, Eichler and Hill
P.O. Box 4696
Postsmouth, NH 03801

Date Received: 12-9-85 (1425)

Lab Number: 5822

Date Reported: 1-10-86

Please find attached results for Chromium.

Russell [illegible]

Technical Director

Date 1-10-86

Parameter: Chromium, recoverable (ug/g) Matrix: Solid
Method: 3050/303A Reference: 1/2

Laboratory Number	Field Identification	Concentration
5822-1	B-1	870
5822-2	B-2	670
5822-3	B-3	170
5822-4	B-4	190
5822-5	B-5A	2300
5822-6	B-5B	49
5822-7	B-6	200
5822-8	B-7	2300
5822-9	B-8	1200
5822-10	B-9	92
5822-11	B-11	1600

Results expressed on a dry weight basis

Reference 1: EPA SW 846, 2nd Edition
Reference 2: Standard Methods, 16th Edition

Resource Analysts, Incorporated
Box 4778 Hampton, NH 03842
(603) 926-7[illegible]

TO:

Mr. Matt Eichler
Caswell, Eichler and Hill
P.O. Box 4696
Portsmouth, NH 03801

PO # ATF Davidson

Date Received: 11-14-85 (9:30)

Lab Number: 5664

Date Reported: 12-10-85

Please find attached results for EP Toxic Chromium.

Date [illegible]

Technical Director

CHAIN OF CUSTODY DOCUMENTATION

CLIENT: CEH

ADDRESS:

JOB NAME/NUMBER:

PROJECT CONTACT: Matt Eichler

SAMPLING LOCATION: ATF [illegible] Whitinsville MA

SAMPLE COLLECTOR: [illegible]

FIELD IDENTIFICATION List each container separately	LAB #	SAMPLE MATRIX	CONTAINER TYPE/VOLUME	FILTRATION	FIELD PRESERVATION	REMARKS/ANALYSIS REQUESTED
11/13/88 Date B-1 Time 1230		● Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ● G/T/ 950 mL	○ field ○ lab ● none	Cool	EP Tox - Chromium
Date B-2 Time 1248		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date B-3 Time 1300		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date B-4 Time 1312		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date B-5A Time 1130		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date B-5B Time 1130		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date B-6 Time 1055		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date B-7 Time 1107		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		

Relinquished By:	Date	Time	Received By:	Date	Time
[signature]	11/14	AM			
Relinquished By:	Date	Time	Received For Laboratory By: [signature]	Date 11/14	Time 930

Resource Analysts, Incorporated

CHAIN OF CUSTODY DOCUMENTATION

CLIENT: CEH

ADDRESS:

JOB NAME/NUMBER:

PROJECT CONTACT: Matt Eichler

SAMPLING LOCATION: ATF Davidson Whitinsville, MA

SAMPLE COLLECTOR: [illegible]

FIELD IDENTIFICATION (List each container separately)	LAB #	SAMPLE MATRIX	CONTAINER TYPE/VOLUME	FILTRATION	FIELD PRESERVATION	REMARKS/ANALYSIS REQUESTED
Date 11/13/85 B-8 Time 1122		(●) Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL (●) G/T/ 950 mL	○ field ○ lab (●) none	Cool	EP Tox - Chromium
Date B-9 Time 1149		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date B-11 Time 1212		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date B-10 Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		No Sample - Sandy River Bottom in vicinity of canal
Date B-12 Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		No Sample - Rocky Bottom
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		

Relinquished By:	Date	Time	Received By:	Date	Time
[signature]	11/14	AM			
Relinquished By:	**Date**	**Time**	**Received For Laboratory By:**	**Date**	**Time**
			Laurie Clarke	11/14	930

Resource Analysts, Incorporated

SUMMARY OF EP TOXICITY TEST

LAB NUMBER 5664-1

CLIENT Caswell, Eichler, and Hill

SAMPLE DESIGNATION B-1

☐ LIQUID ☒ SLURRY ☐ PASTE ☐ POWDER ☐ GRANULAR

☐ HOMOGENEOUS ☒ NON-HOMOGENEOUS

DATE SAMPLE RECEIVED 11-14-85 DATE EXTRACTED 12-5-85

SAMPLE PREPERATION filtered to remove liquid

% SOLID RESIDUE Not required (DRY)

