Installation of Six Monitoring Wells

at

Hercules, Inc.
613 West 7th Street
Hattiesburg, Ms

presented to:

Charles Jordan, Environmental Supervisor
Hercules, Inc.
Hattiesburg, MS

July 31, 1997

by

Michael S. Bonner, Ph.D.
BONNER ANALYTICAL TESTING COMPANY

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INTRODUCTION

At the request of the Mississippi Department of Environmental Quality (MDEQ), Hercules, Inc. of Hattiesburg, MS will install, develop, purge and sample six permanent monitoring wells in the following locations shown on the attached B&V - Figure 2.

The MDEQ will be notified 2 weeks prior to commencement of work.

1.0 MONITORING WELL INSTALLATION

Six two inch by twenty foot PVC monitoring wells shall be installed utilizing hollow stem drilling technology. Well depths shall be advanced deeper within the shallow saturated zone if groundwater is not encountered within the first twenty feet.

A screened interval of ten feet having a 0.01" slot shall be used. The screened interval shall extend a minimum of three feet above the groundwater interface. Casing shall be flush thread design.

Filter pack meeting the following specifications shall be tremied into the annulus to a depth of two feet above the screened interval:

Particle Size in Inches	Allowable
>0.039"	35% Max.
<0.039 - ≥0.01	50% Min.
<0.01	0.5% Max.

Following the filter pack, a two foot layer of fine sand (mason) shall be applied via tremie. If the zone is saturated, two feet of 10% hydrated bentonite shall be tremied, followed by 90/10 grout to the surface. An elevation data marker shall be placed in the grout at the surface as a reference point. If the zone is unsaturated, the bentonite seal will be omitted. Hydration time for bentonite shall be a minimum of 8 hours or the manufacturer's recommended hydration time—whichever is greater. Grout shall be allowed to cure for a minimum of 24 hours prior to installation of the surface pad and protective riser equipped with security locks.

Each well shall be equipped with four 3" pipes installed to a depth of 30" at the corners of each pad and grouted in place. Protective pipes shall be filled with grout and painted as specified.

The well casing will be allowed to extend a minimum of 18" above ground surface and shall be equipped with a locking cap, protective casing and a 2'x2'x4" concrete pad. The wells shall be surveyed with longitude and latitude reported along with elevation above sea level ($\pm$ 0.01 ft.).

The following boring/well construction log information will be included where applicable:

- Well identification #
- Date/time of well construction
- Borehole diameter and well casing diameter
- Well depth $\pm$0.01 ft.
- Casing length

- Casing materials
- Casing and screen joint type
- Screened interval(s)
- Screen materials
- Screen slot size/design
- Filter pack material and size
- Calculated and actual filter pack volume
- Filter pack placement method
- Annular sealant composition
- Annular sealant placement method
- Calculated and actual annular sealant volume
- Surface sealant composition
- Surface seal placement method
- Calculated and actual surface sealant volume
- Surface seal design
- Well development procedure
- Turbidity measurement
- Type/design of protective casing
- Well cap and lock
- Ground surface elevation ($\pm$0.01 ft.)

- Survey reference point elevation on well casing (±0.01 ft.)
- Top of monitoring well casing elevation (±0.01)
- Top of protective steel casing elevation (±0.01 ft.)

2.0 WELL DEVELOPMENT

Completed wells will be allowed to cure a minimum of 24 hours prior to development. Prior to well development, water depth will be determined to ±0.01 ft. Following completion, each well shall be developed by pumping and/or bailing, as deemed most appropriate utilizing the surge block technique. The well will be developed until a turbidity of < 5 NTU's is achieved. As a minimum, the well will be allowed to completely recharge prior to purging.

3.0 PURGING

The object of purging shall be to remove five well volumes at a rate similar to the recharge rate in order that turbidity effects are minimized. The following steps shall be used:

1. Establish the water depth and well depth to ±0.01 ft.
2. Remove liquid from the surface and bottom hole to determine whether organic phases exist.
3. Determine pH, temperature, conductivity and turbidity prior to purging the well.
4. Remove five well volumes at a rate of 0.2 to 0.3 liter/min. utilizing a peristaltic pump if groundwater is within 28 feet of surface. Alternately, if groundwater is deeper, purging may be accomplished by means of centrifuged pump, bladder pump or bailer. (Purging by bailer must be done with caution so as not to disturb the well filter pack).

5. After removing 5 well volumes pH, temperature, conductivity and turbidity must be determined twice within 20 minutes. These data points should be ±10% and further, the turbidity must be <5 NTU's. If turbidity is not <5 NTU's, remove additional well volumes as necessary.

In the event the well is purged dry, the following protocol should be followed:

1. Allow the well to recover.

2. If the well has not fully recovered within two hours but has sufficient water for testing then:

    a. Test the well for pH, temperature, conductivity and turbidity.

    b. Test the well again within 20 minutes for the same parameters.

    c. Collect samples as outlined in the sample collection process.

3. If pH, temperature and conductivity are not ±10% and/or turbidity is >5 NTU and if data reflect elevated levels of any pollutant of concern, consider repurging and sampling the well.

4.0 SAMPLING

Sampling should commence as soon as the well recovers but no later than two hours after purging is completed. Samples shall be collected utilizing disposable Teflon bailers. Analytical parameters shall include the attached Compound List of volatile organics (Method 8260).

VOA samples shall be collected in duplicate in 40 ml vials preserved with hydrochloric acid to a pH of <2. VOA samples must contain no air bubbles. Three replicates of samples shall be collected at one designated well for QA/QC analysis.

5.0 ANALYTICAL PROTOCOL

All analyses will conform to the methodologies outlined in EPA/SW846 current edition.

6.0 QA/QC

One equipment blank, one matrix spike (MS) and one matrix spike duplicate (MSD) shall be analyzed for each event. One trip blank for VOA only shall be analyzed for each sampling event.

6.1 TRIP BLANK (VOLATILE)

Trip blank (volatile) duplicate samples shall be prepared in the laboratory utilizing deionized water and bottles from the batches to be used in the field collection and decontamination procedures. The trip blank will be taken in the field and returned to the laboratory in the same environment as the samples.

6.2 EQUIPMENT BLANK (RINSATE BLANK)

Following decontamination of the drilling equipment, carefully transfer about two liters of analyte-free deionized water to a new disposable Teflon bailer. Allow the contents of the bailer to

drain over a piece of the decontaminated hollow stem into an analyte-free stainless steel bowl. Transfer the rinsate water to appropriate sample containers. Label and archive the rinsate blank as outlined.

7.0 SAMPLE ARCHIVAL

Following sample collection, affix a completed label to each container. Cover the label with clear tape to protect from moisture. Place the sample bottle in a zip-lock bag and wrap the container in bubble wrap. Write the sample ID number on the outside of the bubble wrap with a permanent marker, then secure the bubble-wrapped container with clear tape.

8.0 DECONTAMINATION AND RESIDUALS MANAGEMENT

Borehole cuttings will be left in place at the well site unless VOA readings indicate gross contamination (>50ppm FID readings). In the event gross contamination is encountered, cuttings will be drummed on site and analyzed for disposal.

Well development, purge and decontamination water will be placed in the Hercules treatment facility for disposal, provided levels do not exceed toxicity characteristics.

The hollow stem, drill rod, and associated tools will be decontaminated before each well is advanced. The procedure shall be as follows:

1. Pressure wash with steam and potable water
2. Brush with phosphate-free detergent to remove any additional debris
3. Pressure wash with steam and potable water
4. Rinse with analyte-free water

9.0 HEALTH AND SAFETY

1. All personnel shall have received 40 hours of OSHA training and shall have current update training.
2. Hercules, Inc. shall provide any additional safety briefings deemed appropriate for the scope of this project.
3. During boring, developing and purging operations, FID readings shall be recorded to ensure that a safe environment is maintained.
4. Elevated (>50 ppm) FID readings shall mandate respiratory protection, cease and desist operations, and re-evaluation by project director, project supervisor, project health and safety officers, and Hercules personnel.
5. Any injuries or potentially unsafe conditions shall be reported immediately to the health and safety officer and then to the project supervisor and project director.

10.0 PERSONNEL

Project Director - Michael S. Bonner, Ph.D.

Project Supervisor - David Carter

Health and Safety Officer - Christopher M. Bonner

Hercules, Inc. Contact - Charles Jordan, Environmental Supervisor

11.0 WELL ABANDONMENT

Assuming that the wells are found to be free of analytes of concern, Hercules will have the option of abandoning the wells by then cutting the risers off at ground level and filling the casing with 90/10 grout to surface. Calculated and actual grout used will be recorded to ensure that the wells are properly sealed.

Monitoring Well Installation
Sampling & Analysis

at

Hercules, Inc.
613 West 7th Street
Hattiesburg, Ms

presented to:

Charles Jordan, Environmental Supervisor
Hercules, Inc.
Hattiesburg, MS

December 8 - 15, 1997

by

Michael S. Bonner, Ph.D.
BONNER ANALYTICAL TESTING COMPANY

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INTRODUCTION

At the request of Mr. Charlie Jordan, Environmental Supervisor with Hercules Inc. of Hattiesburg, MS, Bonner Analytical Testing Company installed six monitoring wells and subsequently developed, purged and sampled these wells during the period of December 8-15, 1997. Samples were analyzed for thirteen heavy metals, volatile organics, semivolatile organics, pesticides, and PCBs.

Details relating to the project were presented in the work plan approved by the Mississippi Department of Environmental Quality (MDEQ) and Hercules Incorporated dated July 31, 1997.

1.0 MONITORING WELL INSTALLATION

Six two inch I.D. flush thread schedule 40 PVC monitoring wells were installed. The well locations (MW-1 through MW-6) are designated in the site map located in Appendix C. Boreholes were advanced utilizing hollow stem drilling technology. Well depths ranged between fifteen and twenty feet below land surface (BLS). A ten foot screened interval was used in each well. Screened slots were 0.01 inches.

Wells were completed as follows:

1. Coarse sand was tremied to the top of the screened interval.
2. Fine sand was tremied to two feet above the screened interval.
3. Hydrated 10% Bentonite was tremied one to two feet above the fine sand.
4. 90/10 grout was tremied to one foot BLS.
5. After 24 hours the well was completed.

6. The well was completed to surface with concrete to include a 2'x2'x4"concrete pad with elevation marker, protective casing with locks, four 3 inch protective pipes filled with concrete and then painted.

Pertinent information relating to boring, well construction, purging and sampling are presented in Table 1 and Appendices A - F.

2.0 WELL DEVELOPMENT

Wells were allowed to cure a minimum of 24 hours prior to development. Wells were developed by a combination of bailing, pumping and surging.

MW-1 was designated as the background well. This well bailed dry after removal of 5.5 gallons of water. The turbidity was > 100 NTUs at this point. However, upon recovery, and after purging, a turbidity of 13.9 NTU was achieved.

MW-5 could not be developed below a 19 NTU turbidity due to a persistent yellow color. The remaining wells MW-2, MW-3, MW-4 and MW-6 were developed to a final turbidity below 5 NTUs.

3.0 PURGING

Prior to purging and immediately after removing the well cap, each well was tested for organic vapors using a field organic vapor analyzer equipped with a flame ionization detector. MW-4 and MW-5 produced vapor space readings greater than 100,000 ppm. The remaining wells gave no response.

Next, each well was gauged from the north side top of casing to assess depth to water and well depth to +0.01'. Prior to purging pH, temperature, conductivity and turbidity were determined.

After the removal of five well volumes pH, temperature, conductivity and turbidity measurements were repeated twice more within 20 minutes. All wells produced water that was stable within ±10% as required. However, MW1 and MW5 produced turbidity values of 13.0 and 24.4 NTU's, respectively. MW-1 and MW-5 were purged further, removing 5 additional well volumes. However, the turbidities remained elevated at 13.9 and 25.1 NTU's, respectively.

4.0 SAMPLING

Samples were collected immediately following the purging process utilizing disposable Teflon bailers. Samples were collected for volatile organics method SW846/8260, semi volatile organics method SW846/8270, pesticide/PCB method SW846/8081 and thirteen heavy metals utilizing the appropriate EPA/200 series protocol as outlined in the work plan.

5.0 ANALYSIS

All samples were analyzed for volatile organics utilizing the 8260 standard list of compounds. The remaining 8260 compound list was evaluated as TICs. Semivolatile organics, Method 8270, were evaluated using the standard list and the remaining compound list was evaluated as TICs. The results of these analyses are presented in Appendix D.

TABLE 1
BOREHOLE AND WELL CONSTRUCTION DATA

Well ID #	1	2	3
Date of Construction	12-09-97	12-09-97	12-09-97
Borehole & Well Casing Diameter	2"	2"	2"
Well Depth +0.01 ft.	17'	17'	15'
Casing Length	7'	7'	5'
Casing Materials	PVC Schedule 40	PVC Schedule 40	PVC Schedule 40
Casing & Screen Joint Type	Flush Thread	Flush Thread	Flush Thread
Screened Intervals	10'	10'	10'
Screen Materials	PVC Flushthread	PVC Flushthread	PVC Flushthread
Screen Slot Size/ Design	0.01	0.01	0.01
Filter Pack Material & Size	Sand <0.1" (<5%) 0.01"-0.039" (>50%) >0.039" (<35%)	Sand <0.1" (<5%) 0.01"-0.039" (>50%) >0.039" (<35%)	Sand <0.1" (<5%) 0.01"-0.039" (>50%) >0.039" (<35%)
Calculated/Actual Filter Pack Volume	4.42 ft^3	4.08 ft^3	4.42 ft^3
Filter Pack Placement Method	Tremmie	Tremmie	Tremmie
Annular Sealant Composition	Bentonite/90:10 Grout	Bentonite/90:10 Grout	Bentonite/90:10 Grout
Annular Sealant Placement Method	Tremmie	Tremmie	Tremmie
Calculated/Actual Annular Sealant Vol.	0.34 ft^3	0.85 ft^3	0.17 ft^3
Surface Sealant Composition	3,000 PSI Concrete	3,000 PSI Concrete	3,000 PSI Concrete
Surface Seal Placement Method	Tremmie	Tremmie	Tremmie
Calculated/Actual Surface Sealant Vol.	0.34 ft^3	0.17 ft^3	0.17 ft^3
Surface Seal Design	2x2x4' Pad	2x2x4' Pad	2x2x4' Pad
Well Development Procedure	Bailing, Pumping & Surge Block	Bailing, Pumping & Surge Block	Bailing, Pumping & Surge Block
Turbidity Measurement	13.9 NTU	1.9 NTU	0.5 NTU
Type/Design of Protective Casing	3" x 3" rectangular steel	3" x 3" rectangular steel	3" x 3" rectangular steel
Well Cap & Lock	Yes	Yes	Yes
Ground Surface Elevation (+0.01)			
Survey Reference Point Elevation on Well Casing (+0.01 ft.)			
Top of Well Casing Elevation (+0.01)			
Top of Protective Steel Casing Elevation (+0.01 ft.)			

BOREHOLE AND WELL CONSTRUCTION DATA

Well ID #	4	5	6
Date of Construction	12-09-97	12-08-97	12-08-97
Borehole & Well Casing Diameter	2"	2"	2"
Well Depth +0.01 ft.	15.0'	15'	18'
Casing Length	5'	5'	8'
Casing Materials	PVC Schedule 40	PVC Schedule 40	PVC Schedule 40
Casing & Screen Joint Type	Flush Thread	Flush Thread	Flush Thread
Screened Intervals	10'	10'	10'
Screen Materials	PVC Flushthread	PVC Flushthread	PVC Flushthread
Screen Slot Size/ Design	0.01	0.01	0.01
Filter Pack Material & Size	Sand <0.1" (<5%) 0.01"-0.039" (>50%) >0.039" (<35%)	Sand <0.1" (<5%) 0.01"-0.039" (>50%) >0.039" (<35%)	Sand <0.1" (<5%) 0.01"-0.039" (>50%) >0.039" (<35%)
Calculated/Actual Filter Pack Volume	4.25 ft^3	4.25 ft^3	4.08 ft^3
Filter Pack Placement Method	Tremmie	Tremmie	Tremmie
Annular Sealant Composition	Bentonite/90:10 Grout	Bentonite/90:10 Grout	Bentonite/90:10 Grout
Annular Sealant Placement Method	Tremmie	Tremmie	Tremmie
Calculated/Actual Annular Sealant Vol.	0.17 ft^3	0.17 ft^3	0.34 ft^3
Surface Sealant Composition	3,000 PSI Concrete	3,000 PSI Concrete	3,000 PSI Concrete
Surface Seal Placement Method	Tremmie	Tremmie	Tremmie
Calculated/Actual Surface Sealant Vol.	0.17 ft^3	0.17 ft^3	0.34 ft^3
Surface Seal Design	2x2x4' Pad	2x2x4' Pad	2x2x4' Pad
Well Development Procedure	Bailing, Pumping & Surge Block	Bailing, Pumping & Surge Block	Bailing, Pumping & Surge Block
Turbidity Measurement	0.8 NTU	25.1 NTU	0.3 NTU
Type/Design of Protective Casing	3" x 3" rectangular steel	3" x 3" rectangular steel	3" x 3" rectangular steel
Well Cap & Lock	Yes	Yes	Yes
Ground Surface Elevation (+0.01)			
Survey Reference Point Elevation on Well Casing (+0.01 ft.)			
Top of Well Casing Elevation (+0.01)			
Top of Protective Steel Casing Elevation (+0.01 ft.)			

APPENDIX A

Bonner Analytical Testing Company
2703 Oak Grove Road, Hattiesburg, MS 39402 Phone: (601) 264-2854 Fax: (601) 268-7084

MONITORING WELL CONSTRUCTION DIAGRAM

Driller Permit #: **0-527**
Client: **Hercules**
Address: **Hattiesburg, MS**

Boring No.: 1
Date Started: 12/9/97
Date Finished: 12/9/97

Surface Elevation:
LS/Top of Casing:
Well Installed on Completion: YES

KEY: Concrete | Grout | Bentonite Seal | Sand Pack | Screen

Lithologic Description	Depth (Feet)	Well Design
Riser 3.46	Ground Level	Concrete
	1.0	Concrete
0-1.5' Top Soil		Grout
1.5 - 8' Tan Silty Clay	3.5	Grout
	5.0	Bentonite Seal
8 - 10' Wet Sandy Clay		Sand Pack
	7.0	Sand Pack
10 - 11.5' Wet Sand and Some Clay		Screen
11.5 - 13 Wet Silty Sand		Screen
13 - 17' Tan Clay Very Consolidated		Screen
	17.0	Screen

Well Loc:
Section: 4
Township: 4N
Range: 13W
Well Usage:

Development Method

- [ ] Bailer
- [ ] Airlift
- [ ] Nitrogen
- [ ] Submersible Pump
- [x] Other: Peristaltic Pump

Well Dev. Time:
Volume:

Well Construction Materials:

Protective Cover:
- [ ] Manhole
- [x] Protective Casing
- [ ] Other:

Riser Material: PVC Flushthread
Well Diameter: 2"
Screen Material: PVC Flushthread
Screen Slot Size: 0.01

Bentonite Plug: [x]
Grout: [x]

Sand: Quantity: 5 Bags @100 lbs ea of #2
1 Bag @ 100 lbs ea of #1

Initial Water Level: 7.82'
Water Level at Development: 7.82'

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MONITORING WELL CONSTRUCTION DIAGRAM

Driller Permit #: 0-527
Client: Hercules
Address: Hattiesburg, MS

Boring No.: 2
Date Started: 12/9/97
Date Finished: 12/9/97

Surface Elevation:
LS/Top of Casing:
Well Installed on Completion: YES

KEY: Concrete | Grout | Bentonite Seal | Sand Pack | Screen

Lithologic Description	Depth (Feet)	Well Design
	Ground Level	Concrete
	0.5	
3.48' Riser		Grout
	2.5	
0 - 2.5' Black Top Soil		Bentonite Seal
	5.0	
2.5 - 4.0' Tan Silty Clay		Sand Pack
	7.0	
4-5' Silty Sand		Screen
5 - 8' Moist Sand		
8-10' Wet Sand		
10 - 13.5' Water/Silt/Sand		
13.5 - 14.5' Water/Silt/Sand and Small Rocks	17.0	
14.5 - 17' Water/Silt/Sand		
	35	

Well Loc:
Section: 4
Township: 4N
Range: 13W
Well Usage:

Development Method

- [ ] Bailer
- [ ] Airlift
- [ ] Nitrogen
- [ ] Submersible Pump
- [x] Other: Peristaltic Pump

Well Dev. Time:
Volume:

Well Construction Materials:

Protective Cover:
- [ ] Manhole
- [x] Protective Casing
- [ ] Other:

Riser Material: PVC Flushthread
Well Diameter: 2"
Screen Material: PVC Flushthread
Screen Slot Size: 0.01

Bentonite Plug: [x]
Grout: [x]

Sand: Quantity: 4 Bags @100 lbs ea of #2
1 Bag @ 100 lbs ea of #1

Initial Water Level: 6.83'
Water Level at Development: 6.83'

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MONITORING WELL CONSTRUCTION DIAGRAM

Driller Permit #: **0-527**
Client: **Hercules**
Address: **Hattiesburg, MS**

Boring No.: 3
Date Started: 12/9/97
Date Finished: 12/9/97

Surface Elevation:
LS/Top of Casing:
Well Installed on Completion: YES

KEY: Concrete | Grout | Bentonite Seal | Sand Pack | Screen

Lithologic Description	Depth (Feet)	Well Design
	Ground Level	
	0.50	
3.99' Riser		
	1.5	
0 - 1.5' Top Soil	2.0	
1.5 - 4' Silt (Sandy)	5.0	
4 - 8' Moist Sandy Silt Some Clay		
8 - 9.5' Wet Silty Sand		
9.5 - 14 Water/Silt/Sand		
14.5' Very Consolidated Clay		
	15.0	
	35	

Well Loc:
Section: 4
Township: 4N
Range: 13W
Well Usage:

Development Method

- [ ] Bailer
- [ ] Airlift
- [ ] Nitrogen
- [ ] Submersible Pump
- [x] Other: Peristaltic Pump

Well Dev. Time:
Volume:

Well Construction Materials:

Protective Cover:
- [ ] Manhole
- [x] Protective Casing
- [ ] Other:

Riser Material: PVC Flushthread
Well Diameter: 2"
Screen Material: PVC Flushthread
Screen Slot Size: 0.01

Bentonite Plug: [x]
Grout: [x]

Sand: Quantity: 3 Bags @ 100 lbs ea of #2
1 Bag @ 100 lbs ea of #4

Initial Water Level: 7.37'
Water Level at Development: 7.37'

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MONITORING WELL CONSTRUCTION DIAGRAM

Driller Permit #: 0-527
Client: Hercules
Address: Hattiesburg, MS

Boring No.: 4
Date Started: 12/9/97
Date Finished: 12/9/97

Surface Elevation:
LS/Top of Casing:
Well Installed on Completion: YES

KEY: Concrete | Grout | Bentonite Seal | Sand Pack | Screen

Lithologic Description	Depth (Feet)	Well Design
	Ground Level	
3.49' Riser	1.5	
	2.5	
0-4' Top Soil (Black)		
	5.0	
4 - 5' Grey Silty Sand		
5-7' Grey Sand		
7 - 11 ' Tan Sand		
11 - 13' Moist Light Grey Sand Some Silt/Small Rocks		
13 - 15' Moist Silt & Consolidated Clay		
	15.0	
	35	

Well Loc:
Section: 4
Township: 4N
Range: 13W
Well Usage:

Development Method

- [ ] Bailer
- [ ] Airlift
- [ ] Nitrogen
- [ ] Submersible Pump
- [x] Other: Peristaltic Pump

Well Dev. Time:
Volume:

Well Construction Materials:

Protective Cover:
- [ ] Manhole
- [x] Protective Casing
- [ ] Other:

Riser Material: PVC Flushthread
Well Diameter: 2"
Screen Material: PVC Flushthread
Screen Slot Size: 0.01

Bentonite Plug: [x]
Grout: [x]

Sand: Quantity: 5 Bags @ 100 lbs ea of #2
1 Bag @ 100 lbs ea of #4

Initial Water Level: 10.93'
Water Level at Development: 10.93'

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MONITORING WELL CONSTRUCTION DIAGRAM

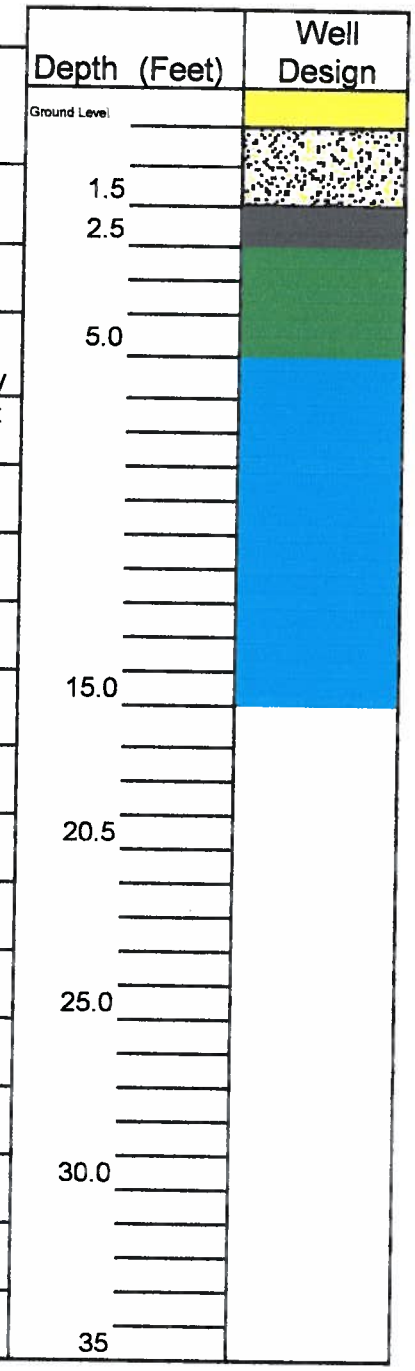
Driller Permit #: 0-527
Client: Hercules
Address: Hattiesburg, MS

Boring No.: 5
Date Started: 12/8/97
Date Finished: 12/8/97

Surface Elevation:
LS/Top of Casing:
Well Installed on Completion: YES

KEY: Concrete | Grout | Bentonite Seal | Sand Pack | Screen

Lithologic Description
3.59' Riser
0 - 5' Fill & Debris
6 -7.5' Tan Moist Grity Clay
7.5 - 9' Tan Silty Moist Soft Sand
9 - 11.5' Tan Wet Silty Sand
11.5 - 15' Silty Water



Well Loc:
Section: 4
Township: 4N
Range: 13W
Well Usage:

Development Method

- [ ] Bailer
- [ ] Airlift
- [ ] Nitrogen
- [ ] Submersible Pump
- [x] Other: Peristaltic Pump

Well Dev. Time:
Volume:

Well Construction Materials:

Protective Cover:
- [ ] Manhole
- [x] Protective Casing
- [ ] Other:

Riser Material: PVC Flushthread
Well Diameter: 2"
Screen Material: PVC Flushthread
Screen Slot Size: 0.01

Bentonite Plug: [x]
Grout: [x]

Sand: Quantity: 4 Bags @ 100 lbs ea of #2
1.5 Bags @ 100 lbs ea #4

Initial Water Level: 10.12'
Water Level at Development: 10.12'

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MONITORING WELL CONSTRUCTION DIAGRAM

Driller Permit #: 0-527
Client: Hercules
Address: Hattiesburg, MS

Boring No.: 6
Date Started: 12/8/97
Date Finished: 12/8/97

Surface Elevation:
LS/Top of Casing:
Well Installed on Completion: YES

KEY: Concrete | Grout | Bentonite Seal | Sand Pack | Screen

Lithologic Description	Depth (Feet)	Well Design
	Ground Level	
	1.0	
5.25' Riser		
0-2' Brown Fill Top Soil	5.0	
	6.0	
2 - 4' Tan Top Soil		
	8.0	
4 - 5' Light Tan Sand		
5 - 8' Light Tan Sand		
8 - 10 ' Light Tan Grity Clay		
10 - 11' Light Tan Wet Sandy Clay		
11 - 13' Light Tan Wet Sandy Clay		
13 - 15' Light Brown Wet Sandy Clay	18.0	
15 - 17' Wet Consolidated Clay		
17 - 18' Heavy Consolidated Clay		
	35	

Well Loc:
Section: 4
Township: 4N
Range: 13W
Well Usage:

Development Method

- [ ] Bailer
- [ ] Airlift
- [ ] Nitrogen
- [ ] Submersible Pump
- [x] Other: Peristaltic Pump

Well Dev. Time:
Volume:

Well Construction Materials:

Protective Cover:
- [ ] Manhole
- [x] Protective Casing
- [ ] Other:

Riser Material: PVC Flushthread
Well Diameter: 2"
Screen Material: PVC Flushthread
Screen Slot Size: 0.01

Bentonite Plug: [x]
Grout: [x]

Sand: Quantity: 4 Bags @ 100 lbs ea of #2
1 Bag @ 100 lbs ea of #4

Initial Water Level: 9.56'
Water Level at Development: 9.56'

APPENDIX B

Bonner Analytical Testing Company

2703 Oak Grove Road, Hattiesburg, MS 39402 Phone: (601) 264-2854 Fax: (601) 268-7084

CLIENT: **HERCULES** DATE: 12-13/15-97

LOCATION: Hercules Landfill and Sludge Pit

Monitoring Well #1	Time	pH S.U.	Temp degrees C	Conductivity micromhos/cm	Turbidity NTU	REMARKS
Total Depth TOC 20.46'	1645	5.34	18.5	51	55	FID = 0 ppm
Depth to Water TOC 7.82'	1655	5.52	19.8	83	13.5	
Well Depth BLS 17.00'	1705	5.66	19.9	89	13.0	Sampled @ 1710 Bailed 11 Gallons
Quan. Per Volume 2.15 Gallons	1720	5.65	19.9	92	*13.9	Bailed 11 Gallons add'l
LNAPL - NO DNAPL - NO						

Monitoring Well #2	Time	pH S.U.	Temp degrees C	Conductivity micromhos/cm	Turbidity NTU	REMARKS
Total Depth TOC 20.48'	1550	5.67	16.9	112	5	FID = 0 ppm
Depth to Water TOC 6.83'	1600	5.63	17.6	110	1.9	
Well Depth BLS 17.00'	1610	5.69	17.5	112	1.9	
Quan. Per Volume 2.32 Gallons						Sampled @ 1620 Bailed 12 Gallons
LNAPL - NO DNAPL - NO						

Monitoring Well #3	Time	pH S.U.	Temp degrees C	Conductivity micromhos/cm	Turbidity NTU	REMARKS
Total Depth TOC 18.96'	1515	5.36	17.6	60	4.4	FID = 0 ppm
Depth to Water TOC 7.37'	1520	5.22	16.8	50	0.4	
Well Depth BLS 15.00'	1535	5.18	16.8	50	0.5	
Quan. Per Volume 1.97 Gallons						Sampled @ 1540 Bailed 10 Gallons
LNAPL - NO DNAPL - NO						

*Turbidity exceeds 5 NTU; Remove 5 additional well volumes

Well Volume = 0.17 * Water Column in Feet.

LNAPL - Light Non Aqueous Phase Liquid

DNAPL - Dense Non Aqueous Phase Liquid

TOC - Top of Casing (North Side)

BLS - Below Land Surface

Bonner Analytical Testing Company

2703 Oak Grove Road, Hattiesburg, MS 39402 Phone: (601) 264-2854 Fax: (601) 268-7084

CLIENT: HERCULES DATE: 12-13/15-97

LOCATION: Hercules Landfill and Sludge Pit

Monitoring Well #4	Time	pH S.U.	Temp degrees C	Conductivity micromhos/cm	Turbidity NTU	REMARKS
Total Depth TOC 18.99'	NA	5.34	18.5	350	1.7	FID > 100,000 ppm
Depth to Water TOC 10.93'	NA	6.08	19.7	520	0.9	
Well Depth BLS 15.00'	NA	6.12	19.6	510	0.8	
Quan. Per Volume 1.37 Gallons		6.21	19.5			Bailed 7 Gallons
LNAPL - NO DNAPL - NO						

Monitoring Well #5	Time	pH S.U.	Temp degrees C	Conductivity micromhos/cm	Turbidity NTU	REMARKS
Total Depth TOC 18.59'	1133	6.62	19.5	580	42	FID >100,000 ppm
Depth to Water TOC 10.12'	1140	6.5	19.9	520	26.1	
Well Depth BLS 15.00'	1155	6.41	19.5	520	24.4	Sampled @ 1210 Bailed 7.5 Gallons
Quan. Per Volume 1.44 Gallons	1210	6.4	19.5	515	*25.1	Bailed 7.5 Gallons add'l
LNAPL - NO DNAPL - NO						

Monitoring Well #6	Time	pH S.U.	Temp degrees C	Conductivity micromhos/cm	Turbidity NTU	REMARKS
Total Depth TOC 23.25'	1630	5.88	21.5	198	2.9	FID = 0 ppm
Depth to Water TOC 9.56'	1640	5.91	21.2	185	0.3	
Well Depth BLS 18.00'	1655	6.06	21.4	170	0.3	
Quan. Per Volume 2.32 Gallons						Sampled @ 1500 Bailed 12 Gallons
LNAPL - NO DNAPL - NO						

*Turbidity exceeds 5 NTU; Remove 5 additional well volumes

Well Volume = 0.17 x Water Column in Feet.

LNAPL - Light Non Aqueous Phase Liquid

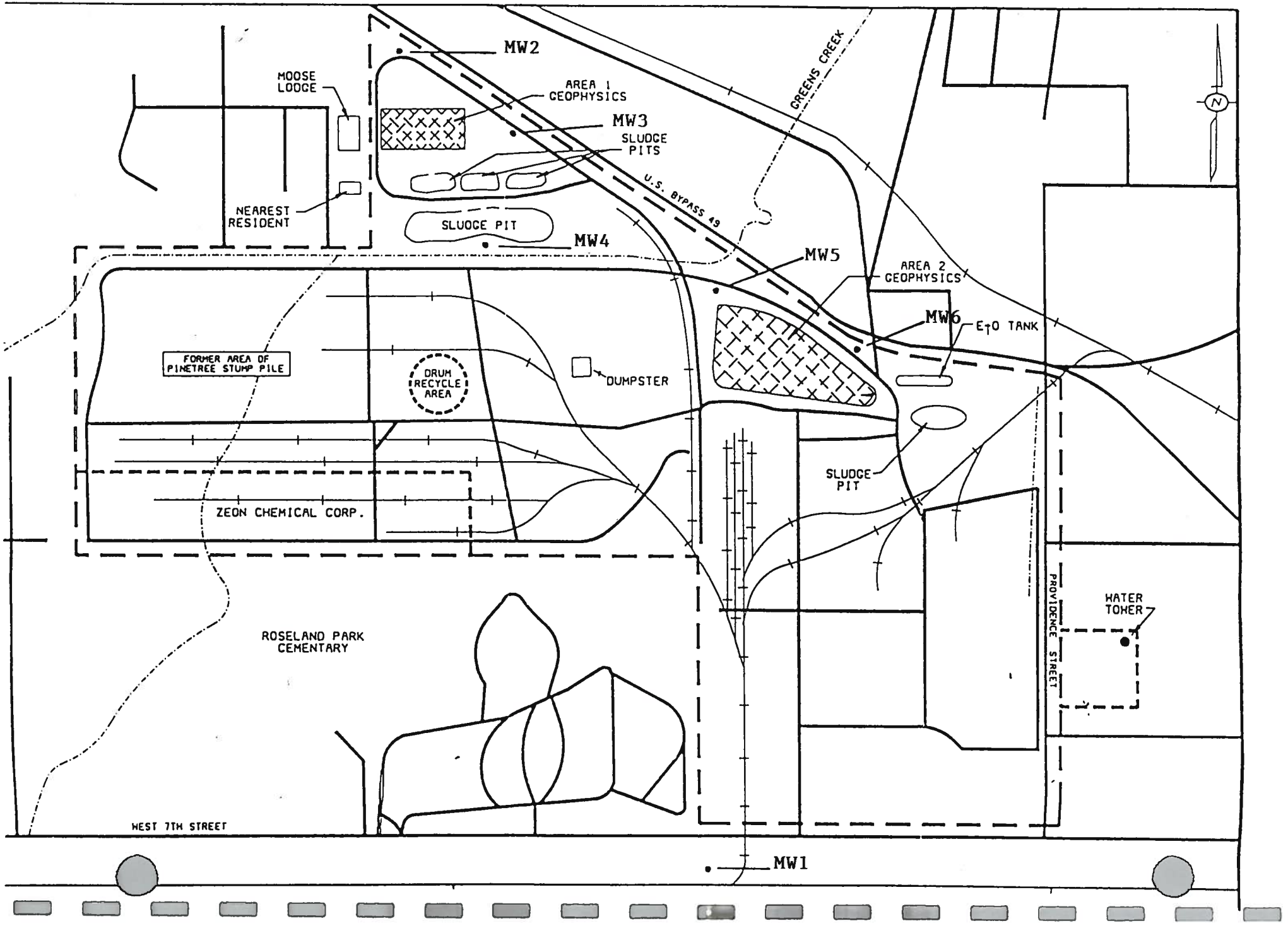
DNAPL - Dense Non Aqueous Phase Liquid

TOC - Top of Casing (North Side)

BLS - Below Land Surface

APPENDIX C

HATTIESBURG, MS
MONITORING WELL LOCATIONS



APPENDIX D

BONNER ANALYTICAL TESTING COMPANY
2703 OAK GROVE ROAD
HATTIESBURG, MS 39402
PH. (601) 264-2854

Client: HERCULES

File Number: BT42539-42541 Sample Date/Time:
Collected By: DOC Date/Time Rec'd: 12-16-97 @ 1120

Analyte/Method #	MW-1	MW-2	MW-3	MDL	Date/Time/Analyst
Antimony/200.7	ND	ND	ND	0.02	01-12-98/1121/JMR
Arsenic/200.15	0.0067	0.0022	ND	0.002	01-13-98/1633/JMR
Beryllium/200.7	0.0076	ND	ND	0.001	01-12-98/1121/JMR
Cadmium/213.1	ND	ND	ND	0.04	12-22-97/1129/GMR
Chromium/200.7	0.116	ND	ND	0.01	01-12-98/1121/JMR
Copper/200.7	0.075	ND	ND	0.01	01-14-98/1211/JMR
Lead/239.1	0.132	ND	ND	0.02	12-22-97/1024/GMR
Mercury/245.2	ND	ND	ND	0.0004	01-14-98/1510/GMR
Nickel/200.7	0.052	ND	ND	0.01	01-12-98/1121/JMR
Selenium/200.15	ND	ND	ND	0.002	01-13-98/1633/JMR
Silver/272.1	ND	ND	ND	0.06	12-23-97/0903/GMR
Thallium/200.7	ND	ND	ND	0.025	02-13-98/1234/JMR
Zinc/289.1	0.190	ND	ND	0.02	12-18-97/1448/GMR

Data reported in mg/L unless otherwise noted. All analyses performed in accordance with 40 CFR 136 and amendments.

MDL = Method Detection Limit.

Certified by: _____
Michael S. Bonner, Ph.D.
BONNER ANALYTICAL TESTING COMPANY

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BONNER ANALYTICAL TESTING COMPANY
2703 OAK GROVE ROAD
HATTIESBURG, MS 39402
PH. (601) 264-2854

Client: HERCULES

File Number: BT42542-42544 Sample Date/Time:
Collected By: DOC Date/Time Rec'd: 12-16-97 @ 1120

Analyte/Method #	MW-4	MW-5	MW-6	MDL	Date/Time/Analyst
Antimony/200.7	ND	ND	ND	0.02	01-12-98/1121/JMR
Arsenic/200.15	0.1536	0.1035	ND	0.002	01-13-98/1633/JMR
Beryllium/200.7	0.014	ND	ND	0.001	01-12-98/1121/JMR
Cadmium/213.1	ND	ND	ND	0.04	12-22-97/1129/GMR
Chromium/200.7	0.223	0.046	0.015	0.01	01-12-98/1121/JMR
Copper/200.7	0.154	ND	ND	0.01	01-14-98/1211/JMR
Lead/239.1	ND	ND	ND	0.02	12-22-97/1024/GMR
Mercury/245.2	0.0007	0.0007	0.0007	0.0004	01-14-98/1510/GMR
Nickel/200.7	0.312	0.025	ND	0.01	01-12-98/1121/JMR
Selenium/200.15	ND	ND	ND	0.002	01-13-98/1633/JMR
Silver/272.1	ND	ND	ND	0.06	12-23-97/0903/GMR
Thallium/200.7	ND	ND	ND	0.025	02-13-98/1234/JMR
Zinc/289.1	0.361	0.089	ND	0.02	12-18-97/1448/GMR

Data reported in mg/L unless otherwise noted. All analyses performed in accordance with 40 CFR 136 and amendments.

MDL = Method Detection Limit.

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2703 OAK GROVE ROAD
HATTIESBURG, MS 39402
PH. (601) 264-2854

Client: HERCULES

File Number: BT42545-42546 Sample Date/Time:
Collected By: DOC Date/Time Rec'd: 12-16-97 @ 1120

Analyte/Method #	Trip Blank	Equipment Blank	MDL	Date/Time/Analyst
Antimony/200.7	ND	ND	0.02	01-12-98/1121/JMR
Arsenic/200.15	ND	ND	0.002	01-13-98/1633/JMR
Beryllium/200.7	ND	ND	0.001	01-12-98/1121/JMR
Cadmium/213.1	ND	ND	0.04	12-22-97/1129/GMR
Chromium/200.7	ND	ND	0.01	01-12-98/1121/JMR
Copper/200.7	ND	ND	0.01	01-14-98/1211/JMR
Lead/239.1	ND	ND	0.02	12-22-97/1024/GMR
Mercury/245.2	ND	ND	0.0004	01-14-98/1510/GMR
Nickel/200.7	ND	ND	0.01	01-12-98/1121/JMR
Selenium/200.15	ND	ND	0.002	01-13-98/1633/JMR
Silver/272.1	ND	ND	0.06	12-23-97/0903/GMR
Thallium/200.7	ND	ND	0.025	02-13-98/1234/JMR
Zinc/289.1	ND	ND	0.02	12-18-97/1448/GMR

Data reported in mg/L unless otherwise noted. All analyses performed in accordance with 40 CFR 136 and amendments.

MDL = Method Detection Limit.

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BONNER ANALYTICAL TESTING COMPANY
QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
PESTICIDE/POLYCHLORINATED BIPHENYLS - ECD ANALYSIS DATA

Client: Hercules
Sample ID: MW-1
File #: BT42539

	Date	Time	Analyst
Collected:	12/15/97	17:30	DOC
Extracted:	12/18/97	9:45	RML
Analyzed:	12/23/97	1:42	RML

Sample Type: Water
Extraction Method: SW846 3510
Analysis Metho: SW846 8081A

COMPOUNDS	MDL ug/L (ppb)	SAMPLE Detected Amount ug/L (ppb)	SAMPLE Spike Amount ug	SAMPLE Spike % Recovery	METHOD BLANK Detected Amount ug/L (ppb)	METHOD BLANK Spike Amount ug	METHOD BLANK Spike % Recovery	MATRIX SPIKE Detected Amount ug/L (ppb)	MATRIX SPIKE Spike Amount ug	MATRIX SPIKE Spike % Recovery	MATRIX SPIKE DUPLICATE Detected Amount ug/L (ppb)	MATRIX SPIKE DUPLICATE Spike Amount ug	MATRIX SPIKE DUPLICATE Spike % Recovery
1P. Aldrin *	0.05	ND			ND			192.4	250.0	76.96	220.8	250.0	88.32
2P Alpha-BHC	0.05	ND			ND								
3P. Beta-BHC	0.05	ND			ND								
4P. Gamma-BHC *	0.05	ND			ND			212.8	250.0	85.12	239.5	250.0	95.80
5P. Delta-BHC	0.05	ND			ND								
6P. Chlordane	0.50	ND			ND								
7P. 4,4'-DDT *	0.10	ND			ND			421.9	500.0	84.38	446.3	500.0	89.26
8P. 4,4'-DDE	0.10	ND			ND								
9P. 4,4'-DDD	0.05	ND			ND								
10P. Dieldrin *	0.10	ND			ND			456.5	500.0	91.30	499.5	500.0	99.90
11P. Alpha-Endosulfan	0.10	ND			ND								
12P. Beta-Endosulfan	0.10	ND			ND								
13P. Endosulfan Sulfate	0.10	ND			ND								
14P. Endrin *	0.10	ND			ND			461.1	500.0	92.22	503.6	500.0	100.72
15P. Endrin Aldehyde	0.10	ND			ND								
16P. Heptachlor *	0.05	ND			ND			214.5	250.0	85.80	212.4	250.0	84.96
17P. Heptachlor Epoxide	0.10	ND			ND								
18P. PCB1242	0.50	ND			ND								
19P. PCB1254	1.00	ND			ND								
20P. PCB1221	0.50	ND			ND								
21P. PCB1232	0.50	ND			ND								
22P. PCB1248	1.00	ND			ND								
23P. PCB1260	1.00	ND			ND								
24P. PCB1016	0.50	ND			ND								
25P. Toxaphene	1.00	ND			ND								
SURROGATE COMPOUNDS		Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery
Decachlorobiphenyl		21.53	20.00	107.65	18.25	20.00	91.25	21.68	20.00	108.40	21.58	20.00	107.90

* = Matrix Spiking Compounds

Certified by: _____
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BONNER ANALYTICAL TESTING COMPANY

BONNER ANALYTICAL TESTING COMPANY
QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
PESTICIDE/POLYCHLORINATED BIPHENYLS - ECD ANALYSIS DATA

Client: Hercules
Sample ID: MW-2
File #: BT42540

	Date	Time	Analyst
Collected:	12/15/97	16:20	DOC
Extracted:	12/18/97	9:45	RML
Analyzed:	12/23/97	2:29	RML

Sample Type: Water
Extraction Method: SW846 3510
Analysis Metho: SW846 8081A

COMPOUNDS	MDL ug/L (ppb)	SAMPLE Detected Amount ug/L (ppb)	SAMPLE Spike Amount ug	SAMPLE Spike % Recovery	METHOD BLANK Detected Amount ug/L (ppb)	METHOD BLANK Spike Amount ug	METHOD BLANK Spike % Recovery	MATRIX SPIKE Detected Amount ug/L (ppb)	MATRIX SPIKE Spike Amount ug	MATRIX SPIKE Spike % Recovery	MATRIX SPIKE DUPLICATE Detected Amount ug/L (ppb)	MATRIX SPIKE DUPLICATE Spike Amount ug	MATRIX SPIKE DUPLICATE Spike % Recovery
1P. Aldrin *	0.05	ND			ND			192.4	250.0	76.96	220.8	250.0	88.32
2P Alpha-BHC	0.05	ND			ND								
3P. Beta-BHC	0.05	ND			ND								
4P. Gamma-BHC *	0.05	ND			ND			212.8	250.0	85.12	239.5	250.0	95.80
5P. Delta-BHC	0.05	ND			ND								
6P. Chlordane	0.50	ND			ND								
7P. 4,4'-DDT *	0.10	ND			ND			421.9	500.0	84.38	446.3	500.0	89.26
8P. 4,4'-DDE	0.10	ND			ND								
9P. 4,4'-DDD	0.05	ND			ND								
10P. Dieldrin *	0.10	ND			ND			456.5	500.0	91.30	499.5	500.0	99.90
11P. Alpha-Endosulfan	0.10	ND			ND								
12P. Beta-Endosulfan	0.10	ND			ND								
13P. Endosulfan Sulfate	0.10	ND			ND								
14P. Endrin *	0.10	ND			ND			461.1	500.0	92.22	503.6	500.0	100.72
15P. Endrin Aldehyde	0.10	ND			ND								
16P. Heptachlor *	0.05	ND			ND			214.5	250.0	85.80	212.4	250.0	84.96
17P. Heptachlor Epoxide	0.10	ND			ND								
18P. PCB1242	0.50	ND			ND								
19P. PCB1254	1.00	ND			ND								
20P. PCB1221	0.50	ND			ND								
21P. PCB1232	0.50	ND			ND								
22P. PCB1248	1.00	ND			ND								
23P . PCB1260	1.00	ND			ND								
24P. PCB1016	0.50	ND			ND								
25P. Toxaphene	1.00	ND			ND								
SURROGATE COMPOUNDS		Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery
Decachlorobiphenyl		20.37	20.00	101.85	18.25	20.00	91.25	21.68	20.00	108.40	21.58	20.00	107.90

* = Matrix Spiking Compounds

Certified by: _____
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BONNER ANALYTICAL TESTING COMPANY
QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
PESTICIDE/POLYCHLORINATED BIPHENYLS - ECD ANALYSIS DATA

Client: Hercules
Sample ID: MW-3
File #: BT42541

	Date	Time	Analyst
Collected:	12/15/97	15:40	DOC
Extracted:	12/18/97	9:45	RML
Analyzed:	12/23/97	3:17	RML

Sample Type: Water
Extraction Method: SW846 3510
Analysis Metho: SW846 8081A

COMPOUNDS	MDL ug/L (ppb)	SAMPLE Detected Amount ug/L (ppb)	SAMPLE Spike Amount ug	SAMPLE Spike % Recovery	METHOD BLANK Detected Amount ug/L (ppb)	METHOD BLANK Spike Amount ug	METHOD BLANK Spike % Recovery	MATRIX SPIKE Detected Amount ug/L (ppb)	MATRIX SPIKE Spike Amount ug	MATRIX SPIKE Spike % Recovery	MATRIX SPIKE DUPLICATE Detected Amount ug/L (ppb)	MATRIX SPIKE DUPLICATE Spike Amount ug	MATRIX SPIKE DUPLICATE Spike % Recovery
1P. Aldrin *	0.05	ND			ND			192.4	250.0	76.96	220.8	250.0	88.32
2P Alpha-BHC	0.05	ND			ND								
3P. Beta-BHC	0.05	ND			ND								
4P. Gamma-BHC *	0.05	ND			ND			212.8	250.0	85.12	239.5	250.0	95.80
5P. Delta-BHC	0.05	ND			ND								
6P. Chlordane	0.50	ND			ND								
7P. 4,4'-DDT *	0.10	ND			ND			421.9	500.0	84.38	446.3	500.0	89.26
8P. 4,4'-DDE	0.10	ND			ND								
9P. 4,4'-DDD	0.05	ND			ND								
10P. Dieldrin *	0.10	ND			ND			456.5	500.0	91.30	499.5	500.0	99.90
11P. Alpha-Endosulfan	0.10	ND			ND								
12P. Beta-Endosulfan	0.10	ND			ND								
13P. Endosulfan Sulfate	0.10	ND			ND								
14P. Endrin *	0.10	ND			ND			461.1	500.0	92.22	503.6	500.0	100.72
15P. Endrin Aldehyde	0.10	ND			ND								
16P. Heptachlor *	0.05	ND			ND			214.5	250.0	85.80	212.4	250.0	84.96
17P. Heptachlor Epoxide	0.10	ND			ND								
18P. PCB1242	0.50	ND			ND								
19P. PCB1254	1.00	ND			ND								
20P. PCB1221	0.50	ND			ND								
21P. PCB1232	0.50	ND			ND								
22P. PCB1248	1.00	ND			ND								
23P. PCB1260	1.00	ND			ND								
24P. PCB1016	0.50	ND			ND								
25P. Toxaphene	1.00	ND			ND								
SURROGATE COMPOUNDS		Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery
Decachlorobiphenyl		19.76	20.00	98.80	18.25	20.00	91.25	21.68	20.00	108.40	21.58	20.00	107.90