SAMPLE SIZE 75.9g WEIGHT SOLIDS 20.8g

SOLIDS PREPERATION N/A

VOLUME PRE-EXTRACT FILTRATE 44.0mL

VOLUME OF WATER EXTRACTED ADDED TO SOLIDS 333.0mL

TIME	PH	ML 0.5N ACID	PH
9:05	6.90	10.0mL	3.72
10:05	4.25	--	--

TOTAL VOLUME ACID ADDED 10.0mL

VOLUME WATER ADDED TO FILTERED EXTRACT 73mL

METALS	METHOD	RESULT (MG/L)	ANALYST
ARSENIC	7060		
BARIUM	7080		
CADMIUM	7130		
CHROMIUM 12/6	7190	<0.01	LAC
LEAD	7420		
MERCURY	7470		
SELENIUM	7740		
SILVER	7760		

ALL CONCENTRATIONS DETERMINED BY THE METHOD OF STANDARD ADDITIONS.

Resource Analysts, Incorporated

SUMMARY OF EP TOXICITY TEST

LAB NUMBER 5664-2

CLIENT Caswell, Eichler and Hill

SAMPLE DESIGNATION B-2

☐ LIQUID ☒ SLURRY ☐ PASTE ☐ POWDER ☐ GRANULAR

☐ HOMOGENEOUS ☒ NON-HOMOGENEOUS

DATE SAMPLE RECEIVED 11-14-85 DATE EXTRACTED 12-4-85

SAMPLE PREPERATION filtered to remove liquid

% SOLID RESIDUE not required (DRY)

SAMPLE SIZE 68.87g WEIGHT SOLIDS 21.61g

SOLIDS PREPERATION N/A

VOLUME PRE-EXTRACT FILTRATE 41mL

VOLUME OF WATER EXTRACTED ADDED TO SOLIDS 346mL

	TIME	PH	ML 0.5N ACID	PH
12/9	11:30	6.18	10.0mL	3.68
12/5	08:00	9.45	--	--
12/5	4.10	4.51	--	--

TOTAL VOLUME ACID ADDED 10.0mL

VOLUME WATER ADDED TO FILTERED EXTRACT 76.0mL

METALS	METHOD	RESULT (MG/L)	ANALYST
ARSENIC	7060		
BARIUM	7080		
CADMIUM	7130		
CHROMIUM	7190	<0.01	JEm
LEAD	7420		
MERCURY	7470		
SELENIUM	7740		
SILVER	7760		

ALL CONCENTRATIONS DETERMINED BY THE METHOD OF STANDARD ADDITIONS.

Resource Analysts, Incorporated

SUMMARY OF EP TOXICITY TEST

LAB NUMBER 5664-3

CLIENT Caswell, Eichler and Hill

SAMPLE DESIGNATION B-3

☐ LIQUID ☒ SLURRY ☐ PASTE ☐ POWDER ☐ GRANULAR

☐ HOMOGENEOUS ☒ NON-HOMOGENEOUS

DATE SAMPLE RECEIVED 11-14-85 DATE EXTRACTED 12-4-85

SAMPLE PREPERATION filtered to remove liquid

% SOLID RESIDUE not required (DRY)

SAMPLE SIZE 75.71mL WEIGHT SOLIDS 38.14g

SOLIDS PREPERATION N/A

VOLUME PRE-EXTRACT FILTRATE 32.0mL

VOLUME OF WATER EXTRACTED ADDED TO SOLIDS 610.0mL

	TIME	PH	ML 0.5N ACID	PH
12/4	02:45	7.07	10.0mL	4.15
12/5	08:00	4.66	--	--
12/5	04.12	4.70	--	--

TOTAL VOLUME ACID ADDED 10.0mL

VOLUME WATER ADDED TO FILTERED EXTRACT 143.0mL

METALS	METHOD	RESULT (MG/L)	ANALYST
ARSENIC	7060		
BARIUM	7080		
CADMIUM	7130	<0.01	JEM
CHROMIUM	7190		
LEAD	7420		
MERCURY	7470		
SELENIUM	7740		
SILVER	7760		

ALL CONCENTRATIONS DETERMINED BY THE METHOD OF STANDARD ADDITIONS.