* = Matrix Spiking Compounds

Certified by: _____
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BONNER ANALYTICAL TESTING COMPANY

BONNER ANALYTICAL TESTING COMPANY
QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
PESTICIDE/POLYCHLORINATED BIPHENYLS - ECD ANALYSIS DATA

Client: **Hercules**
Sample ID: MW-4
File #: BT42542

	Date	Time	Analyst
Collected:	12/12/97	13:10	DOC
Extracted:	12/18/97	9:45	RML
Analyzed:	12/23/97	4:05	RML

Sample Type Water
Extraction Method SW846 3510
Analysis Metho SW846 8081A

COMPOUNDS	MDL ug/L (ppb)	SAMPLE Detected Amount ug/L (ppb)	SAMPLE Spike Amount ug	SAMPLE Spike % Recovery	METHOD BLANK Detected Amount ug/L (ppb)	METHOD BLANK Spike Amount ug	METHOD BLANK Spike % Recovery	MATRIX SPIKE Detected Amount ug/L (ppb)	MATRIX SPIKE Spike Amount ug	MATRIX SPIKE Spike % Recovery	MATRIX SPIKE DUPLICATE Detected Amount ug/L (ppb)	MATRIX SPIKE DUPLICATE Spike Amount ug	MATRIX SPIKE DUPLICATE Spike % Recovery
1P. Aldrin *	0.05	ND			ND			192.4	250.0	76.96	220.8	250.0	88.32
2P Alpha-BHC	0.05	ND			ND								
3P. Beta-BHC	0.05	ND			ND								
4P. Gamma-BHC *	0.05	ND			ND			212.8	250.0	85.12	239.5	250.0	95.80
5P. Delta-BHC	0.05	ND			ND								
6P. Chlordane	0.50	ND			ND								
7P. 4,4'-DDT *	0.10	ND			ND			421.9	500.0	84.38	446.3	500.0	89.26
8P. 4,4'-DDE	0.10	ND			ND								
9P. 4,4'-DDD	0.05	ND			ND								
10P. Dieldrin *	0.10	ND			ND			456.5	500.0	91.30	499.5	500.0	99.90
11P. Alpha-Endosulfan	0.10	ND			ND								
12P. Beta-Endosulfan	0.10	ND			ND								
13P. Endosulfan Sulfate	0.10	ND			ND								
14P. Endrin *	0.10	ND			ND			461.1	500.0	92.22	503.6	500.0	100.72
15P. Endrin Aldehyde	0.10	ND			ND								
16P. Heptachlor *	0.05	ND			ND			214.5	250.0	85.80	212.4	250.0	84.96
17P. Heptachlor Epoxide	0.10	ND			ND								
18P. PCB1242	0.50	ND			ND								
19P. PCB1254	1.00	ND			ND								
20P. PCB1221	0.50	ND			ND								
21P. PCB1232	0.50	ND			ND								
22P. PCB1248	1.00	ND			ND								
23P. PCB1260	1.00	ND			ND								
24P. PCB1016	0.50	ND			ND								
25P. Toxaphene	1.00	ND			ND								
SURROGATE COMPOUNDS		Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery
Decachlorobiphenyl		14.50	20.00	72.50	18.25	20.00	91.25	21.68	20.00	108.40	21.58	20.00	107.90

* = Matrix Spiking Compounds

Certified by: _____
Michael S. Bonner, Ph D
BONNER ANALYTICAL TESTING COMPANY

BONNER ANALYTICAL TESTING COMPANY
QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
PESTICIDE/POLYCHLORINATED BIPHENYLS - ECD ANALYSIS DATA

Client: **Hercules**
Sample ID: MW-5
File #: BT42543

	Date	Time	Analyst
Collected:	12/12/97	9:00	DOC
Extracted:	12/18/97	9:45	RML
Analyzed:	12/23/97	4:52	RML

Sample Type: Water
Extraction Method: SW846 3510
Analysis Metho: SW846 8081A

COMPOUNDS	MDL ug/L (ppb)	SAMPLE Detected Amount ug/L (ppb)	SAMPLE Spike Amount ug	SAMPLE Spike % Recovery	METHOD BLANK Detected Amount ug/L (ppb)	METHOD BLANK Spike Amount ug	METHOD BLANK Spike % Recovery	MATRIX SPIKE Detected Amount ug/L (ppb)	MATRIX SPIKE Spike Amount ug	MATRIX SPIKE Spike % Recovery	MATRIX SPIKE DUPLICATE Detected Amount ug/L (ppb)	MATRIX SPIKE DUPLICATE Spike Amount ug	MATRIX SPIKE DUPLICATE Spike % Recovery
1P. Aldrin *	0.05	ND			ND			192.4	250.0	76.96	220.8	250.0	88.32
2P Alpha-BHC	0.05	ND			ND								
3P. Beta-BHC	0.05	ND			ND								
4P. Gamma-BHC *	0.05	ND			ND			212.8	250.0	85.12	239.5	250.0	95.80
5P. Delta-BHC	0.05	ND			ND								
6P. Chlordane	0.50	ND			ND								
7P. 4,4'-DDT *	0.10	ND			ND			421.9	500.0	84.38	446.3	500.0	89.26
8P. 4,4'-DDE	0.10	ND			ND								
9P. 4,4'-DDD	0.05	ND			ND								
10P. Dieldrin *	0.10	ND			ND			456.5	500.0	91.30	499.5	500.0	99.90
11P. Alpha-Endosulfan	0.10	ND			ND								
12P. Beta-Endosulfan	0.10	ND			ND								
13P. Endosulfan Sulfate	0.10	ND			ND								
14P. Endrin *	0.10	ND			ND			461.1	500.0	92.22	503.6	500.0	100.72
15P. Endrin Aldehyde	0.10	ND			ND								
16P. Heptachlor *	0.05	ND			ND			214.5	250.0	85.80	212.4	250.0	84.96
17P. Heptachlor Epoxide	0.10	ND			ND								
18P. PCB1242	0.50	ND			ND								
19P. PCB1254	1.00	ND			ND								
20P PCB1221	0.50	ND			ND								
21P. PCB1232	0.50	ND			ND								
22P. PCB1248	1.00	ND			ND								
23P. PCB1260	1.00	ND			ND								
24P. PCB1016	0.50	ND			ND								
25P. Toxaphene	1.00	ND			ND								
SURROGATE COMPOUNDS		Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery
Decachlorobiphenyl		17.58	20.00	87.90	18.25	20.00	91.25	21.68	20.00	108.40	21.58	20.00	107.90

* = Matrix Spiking Compounds

Certified by: _____
Michael S. Bonner, Ph.D
BONNER ANALYTICAL TESTING COMPANY

BONNER ANALYTICAL TESTING COMPANY
QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
PESTICIDE/POLYCHLORINATED BIPHENYLS - ECD ANALYSIS DATA

Client: **Hercules**
Sample ID: MW-6
File #: BT42544

	Date	Time	Analyst
Collected:	12/12/97	13:10	DOC
Extracted:	12/18/97	9:45	RML
Analyzed:	12/23/97	5:40	RML

Sample Type: Water
Extraction Method: SW846 3510
Analysis Metho: SW846 8081A

COMPOUNDS	MDL ug/L (ppb)	SAMPLE Detected Amount ug/L (ppb)	SAMPLE Spike Amount ug	SAMPLE Spike % Recovery	METHOD BLANK Detected Amount ug/L (ppb)	METHOD BLANK Spike Amount ug	METHOD BLANK Spike % Recovery	MATRIX SPIKE Detected Amount ug/L (ppb)	MATRIX SPIKE Spike Amount ug	MATRIX SPIKE Spike % Recovery	MATRIX SPIKE DUPLICATE Detected Amount ug/L (ppb)	MATRIX SPIKE DUPLICATE Spike Amount ug	MATRIX SPIKE DUPLICATE Spike % Recovery
1P. Aldrin *	0.05	ND			ND			192.4	250.0	76.96	220.8	250.0	88.32
2P Alpha-BHC	0.05	ND			ND								
3P. Beta-BHC	0.05	ND			ND								
4P. Gamma-BHC *	0.05	ND			ND			212.8	250.0	85.12	239.5	250.0	95.80
5P. Delta-BHC	0.05	ND			ND								
6P. Chlordane	0.50	ND			ND								
7P. 4,4'-DDT *	0.10	ND			ND			421.9	500.0	84.38	446.3	500.0	89.26
8P. 4,4'-DDE	0.10	ND			ND								
9P. 4,4'-DDD	0.05	ND			ND								
10P. Dieldrin *	0.10	ND			ND			456.5	500.0	91.30	499.5	500.0	99.90
11P. Alpha-Endosulfan	0.10	ND			ND								
12P. Beta-Endosulfan	0.10	ND			ND								
13P. Endosulfan Sulfate	0.10	ND			ND								
14P. Endrin *	0.10	ND			ND			461.1	500.0	92.22	503.6	500.0	100.72
15P. Endrin Aldehyde	0.10	ND			ND								
16P. Heptachlor *	0.05	ND			ND			214.5	250.0	85.80	212.4	250.0	84.96
17P. Heptachlor Epoxide	0.10	ND			ND								
18P. PCB1242	0.50	ND			ND								
19P. PCB1254	1.00	ND			ND								
20P. PCB1221	0.50	ND			ND								
21P. PCB1232	0.50	ND			ND								
22P. PCB1248	1.00	ND			ND								
23P. PCB1260	1.00	ND			ND								
24P PCB1016	0.50	ND			ND								
25P. Toxaphene	1.00	ND			ND								
SURROGATE COMPOUNDS		Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery
Decachlorobiphenyl		19.36	20.00	96.80	18.25	20.00	91.25	21.68	20.00	108.40	21.58	20.00	107.90

* = Matrix Spiking Compounds

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BONNER ANALYTICAL TESTING COMPANY
QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
PESTICIDE/POLYCHLORINATED BIPHENYLS - ECD ANALYSIS DATA

Client: Hercules
Sample ID: Trip Blank
File #: BT42545

	Date	Time	Analyst
Collected:	12/12/97		DOC
Extracted:	12/18/97	9:45	RML
Analyzed:	12/23/97	6:27	RML

Sample Type: Water
Extraction Method: SW846 3510
Analysis Metho: SW846 8081A

COMPOUNDS	MDL ug/L (ppb)	SAMPLE Detected Amount ug/L (ppb)	SAMPLE Spike Amount ug	SAMPLE Spike % Recovery	METHOD BLANK Detected Amount ug/L (ppb)	METHOD BLANK Spike Amount ug	METHOD BLANK Spike % Recovery	MATRIX SPIKE Detected Amount ug/L (ppb)	MATRIX SPIKE Spike Amount ug	MATRIX SPIKE Spike % Recovery	MATRIX SPIKE DUPLICATE Detected Amount ug/L (ppb)	MATRIX SPIKE DUPLICATE Spike Amount ug	MATRIX SPIKE DUPLICATE Spike % Recovery
1P. Aldrin *	0.05	ND			ND			192.4	250.0	76.96	220.8	250.0	88.32
2P Alpha-BHC	0.05	ND			ND								
3P. Beta-BHC	0.05	ND			ND								
4P. Gamma-BHC *	0.05	ND			ND			212.8	250.0	85.12	239.5	250.0	95.80
5P. Delta-BHC	0.05	ND			ND								
6P. Chlordane	0.50	ND			ND								
7P. 4,4'-DDT *	0.10	ND			ND			421.9	500.0	84.38	446.3	500.0	89.26
8P. 4,4'-DDE	0.10	ND			ND								
9P. 4,4'-DDD	0.05	ND			ND								
10P. Dieldrin *	0.10	ND			ND			456.5	500.0	91.30	499.5	500.0	99.90
11P. Alpha-Endosulfan	0.10	ND			ND								
12P. Beta-Endosulfan	0.10	ND			ND								
13P. Endosulfan Sulfate	0.10	ND			ND								
14P. Endrin *	0.10	ND			ND			461.1	500.0	92.22	503.6	500.0	100.72
15P. Endrin Aldehyde	0.10	ND			ND								
16P. Heptachlor *	0.05	ND			ND			214.5	250.0	85.80	212.4	250.0	84.96
17P. Heptachlor Epoxide	0.10	ND			ND								
18P. PCB1242	0.50	ND			ND								
19P. PCB1254	1.00	ND			ND								
20P. PCB1221	0.50	ND			ND								
21P. PCB1232	0.50	ND			ND								
22P. PCB1248	1.00	ND			ND								
23P. PCB1260	1.00	ND			ND								
24P. PCB1016	0.50	ND			ND								
25P. Toxaphene	1.00	ND			ND								
SURROGATE COMPOUNDS		Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery
Decachlorobiphenyl		21.91	20.00	109.55	18.25	20.00	91.25	21.68	20.00	108.40	21.58	20.00	107.90

* = Matrix Spiking Compounds

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QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
PESTICIDE/POLYCHLORINATED BIPHENYLS - ECD ANALYSIS DATA

Client: Hercules
Sample ID: Equipment Blank
File #: BT42546

	Date	Time	Analyst
Collected:	12/15/97		DOC
Extracted:	12/18/97	9:45	RML
Analyzed:	12/23/97	7:15	RML

Sample Type: Water
Extraction Method SW846 3510
Analysis Metho SW846 8081A

COMPOUNDS	MDL ug/L (ppb)	SAMPLE Detected Amount ug/L (ppb)	SAMPLE Spike Amount ug	SAMPLE Spike % Recovery	METHOD BLANK Detected Amount ug/L (ppb)	METHOD BLANK Spike Amount ug	METHOD BLANK Spike % Recovery	MATRIX SPIKE Detected Amount ug/L (ppb)	MATRIX SPIKE Spike Amount ug	MATRIX SPIKE Spike % Recovery	MATRIX SPIKE DUPLICATE Detected Amount ug/L (ppb)	MATRIX SPIKE DUPLICATE Spike Amount ug	MATRIX SPIKE DUPLICATE Spike % Recovery
1P. Aldrin *	0.05	ND			ND			192.4	250.0	76.96	220.8	250.0	88.32
2P Alpha-BHC	0.05	ND			ND								
3P. Beta-BHC	0.05	ND			ND								
4P. Gamma-BHC *	0.05	ND			ND			212.8	250.0	85.12	239.5	250.0	95.80
5P. Delta-BHC	0.05	ND			ND								
6P. Chlordane	0.50	ND			ND								
7P. 4,4'-DDT *	0.10	ND			ND			421.9	500.0	84.38	446.3	500.0	89.26
8P. 4,4'-DDE	0.10	ND			ND								
9P. 4,4'-DDD	0.05	ND			ND								
10P. Dieldrin *	0.10	ND			ND			456.5	500.0	91.30	499.5	500.0	99.90
11P. Alpha-Endosulfan	0.10	ND			ND								
12P. Beta-Endosulfan	0.10	ND			ND								
13P. Endosulfan Sulfate	0.10	ND			ND								
14P. Endrin *	0.10	ND			ND			461.1	500.0	92.22	503.6	500.0	100.72
15P. Endrin Aldehyde	0.10	ND			ND								
16P. Heptachlor *	0.05	ND			ND			214.5	250.0	85.80	212.4	250.0	84.96
17P. Heptachlor Epoxide	0.10	ND			ND								
18P. PCB1242	0.50	ND			ND								
19P. PCB1254	1.00	ND			ND								
20P. PCB1221	0.50	ND			ND								
21P. PCB1232	0.50	ND			ND								
22P. PCB1248	1.00	ND			ND								
23P. PCB1260	1.00	ND			ND								
24P. PCB1016	0.50	ND			ND								
25P. Toxaphene	1.00	ND			ND								
SURROGATE COMPOUNDS		Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery
Decachlorobiphenyl		20.42	20.00	102.10	18.25	20.00	91.25	21.68	20.00	108.40	21.58	20.00	107.90

* = Matrix Spiking Compounds

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QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
VOLATILE ORGANICS - GC/MS ANALYSIS DATA

Client: HERCULES
Location: MW - 1
File #: BT42539

	Date	Time	Analyst
Collected:	12/15/97	17:30	BATCO
Received:	12/16/97	11:20	RWC
Analyzed:	12/18/97	12:20	CRR

Sample Type: Water
Analysis Method: 8260

Compound Name	CAS Number	MDL ug/L (ppb)	SAMPLE			BLANK			MATRIX SPIKE (BT42541)			MATRIX SPIKE DUP (BT42541)		
			Detected Amount ug/L (ppb)	Spike Amount ug	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ug	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ng	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ng	Spike % Recovery
1,1-Dichloroethene	75-35-4	2.00	ND			ND			52.2	250.0	104.4	51.3	250.0	102.6
Benzene	71-43-2	2.00	ND			ND			52.4	250.0	104.8	51.5	250.0	103.0
Trichloroethene	79-01-6	2.50	ND			ND			52.5	250.0	105.0	53.0	250.0	106.0
Toluene	108-88-3	2.50	ND			ND			53.1	250.0	106.2	53.1	250.0	106.2
Chlorobenzene	108-90-7	2.00	ND			ND			52.9	250.0	105.8	54.0	250.0	108.0
Bromobenzene	108-86-1	2.50	ND			ND			ND			ND		
Bromochloromethane	74-97-5	2.00	ND			ND			ND			ND		
Bromodichloromethane	75-27-4	2.00	ND			ND			ND			ND		
Bromoform	75-25-2	2.50	ND			ND			ND			ND		
Bromomethane	74-83-9	1.00	ND			ND			ND			ND		
n-Butylbenzene	104-51-8	1.50	ND			ND			ND			ND		
sec-Butylbenzene	135-98-8	2.50	ND			ND			ND			ND		
tert-Butylbenzene	98-06-6	3.00	ND			ND			ND			ND		
Carbon Tetrachloride	56-23-5	2.00	ND			ND			ND			ND		
Chloroethane	75-00-3	3.00	ND			ND			ND			ND		
Chloroform	66-67-3	2.00	ND			ND			ND			ND		
Chloromethane	74-87-3	3.00	ND			ND			ND			ND		
2-Chlorotoluene	95-49-8	3.00	ND			ND			ND			ND		
4-Chlorotoluene	106-43-4	1.50	ND			ND			ND			ND		
Dibromochloromethane	124-48-1	2.00	ND			ND			ND			ND		
1,2-Dibromo-3-chloropropane	96-12-8	4.00	ND			ND			ND			ND		
1,2-Dibromoethane	106-93-4	2.00	ND			ND			ND			ND		
Dibromomethane	74-95-3	2.50	ND			ND			ND			ND		
1,2-Dichlorobenzene	95-50-1	2.50	ND			ND			ND			ND		
1,3-Dichlorobenzene	541-73-1	2.00	ND			ND			ND			ND		
1,4-Dichlorobenzene	106-46-7	2.00	ND			ND			ND			ND		
Dichlorodifluoromethane	75-71-8	2.00	ND			ND			ND			ND		
1,1-Dichloroethane	75-34-3	2.00	ND			ND			ND			ND		
1,2-Dichloroethane	107-06-2	2.00	ND			ND			ND			ND		
cis-1,2-Dichloroethene	156-59-2	2.50	ND			ND			ND			ND		
trans-1,2-Dichloroethene	156-60-5	2.50	ND			ND			ND			ND		
1,2-Dichloropropane	78-87-5	2.50	ND			ND			ND			ND		
1,3-Dichloropropane	142-28-9	2.50	ND			ND			ND			ND		
2,2-Dichloropropane	594-20-7	2.00	ND			ND			ND			ND		
1,1-Dichloropropene	563-58-6	2.00	ND			ND			ND			ND		
c-1,3-Dichloropropene	10061-01-5	2.00	ND			ND			ND			ND		
t-1,3-Dichloropropene	10061-02-6	2.00	ND			ND			ND			ND		
Ethyl benzene	100-41-4	2.50	ND			ND			ND			ND		
Hexachlorobutadiene	87-68-3	2.00	ND			ND			ND			ND		
Isopropylbenzene	98-82-8	2.50	ND			ND			ND			ND		
p-Isopropyltoluene	99-87-6	2.00	ND			ND			ND			ND		
Methylene chloride	75-09-2	2.50	ND			ND			ND			ND		
Naphthalene	91-20-3	3.00	ND			ND			ND			ND		
n-Propylbenzene	103-65-1	1.50	ND			ND			ND			ND		

BONNER ANALYTICAL TESTING COMPANY

QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
VOLATILE ORGANICS - GC/MS ANALYSIS DATA

Client: HERCULES
Location: MW - 1
File #: BT42539

	Date	Time	
Collected:	12/15/97	17:30	BATCO
Received:	12/16/97	11:20	RWC
Analysis:	12/18/97	12:20	CRR

Sample Type: Water
Analysis Method: 8260

Compound Name	CAS Number	MDL ug/L (ppb)	SAMPLE			BLANK			MATRIX SPIKE			MATRIX SPIKE DUP		
			Detected Amount ug/L (ppb)	Spike Amount ug	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ug	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ng	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ng	Spike % Recovery
Styrene	100-42-5	2.00	ND			ND			ND			ND		
1,1,1,2-Tetrachloroethane	630-20-6	2.50	ND			ND			ND			ND		
1,1,2,2-Tetrachloroethane	79-34-5	2.50	ND			ND			ND			ND		
Tetrachloroethene	127-18-4	2.00	ND			ND			ND			ND		
1,2,3-Trichlorobenzene	87-61-6	2.00	ND			ND			ND			ND		
1,2,4-Trichlorobenzene	120-82-1	2.50	ND			ND			ND			ND		
1,1,1-Trichloroethane	71-55-6	2.00	ND			ND			ND			ND		
1,1,2-Trichloroethane	79-00-5	2.50	ND			ND			ND			ND		
Trichlorofluoromethane	75-69-4	2.00	ND			ND			ND			ND		
1,2,3-Trichloropropane	96-18-4	1.50	ND			ND			ND			ND		
1,2,4-Trimethylbenzene	95-63-6	2.00	ND			ND			ND			ND		
1,3,5-Trimethylbenzene	108-67-8	3.00	ND			ND			ND			ND		
Vinyl chloride	75-01-4	2.50	ND			ND			ND			ND		
Xylenes (total)	1330-20-7	4.00	ND			ND			ND			ND		
Surrogate Compounds			Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery
Dibromofluoromethane	1868-53-7		49.5	250.0	99.0	46.6	250.0	93.2	46.0	250.0	92.0	46.7	250.0	93.4
Toluene-d8	2037-26-5		44.9	250.0	89.8	49.2	250.0	98.4	46.1	250.0	92.2	45.9	250.0	91.8
4-Bromofluorobenzene	460-00-4		47.0	250.0	94.0	49.7	250.0	99.4	47.9	250.0	95.8	48.9	250.0	97.8

Certified by:

Michael S. Bonner,Ph. D.
Bonner Analytical Testing Company

BONNER ANALYTICAL TESTING COMPANY

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Client : HERCULES

File # : BT42539

Sample Matrix : Water

Lab Sample ID : MW-1

Sample Collection Date : 12/15/97

Sample Analysis Date : 12/18/97

GC Column Length : 105 M

Dilution Factor : 1

GC Column ID : 0.53 mm

Sample Weight/ Volume : 5.0 (g/mL) mL

Number TICs Found : 0

Concentration Units : ug / L (PPB)

CAS NUMBER	COMPOUND NAME	RT	EST. CONCENTRATION

NOTE: TICs reported for SW 846 method 8260 compounds only.