Resource Analysts, Incorporated

SUMMARY OF EP TOXICITY TEST

LAB NUMBER 5664-4

CLIENT Caswell, Eichler and Hill

SAMPLE DESIGNATION B-4

☐ LIQUID ☒ SLURRY ☐ PASTE ☐ POWDER ☐ GRANULAR

☐ HOMOGENEOUS ☒ NON-HOMOGENEOUS

DATE SAMPLE RECEIVED 11-14-85 DATE EXTRACTED 12-5-85

SAMPLE PREPERATION filtered to remove liquid

% SOLID RESIDUE not required (DRY)

SAMPLE SIZE 66.5g WEIGHT SOLIDS 40.0g

SOLIDS PREPERATION N/A

VOLUME PRE-EXTRACT FILTRATE 25mL

VOLUME OF WATER EXTRACTED ADDED TO SOLIDS 640mL

TIME	PH	ML 0.5N ACID	PH
10:10	6.23	10.0mL	4.07
10:07	4.28	--	--

TOTAL VOLUME ACID ADDED 10.0mL

VOLUME WATER ADDED TO FILTERED EXTRACT 150.0mL

METALS	METHOD	RESULT (MG/L)	ANALYST
ARSENIC	7060		
BARIUM	7080		
CADMIUM	7130		
CHROMIUM	7190	<0.01	JEM
LEAD	7420		
MERCURY	7470		
SELENIUM	7740		
SILVER	7760		

ALL CONCENTRATIONS DETERMINED BY THE METHOD OF STANDARD ADDITIONS.

Resource Analysts, Incorporated

SUMMARY OF EP TOXICITY TEST

LAB NUMBER 5664-5

CLIENT Caswell, Eichler and Hill

SAMPLE DESIGNATION B-5A

☐ LIQUID ☒ SLURRY ☐ PASTE ☐ POWDER ☐ GRANULAR

☐ HOMOGENEOUS ☒ NON-HOMOGENEOUS

DATE SAMPLE RECEIVED 11-14-85 DATE EXTRACTED 12-5-85

SAMPLE PREPERATION filtered to remove liquid

% SOLID RESIDUE not required (DRY)

SAMPLE SIZE 76.2g WEIGHT SOLIDS 27.6g

SOLIDS PREPERATION N/A

VOLUME PRE-EXTRACT FILTRATE 45.5mL

VOLUME OF WATER EXTRACTED ADDED TO SOLIDS 442.0mL

TIME	PH	ML 0.5N ACID	PH
11:20	6.02	10.0mL	3.61
10:17	4.12	--	--
03:00	4.14	--	--

TOTAL VOLUME ACID ADDED 10.0mL

VOLUME WATER ADDED TO FILTERED EXTRACT 100.0mL

METALS	METHOD	RESULT (MG/L)	ANALYST
ARSENIC	7060		
BARIUM	7080		
CADMIUM	7130		
CHROMIUM	7190	<0.01	JEM
LEAD	7420		
MERCURY	7470		
SELENIUM	7740		
SILVER	7760		

ALL CONCENTRATIONS DETERMINED BY THE METHOD OF STANDARD ADDITIONS.

Resource Analysts, Incorporated

SUMMARY OF EP TOXICITY TEST

LAB NUMBER 5664-6

CLIENT Caswell, Eichler and Hill

SAMPLE DESIGNATION B-5B

☐ LIQUID ☐ SLURRY ☒ PASTE ☐ POWDER ☐ GRANULAR

☐ HOMOGENEOUS ☒ NON-HOMOGENEOUS

DATE SAMPLE RECEIVED 11-14-85 DATE EXTRACTED 12-5-85

SAMPLE PREPERATION would not filter

% SOLID RESIDUE not required (DRY)

SAMPLE SIZE 40.0g WEIGHT SOLIDS 40.0g

SOLIDS PREPERATION N/A

VOLUME PRE-EXTRACT FILTRATE -0-

VOLUME OF WATER EXTRACTED ADDED TO SOLIDS 640mL

TIME	PH	ML 0.5N ACID	PH
10:30	6.08	10.0mL	4.12
10:08	4.19	—	—

TOTAL VOLUME ACID ADDED 10.0mL

VOLUME WATER ADDED TO FILTERED EXTRACT 150.0mL

METALS	METHOD	RESULT (MG/L)	ANALYST
ARSENIC	7060		
BARIUM	7080		
CADMIUM	7130		
CHROMIUM	7190	<0.01	JEM
LEAD	7420		
MERCURY	7470		
SELENIUM	7740		
SILVER	7760		

ALL CONCENTRATIONS DETERMINED BY THE METHOD OF STANDARD ADDITIONS.