BONNER ANALYTICAL TESTING COMPANY

QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA

VOLATILE ORGANICS - GC/MS ANALYSIS DATA

Client: HERCULES
Location: MW - 2
File #: BT42540

	Date	Time	Analyst
Collected:	12/15/97	16:20	BATCO
Received:	12/16/97	11:20	RWC
Analyzed:	12/18/97	13:21	CRR

Sample Type: Water
Analysis Method: 8260

Compound Name	CAS Number	MDL ug/L (ppb)	SAMPLE			BLANK			MATRIX SPIKE (BT42541)			MATRIX SPIKE DUP (BT42541)		
			Detected Amount ug/L (ppb)	Spike Amount ug	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ug	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ng	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ng	Spike % Recovery
1,1-Dichloroethene	75-35-4	2.00	ND			ND			52.2	250.0	104.4	51.3	250.0	102.6
Benzene	71-43-2	2.00	ND			ND			52.4	250.0	104.8	51.5	250.0	103.0
Trichloroethene	79-01-6	2.50	ND			ND			52.5	250.0	105.0	53.0	250.0	106.0
Toluene	108-88-3	2.50	ND			ND			53.1	250.0	106.2	53.1	250.0	106.2
Chlorobenzene	108-90-7	2.00	ND			ND			52.9	250.0	105.8	54.0	250.0	108.0
Bromobenzene	108-86-1	2.50	ND			ND			ND			ND		
Bromochloromethane	74-97-5	2.00	ND			ND			ND			ND		
Bromodichloromethane	75-27-4	2.00	ND			ND			ND			ND		
Bromoform	75-25-2	2.50	ND			ND			ND			ND		
Bromomethane	74-83-9	1.00	ND			ND			ND			ND		
n-Butylbenzene	104-51-8	1.50	ND			ND			ND			ND		
sec-Butylbenzene	135-98-8	2.50	ND			ND			ND			ND		
tert-Butylbenzene	98-06-6	3.00	ND			ND			ND			ND		
Carbon Tetrachloride	56-23-5	2.00	ND			ND			ND			ND		
Chloroethane	75-00-3	3.00	ND			ND			ND			ND		
Chloroform	66-67-3	2.00	ND			ND			ND			ND		
Chloromethane	74-87-3	3.00	ND			ND			ND			ND		
2-Chlorotoluene	95-49-8	3.00	ND			ND			ND			ND		
4-Chlorotoluene	106-43-4	1.50	ND			ND			ND			ND		
Dibromochloromethane	124-48-1	2.00	ND			ND			ND			ND		
1,2-Dibromo-3-chloropropane	96-12-8	4.00	ND			ND			ND			ND		
1,2-Dibromoethane	106-93-4	2.00	ND			ND			ND			ND		
Dibromomethane	74-95-3	2.50	ND			ND			ND			ND		
1,2-Dichlorobenzene	95-50-1	2.50	ND			ND			ND			ND		
1,3-Dichlorobenzene	541-73-1	2.00	ND			ND			ND			ND		
1,4-Dichlorobenzene	106-46-7	2.00	ND			ND			ND			ND		
Dichlorodifluoromethane	75-71-8	2.00	ND			ND			ND			ND		
1,1-Dichloroethane	75-34-3	2.00	ND			ND			ND			ND		
1,2-Dichloroethane	107-06-2	2.00	ND			ND			ND			ND		
cis-1,2-Dichloroethene	156-59-2	2.50	ND			ND			ND			ND		
trans-1,2-Dichloroethene	156-60-5	2.50	ND			ND			ND			ND		
1,2-Dichloropropane	78-87-5	2.50	ND			ND			ND			ND		
1,3-Dichloropropane	142-28-9	2.50	ND			ND			ND			ND		
2,2-Dichloropropane	594-20-7	2.00	ND			ND			ND			ND		
1,1-Dichloropropene	563-58-6	2.00	ND			ND			ND			ND		
c-1,3-Dichloropropene	10061-01-5	2.00	ND			ND			ND			ND		
t-1,3-Dichloropropene	10061-02-6	2.00	ND			ND			ND			ND		
Ethyl benzene	100-41-4	2.50	ND			ND			ND			ND		
Hexachlorobutadiene	87-68-3	2.00	ND			ND			ND			ND		
Isopropylbenzene	98-82-8	2.50	ND			ND			ND			ND		
p-Isopropyltoluene	99-87-6	2.00	ND			ND			ND			ND		
Methylene chloride	75-09-2	2.50	ND			ND			ND			ND		
Naphthalene	91-20-3	3.00	ND			ND			ND			ND		
n-Propylbenzene	103-65-1	1.50	ND			ND			ND			ND		

BONNER ANALYTICAL TESTING COMPANY

QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
VOLATILE ORGANICS - GC/MS ANALYSIS DATA

Client: HERCULES
Location: MW - 2
File #: BT42540

	Date	Time	Analyst
Collected:	12/15/97	16:20	BATCO
Received:	12/16/97	11:20	RWC
Analysis:	12/18/97	13:21	CRR

Sample Type: Water
Analysis Method: 8260

Compound Name	CAS Number	MDL ug/L (ppb)	SAMPLE			BLANK			MATRIX SPIKE			MATRIX SPIKE DUP		
			Detected Amount ug/L (ppb)	Spike Amount ug	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ug	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ng	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ng	Spike % Recovery
Styrene	100-42-5	2.00	ND			ND			ND			ND		
1,1,1,2-Tetrachloroethane	630-20-6	2.50	ND			ND			ND			ND		
1,1,2,2-Tetrachloroethane	79-34-5	2.50	ND			ND			ND			ND		
Tetrachloroethene	127-18-4	2.00	ND			ND			ND			ND		
1,2,3-Trichlorobenzene	87-61-6	2.00	ND			ND			ND			ND		
1,2,4-Trichlorobenzene	120-82-1	2.50	ND			ND			ND			ND		
1,1,1-Trichloroethane	71-55-6	2.00	ND			ND			ND			ND		
1,1,2-Trichloroethane	79-00-5	2.50	ND			ND			ND			ND		
Trichlorofluoromethane	75-69-4	2.00	ND			ND			ND			ND		
1,2,3-Trichloropropane	96-18-4	1.50	ND			ND			ND			ND		
1,2,4-Trimethylbenzene	95-63-6	2.00	ND			ND			ND			ND		
1,3,5-Trimethylbenzene	108-67-8	3.00	ND			ND			ND			ND		
Vinyl chloride	75-01-4	2.50	ND			ND			ND			ND		
Xylenes (total)	1330-20-7	4.00	ND			ND			ND			ND		
Surrogate Compounds			Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery
Dibromofluoromethane	1868-53-7		47.5	250.0	95.0	46.6	250.0	93.2	46.0	250.0	92.0	46.7	250.0	93.4
Toluene-d8	2037-26-5		48.4	250.0	96.8	49.2	250.0	98.4	46.1	250.0	92.2	45.9	250.0	91.8
4-Bromofluorobenzene	460-00-4		45.3	250.0	90.6	49.7	250.0	99.4	47.9	250.0	95.8	48.9	250.0	97.8

Certified by:

Michael S. Bonner, Ph. D.
Bonner Analytical Testing Company

BONNER ANALYTICAL TESTING COMPANY

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Client : HERCULES

File # : BT42540

Sample Matrix : Water

Lab Sample ID : MW-2

Sample Collection Date : 12/15/97

Sample Analysis Date : 12/18/97

GC Column Length : 105 M

Dilution Factor : 1

GC Column ID : 0.53 mm

Sample Weight/ Volume : 5.0 (g/mL) mL

Number TICs Found : 0

Concentration Units : ug / L (PPB)

CAS NUMBER	COMPOUND NAME	RT	EST. CONCENTRATION

NOTE: TICs reported for SW 846 method 8260 compounds only.

BONNER ANALYTICAL TESTING COMPANY

QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
VOLATILE ORGANICS - GC/MS ANALYSIS DATA

Client: HERCULES
Location: MW - 3
File #: BT42541

	Date	Time	
Collected:	12/15/97	15:40	BATCO
Received:	12/16/97	11:20	RWC
Analyzed:	12/18/97	14:22	CRR

Sample Type: Water
Analysis Method: 8260

Compound Name	CAS Number	MDL ug/L (ppb)	SAMPLE			BLANK			MATRIX SPIKE (BT42541)			MATRIX SPIKE DUP (BT42541)		
			Detected Amount ug/L (ppb)	Spike Amount ug	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ug	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ng	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ng	Spike % Recovery
1,1-Dichloroethene	75-35-4	2.00	ND			ND			52.2	250.0	104.4	51.3	250.0	102.6
Benzene	71-43-2	2.00	ND			ND			52.4	250.0	104.8	51.5	250.0	103.0
Trichloroethene	79-01-6	2.50	ND			ND			52.5	250.0	105.0	53.0	250.0	106.0
Toluene	108-88-3	2.50	ND			ND			53.1	250.0	106.2	53.1	250.0	106.2
Chlorobenzene	108-90-7	2.00	ND			ND			52.9	250.0	105.8	54.0	250.0	108.0
Bromobenzene	108-86-1	2.50	ND			ND			ND			ND		
Bromochloromethane	74-97-5	2.00	ND			ND			ND			ND		
Bromodichloromethane	75-27-4	2.00	ND			ND			ND			ND		
Bromoform	75-25-2	2.50	ND			ND			ND			ND		
Bromomethane	74-83-9	1.00	ND			ND			ND			ND		
n-Butylbenzene	104-51-8	1.50	ND			ND			ND			ND		
sec-Butylbenzene	135-98-8	2.50	ND			ND			ND			ND		
tert-Butylbenzene	98-06-6	3.00	ND			ND			ND			ND		
Carbon Tetrachloride	56-23-5	2.00	ND			ND			ND			ND		
Chloroethane	75-00-3	3.00	ND			ND			ND			ND		
Chloroform	66-67-3	2.00	ND			ND			ND			ND		
Chloromethane	74-87-3	3.00	ND			ND			ND			ND		
2-Chlorotoluene	95-49-8	3.00	ND			ND			ND			ND		
4-Chlorotoluene	106-43-4	1.50	ND			ND			ND			ND		
Dibromochloromethane	124-48-1	2.00	ND			ND			ND			ND		
1,2-Dibromo-3-chloropropane	96-12-8	4.00	ND			ND			ND			ND		
1,2-Dibromoethane	106-93-4	2.00	ND			ND			ND			ND		
Dibromomethane	74-95-3	2.50	ND			ND			ND			ND		
1,2-Dichlorobenzene	95-50-1	2.50	ND			ND			ND			ND		
1,3-Dichlorobenzene	541-73-1	2.00	ND			ND			ND			ND		
1,4-Dichlorobenzene	106-46-7	2.00	ND			ND			ND			ND		
Dichlorodifluoromethane	75-71-8	2.00	ND			ND			ND			ND		
1,1-Dichloroethane	75-34-3	2.00	ND			ND			ND			ND		
1,2-Dichloroethane	107-06-2	2.00	ND			ND			ND			ND		
cis-1,2-Dichloroethene	156-59-2	2.50	ND			ND			ND			ND		
trans-1,2-Dichloroethene	156-60-5	2.50	ND			ND			ND			ND		
1,2-Dichloropropane	78-87-5	2.50	ND			ND			ND			ND		
1,3-Dichloropropane	142-28-9	2.50	ND			ND			ND			ND		
2,2-Dichloropropane	594-20-7	2.00	ND			ND			ND			ND		
1,1-Dichloropropene	563-58-6	2.00	ND			ND			ND			ND		
c-1,3-Dichloropropene	10061-01-5	2.00	ND			ND			ND			ND		
t-1,3-Dichloropropene	10061-02-6	2.00	ND			ND			ND			ND		
Ethyl benzene	100-41-4	2.50	ND			ND			ND			ND		
Hexachlorobutadiene	87-68-3	2.00	ND			ND			ND			ND		
Isopropylbenzene	98-82-8	2.50	ND			ND			ND			ND		
p-Isopropyltoluene	99-87-6	2.00	ND			ND			ND			ND		
Methylene chloride	75-09-2	2.50	ND			ND			ND			ND		
Naphthalene	91-20-3	3.00	ND			ND			ND			ND		
n-Propylbenzene	103-65-1	1.50	ND			ND			ND			ND		

BONNER ANALYTICAL TESTING COMPANY

QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
VOLATILE ORGANICS - GC/MS ANALYSIS DATA

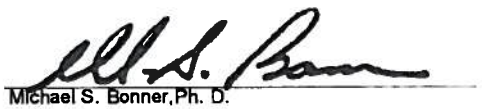
Client: HERCULES
Location: MW - 3
File #: BT42541

	Date	Time	
Collected:	12/15/97	15:40	BATCO
Received:	12/16/97	11:20	RWC
Analysis:	12/18/97	14:22	CRR

Sample Type: Water
Analysis Method: 8260

Compound Name	CAS Number	MDL ug/L (ppb)	SAMPLE			BLANK			MATRIX SPIKE			MATRIX SPIKE DUP		
			Detected Amount ug/L (ppb)	Spike Amount ug	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ug	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ng	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ng	Spike % Recovery
Styrene	100-42-5	2.00	ND			ND			ND			ND		
1,1,1,2-Tetrachloroethane	630-20-6	2.50	ND			ND			ND			ND		
1,1,2,2-Tetrachloroethane	79-34-5	2.50	ND			ND			ND			ND		
Tetrachloroethene	127-18-4	2.00	ND			ND			ND			ND		
1,2,3-Trichlorobenzene	87-61-6	2.00	ND			ND			ND			ND		
1,2,4-Trichlorobenzene	120-82-1	2.50	ND			ND			ND			ND		
1,1,1-Trichloroethane	71-55-6	2.00	ND			ND			ND			ND		
1,1,2-Trichloroethane	79-00-5	2.50	ND			ND			ND			ND		
Trichlorofluoromethane	75-69-4	2.00	ND			ND			ND			ND		
1,2,3-Trichloropropane	96-18-4	1.50	ND			ND			ND			ND		
1,2,4-Trimethylbenzene	95-63-6	2.00	ND			ND			ND			ND		
1,3,5-Trimethylbenzene	108-67-8	3.00	ND			ND			ND			ND		
Vinyl chloride	75-01-4	2.50	ND			ND			ND			ND		
Xylenes (total)	1330-20-7	4.00	ND			ND			ND			ND		
Surrogate Compounds			Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery
Dibromofluoromethane	1868-53-7		47.8	250.0	95.6	46.6	250.0	93.2	46.0	250.0	92.0	46.7	250.0	93.4
Toluene-d8	2037-26-5		50.4	250.0	100.8	49.2	250.0	98.4	46.1	250.0	92.2	45.9	250.0	91.8
4-Bromofluorobenzene	460-00-4		48.0	250.0	96.0	49.7	250.0	99.4	47.9	250.0	95.8	48.9	250.0	97.8

Certified by:



Michael S. Bonner, Ph. D.
Bonner Analytical Testing Company

BONNER ANALYTICAL TESTING COMPANY

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Client : HERCULES

File # : BT42541

Sample Matrix : Water

Lab Sample ID : MW-3

Sample Collection Date : 12/15/97

Sample Analysis Date : 12/18/97

GC Column Length : 105 M

Dilution Factor : 1

GC Column ID : 0.53 mm

Sample Weight/ Volume : 5.0 (g/mL) mL

Number TICs Found : 0

Concentration Units : ug / L (PPB)

CAS NUMBER	COMPOUND NAME	RT	EST. CONCENTRATION

NOTE: TICs reported for SW 846 method 8260 compounds only.

BONNER ANALYTICAL TESTING COMPANY

QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA

VOLATILE ORGANICS - GC/MS ANALYSIS DATA

Client: HERCULES
Location: MW - 4
File #: BT42542

	Date	Time	Analyst
Collected:	12/12/97	13:10	BATCO
Received:	12/16/97	11:20	RWC
Analyzed:	12/18/97	19:56	CRR

Sample Type: Water
Analysis Method: 8260

Compound Name	CAS Number	MDL ug/L (ppb)	SAMPLE			BLANK			MATRIX SPIKE (BT42541)			MATRIX SPIKE DUP (BT42541)		
			Detected Amount ug/L (ppb)	Spike Amount ug	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ug	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ng	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ng	Spike % Recovery
1,1-Dichloroethene	75-35-4	2.00	ND			ND			52.2	250.0	104.4	51.3	250.0	102.6
Benzene	71-43-2	2.00	ND			ND			52.4	250.0	104.8	51.5	250.0	103.0
Trichloroethene	79-01-6	2.50	ND			ND			52.5	250.0	105.0	53.0	250.0	106.0
Toluene	108-88-3	2.50	ND			ND			53.1	250.0	106.2	53.1	250.0	106.2
Chlorobenzene	108-90-7	2.00	ND			ND			52.9	250.0	105.8	54.0	250.0	108.0
Bromobenzene	108-86-1	2.50	ND			ND			ND			ND		
Bromochloromethane	74-97-5	2.00	ND			ND			ND			ND		
Bromodichloromethane	75-27-4	2.00	ND			ND			ND			ND		
Bromoform	75-25-2	2.50	ND			ND			ND			ND		
Bromomethane	74-83-9	1.00	ND			ND			ND			ND		
n-Butylbenzene	104-51-8	1.50	ND			ND			ND			ND		
sec-Butylbenzene	135-98-8	2.50	ND			ND			ND			ND		
tert-Butylbenzene	98-06-6	3.00	ND			ND			ND			ND		
Carbon Tetrachloride	56-23-5	2.00	ND			ND			ND			ND		
Chloroethane	75-00-3	3.00	ND			ND			ND			ND		
Chloroform	66-67-3	2.00	ND			ND			ND			ND		
Chloromethane	74-87-3	3.00	ND			ND			ND			ND		
2-Chlorotoluene	95-49-8	3.00	ND			ND			ND			ND		
4-Chlorotoluene	106-43-4	1.50	ND			ND			ND			ND		
Dibromochloromethane	124-48-1	2.00	ND			ND			ND			ND		
1,2-Dibromo-3-chloropropane	96-12-8	4.00	ND			ND			ND			ND		
1,2-Dibromoethane	106-93-4	2.00	ND			ND			ND			ND		
Dibromomethane	74-95-3	2.50	ND			ND			ND			ND		
1,2-Dichlorobenzene	95-50-1	2.50	ND			ND			ND			ND		
1,3-Dichlorobenzene	541-73-1	2.00	ND			ND			ND			ND		
1,4-Dichlorobenzene	106-46-7	2.00	ND			ND			ND			ND		
Dichlorodifluoromethane	75-71-8	2.00	ND			ND			ND			ND		
1,1-Dichloroethane	75-34-3	2.00	ND			ND			ND			ND		
1,2-Dichloroethane	107-06-2	2.00	ND			ND			ND			ND		
cis-1,2-Dichloroethene	156-59-2	2.50	ND			ND			ND			ND		
trans-1,2-Dichloroethene	156-60-5	2.50	ND			ND			ND			ND		
1,2-Dichloropropane	78-87-5	2.50	ND			ND			ND			ND		
1,3-Dichloropropane	142-28-9	2.50	ND			ND			ND			ND		
2,2-Dichloropropane	594-20-7	2.00	ND			ND			ND			ND		
1,1-Dichloropropene	563-58-6	2.00	ND			ND			ND			ND		
c-1,3-Dichloropropene	10061-01-5	2.00	ND			ND			ND			ND		
t-1,3-Dichloropropene	10061-02-6	2.00	ND			ND			ND			ND		
Ethyl benzene	100-41-4	2.50	ND			ND			ND			ND		
Hexachlorobutadiene	87-68-3	2.00	ND			ND			ND			ND		
Isopropylbenzene	98-82-8	2.50	ND			ND			ND			ND		
p-Isopropyltoluene	99-87-6	2.00	ND			ND			ND			ND		
Methylene chloride	75-09-2	2.50	ND			ND			ND			ND		
Naphthalene	91-20-3	3.00	ND			ND			ND			ND		
n-Propylbenzene	103-65-1	1.50	ND			ND			ND			ND		

BONNER ANALYTICAL TESTING COMPANY

QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
VOLATILE ORGANICS - GC/MS ANALYSIS DATA

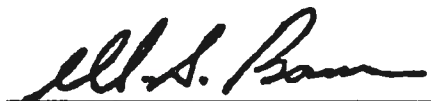
Client: HERCULES
Location: MW - 4
File #: BT42542

	Date	Time	
Collected:	12/12/97	13:10	BATCO
Received:	12/16/97	11:20	RWC
Analysis:	12/18/97	19:56	CRR

Sample Type: Water
Analysis Method: 8260

Compound Name	CAS Number	MDL ug/L (ppb)	SAMPLE			BLANK			MATRIX SPIKE			MATRIX SPIKE DUP		
			Detected Amount ug/L (ppb)	Spike Amount ug	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ug	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ng	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ng	Spike % Recovery
Styrene	100-42-5	2.00	ND			ND			ND			ND		
1,1,1,2-Tetrachloroethane	630-20-6	2.50	ND			ND			ND			ND		
1,1,2,2-Tetrachloroethane	79-34-5	2.50	ND			ND			ND			ND		
Tetrachloroethene	127-18-4	2.00	ND			ND			ND			ND		
1,2,3-Trichlorobenzene	87-61-6	2.00	ND			ND			ND			ND		
1,2,4-Trichlorobenzene	120-82-1	2.50	ND			ND			ND			ND		
1,1,1-Trichloroethane	71-55-6	2.00	ND			ND			ND			ND		
1,1,2-Trichloroethane	79-00-5	2.50	ND			ND			ND			ND		
Trichlorofluoromethane	75-69-4	2.00	ND			ND			ND			ND		
1,2,3-Trichloropropane	96-18-4	1.50	ND			ND			ND			ND		
1,2,4-Trimethylbenzene	95-63-6	2.00	ND			ND			ND			ND		
1,3,5-Trimethylbenzene	108-67-8	3.00	ND			ND			ND			ND		
Vinyl chloride	75-01-4	2.50	ND			ND			ND			ND		
Xylenes (total)	1330-20-7	4.00	ND			ND			ND			ND		
Surrogate Compounds			Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery
Dibromofluoromethane	1868-53-7		44.7	250.0	89.4	46.6	250.0	93.2	46.0	250.0	92.0	46.7	250.0	93.4
Toluene-d8	2037-26-5		48.4	250.0	96.8	49.2	250.0	98.4	46.1	250.0	92.2	45.9	250.0	91.8
4-Bromofluorobenzene	460-00-4		48.3	250.0	96.6	49.7	250.0	99.4	47.9	250.0	95.8	48.9	250.0	97.8

Certified by:



Michael S. Bonner,Ph. D.
Bonner Analytical Testing Company

BONNER ANALYTICAL TESTING COMPANY

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Client : HERCULES

File # : BT42542

Sample Matrix : Water

Lab Sample ID : MW-4

Sample Collection Date : 12/12/97

Sample Analysis Date : 12/18/97

GC Column Length : 105 M

Dilution Factor : 1

GC Column ID : 0.53 mm

Sample Weight/ Volume : 5.0 (g/mL) mL

Number TICs Found : 2

Concentration Units : ug / L (PPB)

CAS NUMBER	COMPOUND NAME	RT	EST. CONCENTRATION
67-64-1	Acetone	10.6	169
78-93-3	MEK	17.2	182

NOTE: TICs reported for SW 846 method 8260 compounds only.

BONNER ANALYTICAL TESTING COMPANY

QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
VOLATILE ORGANICS - GC/MS ANALYSIS DATA

Client: HERCULES
Location: MW - 5
File #: BT42543

	Date	Time	
Collected:	12/12/97	9:00	BATCO
Received:	12/16/97	11:20	RWC
Analyzed:	12/18/97	18:53	CRR

Sample Type: Water
Analysis Method: 8260

Compound Name	CAS Number	MDL ug/L (ppb)	SAMPLE			BLANK			MATRIX SPIKE (BT42541)			MATRIX SPIKE DUP (BT42541)		
			Detected Amount ug/L (ppb)	Spike Amount ug	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ug	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ng	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ng	Spike % Recovery
1,1-Dichloroethene	75-35-4	2.00	ND			ND			52.2	250.0	104.4	51.3	250.0	102.6
Benzene	71-43-2	2.00	ND			ND			52.4	250.0	104.8	51.5	250.0	103.0
Trichloroethene	79-01-6	2.50	ND			ND			52.5	250.0	105.0	53.0	250.0	106.0
Toluene	108-88-3	2.50	ND			ND			53.1	250.0	106.2	53.1	250.0	106.2
Chlorobenzene	108-90-7	2.00	ND			ND			52.9	250.0	105.8	54.0	250.0	108.0
Bromobenzene	108-86-1	2.50	ND			ND			ND			ND		
Bromochloromethane	74-97-5	2.00	ND			ND			ND			ND		
Bromodichloromethane	75-27-4	2.00	ND			ND			ND			ND		
Bromoform	75-25-2	2.50	ND			ND			ND			ND		
Bromomethane	74-83-9	1.00	ND			ND			ND			ND		
n-Butylbenzene	104-51-8	1.50	ND			ND			ND			ND		
sec-Butylbenzene	135-98-8	2.50	ND			ND			ND			ND		
tert-Butylbenzene	98-06-6	3.00	ND			ND			ND			ND		
Carbon Tetrachloride	56-23-5	2.00	ND			ND			ND			ND		
Chloroethane	75-00-3	3.00	ND			ND			ND			ND		
Chloroform	66-67-3	2.00	ND			ND			ND			ND		
Chloromethane	74-87-3	3.00	ND			ND			ND			ND		
2-Chlorotoluene	95-49-8	3.00	ND			ND			ND			ND		
4-Chlorotoluene	106-43-4	1.50	ND			ND			ND			ND		
Dibromochloromethane	124-48-1	2.00	ND			ND			ND			ND		
1,2-Dibromo-3-chloropropane	96-12-8	4.00	ND			ND			ND			ND		
1,2-Dibromoethane	106-93-4	2.00	ND			ND			ND			ND		
Dibromomethane	74-95-3	2.50	ND			ND			ND			ND		
1,2-Dichlorobenzene	95-50-1	2.50	ND			ND			ND			ND		
1,3-Dichlorobenzene	541-73-1	2.00	ND			ND			ND			ND		
1,4-Dichlorobenzene	106-46-7	2.00	ND			ND			ND			ND		
Dichlorodifluoromethane	75-71-8	2.00	ND			ND			ND			ND		
1,1-Dichloroethane	75-34-3	2.00	ND			ND			ND			ND		
1,2-Dichloroethane	107-06-2	2.00	ND			ND			ND			ND		
cis-1,2-Dichloroethene	156-59-2	2.50	ND			ND			ND			ND		
trans-1,2-Dichloroethene	156-60-5	2.50	ND			ND			ND			ND		
1,2-Dichloropropane	78-87-5	2.50	ND			ND			ND			ND		
1,3-Dichloropropane	142-28-9	2.50	ND			ND			ND			ND		
2,2-Dichloropropane	594-20-7	2.00	ND			ND			ND			ND		
1,1-Dichloropropene	563-58-6	2.00	ND			ND			ND			ND		
c-1,3-Dichloropropene	10061-01-5	2.00	ND			ND			ND			ND		
t-1,3-Dichloropropene	10061-02-6	2.00	ND			ND			ND			ND		
Ethyl benzene	100-41-4	2.50	ND			ND			ND			ND		
Hexachlorobutadiene	87-68-3	2.00	ND			ND			ND			ND		
Isopropylbenzene	98-82-8	2.50	ND			ND			ND			ND		
p-Isopropyltoluene	99-87-6	2.00	11.0			ND			ND			ND		
Methylene chloride	75-09-2	2.50	ND			ND			ND			ND		
Naphthalene	91-20-3	3.00	ND			ND			ND			ND		
n-Propylbenzene	103-65-1	1.50	ND			ND			ND			ND		

BONNER ANALYTICAL TESTING COMPANY

QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
VOLATILE ORGANICS - GC/MS ANALYSIS DATA

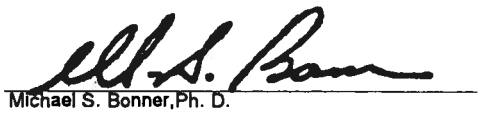
Client: HERCULES
Location: MW - 5
File #: BT42543

	Date	Time	Analyst
Collected:	12/12/97	9:00	BATCO
Received:	12/16/97	11:20	RWC
Analysis:	12/18/97	18:53	CRR

Sample Type: Water
Analysis Method: 8260

Compound Name	CAS Number	MDL ug/L (ppb)	SAMPLE Detected Amount ug/L (ppb)	SAMPLE Spike Amount ug	SAMPLE Spike % Recovery	BLANK Detected Amount ug/L (ppb)	BLANK Spike Amount ug	BLANK Spike % Recovery	MATRIX SPIKE Detected Amount ug/L (ppb)	MATRIX SPIKE Spike Amount ng	MATRIX SPIKE Spike % Recovery	MATRIX SPIKE DUP Detected Amount ug/L (ppb)	MATRIX SPIKE DUP Spike Amount ng	MATRIX SPIKE DUP Spike % Recovery
Styrene	100-42-5	2.00	ND			ND			ND			ND		
1,1,1,2-Tetrachloroethane	630-20-6	2.50	ND			ND			ND			ND		
1,1,2,2-Tetrachloroethane	79-34-5	2.50	ND			ND			ND			ND		
Tetrachloroethene	127-18-4	2.00	ND			ND			ND			ND		
1,2,3-Trichlorobenzene	87-61-6	2.00	ND			ND			ND			ND		
1,2,4-Trichlorobenzene	120-82-1	2.50	ND			ND			ND			ND		
1,1,1-Trichloroethane	71-55-6	2.00	ND			ND			ND			ND		
1,1,2-Trichloroethane	79-00-5	2.50	ND			ND			ND			ND		
Trichlorofluoromethane	75-69-4	2.00	ND			ND			ND			ND		
1,2,3-Trichloropropane	96-18-4	1.50	ND			ND			ND			ND		
1,2,4-Trimethylbenzene	95-63-6	2.00	ND			ND			ND			ND		
1,3,5-Trimethylbenzene	108-67-8	3.00	ND			ND			ND			ND		
Vinyl chloride	75-01-4	2.50	ND			ND			ND			ND		
Xylenes (total)	1330-20-7	4.00	ND			ND			ND			ND		
Surrogate Compounds			Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery
Dibromofluoromethane	1868-53-7		45.3	250.0	90.6	46.6	250.0	93.2	46.0	250.0	92.0	46.7	250.0	93.4
Toluene-d8	2037-26-5		49.5	250.0	99.0	49.2	250.0	98.4	46.1	250.0	92.2	45.9	250.0	91.8
4-Bromofluorobenzene	460-00-4		49.2	250.0	98.4	49.7	250.0	99.4	47.9	250.0	95.8	48.9	250.0	97.8

Certified by:



Michael S. Bonner,Ph. D.
Bonner Analytical Testing Company

BONNER ANALYTICAL TESTING COMPANY

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Client : HERCULES

File # : BT42543

Sample Matrix : Water

Lab Sample ID : MW-5

Sample Collection Date : 12/12/97

Sample Analysis Date : 12/18/97

GC Column Length : 105 M

Dilution Factor : 1

GC Column ID : 0.53 mm

Sample Weight/ Volume : 5.0 (g/mL) mL

Number TICs Found : 0

Concentration Units : ug / L (PPB)

CAS NUMBER	COMPOUND NAME	RT	EST. CONCENTRATION

NOTE: TICs reported for SW 846 method 8260 compounds only.

BONNER ANALYTICAL TESTING COMPANY

QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
VOLATILE ORGANICS - GC/MS ANALYSIS DATA

Client: HERCULES
Location: MW - 6
File #: BT42544

	Date	Time	Analyst
Collected:	12/12/97	13:10	BATCO
Received:	12/16/97	11:20	RWC
Analyzed:	12/18/97	15:23	CRR

Sample Type: Water
Analysis Method: 8260

Compound Name	CAS Number	MDL ug/L (ppb)	SAMPLE			BLANK			MATRIX SPIKE (BT42541)			MATRIX SPIKE DUP (BT42541)		
			Detected Amount ug/L (ppb)	Spike Amount ug	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ug	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ng	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ng	Spike % Recovery
1,1-Dichloroethene	75-35-4	2.00	ND			ND			52.2	250.0	104.4	51.3	250.0	102.6
Benzene	71-43-2	2.00	ND			ND			52.4	250.0	104.8	51.5	250.0	103.0
Trichloroethene	79-01-6	2.50	ND			ND			52.5	250.0	105.0	53.0	250.0	106.0
Toluene	108-88-3	2.50	ND			ND			53.1	250.0	106.2	53.1	250.0	106.2
Chlorobenzene	108-90-7	2.00	ND			ND			52.9	250.0	105.8	54.0	250.0	108.0
Bromobenzene	108-86-1	2.50	ND			ND			ND			ND		
Bromochloromethane	74-97-5	2.00	ND			ND			ND			ND		
Bromodichloromethane	75-27-4	2.00	ND			ND			ND			ND		
Bromoform	75-25-2	2.50	ND			ND			ND			ND		
Bromomethane	74-83-9	1.00	ND			ND			ND			ND		
n-Butylbenzene	104-51-8	1.50	ND			ND			ND			ND		
sec-Butylbenzene	135-98-8	2.50	ND			ND			ND			ND		
tert-Butylbenzene	98-06-6	3.00	ND			ND			ND			ND		
Carbon Tetrachloride	56-23-5	2.00	ND			ND			ND			ND		
Chloroethane	75-00-3	3.00	ND			ND			ND			ND		
Chloroform	66-67-3	2.00	ND			ND			ND			ND		
Chloromethane	74-87-3	3.00	ND			ND			ND			ND		
2-Chlorotoluene	95-49-8	3.00	ND			ND			ND			ND		
4-Chlorotoluene	106-43-4	1.50	ND			ND			ND			ND		
Dibromochloromethane	124-48-1	2.00	ND			ND			ND			ND		
1,2-Dibromo-3-chloropropane	96-12-8	4.00	ND			ND			ND			ND		
1,2-Dibromoethane	106-93-4	2.00	ND			ND			ND			ND		
Dibromomethane	74-95-3	2.50	ND			ND			ND			ND		
1,2-Dichlorobenzene	95-50-1	2.50	ND			ND			ND			ND		
1,3-Dichlorobenzene	541-73-1	2.00	ND			ND			ND			ND		
1,4-Dichlorobenzene	106-46-7	2.00	ND			ND			ND			ND		
Dichlorodifluoromethane	75-71-8	2.00	ND			ND			ND			ND		
1,1-Dichloroethane	75-34-3	2.00	ND			ND			ND			ND		
1,2-Dichloroethane	107-06-2	2.00	ND			ND			ND			ND		
cis-1,2-Dichloroethene	156-59-2	2.50	ND			ND			ND			ND		
trans-1,2-Dichloroethene	156-60-5	2.50	ND			ND			ND			ND		
1,2-Dichloropropane	78-87-5	2.50	ND			ND			ND			ND		
1,3-Dichloropropane	142-28-9	2.50	ND			ND			ND			ND		
2,2-Dichloropropane	594-20-7	2.00	ND			ND			ND			ND		
1,1-Dichloropropene	563-58-6	2.00	ND			ND			ND			ND		
c-1,3-Dichloropropene	10061-01-5	2.00	ND			ND			ND			ND		
t-1,3-Dichloropropene	10061-02-6	2.00	ND			ND			ND			ND		
Ethyl benzene	100-41-4	2.50	ND			ND			ND			ND		
Hexachlorobutadiene	87-68-3	2.00	ND			ND			ND			ND		
Isopropylbenzene	98-82-8	2.50	ND			ND			ND			ND		
p-Isopropyltoluene	99-87-6	2.00	ND			ND			ND			ND		
Methylene chloride	75-09-2	2.50	ND			ND			ND			ND		
Naphthalene	91-20-3	3.00	ND			ND			ND			ND		
n-Propylbenzene	103-65-1	1.50	ND			ND			ND			ND		

BONNER ANALYTICAL TESTING COMPANY

QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
VOLATILE ORGANICS - GC/MS ANALYSIS DATA

Client: HERCULES
Location: MW - 6
File #: BT42544

	Date	Time	
Collected:	12/12/97	13:10	BATCO
Received:	12/16/97	11:20	RWC
Analysis:	12/18/97	15:23	CRR

Sample Type: Water
Analysis Method: 8260

Compound Name	CAS Number	MDL ug/L (ppb)	SAMPLE			BLANK			MATRIX SPIKE			MATRIX SPIKE DUP		
			Detected Amount ug/L (ppb)	Spike Amount ug	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ug	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ng	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ng	Spike % Recovery
Styrene	100-42-5	2.00	ND			ND			ND			ND		
1,1,1,2-Tetrachloroethane	630-20-6	2.50	ND			ND			ND			ND		
1,1,2,2-Tetrachloroethane	79-34-5	2.50	ND			ND			ND			ND		
Tetrachloroethene	127-18-4	2.00	ND			ND			ND			ND		
1,2,3-Trichlorobenzene	87-61-6	2.00	ND			ND			ND			ND		
1,2,4-Trichlorobenzene	120-82-1	2.50	ND			ND			ND			ND		
1,1,1-Trichloroethane	71-55-6	2.00	ND			ND			ND			ND		
1,1,2-Trichloroethane	79-00-5	2.50	ND			ND			ND			ND		
Trichlorofluoromethane	75-69-4	2.00	ND			ND			ND			ND		
1,2,3-Trichloropropane	96-18-4	1.50	ND			ND			ND			ND		
1,2,4-Trimethylbenzene	95-63-6	2.00	ND			ND			ND			ND		
1,3,5-Trimethylbenzene	108-67-8	3.00	ND			ND			ND			ND		
Vinyl chloride	75-01-4	2.50	ND			ND			ND			ND		
Xylenes (total)	1330-20-7	4.00	ND			ND			ND			ND		
Surrogate Compounds			Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery
Dibromofluoromethane	1868-53-7		49.1	250.0	98.2	46.6	250.0	93.2	46.0	250.0	92.0	46.7	250.0	93.4
Toluene-d8	2037-26-5		49.3	250.0	98.6	49.2	250.0	98.4	46.1	250.0	92.2	45.9	250.0	91.8
4-Bromofluorobenzene	460-00-4		49.2	250.0	98.4	49.7	250.0	99.4	47.9	250.0	95.8	48.9	250.0	97.8

Certified by:

Michael S. Bonner,Ph. D.
Bonner Analytical Testing Company

BONNER ANALYTICAL TESTING COMPANY

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Client : HERCULES

File # : BT42544

Sample Matrix : Water

Lab Sample ID : MW-6

Sample Collection Date : 12/12/97

Sample Analysis Date : 12/18/97

GC Column Length : 105 M

Dilution Factor : 1

GC Column ID : 0.53 mm

Sample Weight/ Volume : 5.0 (g/mL) mL

Number TICs Found : 0

Concentration Units : ug / L (PPB)

CAS NUMBER	COMPOUND NAME	RT	EST. CONCENTRATION

NOTE: TICs reported for SW 846 method 8260 compounds only.

BONNER ANALYTICAL TESTING COMPANY

QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA

VOLATILE ORGANICS - GC/MS ANALYSIS DATA

Client: HERCULES
Location: Trip Blank
File #: BT42545

	Date	Time	
Collected:	12/12/97		BATCO
Received:	12/16/97	11:20	RWC
Analyzed:	12/18/97	16:50	CRR

Sample Type: Water
Analysis Method: 8260

Compound Name	CAS Number	MDL ug/L (ppb)	SAMPLE			BLANK			MATRIX SPIKE (BT42541)			MATRIX SPIKE DUP (BT42541)		
			Detected Amount ug/L (ppb)	Spike Amount ug	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ug	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ng	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ng	Spike % Recovery
1,1-Dichloroethene	75-35-4	2.00	ND			ND			52.2	250.0	104.4	51.3	250.0	102.6
Benzene	71-43-2	2.00	ND			ND			52.4	250.0	104.8	51.5	250.0	103.0
Trichloroethene	79-01-6	2.50	ND			ND			52.5	250.0	105.0	53.0	250.0	106.0
Toluene	108-88-3	2.50	ND			ND			53.1	250.0	106.2	53.1	250.0	106.2
Chlorobenzene	108-90-7	2.00	ND			ND			52.9	250.0	105.8	54.0	250.0	108.0
Bromobenzene	108-86-1	2.50	ND			ND			ND			ND		
Bromochloromethane	74-97-5	2.00	ND			ND			ND			ND		
Bromodichloromethane	75-27-4	2.00	ND			ND			ND			ND		
Bromoform	75-25-2	2.50	ND			ND			ND			ND		
Bromomethane	74-83-9	1.00	ND			ND			ND			ND		
n-Butylbenzene	104-51-8	1.50	ND			ND			ND			ND		
sec-Butylbenzene	135-98-8	2.50	ND			ND			ND			ND		
tert-Butylbenzene	98-06-6	3.00	ND			ND			ND			ND		
Carbon Tetrachloride	56-23-5	2.00	ND			ND			ND			ND		
Chloroethane	75-00-3	3.00	ND			ND			ND			ND		
Chloroform	66-67-3	2.00	ND			ND			ND			ND		
Chloromethane	74-87-3	3.00	ND			ND			ND			ND		
2-Chlorotoluene	95-49-8	3.00	ND			ND			ND			ND		
4-Chlorotoluene	106-43-4	1.50	ND			ND			ND			ND		
Dibromochloromethane	124-48-1	2.00	ND			ND			ND			ND		
1,2-Dibromo-3-chloropropane	96-12-8	4.00	ND			ND			ND			ND		
1,2-Dibromoethane	106-93-4	2.00	ND			ND			ND			ND		
Dibromomethane	74-95-3	2.50	ND			ND			ND			ND		
1,2-Dichlorobenzene	95-50-1	2.50	ND			ND			ND			ND		
1,3-Dichlorobenzene	541-73-1	2.00	ND			ND			ND			ND		
1,4-Dichlorobenzene	106-46-7	2.00	ND			ND			ND			ND		
Dichlorodifluoromethane	75-71-8	2.00	ND			ND			ND			ND		
1,1-Dichloroethane	75-34-3	2.00	ND			ND			ND			ND		
1,2-Dichloroethane	107-06-2	2.00	ND			ND			ND			ND		
cis-1,2-Dichloroethene	156-59-2	2.50	ND			ND			ND			ND		
trans-1,2-Dichloroethene	156-60-5	2.50	ND			ND			ND			ND		
1,2-Dichloropropane	78-87-5	2.50	ND			ND			ND			ND		
1,3-Dichloropropane	142-28-9	2.50	ND			ND			ND			ND		
2,2-Dichloropropane	594-20-7	2.00	ND			ND			ND			ND		
1,1-Dichloropropene	563-58-6	2.00	ND			ND			ND			ND		
c-1,3-Dichloropropene	10061-01-5	2.00	ND			ND			ND			ND		
t-1,3-Dichloropropene	10061-02-6	2.00	ND			ND			ND			ND		
Ethyl benzene	100-41-4	2.50	ND			ND			ND			ND		
Hexachlorobutadiene	87-68-3	2.00	ND			ND			ND			ND		
Isopropylbenzene	98-82-8	2.50	ND			ND			ND			ND		
p-Isopropyltoluene	99-87-6	2.00	ND			ND			ND			ND		
Methylene chloride	75-09-2	2.50	ND			ND			ND			ND		
Naphthalene	91-20-3	3.00	ND			ND			ND			ND		
n-Propylbenzene	103-65-1	1.50	ND			ND			ND			ND		

BONNER ANALYTICAL TESTING COMPANY

QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA

VOLATILE ORGANICS - GC/MS ANALYSIS DATA

Client: HERCULES
Location: Trip Blank
File #: BT42545

	Date	Time	Analyst
Collected:	12/12/97	0:00	BATCO
Received:	12/16/97	11:20	RWC
Analysis:	12/18/97	16:50	CRR

Sample Type: Water
Analysis Method: 8260

Compound Name	CAS Number	MDL ug/L (ppb)	SAMPLE Detected Amount ug/L (ppb)	SAMPLE Spike Amount ug	SAMPLE Spike % Recovery	BLANK Detected Amount ug/L (ppb)	BLANK Spike Amount ug	BLANK Spike % Recovery	MATRIX SPIKE Detected Amount ug/L (ppb)	MATRIX SPIKE Spike Amount ng	MATRIX SPIKE Spike % Recovery	MATRIX SPIKE DUP Detected Amount ug/L (ppb)	MATRIX SPIKE DUP Spike Amount ng	MATRIX SPIKE DUP Spike % Recovery
Styrene	100-42-5	2.00	ND			ND			ND			ND		
1,1,1,2-Tetrachloroethane	630-20-6	2.50	ND			ND			ND			ND		
1,1,2,2-Tetrachloroethane	79-34-5	2.50	ND			ND			ND			ND		
Tetrachloroethene	127-18-4	2.00	ND			ND			ND			ND		
1,2,3-Trichlorobenzene	87-61-6	2.00	ND			ND			ND			ND		
1,2,4-Trichlorobenzene	120-82-1	2.50	ND			ND			ND			ND		
1,1,1-Trichloroethane	71-55-6	2.00	ND			ND			ND			ND		
1,1,2-Trichloroethane	79-00-5	2.50	ND			ND			ND			ND		
Trichlorofluoromethane	75-69-4	2.00	ND			ND			ND			ND		
1,2,3-Trichloropropane	96-18-4	1.50	ND			ND			ND			ND		
1,2,4-Trimethylbenzene	95-63-6	2.00	ND			ND			ND			ND		
1,3,5-Trimethylbenzene	108-67-8	3.00	ND			ND			ND			ND		
Vinyl chloride	75-01-4	2.50	ND			ND			ND			ND		
Xylenes (total)	1330-20-7	4.00	ND			ND			ND			ND		
Surrogate Compounds			Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery
Dibromofluoromethane	1868-53-7		48.8	250.0	97.6	46.6	250.0	93.2	46.0	250.0	92.0	46.7	250.0	93.4
Toluene-d8	2037-26-5		47.2	250.0	94.4	49.2	250.0	98.4	46.1	250.0	92.2	45.9	250.0	91.8
4-Bromofluorobenzene	460-00-4		45.9	250.0	91.8	49.7	250.0	99.4	47.9	250.0	95.8	48.9	250.0	97.8

Certified by:

Michael S. Bonner, Ph. D.
Bonner Analytical Testing Company

BONNER ANALYTICAL TESTING COMPANY

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Client : HERCULES

File # : BT42545

Sample Matrix : Water

Lab Sample ID : Trip Blank

Sample Collection Date : 12/12/97

Sample Analysis Date : 12/18/97

GC Column Length : 105 M

Dilution Factor : 1

GC Column ID : 0.53 mm

Sample Weight/ Volume : 5.0 (g/mL) mL

Number TICs Found : 0

Concentration Units : ug / L (PPB)

CAS NUMBER	COMPOUND NAME	RT	EST. CONCENTRATION

NOTE: TICs reported for SW 846 method 8260 compounds only.

BONNER ANALYTICAL TESTING COMPANY

QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
VOLATILE ORGANICS - GC/MS ANALYSIS DATA

Client: HERCULES
Location: Equipment Blank
File #: BT42546

	Date	Time	
Collected:	12/15/97		BATCO
Received:	12/16/97	11:20	RWC
Analyzed:	12/18/97	17:51	CRR

Sample Type: Water
Analysis Method: 8260

Compound Name	CAS Number	MDL ug/L (ppb)	SAMPLE			BLANK			MATRIX SPIKE (BT42541)			MATRIX SPIKE DUP (BT42541)		
			Detected Amount ug/L (ppb)	Spike Amount ug	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ug	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ng	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ng	Spike % Recovery
1,1-Dichloroethene	75-35-4	2.00	ND			ND			52.2	250.0	104.4	51.3	250.0	102.6
Benzene	71-43-2	2.00	ND			ND			52.4	250.0	104.8	51.5	250.0	103.0
Trichloroethene	79-01-6	2.50	ND			ND			52.5	250.0	105.0	53.0	250.0	106.0
Toluene	108-88-3	2.50	ND			ND			53.1	250.0	106.2	53.1	250.0	106.2
Chlorobenzene	108-90-7	2.00	ND			ND			52.9	250.0	105.8	54.0	250.0	108.0
Bromobenzene	108-86-1	2.50	ND			ND			ND			ND		
Bromochloromethane	74-97-5	2.00	ND			ND			ND			ND		
Bromodichloromethane	75-27-4	2.00	ND			ND			ND			ND		
Bromoform	75-25-2	2.50	ND			ND			ND			ND		
Bromomethane	74-83-9	1.00	ND			ND			ND			ND		
n-Butylbenzene	104-51-8	1.50	ND			ND			ND			ND		
sec-Butylbenzene	135-98-8	2.50	ND			ND			ND			ND		
tert-Butylbenzene	98-06-6	3.00	ND			ND			ND			ND		
Carbon Tetrachloride	56-23-5	2.00	ND			ND			ND			ND		
Chloroethane	75-00-3	3.00	ND			ND			ND			ND		
Chloroform	66-67-3	2.00	ND			ND			ND			ND		
Chloromethane	74-87-3	3.00	ND			ND			ND			ND		
2-Chlorotoluene	95-49-8	3.00	ND			ND			ND			ND		
4-Chlorotoluene	106-43-4	1.50	ND			ND			ND			ND		
Dibromochloromethane	124-48-1	2.00	ND			ND			ND			ND		
1,2-Dibromo-3-chloropropane	96-12-8	4.00	ND			ND			ND			ND		
1,2-Dibromoethane	106-93-4	2.00	ND			ND			ND			ND		
Dibromomethane	74-95-3	2.50	ND			ND			ND			ND		
1,2-Dichlorobenzene	95-50-1	2.50	ND			ND			ND			ND		
1,3-Dichlorobenzene	541-73-1	2.00	ND			ND			ND			ND		
1,4-Dichlorobenzene	106-46-7	2.00	ND			ND			ND			ND		
Dichlorodifluoromethane	75-71-8	2.00	ND			ND			ND			ND		
1,1-Dichloroethane	75-34-3	2.00	ND			ND			ND			ND		
1,2-Dichloroethane	107-06-2	2.00	ND			ND			ND			ND		
cis-1,2-Dichloroethene	156-59-2	2.50	ND			ND			ND			ND		
trans-1,2-Dichloroethene	156-60-5	2.50	ND			ND			ND			ND		
1,2-Dichloropropane	78-87-5	2.50	ND			ND			ND			ND		
1,3-Dichloropropane	142-28-9	2.50	ND			ND			ND			ND		
2,2-Dichloropropane	594-20-7	2.00	ND			ND			ND			ND		
1,1-Dichloropropene	563-58-6	2.00	ND			ND			ND			ND		
c-1,3-Dichloropropene	10061-01-5	2.00	ND			ND			ND			ND		
t-1,3-Dichloropropene	10061-02-6	2.00	ND			ND			ND			ND		
Ethyl benzene	100-41-4	2.50	ND			ND			ND			ND		
Hexachlorobutadiene	87-68-3	2.00	ND			ND			ND			ND		
Isopropylbenzene	98-82-8	2.50	ND			ND			ND			ND		
p-Isopropyltoluene	99-87-6	2.00	ND			ND			ND			ND		
Methylene chloride	75-09-2	2.50	ND			ND			ND			ND		
Naphthalene	91-20-3	3.00	ND			ND			ND			ND		
n-Propylbenzene	103-65-1	1.50	ND			ND			ND			ND		

BONNER ANALYTICAL TESTING COMPANY

QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
VOLATILE ORGANICS - GC/MS ANALYSIS DATA

Client: HERCULES
Location: Equipment Blank
File #: BT42546

	Date	Time	
Collected:	12/15/97		BATCO
Received:	12/16/97	11:20	RWC
Analysis:	12/18/97	17:51	CRR

Sample Type: Water
Analysis Method: 8260

Compound Name	CAS Number	MDL ug/L (ppb)	SAMPLE			BLANK			MATRIX SPIKE			MATRIX SPIKE DUP		
			Detected Amount ug/L (ppb)	Spike Amount ug	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ug	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ng	Spike % Recovery	Detected Amount ug/L (ppb)	Spike Amount ng	Spike % Recovery
Styrene	100-42-5	2.00	ND			ND			ND			ND		
1,1,1,2-Tetrachloroethane	630-20-6	2.50	ND			ND			ND			ND		
1,1,2,2-Tetrachloroethane	79-34-5	2.50	ND			ND			ND			ND		
Tetrachloroethene	127-18-4	2.00	ND			ND			ND			ND		
1,2,3-Trichlorobenzene	87-61-6	2.00	ND			ND			ND			ND		
1,2,4-Trichlorobenzene	120-82-1	2.50	ND			ND			ND			ND		
1,1,1-Trichloroethane	71-55-6	2.00	ND			ND			ND			ND		
1,1,2-Trichloroethane	79-00-5	2.50	ND			ND			ND			ND		
Trichlorofluoromethane	75-69-4	2.00	ND			ND			ND			ND		
1,2,3-Trichloropropane	96-18-4	1.50	ND			ND			ND			ND		
1,2,4-Trimethylbenzene	95-63-6	2.00	ND			ND			ND			ND		
1,3,5-Trimethylbenzene	108-67-8	3.00	ND			ND			ND			ND		
Vinyl chloride	75-01-4	2.50	ND			ND			ND			ND		
Xylenes (total)	1330-20-7	4.00	ND			ND			ND			ND		
Surrogate Compounds			Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery
Dibromofluoromethane	1868-53-7		48.6	250.0	97.2	46.6	250.0	93.2	46.0	250.0	92.0	46.7	250.0	93.4
Toluene-d8	2037-26-5		46.1	250.0	92.2	49.2	250.0	98.4	46.1	250.0	92.2	45.9	250.0	91.8
4-Bromofluorobenzene	460-00-4		49.0	250.0	98.0	49.7	250.0	99.4	47.9	250.0	95.8	48.9	250.0	97.8

Certified by:

Michael S. Bonner,Ph. D.
Bonner Analytical Testing Company

BONNER ANALYTICAL TESTING COMPANY

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Client : HERCULES

File # : BT42546

Sample Matrix : Water

Lab Sample ID : Equipment Blank

Sample Collection Date : 12/15/97

Sample Analysis Date : 12/18/97

GC Column Length : 105 M

Dilution Factor : 1

GC Column ID : 0.53 mm

Sample Weight/ Volume : 5.0 (g/mL) mL

Number TICs Found : 0

Concentration Units : ug / L (PPB)

CAS NUMBER	COMPOUND NAME	RT	EST. CONCENTRATION

NOTE: TICs reported for SW 846 method 8260 compounds only.