Resource Analysts, Incorporated

SUMMARY OF EP TOXICITY TEST

LAB NUMBER 5664-7

CLIENT Caswell, Eichler and Hill

SAMPLE DESIGNATION B-6

☐ LIQUID ☒ SLURRY ☐ PASTE ☐ POWDER ☐ GRANULAR

☐ HOMOGENEOUS ☒ NON-HOMOGENEOUS

DATE SAMPLE RECEIVED 11-14-85 DATE EXTRACTED 12-5-85

SAMPLE PREPERATION filtered to remove liquid

% SOLID RESIDUE not required (DRY)

SAMPLE SIZE 72.34g WEIGHT SOLIDS 41.5g

SOLIDS PREPERATION N/A

VOLUME PRE-EXTRACT FILTRATE 26mL

VOLUME OF WATER EXTRACTED ADDED TO SOLIDS 664mL

	TIME	PH	ML 0.5N ACID	PH
12/4	02:50	6.19	10.0mL	3.65
12/5	08:00	4.04	--	--
12/5	04:15	4.11	--	--

TOTAL VOLUME ACID ADDED 10.0mL

VOLUME WATER ADDED TO FILTERED EXTRACT 156.0mL

METALS	METHOD	RESULT (MG/L)	ANALYST
ARSENIC	7060		
BARIUM	7080		
CADMIUM	7130		
CHROMIUM	7190	<0.01	JEM
LEAD	7420		
MERCURY	7470		
SELENIUM	7740		
SILVER	7760		

ALL CONCENTRATIONS DETERMINED BY THE METHOD OF STANDARD ADDITIONS.

Resource Analysts, Incorporated

5

SUMMARY OF EP TOXICITY TEST

LAB NUMBER 5664-8

CLIENT Caswell, Eichler and Hill

SAMPLE DESIGNATION B-7

☐ LIQUID ☒ SLURRY ☐ PASTE ☐ POWDER ☐ GRANULAR

☐ HOMOGENEOUS ☒ NON-HOMOGENEOUS

DATE SAMPLE RECEIVED 11-14-85 DATE EXTRACTED 12-5-85

SAMPLE PREPERATION filtered to remove liquid

% SOLID RESIDUE not required (DRY)

SAMPLE SIZE 116.4g WEIGHT SOLIDS 28.2g

SOLIDS PREPERATION N/A

VOLUME PRE-EXTRACT FILTRATE 82.0mL

VOLUME OF WATER EXTRACTED ADDED TO SOLIDS 451.0mL

TIME	PH	ML 0.5N ACID	PH
12:15	6.12	10.0mL	3.60
10:15	4.20	--	--
03:00	4.20	--	--

TOTAL VOLUME ACID ADDED 10.0mL

VOLUME WATER ADDED TO FILTERED EXTRACT 112.0mL

METALS	METHOD	RESULT (MG/L)	ANALYST
ARSENIC	7060		
BARIUM	7080		
CADMIUM	7130		
CHROMIUM	7190	<0.01	JEM
LEAD	7420		
MERCURY	7470		
SELENIUM	7740		
SILVER	7760		

ALL CONCENTRATIONS DETERMINED BY THE METHOD OF STANDARD ADDITIONS.