BONNER ANALYTICAL TESTING COMPANY

QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
BASE NEUTRALS AND ACIDS - GC/MS ANALYSIS DATA

Client: Hercules
Location: MW-1
File #: BT42539

	Date	Time	Analyst
Collected:	12/15/97	17:30	BATCO
Extracted:	12/19/97	9:00	CMB
Analyzed:	1/9/98	2:34	CMB

Sample Type: Water
Extraction Method: 3510b
Analysis Method: 8270

Compound Name	CAS Number	MDL ug/L (ppb)	8T42539			BLANK			Matrix Spike			Matrix Spike Duplicate		
			Detected Amount ug/L (ppb)	Spike		Detected Amount ug/L (ppb)	Spike		Detected Amount ng/ul in the extract	Spike		Detected Amount ng/ul in the extract	Spike	
				Amount ug	% Recovery		Amount ug	% Recovery		Amount ug	% Recovery		Amount ug	% Recovery
Phenol	108-95-2	5.2	ND			ND			89.18	300.00	29.73	99.51	300.00	33.17
Bis(2-chloroethyl)ether	111-44-4	6.9	ND			ND			ND			ND		
2-Chlorophenol	95-57-8	5.7	ND			ND			187.53	300.00	62.51	210.70	300.00	70.23
1,3-Dichlorobenzene	541-73-1	8.3	ND			ND			ND			ND		
1,4-Dichlorobenzene	106-46-7	6.1	ND			ND			85.60	200.00	42.80	100.12	200.00	50.06
Benzyl Alcohol	100-51-6	14.8	ND			ND			ND			ND		
1,2-Dichlorobenzene	95-50-1	6.0	ND			ND			ND			ND		
2-Methylphenol	95-48-7	5.6	ND			ND			ND			ND		
Bis(2-chloroisopropyl)ether	108-60-1	8.8	ND			ND			ND			ND		
4-Methylphenol	106-44-5	6.7	ND			ND			ND			ND		
Hexachloroethane	67-72-1	6.0	ND			ND			ND			ND		
N-Nitroso-di-N-propylamine	621-64-7	9.7	ND			ND			136.46	200.00	68.23	160.56	200.00	80.28
Nitrobenzene	98-95-3	8.2	ND			ND			ND			ND		
Isophorone	78-59-1	9.2	ND			ND			ND			ND		
2,4-Dimethylphenol	105-67-9	6.0	ND			ND			ND			ND		
2-Nitrophenol	88-75-5	9.1	ND			ND			ND			ND		
Benzoic Acid	65-85-0	22.3	ND			ND			ND			ND		
Bis(2-chloroethoxy)methane	111-91-1	8.8	ND			ND			ND			ND		
2,4-Dichlorophenol	120-83-2	5.2	ND			ND			ND			ND		
1,2,4-Trichlorobenzene	120-82-1	9.4	ND			ND			95.21	200.00	47.61	109.42	200.00	54.71
Naphthalene	91-20-3	8.5	ND			ND			ND			ND		
4-Chloroaniline	106-47-8	8.5	ND			ND			ND			ND		
Hexachlorobutadiene	87-68-3	9.4	ND			ND			ND			ND		
4-Chloro-3-methylphenol	59-50-7	7.7	ND			ND			234.19	300.00	78.06	260.60	300.00	86.87
2-Methylnaphthalene	91-57-6	7.5	ND			ND			ND			ND		
Hexachlorocyclopentadiene	77-47-4	8.6	ND			ND			ND			ND		
2,4,6-Trichlorophenol	88-06-2	9.1	ND			ND			ND			ND		
2,4,5-Trichlorophenol	95-95-4	7.1	ND			ND			ND			ND		
2-Chloronaphthalene	91-58-7	5.7	ND			ND			ND			ND		
2-Nitroaniline	88-74-4	12.0	ND			ND			ND			ND		
Dimethylphthalate	131-11-3	8.2	ND			ND			ND			ND		
Acenaphthylene	208-96-8	9.0	ND			ND			ND			ND		
2,6-Dinitrotoluene	606-20-2	9.2	ND			ND			ND			ND		
3-Nitroaniline	99-09-2	16.0	ND			ND			ND			ND		
Acenaphthene	83-32-9	9.0	ND			ND			121.78	200.00	60.89	144.73	200.00	72.37
2,4-Dinitrophenol	51-28-5	14.2	ND			ND			ND			ND		
4-Nitrophenol	100-02-7	8.6	ND			ND			112.70	300.00	37.57	107.40	300.00	35.80
Dibenzofuran	132-64-9	8.4	ND			ND			ND			ND		
2,4-Dinitrotoluene	121-14-2	8.3	ND			ND			147.75	200.00	73.88	161.78	200.00	80.89
Diethylphthalate	84-66-2	9.9	ND			ND			ND			ND		
Fluorene	86-73-7	9.8	ND			ND			ND			ND		
4-Chlorophenyl-phenylether	7005-72-3	8.3	ND			ND			ND			ND		
4-Nitroaniline	100-01-6	8.7	ND			ND			ND			ND		
4,6-Dinitro-2-methylphenol	534-52-1	12.2	ND			ND			ND			ND		

BONNER ANALYTICAL TESTING COMPANY

QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
BASE NEUTRALS AND ACIDS - GC/MS ANALYSIS DATA

Client: Hercules
Location: MW-1
File #: BT42539

	Date	Time	Analyst
Collection:	12/15/97	17:30	BATCO
Extraction:	12/19/97	9:00	CMB
Analysis:	1/9/98	2:34	CMB

Sample Type: Water
Extraction Method: 3510b
Analysis Method: 8270

Compound Name	CAS Number	MDL ug/L (ppb)	BT42539 Detected Amount ug/L (ppb)	BT42539 Spike Amount ug	BT42539 Spike % Recovery	BLANK Detected Amount ug/L (ppb)	BLANK Spike Amount ug	BLANK Spike % Recovery	Matrix Spike Detected Amount ng/ul in the extract	Matrix Spike Amount ug	Matrix Spike % Recovery	Matrix Spike Duplicate Detected Amount ng/ul in the extract	Matrix Spike Duplicate Spike Amount ug	Matrix Spike Duplicate Spike % Recovery
N-Nitrosodiphenylamine	86-30-6	7.5	ND			ND			ND			ND		
4-Bromophenyl-phenylether	101-55-3	7.0	ND			ND			ND			ND		
Hexachlorobenzene	118-74-1	8.0	ND			ND			ND			ND		
Pentachlorophenol	87-86-5	12.5	ND			ND			311.90	300.00	103.97	307.08	300.00	102.36
Phenanthrene	85-01-8	7.1	ND			ND			ND			ND		
Anthracene	120-12-7	8.0	ND			ND			ND			ND		
Di-n-butylphthalate	84-74-2	7.8	ND			ND			ND			ND		
Fluoranthene	206-44-0	5.7	ND			ND			ND			ND		
Pyrene	129-00-0	7.9	ND			ND			174.39	200.00	87.20	180.67	200.00	90.34
Butylbenzylphthalate	85-68-7	9.9	ND			ND			ND			ND		
Benzo(a)anthracene	56-55-3	7.7	ND			ND			ND			ND		
3,3'-Dichlorobenzidiene	91-94-1	16.5	ND			ND			ND			ND		
Chrysene	218-01-9	7.8	ND			ND			ND			ND		
Bis(2-ethylhexyl)phthalate	117-81-7	9.1	ND			ND			ND			ND		
Di-n-octylphthalate	117-84-0	9.4	ND			ND			ND			ND		
Benzo(b)fluoranthene	205-99-2	6.8	ND			ND			ND			ND		
Benzo(k)fluoranthene	207-08-9	4.9	ND			ND			ND			ND		
Benzo(a)pyrene	50-32-8	5.9	ND			ND			ND			ND		
Indeno(1,2,3-c,d)pyrene	193-39-5	7.8	ND			ND			ND			ND		
Dibenzo(a,h)anthracene	53-70-3	9.0	ND			ND			ND			ND		
Benzo(g,h,i)perylene	191-24-2	10.0	ND			ND			ND			ND		
Surrogate Compounds			Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery
2-Fluorophenol			70.41	200.00	35.21	92.22	200.00	46.11	112.36	200.00	56.18	123.26	200.00	61.63
Phenol-d5			53.29	200.00	26.65	64.71	200.00	32.36	78.94	200.00	39.47	87.05	200.00	43.53
Nitrobenzene-d5			85.94	100.00	85.94	74.74	100.00	74.74	97.18	100.00	97.18	104.82	100.00	104.82
2-Fluorobiphenyl			63.85	100.00	63.85	65.54	100.00	65.54	86.97	100.00	86.97	104.67	100.00	104.67
2,4,6-Tribromophenol			169.97	200.00	84.99	226.16	200.00	113.08	273.28	200.00	136.64	286.69	200.00	143.35
Terphenyl-d14			91.50	100.00	91.50	132.90	100.00	132.90	127.66	100.00	127.66	125.04	100.00	125.04

Certified by:

Micheal S. Bonner,Ph. D.
Bonner Analytical Testing Company

BONNER ANALYTICAL TESTING COMPANY

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Client : Hercules, Inc.

File # : BT42539

Sample Matrix : Water

Lab Sample ID : MW-1

Sample Collection Date : 12-15-97 @ 1730

Sample Analysis Date : 01-09-98 @ 0234

GC Column Length : 30 M

Dilution Factor : 1.02

GC Column ID : 0.25 mm

Sample Weight/ Volume : 980 mL

Method Code: 8270

Number TICs Found : 0

Concentration Units : ug / L (PPB)

CAS NUMBER	COMPOUND NAME	RT	EST. CONCENTRATION

NOTE: TICs reported for SW846 method 8270 compounds only.

BONNER ANALYTICAL TESTING COMPANY

QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
BASE NEUTRALS AND ACIDS - GC/MS ANALYSIS DATA

Client: Hercules
Location: MW-2
File #: BT42540

	Date	Time	Analyst
Collected:	12/15/97	16:20	BATCO
Extracted:	12/19/97	9:00	CMB
Analyzed:	1/9/98	3:27	CMB

Sample Type: Water
Extraction Method: 3510b
Analysis Method: 8270

Compound Name	CAS Number	MDL ug/L (ppb)	BT42540			BLANK			Matrix Spike			Matrix Spike Duplicate		
			Detected Amount ug/L (ppb)	Spike		Detected Amount ug/L (ppb)	Spike		Detected Amount ng/ul in the extract	Spike		Detected Amount ng/ul in the extract	Spike	
				Amount ug	% Recovery		Amount ug	% Recovery		Amount ug	% Recovery		Amount ug	% Recovery
Phenol	108-95-2	5.2	ND			ND			89.18	300.00	29.73	99.51	300.00	33.17
Bis(2-chloroethyl)ether	111-44-4	6.9	ND			ND			ND			ND		
2-Chlorophenol	95-57-8	5.7	ND			ND			187.53	300.00	62.51	210.70	300.00	70.23
1,3-Dichlorobenzene	541-73-1	8.3	ND			ND			ND			ND		
1,4-Dichlorobenzene	106-46-7	6.1	ND			ND			85.60	200.00	42.80	100.12	200.00	50.06
Benzyl Alcohol	100-51-6	14.8	ND			ND			ND			ND		
1,2-Dichlorobenzene	95-50-1	6.0	ND			ND			ND			ND		
2-Methylphenol	95-48-7	5.6	ND			ND			ND			ND		
Bis(2-chloroisopropyl)ether	108-60-1	8.8	ND			ND			ND			ND		
4-Methylphenol	106-44-5	8.7	ND			ND			ND			ND		
Hexachloroethane	67-72-1	8.0	ND			ND			ND			ND		
N-Nitroso-di-N-propylamine	621-64-7	9.7	ND			ND			136.46	200.00	68.23	160.56	200.00	80.28
Nitrobenzene	98-95-3	8.2	ND			ND			ND			ND		
Isophorone	78-59-1	9.2	ND			ND			ND			ND		
2,4-Dimethylphenol	105-67-9	6.0	ND			ND			ND			ND		
2-Nitrophenol	88-75-5	9.1	ND			ND			ND			ND		
Benzoic Acid	65-85-0	22.3	ND			ND			ND			ND		
Bis(2-chloroethoxy)methane	111-91-1	8.8	ND			ND			ND			ND		
2,4-Dichlorophenol	120-83-2	5.2	ND			ND			ND			ND		
1,2,4-Trichlorobenzene	120-82-1	9.4	ND			ND			95.21	200.00	47.61	109.42	200.00	54.71
Naphthalene	91-20-3	8.5	ND			ND			ND			ND		
4-Chloroaniline	106-47-8	8.5	ND			ND			ND			ND		
Hexachlorobutadiene	87-68-3	9.4	ND			ND			ND			ND		
4-Chloro-3-methylphenol	59-50-7	7.7	ND			ND			234.19	300.00	78.06	260.60	300.00	86.87
2-Methylnaphthalene	91-57-6	7.5	ND			ND			ND			ND		
Hexachlorocyclopentadiene	77-47-4	8.6	ND			ND			ND			ND		
2,4,6-Trichlorophenol	88-06-2	9.1	ND			ND			ND			ND		
2,4,5-Trichlorophenol	95-95-4	7.1	ND			ND			ND			ND		
2-Chloronaphthalene	91-58-7	5.7	ND			ND			ND			ND		
2-Nitroaniline	88-74-4	12.0	ND			ND			ND			ND		
Dimethylphthalate	131-11-3	8.2	ND			ND			ND			ND		
Acenaphthylene	208-96-8	9.0	ND			ND			ND			ND		
2,6-Dinitrotoluene	606-20-2	9.2	ND			ND			ND			ND		
3-Nitroaniline	99-09-2	16.0	ND			ND			ND			ND		
Acenaphthene	83-32-9	8.3	ND			ND			121.78	200.00	60.89	144.73	200.00	72.37
2,4-Dinitrophenol	51-28-5	14.2	ND			ND			ND			ND		
4-Nitrophenol	100-02-7	8.6	ND			ND			112.70	300.00	37.57	107.40	300.00	35.80
Dibenzofuran	132-64-9	8.4	ND			ND			ND			ND		
2,4-Dinitrotoluene	121-14-2	8.3	ND			ND			147.75	200.00	73.88	161.78	200.00	80.89
Diethylphthalate	84-66-2	9.9	ND			ND			ND			ND		
Fluorene	86-73-7	9.8	ND			ND			ND			ND		
4-Chlorophenyl-phenylether	7005-72-3	8.3	ND			ND			ND			ND		
4-Nitroaniline	100-01-6	8.7	ND			ND			ND			ND		
4,6-Dinitro-2-methylphenol	534-52-1	12.2	ND			ND			ND			ND		

BONNER ANALYTICAL TESTING COMPANY

QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
BASE NEUTRALS AND ACIDS - GC/MS ANALYSIS DATA

Client: Hercules
Location: MW-2
File #: BT42540

	Date	Time	Analyst
Collection:	12/15/97	16:20	BATCO
Extraction:	12/19/97	9:00	CMB
Analysis:	1/9/98	3:27	CMB

Sample Type: Water
Extraction Method: 3510b
Analysis Method: 8270

Compound Name	CAS Number	MDL ug/L (ppb)	BT42540 Detected Amount ug/L (ppb)	BT42540 Spike Amount ug	BT42540 Spike % Recovery	BLANK Detected Amount ug/L (ppb)	BLANK Spike Amount ug	BLANK Spike % Recovery	Matrix Spike Detected Amount ng/ul in the extract	Matrix Spike Amount ug	Matrix Spike % Recovery	Matrix Spike Duplicate Detected Amount ng/ul in the extract	Matrix Spike Duplicate Spike Amount ug	Matrix Spike Duplicate Spike % Recovery
N-Nitrosodiphenylamine	86-30-8	7.5	ND			ND			ND			ND		
4-Bromophenyl-phenylether	101-55-3	7.0	ND			ND			ND			ND		
Hexachlorobenzene	118-74-1	8.0	ND			ND			ND			ND		
Pentachlorophenol	87-86-5	12.5	ND			ND			311.90	300.00	103.97	307.08	300.00	102.36
Phenanthrene	85-01-8	7.1	ND			ND			ND			ND		
Anthracene	120-12-7	8.0	ND			ND			ND			ND		
Di-n-butylphthalate	84-74-2	7.8	ND			ND			ND			ND		
Fluoranthene	206-44-0	5.7	ND			ND			ND			ND		
Pyrene	129-00-0	7.9	ND			ND			174.39	200.00	87.20	180.67	200.00	90.34
Butylbenzylphthalate	85-68-7	9.9	ND			ND			ND			ND		
Benzo(a)anthracene	56-55-3	7.7	ND			ND			ND			ND		
3,3'-Dichlorobenzidiene	91-94-1	16.5	ND			ND			ND			ND		
Chrysene	218-01-9	7.8	ND			ND			ND			ND		
Bis(2-ethylhexyl)phthalate	117-81-7	9.1	ND			ND			ND			ND		
Di-n-octylphthalate	117-84-0	9.4	ND			ND			ND			ND		
Benzo(b)fluoranthene	205-99-2	6.8	ND			ND			ND			ND		
Benzo(k)fluoranthene	207-08-9	4.9	ND			ND			ND			ND		
Benzo(a)pyrene	50-32-8	5.9	ND			ND			ND			ND		
Indeno(1,2,3-c,d)pyrene	193-39-5	7.8	ND			ND			ND			ND		
Dibenzo(a,h)anthracene	53-70-3	9.0	ND			ND			ND			ND		
Benzo(g,h,i)perylene	191-24-2	10.0	ND			ND			ND			ND		
Surrogate Compounds			**Detected Amount**	**Spiked Amount**	**% Recovery**	**Detected Amount**	**Spiked Amount**	**% Recovery**	**Detected Amount**	**Spiked Amount**	**% Recovery**	**Detected Amount**	**Spiked Amount**	**% Recovery**
2-Fluorophenol			112.84	200.00	56.42	92.22	200.00	46.11	112.36	200.00	56.18	123.26	200.00	61.63
Phenol-d5			81.20	200.00	40.60	64.71	200.00	32.36	78.94	200.00	39.47	87.05	200.00	43.53
Nitrobenzene-d5			101.23	100.00	101.23	74.74	100.00	74.74	97.18	100.00	97.18	104.82	100.00	104.82
2-Fluorobiphenyl			82.84	100.00	82.84	65.54	100.00	65.54	86.97	100.00	86.97	104.67	100.00	104.67
2,4,6-Tribromophenol			253.26	200.00	126.63	226.16	200.00	113.08	273.28	200.00	136.64	286.69	200.00	143.35
Terphenyl-d14			122.74	100.00	122.74	132.90	100.00	132.90	127.66	100.00	127.66	125.04	100.00	125.04

Certified by:

Micheal S. Bonner,Ph. D.
Bonner Analytical Testing Company

BONNER ANALYTICAL TESTING COMPANY

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Client : Hercules, Inc.

Sample Matrix : Water

Sample Collection Date : 12-15-97 @ 1620

Sample Analysis Date : 01-09-98 @ 0327

Dilution Factor : 1.03

Sample Weight/ Volume : 968 mL

Number TICs Found : 0

File # : BT42540

Lab Sample ID : MW-2

GC Column Length : 30 M

GC Column ID : 0.25 mm

Method Code: 8270

Concentration Units : ug / L (PPB)

CAS NUMBER	COMPOUND NAME	RT	EST. CONCENTRATION

NOTE: TICs reported for SW846 method 8270 compounds only.

BONNER ANALYTICAL TESTING COMPANY

QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
BASE NEUTRALS AND ACIDS - GC/MS ANALYSIS DATA

Client: Hercules
Location: MW-3
File #: BT42541

	Date	Time	Analyst
Collected:	12/15/97	15:40	BATCO
Extracted:	12/19/97	9:00	CMB
Analyzed:	1/9/98	4:20	CMB

Sample Type: Water
Extraction Method: 3510b
Analysis Method: 8270

Compound Name	CAS Number	MDL ug/L (ppb)	BT42541			BLANK			Matrix Spike			Matrix Spike Duplicate		
			Detected Amount ug/L (ppb)	Spike		Detected Amount ug/L (ppb)	Spike		Detected Amount ng/ul in the extract	Spike		Detected Amount ng/ul in the extract	Spike	
				Amount ug	% Recovery		Amount ug	% Recovery		Amount ug	% Recovery		Amount ug	% Recovery
Phenol	108-95-2	5.2	ND			ND			89.18	300.00	29.73	99.51	300.00	33.17
Bis(2-chloroethyl)ether	111-44-4	6.9	ND			ND			ND			ND		
2-Chlorophenol	95-57-8	5.7	ND			ND			187.53	300.00	62.51	210.70	300.00	70.23
1,3-Dichlorobenzene	541-73-1	8.3	ND			ND			ND			ND		
1,4-Dichlorobenzene	106-46-7	6.1	ND			ND			85.60	200.00	42.80	100.12	200.00	50.06
Benzyl Alcohol	100-51-6	14.8	ND			ND			ND			ND		
1,2-Dichlorobenzene	95-50-1	6.0	ND			ND			ND			ND		
2-Methylphenol	95-48-7	5.6	ND			ND			ND			ND		
Bis(2-chloroisopropyl)ether	108-60-1	8.8	ND			ND			ND			ND		
4-Methylphenol	106-44-5	8.7	ND			ND			ND			ND		
Hexachloroethane	67-72-1	8.0	ND			ND			ND			ND		
N-Nitroso-di-N-propylamine	621-64-7	9.7	ND			ND			136.46	200.00	68.23	160.56	200.00	80.28
Nitrobenzene	98-95-3	8.2	ND			ND			ND			ND		
Isophorone	78-59-1	9.2	ND			ND			ND			ND		
2,4-Dimethylphenol	105-67-9	6.0	ND			ND			ND			ND		
2-Nitrophenol	88-75-5	9.1	ND			ND			ND			ND		
Benzoic Acid	65-85-0	22.3	ND			ND			ND			ND		
Bis(2-chloroethoxy)methane	111-91-1	8.8	ND			ND			ND			ND		
2,4-Dichlorophenol	120-83-2	5.2	ND			ND			ND			ND		
1,2,4-Trichlorobenzene	120-82-1	9.4	ND			ND			95.21	200.00	47.61	109.42	200.00	36.47
Naphthalene	91-20-3	8.5	ND			ND			ND			ND		
4-Chloroaniline	106-47-8	8.5	ND			ND			ND			ND		
Hexachlorobutadiene	87-68-3	9.4	ND			ND			ND			ND		
4-Chloro-3-methylphenol	59-50-7	7.7	ND			ND			234.19	300.00	78.06	260.60	300.00	86.87
2-Methylnaphthalene	91-57-6	7.5	ND			ND			ND			ND		
Hexachlorocyclopentadiene	77-47-4	8.6	ND			ND			ND			ND		
2,4,6-Trichlorophenol	88-06-2	9.1	ND			ND			ND			ND		
2,4,5-Trichlorophenol	95-95-4	7.1	ND			ND			ND			ND		
2-Chloronaphthalene	91-58-7	5.7	ND			ND			ND			ND		
2-Nitroaniline	88-74-4	12.0	ND			ND			ND			ND		
Dimethylphthalate	131-11-3	8.2	ND			ND			ND			ND		
Acenaphthylene	208-96-8	9.0	ND			ND			ND			ND		
2,6-Dinitrotoluene	606-20-2	9.2	ND			ND			ND			ND		
3-Nitroaniline	99-09-2	16.0	ND			ND			ND			ND		
Acenaphthene	83-32-9	9.0	ND			ND			121.78	200.00	60.89	144.73	200.00	72.37
2,4-Dinitrophenol	51-28-5	14.2	ND			ND			ND			ND		
4-Nitrophenol	100-02-7	8.6	ND			ND			112.70	300.00	37.57	107.40	300.00	35.80
Dibenzofuran	132-64-9	8.4	ND			ND			ND			ND		
2,4-Dinitrotoluene	121-14-2	8.3	ND			ND			147.75	200.00	73.88	161.78	200.00	80.89
Diethylphthalate	84-66-2	9.9	ND			ND			ND			ND		
Fluorene	86-73-7	9.8	ND			ND			ND			ND		
4-Chlorophenyl-phenylether	7005-72-3	8.3	ND			ND			ND			ND		
4-Nitroaniline	100-01-6	8.7	ND			ND			ND			ND		
4,6-Dinitro-2-methylphenol	534-52-1	12.2	ND			ND			ND			ND		

BONNER ANALYTICAL TESTING COMPANY

QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
BASE NEUTRALS AND ACIDS - GC/MS ANALYSIS DATA

Client: Hercules
Location: MW-3
File #: BT42541

	Date	Time	Analyst
Collection:	12/15/97	15:40	BATCO
Extraction:	12/19/97	9:00	CMB
Analysis:	1/9/98	4:20	CMB

Sample Type: Water
Extraction Method: 3510b
Analysis Method: 8270

Compound Name	CAS Number	MDL ug/L (ppb)	BT42541 Detected Amount ug/L (ppb)	BT42541 Spike Amount ug	BT42541 Spike % Recovery	BLANK Detected Amount ug/L (ppb)	BLANK Spike Amount ug	BLANK Spike % Recovery	Matrix Spike Detected Amount ng/ul in the extract	Matrix Spike Amount ug	Matrix Spike % Recovery	Matrix Spike Duplicate Detected Amount ng/ul in the extract	Matrix Spike Duplicate Spike Amount ug	Matrix Spike Duplicate Spike % Recovery
N-Nitrosodiphenylamine	86-30-6	7.5	ND			ND			ND			ND		
4-Bromophenyl-phenylether	101-55-3	7.0	ND			ND			ND			ND		
Hexachlorobenzene	118-74-1	8.0	ND			ND			ND			ND		
Pentachlorophenol	87-86-5	12.5	ND			ND			311.90	300.00	103.97	307.08	300.00	102.36
Phenanthrene	85-01-8	7.1	ND			ND			ND			ND		
Anthracene	120-12-7	8.0	ND			ND			ND			ND		
Di-n-butylphthalate	84-74-2	7.8	ND			ND			ND			ND		
Fluoranthene	208-44-0	5.7	ND			ND			ND			ND		
Pyrene	129-00-0	7.9	ND			ND			174.39	200.00	87.20	180.67	200.00	90.34
Butylbenzylphthalate	85-68-7	9.9	ND			ND			ND			ND		
Benzo(a)anthracene	56-55-3	7.7	ND			ND			ND			ND		
3,3'-Dichlorobenzidiene	91-94-1	16.5	ND			ND			ND			ND		
Chrysene	218-01-9	7.8	ND			ND			ND			ND		
Bis(2-ethylhexyl)phthalate	117-81-7	9.1	ND			ND			ND			ND		
Di-n-octylphthalate	117-84-0	9.4	ND			ND			ND			ND		
Benzo(b)fluoranthene	205-99-2	6.8	ND			ND			ND			ND		
Benzo(k)fluoranthene	207-08-9	4.9	ND			ND			ND			ND		
Benzo(a)pyrene	50-32-8	5.9	ND			ND			ND			ND		
Indeno(1,2,3-c,d)pyrene	193-39-5	7.8	ND			ND			ND			ND		
Dibenzo(a,h)anthracene	53-70-3	9.0	ND			ND			ND			ND		
Benzo(g,h,i)perylene	191-24-2	10.0	ND			ND			ND			ND		
Surrogate Compounds			Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery
2-Fluorophenol			85.22	200.00	42.61	92.22	200.00	46.11	112.36	200.00	56.18	123.26	200.00	61.63
Phenol-d5			70.90	200.00	35.45	64.71	200.00	32.36	78.94	200.00	39.47	87.05	200.00	43.53
Nitrobenzene-d5			79.35	100.00	79.35	74.74	100.00	74.74	97.18	100.00	97.18	104.82	100.00	104.82
2-Fluorobiphenyl			75.11	100.00	75.11	65.54	100.00	65.54	86.97	100.00	86.97	104.67	100.00	104.67
2,4,6-Tribromophenol			280.03	200.00	140.02	226.16	200.00	113.08	273.28	200.00	136.64	286.69	200.00	143.35
Terphenyl-d14			139.59	100.00	139.59	132.90	100.00	132.90	127.66	100.00	127.66	125.04	100.00	125.04

Certified by:

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Bonner Analytical Testing Company

BONNER ANALYTICAL TESTING COMPANY

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Client : Hercules, Inc.