Resource Analysts, Incorporated

SUMMARY OF EP TOXICITY TEST

LAB NUMBER 5664-9

CLIENT Casweil, Eichler and Hill

SAMPLE DESIGNATION B-8

☐ LIQUID ☒ SLURRY ☐ PASTE ☐ POWDER ☐ GRANULAR

☐ HOMOGENEOUS ☒ NON-HOMOGENEOUS

DATE SAMPLE RECEIVED 11-14-85 DATE EXTRACTED 12-5-85

SAMPLE PREPERATION filtered to remove liquid

% SOLID RESIDUE not required (DRY)

SAMPLE SIZE 136.5g WEIGHT SOLIDS 34.9g

SOLIDS PREPERATION N/A

VOLUME PRE-EXTRACT FILTRATE 98mL

VOLUME OF WATER EXTRACTED ADDED TO SOLIDS 558.0mL

TIME	PH	ML 0.5N ACID	PH
07:50	6.37	10.0mL	3.56
10:10	4.27	--	--

TOTAL VOLUME ACID ADDED 10.0mL

VOLUME WATER ADDED TO FILTERED EXTRACT 130.0mL

METALS	METHOD	RESULT (MG/L)	ANALYST
ARSENIC	7060		
BARIUM	7080		
CADMIUM	7130		
CHROMIUM	7190	<0.01	JEM
LEAD	7420		
MERCURY	7470		
SELENIUM	7740		
SILVER	7760		

ALL CONCENTRATIONS DETERMINED BY THE METHOD OF STANDARD ADDITIONS.

Resource Analysts, Incorporated

SUMMARY OF EP TOXICITY TEST

LAB NUMBER 5664-10

CLIENT Caswell, Eichler and Hill

SAMPLE DESIGNATION B-9

☐ LIQUID ☒ SLURRY ☐ PASTE ☐ POWDER ☐ GRANULAR

☐ HOMOGENEOUS ☒ NON-HOMOGENEOUS

DATE SAMPLE RECEIVED 11-14-85 DATE EXTRACTED 12-5-85

SAMPLE PREPERATION filtered to remove liquid

% SOLID RESIDUE not required (DRY)

SAMPLE SIZE 82.5g WEIGHT SOLIDS 38.1g

SOLIDS PREPERATION N/A

VOLUME PRE-EXTRACT FILTRATE 41mL

VOLUME OF WATER EXTRACTED ADDED TO SOLIDS 610mL

TIME	PH	ML 0.5N ACID	PH
02:25	6.44	10.0mL	3.72
10:15	4.09	--	--
03:00	4.08	--	--

TOTAL VOLUME ACID ADDED 10.0mL

VOLUME WATER ADDED TO FILTERED EXTRACT 142.0mL

METALS	METHOD	RESULT (MG/L)	ANALYST
ARSENIC	7060		
BARIUM	7080		
CADMIUM	7130		
CHROMIUM	7190	<0.01	JEM
LEAD	7420		
MERCURY	7470		
SELENIUM	7740		
SILVER	7760		

ALL CONCENTRATIONS DETERMINED BY THE METHOD OF STANDARD ADDITIONS.

Resource Analysts, Incorporated

SUMMARY OF EP TOXICITY TEST

LAB NUMBER 5664-11

CLIENT Caswell, Eichler and Hill

SAMPLE DESIGNATION B-11

☐ LIQUID ☒ SLURRY ☐ PASTE ☐ POWDER ☐ GRANULAR

☐ HOMOGENEOUS ☒ NON-HOMOGENEOUS

DATE SAMPLE RECEIVED 11-14-85 DATE EXTRACTED 12-5-85

SAMPLE PREPERATION filtered to remove liquid

% SOLID RESIDUE not required (DRY)

SAMPLE SIZE 172.0g WEIGHT SOLIDS 26.9g

SOLIDS PREPERATION N/A

VOLUME PRE-EXTRACT FILTRATE 141.0mL

VOLUME OF WATER EXTRACTED ADDED TO SOLIDS 430.0mL

TIME	PH	ML 0.5N ACID	PH
03:55	7.55	10.0mL	3.61
10:14	4.09	--	--
03:00	4.12	--	--

TOTAL VOLUME ACID ADDED 10.0mL

VOLUME WATER ADDED TO FILTERED EXTRACT 98.0mL

METALS	METHOD	RESULT (MG/L)	ANALYST
ARSENIC	7060		
BARIUM	7080		
CADMIUM	7130		
CHROMIUM	7190	<0.01	JEM
LEAD	7420		
MERCURY	7470		
SELENIUM	7740		
SILVER	7760		

ALL CONCENTRATIONS DETERMINED BY THE METHOD OF STANDARD ADDITIONS.

Resource Analysts, Incorporated