File # : BT42541

Sample Matrix : Water

Lab Sample ID : MW-3

Sample Collection Date : 12-15-97 @ 1540

Sample Analysis Date : 01-09-98 @ 0420

GC Column Length : 30 M

Dilution Factor : 1.01

GC Column ID : 0.25 mm

Sample Weight/ Volume : 990 mL

Method Code: 8270

Number TICs Found : 0

Concentration Units : ug / L (PPB)

CAS NUMBER	COMPOUND NAME	RT	EST. CONCENTRATION

NOTE: TICs reported for SW846 method 8270 compounds only.

BONNER ANALYTICAL TESTING COMPANY

QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
BASE NEUTRALS AND ACIDS - GC/MS ANALYSIS DATA

Client: Hercules
Location: MW-4
File #: BT42542

	Date	Time	Analyst
Collected:	12/12/97	13:10	BATCO
Extracted:	12/19/97	9:00	CMB
Analyzed:	1/9/98	9:50	CMB

Sample Type: Water
Extraction Method: 3510b
Analysis Method: 8270

Compound Name	CAS Number	MDL ug/L (ppb)	BT42542			BLANK			Matrix Spike			Matrix Spike Duplicate		
			Detected Amount ug/L (ppb)	Spike		Detected Amount ug/L (ppb)	Spike		Detected Amount ng/ul in the extract	Spike		Detected Amount ng/ul in the extract	Spike	
				Amount ug	% Recovery		Amount ug	% Recovery		Amount ug	% Recovery		Amount ug	% Recovery
Phenol	108-95-2	5.2	ND			ND			89.18	300.00	29.73	99.51	300.00	33.17
Bis(2-chloroethyl)ether	111-44-4	6.9	ND			ND			ND			ND		
2-Chlorophenol	95-57-8	5.7	ND			ND			187.53	300.00	62.51	210.70	300.00	70.23
1,3-Dichlorobenzene	541-73-1	8.3	ND			ND			ND			ND		
1,4-Dichlorobenzene	106-46-7	6.1	ND			ND			85.60	200.00	42.80	100.12	200.00	50.06
Benzyl Alcohol	100-51-6	14.8	ND			ND			ND			ND		
1,2-Dichlorobenzene	95-50-1	6.0	ND			ND			ND			ND		
2-Methylphenol	95-48-7	5.6	ND			ND			ND			ND		
Bis(2-chloroisopropyl)ether	108-60-1	8.8	ND			ND			ND			ND		
4-Methylphenol	106-44-5	8.7	ND			ND			ND			ND		
Hexachloroethane	67-72-1	8.0	ND			ND			ND			ND		
N-Nitroso-di-N-propylamine	621-64-7	9.7	ND			ND			136.46	200.00	68.23	160.56	200.00	80.28
Nitrobenzene	98-95-3	8.2	ND			ND			ND			ND		
Isophorone	78-59-1	9.2	ND			ND			ND			ND		
2,4-Dimethylphenol	105-67-9	6.0	ND			ND			ND			ND		
2-Nitrophenol	88-75-5	9.1	ND			ND			ND			ND		
Benzoic Acid	65-85-0	22.3	ND			ND			ND			ND		
Bis(2-chloroethoxy)methane	111-91-1	8.8	ND			ND			ND			ND		
2,4-Dichlorophenol	120-83-2	5.2	ND			ND			ND			ND		
1,2,4-Trichlorobenzene	120-82-1	9.4	ND			ND			95.21	200.00	47.61	109.42	200.00	54.71
Naphthalene	91-20-3	8.5	ND			ND			ND			ND		
4-Chloroaniline	106-47-8	8.5	ND			ND			ND			ND		
Hexachlorobutadiene	87-68-3	9.4	ND			ND			ND			ND		
4-Chloro-3-methylphenol	59-50-7	7.7	ND			ND			234.19	300.00	78.06	260.60	300.00	86.87
2-Methylnaphthalene	91-57-6	7.5	ND			ND			ND			ND		
Hexachlorocyclopentadiene	77-47-4	8.6	ND			ND			ND			ND		
2,4,6-Trichlorophenol	88-06-2	9.1	ND			ND			ND			ND		
2,4,5-Trichlorophenol	95-95-4	7.1	ND			ND			ND			ND		
2-Chloronaphthalene	91-58-7	5.7	ND			ND			ND			ND		
2-Nitroaniline	88-74-4	12.0	ND			ND			ND			ND		
Dimethylphthalate	131-11-3	8.2	ND			ND			ND			ND		
Acenaphthylene	208-96-8	9.0	ND			ND			ND			ND		
2,6-Dinitrotoluene	606-20-2	9.2	ND			ND			ND			ND		
3-Nitroaniline	99-09-2	16.0	ND			ND			ND			ND		
Acenaphthene	83-32-9	8.3	ND			ND			121.78	200.00	60.89	144.73	200.00	72.37
2,4-Dinitrophenol	51-28-5	14.2	ND			ND			ND			ND		
4-Nitrophenol	100-02-7	8.6	ND			ND			112.70	300.00	37.57	107.40	300.00	35.80
Dibenzofuran	132-64-9	8.4	ND			ND			ND			ND		
2,4-Dinitrotoluene	121-14-2	8.3	ND			ND			147.75	200.00	73.88	161.78	200.00	80.89
Diethylphthalate	84-66-2	9.9	ND			ND			ND			ND		
Fluorene	86-73-7	9.8	ND			ND			ND			ND		
4-Chlorophenyl-phenylether	7005-72-3	8.3	ND			ND			ND			ND		
4-Nitroaniline	100-01-6	8.7	ND			ND			ND			ND		
4,6-Dinitro-2-methylphenol	534-52-1	12.2	ND			ND			ND			ND		

BONNER ANALYTICAL TESTING COMPANY

QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
BASE NEUTRALS AND ACIDS - GC/MS ANALYSIS DATA

Client: Hercules
Location: MW-4
File #: BT42542

	Date	Time	Analyst
Collection:	12/12/97	13:10	BATCO
Extraction:	12/19/97	9:00	CMB
Analysis:	1/9/98	9:50	CMB

Sample Type: Water
Extraction Method: 3510b
Analysis Method: 8270

Compound Name	CAS Number	MDL ug/L (ppb)	BT42542			BLANK			Matrix Spike			Matrix Spike Duplicate		
			Detected Amount ug/L (ppb)	Spike		Detected Amount ug/L (ppb)	Spike		Detected Amount ng/ul in the extract	Spike		Detected Amount ng/ul in the extract	Spike	
				Amount ug	% Recovery		Amount ug	% Recovery		Amount ug	% Recovery		Amount ug	% Recovery
N-Nitrosodiphenylamine	86-30-6	7.5	ND			ND			ND			ND		
4-Bromophenyl-phenylether	101-55-3	7.0	ND			ND			ND			ND		
Hexachlorobenzene	118-74-1	8.0	ND			ND			ND			ND		
Pentachlorophenol	87-86-5	12.5	ND			ND			311.90	300.00	103.97	307.08	300.00	102.36
Phenanthrene	85-01-8	7.1	ND			ND			ND			ND		
Anthracene	120-12-7	8.0	ND			ND			ND			ND		
Di-n-butylphthalate	84-74-2	7.8	ND			ND			ND			ND		
Fluoranthene	206-44-0	5.7	ND			ND			ND			ND		
Pyrene	129-00-0	7.9	ND			ND			174.39	200.00	87.20	180.67	200.00	90.34
Butylbenzylphthalate	85-68-7	9.9	ND			ND			ND			ND		
Benzo(a)anthracene	56-55-3	7.7	ND			ND			ND			ND		
3,3'-Dichlorobenzidiene	91-94-1	16.5	ND			ND			ND			ND		
Chrysene	218-01-9	7.8	ND			ND			ND			ND		
Bis(2-ethylhexyl)phthalate	117-81-7	9.1	ND			ND			ND			ND		
Di-n-octylphthalate	117-84-0	9.4	ND			ND			ND			ND		
Benzo(b)fluoranthene	205-99-2	6.8	ND			ND			ND			ND		
Benzo(k)fluoranthene	207-08-9	4.9	ND			ND			ND			ND		
Benzo(a)pyrene	50-32-8	5.9	ND			ND			ND			ND		
Indeno(1,2,3-c,d)pyrene	193-39-5	7.8	ND			ND			ND			ND		
Dibenzo(a,h)anthracene	53-70-3	9.0	ND			ND			ND			ND		
Benzo(g,h,i)perylene	191-24-2	10.0	ND			ND			ND			ND		
Surrogate Compounds			Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery
2-Fluorophenol			120.63	200.00	60.32	92.22	200.00	46.11	112.36	200.00	56.18	123.26	200.00	61.63
Phenol-d5			100.76	200.00	50.38	64.71	200.00	32.36	78.94	200.00	39.47	87.05	200.00	43.53
Nitrobenzene-d5			121.10	100.00	121.10	74.74	100.00	74.74	97.18	100.00	97.18	104.82	100.00	104.82
2-Fluorobiphenyl			88.75	100.00	88.75	65.54	100.00	65.54	86.97	100.00	86.97	104.67	100.00	104.67
2,4,6-Tribromophenol			303.45	200.00	151.73	226.16	200.00	113.08	273.28	200.00	136.64	286.69	200.00	143.35
Terphenyl-d14			164.21	100.00	164.21	132.90	100.00	132.90	127.66	100.00	127.66	125.04	100.00	125.04

Certified by:

Micheal S. Bonner,Ph. D.
Bonner Analytical Testing Company

BONNER ANALYTICAL TESTING COMPANY

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Client : Hercules, Inc.

Sample Matrix : Water

Sample Collection Date : 12-12-97 @ 1310

Sample Analysis Date : 01-09-98 @ 0950

Dilution Factor : 1.05

Sample Weight/ Volume : 950 mL

Number TICs Found : 1

File # : BT42542

Lab Sample ID : MW-4

GC Column Length : 30 M

GC Column ID : 0.25 mm

Method Code: 8270

Concentration Units : ug / L (PPB)

CAS NUMBER	COMPOUND NAME	RT	EST. CONCENTRATION
78-34-2	Dioxathion or degredation products thereof	23.65	19.37 ug/L

NOTE: TICs reported for SW846 method 8270 compounds only.

BONNER ANALYTICAL TESTING COMPANY

QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
BASE NEUTRALS AND ACIDS - GC/MS ANALYSIS DATA

Client: Hercules
Location: MW-5
File #: BT42543

	Date	Time	Analyst
Collected:	12/12/97	9:00	BATCO
Extracted:	12/19/97	9:00	CMB
Analyzed:	1/9/98	10:43	CMB

Sample Type: Water
Extraction Method: 3510b
Analysis Method: 8270

Compound Name	CAS Number	MDL ug/L (ppb)	BT42543			BLANK			Matrix Spike			Matrix Spike Duplicate		
			Detected Amount ug/L (ppb)	Spike		Detected Amount ug/L (ppb)	Spike		Detected Amount ng/ul in the extract	Spike		Detected Amount ng/ul in the extract	Spike	
				Amount ug	% Recovery		Amount ug	% Recovery		Amount ug	% Recovery		Amount ug	% Recovery
Phenol	108-95-2	5.2	ND			ND			89.18	300.00	29.73	99.51	300.00	33.17
Bis(2-chloroethyl)ether	111-44-4	6.9	ND			ND			ND			ND		
2-Chlorophenol	95-57-8	5.7	ND			ND			187.53	300.00	62.51	210.70	300.00	70.23
1,3-Dichlorobenzene	541-73-1	8.3	ND			ND			ND			ND		
1,4-Dichlorobenzene	106-46-7	6.1	ND			ND			85.60	200.00	42.80	100.12	200.00	50.06
Benzyl Alcohol	100-51-6	14.8	ND			ND			ND			ND		
1,2-Dichlorobenzene	95-50-1	6.0	ND			ND			ND			ND		
2-Methylphenol	95-48-7	5.6	ND			ND			ND			ND		
Bis(2-chloroisopropyl)ether	108-60-1	8.8	ND			ND			ND			ND		
4-Methylphenol	106-44-5	8.7	ND			ND			ND			ND		
Hexachloroethane	67-72-1	8.0	ND			ND			ND			ND		
N-Nitroso-di-N-propylamine	621-64-7	9.7	ND			ND			136.46	200.00	68.23	160.56	200.00	80.28
Nitrobenzene	98-95-3	8.2	ND			ND			ND			ND		
Isophorone	78-59-1	9.2	ND			ND			ND			ND		
2,4-Dimethylphenol	105-67-9	6.0	ND			ND			ND			ND		
2-Nitrophenol	88-75-5	9.1	ND			ND			ND			ND		
Benzoic Acid	65-85-0	22.3	ND			ND			ND			ND		
Bis(2-chloroethoxy)methane	111-91-1	8.8	ND			ND			ND			ND		
2,4-Dichlorophenol	120-83-2	5.2	ND			ND			ND			ND		
1,2,4-Trichlorobenzene	120-82-1	9.4	ND			ND			95.21	200.00	47.61	109.42	200.00	54.71
Naphthalene	91-20-3	8.5	ND			ND			ND			ND		
4-Chloroaniline	106-47-8	8.5	ND			ND			ND			ND		
Hexachlorobutadiene	87-68-3	9.4	ND			ND			ND			ND		
4-Chloro-3-methylphenol	59-50-7	7.7	ND			ND			234.19	300.00	78.06	260.60	300.00	86.87
2-Methylnaphthalene	91-57-6	7.5	ND			ND			ND			ND		
Hexachlorocyclopentadiene	77-47-4	8.6	ND			ND			ND			ND		
2,4,6-Trichlorophenol	88-06-2	9.1	ND			ND			ND			ND		
2,4,5-Trichlorophenol	95-95-4	7.1	ND			ND			ND			ND		
2-Chloronaphthalene	91-58-7	5.7	ND			ND			ND			ND		
2-Nitroaniline	88-74-4	12.0	ND			ND			ND			ND		
Dimethylphthalate	131-11-3	8.2	ND			ND			ND			ND		
Acenaphthylene	208-96-8	9.0	ND			ND			ND			ND		
2,6-Dinitrotoluene	606-20-2	9.2	ND			ND			ND			ND		
3-Nitroaniline	99-09-2	16.0	ND			ND			ND			ND		
Acenaphthene	83-32-9	8.3	ND			ND			121.78	200.00	60.89	144.73	200.00	72.37
2,4-Dinitrophenol	51-28-5	8.3	ND			ND			ND			ND		
4-Nitrophenol	100-02-7	8.6	ND			ND			112.70	300.00	37.57	107.40	300.00	35.80
Dibenzofuran	132-64-9	8.4	ND			ND			ND			ND		
2,4-Dinitrotoluene	121-14-2	8.3	ND			ND			147.75	200.00	73.88	161.78	200.00	80.89
Diethylphthalate	84-66-2	9.9	ND			ND			ND			ND		
Fluorene	86-73-7	9.8	ND			ND			ND			ND		
4-Chlorophenyl-phenylether	7005-72-3	8.3	ND			ND			ND			ND		
4-Nitroaniline	100-01-6	8.7	ND			ND			ND			ND		
4,6-Dinitro-2-methylphenol	534-52-1	12.2	ND			ND			ND			ND		

BONNER ANALYTICAL TESTING COMPANY

QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
BASE NEUTRALS AND ACIDS - GC/MS ANALYSIS DATA

Client: Hercules
Location: MW-5
File #: BT42543

	Date	Time	Analyst
Collection:	12/12/97	9:00	BATCO
Extraction:	12/19/97	9:00	CMB
Analysis:	1/9/98	10:43	CMB

Sample Type: Water
Extraction Method: 3510b
Analysis Method: 8270

Compound Name	CAS Number	MDL ug/L (ppb)	BT42543 Detected Amount ug/L (ppb)	BT42543 Spike Amount ug	BT42543 Spike % Recovery	BLANK Detected Amount ug/L (ppb)	BLANK Spike Amount ug	BLANK Spike % Recovery	Matrix Spike Detected Amount ng/ul in the extract	Matrix Spike Amount ug	Matrix Spike % Recovery	Matrix Spike Duplicate Detected Amount ng/ul in the extract	Matrix Spike Duplicate Spike Amount ug	Matrix Spike Duplicate Spike % Recovery
N-Nitrosodiphenylamine	86-30-6	7.5	ND			ND			ND			ND		
4-Bromophenyl-phenylether	101-55-3	7.0	ND			ND			ND			ND		
Hexachlorobenzene	118-74-1	8.0	ND			ND			ND			ND		
Pentachlorophenol	87-86-5	12.5	ND			ND			311.90	300.00	103.97	307.08	300.00	102.36
Phenanthrene	85-01-8	7.1	ND			ND			ND			ND		
Anthracene	120-12-7	8.0	ND			ND			ND			ND		
Di-n-butylphthalate	84-74-2	7.8	ND			ND			ND			ND		
Fluoranthene	206-44-0	5.7	ND			ND			ND			ND		
Pyrene	129-00-0	7.9	ND			ND			174.39	200.00	87.20	180.67	200.00	90.34
Butylbenzylphthalate	85-68-7	9.9	ND			ND			ND			ND		
Benzo(a)anthracene	56-55-3	7.7	ND			ND			ND			ND		
3,3'-Dichlorobenzidiene	91-94-1	16.5	ND			ND			ND			ND		
Chrysene	218-01-9	7.8	ND			ND			ND			ND		
Bis(2-ethylhexyl)phthalate	117-81-7	9.1	ND			ND			ND			ND		
Di-n-octylphthalate	117-84-0	9.4	ND			ND			ND			ND		
Benzo(b)fluoranthene	205-99-2	6.8	ND			ND			ND			ND		
Benzo(k)fluoranthene	207-08-9	4.9	ND			ND			ND			ND		
Benzo(a)pyrene	50-32-8	5.9	ND			ND			ND			ND		
Indeno(1,2,3-c,d)pyrene	193-39-5	7.8	ND			ND			ND			ND		
Dibenzo(a,h)anthracene	53-70-3	9.0	ND			ND			ND			ND		
Benzo(g,h,i)perylene	191-24-2	10.0	ND			ND			ND			ND		
Surrogate Compounds			Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery
2-Fluorophenol			137.50	200.00	68.75	92.22	200.00	46.11	112.36	200.00	56.18	123.26	200.00	61.63
Phenol-d5			97.61	200.00	48.81	64.71	200.00	32.36	78.94	200.00	39.47	87.05	200.00	43.53
Nitrobenzene-d5			149.10	100.00	149.10	74.74	100.00	74.74	97.18	100.00	97.18	104.82	100.00	104.82
2-Fluorobiphenyl			110.73	100.00	110.73	65.54	100.00	65.54	86.97	100.00	86.97	104.67	100.00	104.67
2,4,6-Tribromophenol			337.91	200.00	168.96	226.16	200.00	113.08	273.28	200.00	136.64	286.69	200.00	143.35
Terphenyl-d14			248.35	100.00	248.35	132.90	100.00	132.90	127.66	100.00	127.66	125.04	100.00	125.04

Certified by:

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Bonner Analytical Testing Company

BONNER ANALYTICAL TESTING COMPANY

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Client : Hercules, Inc.

File # : BT42543

Sample Matrix : Water

Lab Sample ID : MW-5

Sample Collection Date : 12-12-97 @ 0900

Sample Analysis Date : 01-09-98 @ 1043

GC Column Length : 30 M

Dilution Factor : 1.06

GC Column ID : 0.25 mm

Sample Weight/ Volume : 945 mL

Method Code: 8270

Number TICs Found : 0

Concentration Units : ug / L (PPB)

CAS NUMBER	COMPOUND NAME	RT	EST. CONCENTRATION

NOTE: TICs reported for SW846 method 8270 compounds only.

BONNER ANALYTICAL TESTING COMPANY

QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
BASE NEUTRALS AND ACIDS - GC/MS ANALYSIS DATA

Client: Hercules
Location: MW-6
File #: BT42544

	Date	Time	Analyst
Collected:	12/12/97	13:10	BATCO
Extracted:	12/19/97	9:00	CMB
Analyzed:	1/9/98	5:13	CMB

Sample Type: Water
Extraction Method: 3510b
Analysis Method: 8270

Compound Name	CAS Number	MDL ug/L (ppb)	BT42544			BLANK			Matrix Spike			Matrix Spike Duplicate		
			Detected Amount ug/L (ppb)	Spike		Detected Amount ug/L (ppb)	Spike		Detected Amount ng/ul in the extract	Spike		Detected Amount ng/ul in the extract	Spike	
				Amount ug	% Recovery		Amount ug	% Recovery		Amount ug	% Recovery		Amount ug	% Recovery
Phenol	108-95-2	5.2	ND			ND			89.18	300.00	29.73	99.51	300.00	33.17
Bis(2-chloroethyl)ether	111-44-4	6.9	ND			ND			ND			ND		
2-Chlorophenol	95-57-8	5.7	ND			ND			187.53	300.00	62.51	210.70	300.00	70.23
1,3-Dichlorobenzene	541-73-1	8.3	ND			ND			ND			ND		
1,4-Dichlorobenzene	106-46-7	6.1	ND			ND			85.60	200.00	42.80	100.12	200.00	50.06
Benzyl Alcohol	100-51-6	14.8	ND			ND			ND			ND		
1,2-Dichlorobenzene	95-50-1	6.0	ND			ND			ND			ND		
2-Methylphenol	95-48-7	5.6	ND			ND			ND			ND		
Bis(2-chloroisopropyl)ether	108-60-1	8.8	ND			ND			ND			ND		
4-Methylphenol	106-44-5	8.7	ND			ND			ND			ND		
Hexachloroethane	67-72-1	8.0	ND			ND			ND			ND		
N-Nitroso-di-N-propylamine	621-64-7	9.7	ND			ND			136.46	200.00	68.23	160.56	200.00	80.28
Nitrobenzene	98-95-3	8.2	ND			ND			ND			ND		
Isophorone	78-59-1	9.2	ND			ND			ND			ND		
2,4-Dimethylphenol	105-67-9	6.0	ND			ND			ND			ND		
2-Nitrophenol	88-75-5	9.1	ND			ND			ND			ND		
Benzoic Acid	65-85-0	22.3	ND			ND			ND			ND		
Bis(2-chloroethoxy)methane	111-91-1	8.8	ND			ND			ND			ND		
2,4-Dichlorophenol	120-83-2	5.2	ND			ND			ND			ND		
1,2,4-Trichlorobenzene	120-82-1	9.4	ND			ND			95.21	200.00	47.61	109.42	200.00	54.71
Naphthalene	91-20-3	8.5	ND			ND			ND			ND		
4-Chloroaniline	106-47-8	8.5	ND			ND			ND			ND		
Hexachlorobutadiene	87-68-3	9.4	ND			ND			ND			ND		
4-Chloro-3-methylphenol	59-50-7	7.7	ND			ND			234.19	300.00	78.06	260.60	300.00	86.87
2-Methylnaphthalene	91-57-6	7.5	ND			ND			ND			ND		
Hexachlorocyclopentadiene	77-47-4	8.6	ND			ND			ND			ND		
2,4,6-Trichlorophenol	88-06-2	9.1	ND			ND			ND			ND		
2,4,5-Trichlorophenol	95-95-4	7.1	ND			ND			ND			ND		
2-Chloronaphthalene	91-58-7	5.7	ND			ND			ND			ND		
2-Nitroaniline	88-74-4	12.0	ND			ND			ND			ND		
Dimethylphthalate	131-11-3	8.2	ND			ND			ND			ND		
Acenaphthylene	208-96-8	9.0	ND			ND			ND			ND		
2,6-Dinitrotoluene	606-20-2	9.2	ND			ND			ND			ND		
3-Nitroaniline	99-09-2	16.0	ND			ND			ND			ND		
Acenaphthene	83-32-9	8.3	ND			ND			121.78	200.00	60.89	144.73	200.00	72.37
2,4-Dinitrophenol	51-28-5	8.3	ND			ND			ND			ND		
4-Nitrophenol	100-02-7	8.2	ND			ND			112.70	300.00	37.57	107.40	300.00	35.80
Dibenzofuran	132-64-9	8.4	ND			ND			ND			ND		
2,4-Dinitrotoluene	121-14-2	8.3	ND			ND			147.75	200.00	73.88	161.78	200.00	80.89
Diethylphthalate	84-66-2	9.9	ND			ND			ND			ND		
Fluorene	86-73-7	9.8	ND			ND			ND			ND		
4-Chlorophenyl-phenylether	7005-72-3	8.3	ND			ND			ND			ND		
4-Nitroaniline	100-01-6	8.7	ND			ND			ND			ND		
4,6-Dinitro-2-methylphenol	534-52-1	12.2	ND			ND			ND			ND		

BONNER ANALYTICAL TESTING COMPANY

QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
BASE NEUTRALS AND ACIDS - GC/MS ANALYSIS DATA

Client: Hercules
Location: MW-6
File #: BT42544

	Date	Time	Analyst
Collection:	12/12/97	13:10	BATCO
Extraction:	12/19/97	9:00	CMB
Analysis:	1/9/98	5:13	CMB

Sample Type: Water
Extraction Method: 3510b
Analysis Method: 8270

Compound Name	CAS Number	MDL ug/L (ppb)	BT42544 Detected Amount ug/L (ppb)	BT42544 Spike Amount ug	BT42544 Spike % Recovery	BLANK Detected Amount ug/L (ppb)	BLANK Spike Amount ug	BLANK Spike % Recovery	Matrix Spike Detected Amount ng/ul in the extract	Matrix Spike Amount ug	Matrix Spike % Recovery	Matrix Spike Duplicate Detected Amount ng/ul in the extract	Matrix Spike Duplicate Spike Amount ug	Matrix Spike Duplicate Spike % Recovery
N-Nitrosodiphenylamine	86-30-6	7.5	ND			ND			ND			ND		
4-Bromophenyl-phenylether	101-55-3	7.0	ND			ND			ND			ND		
Hexachlorobenzene	118-74-1	8.0	ND			ND			ND			ND		
Pentachlorophenol	87-86-5	12.5	ND			ND			311.90	300.00	103.97	307.08	300.00	102.36
Phenanthrene	85-01-8	7.1	ND			ND			ND			ND		
Anthracene	120-12-7	8.0	ND			ND			ND			ND		
Di-n-butylphthalate	84-74-2	7.8	ND			ND			ND			ND		
Fluoranthene	206-44-0	5.7	ND			ND			ND			ND		
Pyrene	129-00-0	7.9	ND			ND			174.39	200.00	87.20	180.67	200.00	90.34
Butylbenzylphthalate	85-68-7	9.9	ND			ND			ND			ND		
Benzo(a)anthracene	56-55-3	7.7	ND			ND			ND			ND		
3,3'-Dichlorobenzidiene	91-94-1	16.5	ND			ND			ND			ND		
Chrysene	218-01-9	7.8	ND			ND			ND			ND		
Bis(2-ethylhexyl)phthalate	117-81-7	9.1	ND			ND			ND			ND		
Di-n-octylphthalate	117-84-0	9.4	ND			ND			ND			ND		
Benzo(b)fluoranthene	205-99-2	6.8	ND			ND			ND			ND		
Benzo(k)fluoranthene	207-08-9	4.9	ND			ND			ND			ND		
Benzo(a)pyrene	50-32-8	5.9	ND			ND			ND			ND		
Indeno(1,2,3-c,d)pyrene	193-39-5	7.8	ND			ND			ND			ND		
Dibenzo(a,h)anthracene	53-70-3	9.0	ND			ND			ND			ND		
Benzo(g,h,i)perylene	191-24-2	10.0	ND			ND			ND			ND		
Surrogate Compounds			Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery
2-Fluorophenol			109.30	200.00	54.65	92.22	200.00	46.11	112.36	200.00	56.18	123.26	200.00	61.63
Phenol-d5			81.22	200.00	40.61	64.71	200.00	32.36	78.94	200.00	39.47	87.05	200.00	43.53
Nitrobenzene-d5			101.83	100.00	101.83	74.74	100.00	74.74	97.18	100.00	97.18	104.82	100.00	104.82
2-Fluorobiphenyl			87.52	100.00	87.52	65.54	100.00	65.54	86.97	100.00	86.97	104.67	100.00	104.67
2,4,6-Tribromophenol			264.53	200.00	132.27	226.16	200.00	113.08	273.28	200.00	136.64	286.69	200.00	143.35
Terphenyl-d14			141.67	100.00	141.67	132.90	100.00	132.90	127.66	100.00	127.66	125.04	100.00	125.04

Certified by:

Micheal S. Bonner,Ph. D.
Bonner Analytical Testing Company

BONNER ANALYTICAL TESTING COMPANY

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Client : Hercules, Inc.

Sample Matrix : Water

Sample Collection Date : 12-12-97 @ 1310

Sample Analysis Date : 01-09-98 @ 0513

Dilution Factor : 1.03

Sample Weight/ Volume : 970 mL

Number TICs Found : 0

File # : BT42544

Lab Sample ID : MW-6

GC Column Length : 30 M

GC Column ID : 0.25 mm

Method Code: 8270

Concentration Units : ug / L (PPB)

CAS NUMBER	COMPOUND NAME	RT	EST. CONCENTRATION

NOTE: TICs reported for SW846 method 8270 compounds only.

BONNER ANALYTICAL TESTING COMPANY

QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
BASE NEUTRALS AND ACIDS - GC/MS ANALYSIS DATA

Client: Hercules
Location: Trip Blank
File #: BT42545

	Date	Time	Analyst
Collected:	12/12/97		BATCO
Extracted:	12/19/97	9:00	CMB
Analyzed:	1/9/98	12:48	CMB

Sample Type: Water
Extraction Method: 3510b
Analysis Method: 8270

Compound Name	CAS Number	MDL ug/L (ppb)	BT42545 Detected Amount ug/L (ppb)	BT42545 Spike Amount ug	BT42545 Spike % Recovery	BLANK Detected Amount ug/L (ppb)	BLANK Spike Amount ug	BLANK Spike % Recovery	Matrix Spike Detected Amount ng/ul in the extract	Matrix Spike Amount ug	Matrix Spike % Recovery	Matrix Spike Duplicate Detected Amount ng/ul in the extract	Matrix Spike Duplicate Amount ug	Matrix Spike Duplicate % Recovery
Phenol	108-95-2	5.2	ND			ND			89.18	300.00	29.73	99.51	300.00	33.17
Bis(2-chloroethyl)ether	111-44-4	6.9	ND			ND			ND			ND		
2-Chlorophenol	95-57-8	5.7	ND			ND			187.53	300.00	62.51	210.70	300.00	70.23
1,3-Dichlorobenzene	541-73-1	8.3	ND			ND			ND			ND		
1,4-Dichlorobenzene	106-46-7	6.1	ND			ND			85.60	200.00	42.80	100.12	200.00	50.06
Benzyl Alcohol	100-51-6	14.8	ND			ND			ND			ND		
1,2-Dichlorobenzene	95-50-1	6.0	ND			ND			ND			ND		
2-Methylphenol	95-48-7	5.6	ND			ND			ND			ND		
Bis(2-chloroisopropyl)ether	108-60-1	8.8	ND			ND			ND			ND		
4-Methylphenol	106-44-5	8.7	ND			ND			ND			ND		
Hexachloroethane	67-72-1	8.0	ND			ND			ND			ND		
N-Nitroso-di-N-propylamine	621-64-7	9.7	ND			ND			136.46	200.00	68.23	160.56	200.00	80.28
Nitrobenzene	98-95-3	8.2	ND			ND			ND			ND		
Isophorone	78-59-1	9.2	ND			ND			ND			ND		
2,4-Dimethylphenol	105-67-9	6.0	ND			ND			ND			ND		
2-Nitrophenol	88-75-5	9.1	ND			ND			ND			ND		
Benzoic Acid	65-85-0	22.3	ND			ND			ND			ND		
Bis(2-chloroethoxy)methane	111-91-1	8.8	ND			ND			ND			ND		
2,4-Dichlorophenol	120-83-2	5.2	ND			ND			ND			ND		
1,2,4-Trichlorobenzene	120-82-1	9.4	ND			ND			95.21	200.00	47.61	109.42	200.00	54.71
Naphthalene	91-20-3	8.5	ND			ND			ND			ND		
4-Chloroaniline	106-47-8	8.5	ND			ND			ND			ND		
Hexachlorobutadiene	87-68-3	9.4	ND			ND			ND			ND		
4-Chloro-3-methylphenol	59-50-7	7.7	ND			ND			234.19	300.00	78.06	260.60	300.00	86.87
2-Methylnaphthalene	91-57-6	7.5	ND			ND			ND			ND		
Hexachlorocyclopentadiene	77-47-4	8.6	ND			ND			ND			ND		
2,4,6-Trichlorophenol	88-06-2	9.1	ND			ND			ND			ND		
2,4,5-Trichlorophenol	95-95-4	7.1	ND			ND			ND			ND		
2-Chloronaphthalene	91-58-7	5.7	ND			ND			ND			ND		
2-Nitroaniline	88-74-4	12.0	ND			ND			ND			ND		
Dimethylphthalate	131-11-3	8.2	ND			ND			ND			ND		
Acenaphthylene	208-96-8	9.0	ND			ND			ND			ND		
2,6-Dinitrotoluene	606-20-2	9.2	ND			ND			ND			ND		
3-Nitroaniline	99-09-2	16.0	ND			ND			ND			ND		
Acenaphthene	83-32-9	8.3	ND			ND			121.78	200.00	60.89	144.73	200.00	72.37
2,4-Dinitrophenol	51-28-5	8.3	ND			ND			ND			ND		
4-Nitrophenol	100-02-7	8.6	ND			ND			112.70	300.00	37.57	107.40	300.00	35.80
Dibenzofuran	132-64-9	8.4	ND			ND			ND			ND		
2,4-Dinitrotoluene	121-14-2	8.3	ND			ND			147.75	200.00	73.88	161.78	200.00	80.89
Diethylphthalate	84-66-2	9.9	ND			ND			ND			ND		
Fluorene	86-73-7	9.8	ND			ND			ND			ND		
4-Chlorophenyl-phenylether	7005-72-3	8.3	ND			ND			ND			ND		
4-Nitroaniline	100-01-6	8.7	ND			ND			ND			ND		
4,6-Dinitro-2-methylphenol	534-52-1	12.2	ND			ND			ND			ND		

BONNER ANALYTICAL TESTING COMPANY

QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
BASE NEUTRALS AND ACIDS - GC/MS ANALYSIS DATA

Client: Hercules
Location: Trip Blank
File #: BT42545

	Date	Time	Analyst
Collection:	12/12/97		BATCO
Extraction:	12/19/97	9:00	CMB
Analysis:	1/9/98	12:48	CMB

Sample Type: Water
Extraction Method: 3510b
Analysis Method: 8270

Compound Name	CAS Number	MDL ug/L (ppb)	BT42545 Detected Amount ug/L (ppb)	BT42545 Spike Amount ug	BT42545 Spike % Recovery	BLANK Detected Amount ug/L (ppb)	BLANK Spike Amount ug	BLANK Spike % Recovery	Matrix Spike Detected Amount ng/ul in the extract	Matrix Spike Spike Amount ug	Matrix Spike Spike % Recovery	Matrix Spike Duplicate Detected Amount ng/ul in the extract	Matrix Spike Duplicate Spike Amount ug	Matrix Spike Duplicate Spike % Recovery
N-Nitrosodiphenylamine	86-30-6	7.5	ND			ND			ND			ND		
4-Bromophenyl-phenylether	101-55-3	7.0	ND			ND			ND			ND		
Hexachlorobenzene	118-74-1	8.0	ND			ND			ND			ND		
Pentachlorophenol	87-86-5	12.5	ND			ND			311.90	300.00	103.97	307.08	300.00	102.36
Phenanthrene	85-01-8	7.1	ND			ND			ND			ND		
Anthracene	120-12-7	8.0	ND			ND			ND			ND		
Di-n-butylphthalate	84-74-2	7.8	ND			ND			ND			ND		
Fluoranthene	206-44-0	5.7	ND			ND			ND			ND		
Pyrene	129-00-0	7.9	ND			ND			174.39	200.00	87.20	180.67	200.00	90.34
Butylbenzylphthalate	85-68-7	9.9	ND			ND			ND			ND		
Benzo[a]anthracene	56-55-3	7.7	ND			ND			ND			ND		
3,3'-Dichlorobenzidiene	91-94-1	16.5	ND			ND			ND			ND		
Chrysene	218-01-9	7.8	ND			ND			ND			ND		
Bis(2-ethylhexyl)phthalate	117-81-7	9.1	ND			ND			ND			ND		
Di-n-octylphthalate	117-84-0	9.4	ND			ND			ND			ND		
Benzo(b)fluoranthene	205-99-2	6.8	ND			ND			ND			ND		
Benzo(k)fluoranthene	207-08-9	4.9	ND			ND			ND			ND		
Benzo(a)pyrene	50-32-8	5.9	ND			ND			ND			ND		
Indeno(1,2,3-c,d)pyrene	193-39-5	7.8	ND			ND			ND			ND		
Dibenzo(a,h)anthracene	53-70-3	9.0	ND			ND			ND			ND		
Benzo(g,h,i)perylene	191-24-2	10.0	ND			ND			ND			ND		
Surrogate Compounds			Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery
2-Fluorophenol			72.78	200.00	36.39	92.22	200.00	46.11	112.36	200.00	56.18	123.26	200.00	61.63
Phenol-d5			57.52	200.00	28.76	64.71	200.00	32.36	78.94	200.00	39.47	87.05	200.00	43.53
Nitrobenzene-d5			66.07	100.00	66.07	74.74	100.00	74.74	97.18	100.00	97.18	104.82	100.00	104.82
2-Fluorobiphenyl			63.05	100.00	63.05	65.54	100.00	65.54	86.97	100.00	86.97	104.67	100.00	104.67
2,4,6-Tribromophenol			250.90	200.00	125.45	226.16	200.00	113.08	273.28	200.00	136.64	286.69	200.00	143.35
Terphenyl-d14			136.72	100.00	136.72	132.90	100.00	132.90	127.66	100.00	127.66	125.04	100.00	125.04

Certified by:

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Bonner Analytical Testing Company

BONNER ANALYTICAL TESTING COMPANY

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Client : Hercules, Inc.

Sample Matrix : Water

Sample Collection Date : 12-12-97

Sample Analysis Date : 01-09-98 @ 1248

Dilution Factor : 1.01

Sample Weight/ Volume : 990 mL

Number TICs Found : 0

File # : BT42545

Lab Sample ID : Trip Blank

GC Column Length : 30 M

GC Column ID : 0.25 mm

Method Code: 8270

Concentration Units : ug / L (PPB)

CAS NUMBER	COMPOUND NAME	RT	EST. CONCENTRATION

NOTE: TICs reported for SW846 method 8270 compounds only.

BONNER ANALYTICAL TESTING COMPANY

QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
BASE NEUTRALS AND ACIDS - GC/MS ANALYSIS DATA

Client: Hercules
Location: Equipment Blank
File #: BT42546

	Date	Time	Analyst
Collected:	12/15/97		BATCO
Extracted:	12/19/97	9:00	CMB
Analyzed:	1/9/98	1:48	CMB

Sample Type: Water
Extraction Method: 3510b
Analysis Method: 8270

Compound Name	CAS Number	MDL ug/L (ppb)	BT42546			BLANK			Matrix Spike			Matrix Spike Duplicate		
			Detected Amount ug/L (ppb)	Spike		Detected Amount ug/L (ppb)	Spike		Detected Amount ng/ul in the extract	Spike		Detected Amount ng/ul in the extract	Spike	
				Amount ug	% Recovery		Amount ug	% Recovery		Amount ug	% Recovery		Amount ug	% Recovery
Phenol	108-95-2	5.2	ND			ND			89.18	300.00	29.73	99.51	300.00	33.17
Bis(2-chloroethyl)ether	111-44-4	6.9	ND			ND			ND			ND		
2-Chlorophenol	95-57-8	5.7	ND			ND			187.53	300.00	62.51	210.70	300.00	70.23
1,3-Dichlorobenzene	541-73-1	8.3	ND			ND			ND			ND		
1,4-Dichlorobenzene	106-46-7	6.1	ND			ND			85.60	200.00	42.80	100.12	200.00	50.06
Benzyl Alcohol	100-51-6	14.8	ND			ND			ND			ND		
1,2-Dichlorobenzene	95-50-1	6.0	ND			ND			ND			ND		
2-Methylphenol	95-48-7	5.6	ND			ND			ND			ND		
Bis(2-chloroisopropyl)ether	108-60-1	8.8	ND			ND			ND			ND		
4-Methylphenol	106-44-5	8.7	ND			ND			ND			ND		
Hexachloroethane	67-72-1	8.0	ND			ND			ND			ND		
N-Nitroso-di-N-propylamine	621-64-7	9.7	ND			ND			136.46	200.00	68.23	160.56	200.00	80.28
Nitrobenzene	98-95-3	8.2	ND			ND			ND			ND		
Isophorone	78-59-1	9.2	ND			ND			ND			ND		
2,4-Dimethylphenol	105-67-9	6.0	ND			ND			ND			ND		
2-Nitrophenol	88-75-5	9.1	ND			ND			ND			ND		
Benzoic Acid	65-85-0	22.3	ND			ND			ND			ND		
Bis(2-chloroethoxy)methane	111-91-1	8.8	ND			ND			ND			ND		
2,4-Dichlorophenol	120-83-2	5.2	ND			ND			ND			ND		
1,2,4-Trichlorobenzene	120-82-1	9.4	ND			ND			95.21	200.00	47.61	109.42	200.00	54.71
Naphthalene	91-20-3	8.5	ND			ND			ND			ND		
4-Chloroaniline	106-47-8	8.5	ND			ND			ND			ND		
Hexachlorobutadiene	87-68-3	9.4	ND			ND			ND			ND		
4-Chloro-3-methylphenol	59-50-7	7.7	ND			ND			234.19	300.00	78.06	260.60	300.00	86.87
2-Methylnaphthalene	91-57-6	7.5	ND			ND			ND			ND		
Hexachlorocyclopentadiene	77-47-4	8.6	ND			ND			ND			ND		
2,4,6-Trichlorophenol	88-06-2	9.1	ND			ND			ND			ND		
2,4,5-Trichlorophenol	95-95-4	7.1	ND			ND			ND			ND		
2-Chloronaphthalene	91-58-7	5.7	ND			ND			ND			ND		
2-Nitroaniline	88-74-4	12.0	ND			ND			ND			ND		
Dimethylphthalate	131-11-3	8.2	ND			ND			ND			ND		
Acenaphthylene	208-96-8	9.0	ND			ND			ND			ND		
2,6-Dinitrotoluene	606-20-2	9.2	ND			ND			ND			ND		
3-Nitroaniline	99-09-2	16.0	ND			ND			ND			ND		
Acenaphthene	83-32-9	8.3	ND			ND			121.78	200.00	60.89	144.73	200.00	72.37
2,4-Dinitrophenol	51-28-5	14.2	ND			ND			ND			ND		
4-Nitrophenol	100-02-7	8.6	ND			ND			112.70	300.00	37.57	107.40	300.00	35.80
Dibenzofuran	132-64-9	8.4	ND			ND			ND			ND		
2,4-Dinitrotoluene	121-14-2	8.3	ND			ND			147.75	200.00	73.88	161.78	200.00	80.89
Diethylphthalate	84-66-2	9.9	ND			ND			ND			ND		
Fluorene	86-73-7	9.8	ND			ND			ND			ND		
4-Chlorophenyl-phenylether	7005-72-3	8.3	ND			ND			ND			ND		
4-Nitroaniline	100-01-6	8.7	ND			ND			ND			ND		
4,6-Dinitro-2-methylphenol	534-52-1	12.2	ND			ND			ND			ND		

BONNER ANALYTICAL TESTING COMPANY

QUANTITATIVE RESULTS AND QUALITY ASSURANCE DATA
BASE NEUTRALS AND ACIDS - GC/MS ANALYSIS DATA

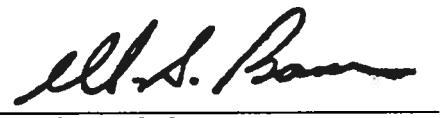
Client: Hercules
Location: Equipment Blank
File #: BT42546

	Date	Time	Analyst
Collection:	12/15/97		BATCO
Extraction:	12/19/97	9:00	CMB
Analysis:	1/9/98	1:48	CMB

Sample Type: Water
Extraction Method: 3510b
Analysis Method: 8270

Compound Name	CAS Number	MDL ug/L (ppb)	BT42546 Detected Amount ug/L (ppb)	BT42546 Spike Amount ug	BT42546 Spike % Recovery	BLANK Detected Amount ug/L (ppb)	BLANK Spike Amount ug	BLANK Spike % Recovery	Matrix Spike Detected Amount ng/ul in the extract	Matrix Spike Amount ug	Matrix Spike % Recovery	Matrix Spike Duplicate Detected Amount ng/ul in the extract	Matrix Spike Duplicate Spike Amount ug	Matrix Spike Duplicate Spike % Recovery
N-Nitrosodiphenylamine	86-30-6	7.5	ND			ND			ND			ND		
4-Bromophenyl-phenylether	101-55-3	7.0	ND			ND			ND			ND		
Hexachlorobenzene	118-74-1	8.0	ND			ND			ND			ND		
Pentachlorophenol	87-86-5	12.5	ND			ND			311.90	300.00	103.97	307.08	300.00	102.36
Phenanthrene	85-01-8	7.1	ND			ND			ND			ND		
Anthracene	120-12-7	8.0	ND			ND			ND			ND		
Di-n-butylphthalate	84-74-2	7.8	ND			ND			ND			ND		
Fluoranthene	206-44-0	5.7	ND			ND			ND			ND		
Pyrene	129-00-0	7.9	ND			ND			174.39	200.00	87.20	180.67	200.00	90.34
Butylbenzylphthalate	85-68-7	9.9	ND			ND			ND			ND		
Benzo(a)anthracene	56-55-3	7.7	ND			ND			ND			ND		
3,3'-Dichlorobenzidiene	91-94-1	16.5	ND			ND			ND			ND		
Chrysene	218-01-9	7.8	ND			ND			ND			ND		
Bis(2-ethylhexyl)phthalate	117-81-7	9.1	ND			ND			ND			ND		
Di-n-octylphthalate	117-84-0	9.4	ND			ND			ND			ND		
Benzo(b)fluoranthene	205-99-2	6.8	ND			ND			ND			ND		
Benzo(k)fluoranthene	207-08-9	4.9	ND			ND			ND			ND		
Benzo(a)pyrene	50-32-8	5.9	ND			ND			ND			ND		
Indeno(1,2,3-c,d)pyrene	193-39-5	7.8	ND			ND			ND			ND		
Dibenzo(a,h)anthracene	53-70-3	9.0	ND			ND			ND			ND		
Benzo(g,h,i)perylene	191-24-2	10.0	ND			ND			ND			ND		
Surrogate Compounds			Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery	Detected Amount	Spiked Amount	% Recovery
2-Fluorophenol			122.22	200.00	61.11	92.22	200.00	46.11	112.36	200.00	56.18	123.26	200.00	61.63
Phenol-d5			90.27	200.00	45.14	64.71	200.00	32.36	78.94	200.00	39.47	87.05	200.00	43.53
Nitrobenzene-d5			103.68	100.00	103.68	74.74	100.00	74.74	97.18	100.00	97.18	104.82	100.00	104.82
2-Fluorobiphenyl			77.40	100.00	77.40	65.54	100.00	65.54	86.97	100.00	86.97	104.67	100.00	104.67
2,4,6-Tribromophenol			238.85	200.00	119.43	226.16	200.00	113.08	273.28	200.00	136.64	286.69	200.00	143.35
Terphenyl-d14			136.66	100.00	136.66	132.90	100.00	132.90	127.66	100.00	127.66	125.04	100.00	125.04

Certified by:



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BONNER ANALYTICAL TESTING COMPANY

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Client : Hercules, Inc.

File # : BT42546

Sample Matrix : Water

Lab Sample ID : Equipment Blank

Sample Collection Date : 12-15-97

Sample Analysis Date : 01-09-98 @ 0148

GC Column Length : 30 M

Dilution Factor : 1.02

GC Column ID : 0.25 mm

Sample Weight/ Volume : 985 mL

Method Code: 8270

Number TICs Found : 0

Concentration Units : ug / L (PPB)

CAS NUMBER	COMPOUND NAME	RT	EST. CONCENTRATION

NOTE: TICs reported for SW846 method 8270 compounds only.

APPENDIX E

Phone: (601) 264-2854
2703 Oak Grove Road Hattiesburg, MS 39402
Fax: (601) 268-7084

"Testing Your World for a Safer Tomorrow"

1

YOUR COMPANY NAME: [illegible]

YOUR COMPANY ADDRESS

NAME OF PERSON TO CONTACT

CONTACT PERSON'S PHONE:

2

YOUR PROJECT NO.:	YOUR P.O.#	YOUR PROJECT NAME:

3 **4** PARAMETERS FOR ANALYSIS

YOUR SAMPLE DESCRIPTION:	DATE	TIME	MATRIX	Pest/Herb	PCB's	Semi-V	VOA	Meth Cl			NUMBER OF CONTAINERS	PRESERVATIONS
mw-1	15Dec97	1730	H_2O	X							1	
"	"	"	"		X		BT42539				1	
"	"	"	"			X					1	
"	"	"	"				X				3	
"	"	"	"					X			1	
mw-2	"	1620	"	X							1	
"	"	"	"		X		BT42540				1	
"	"	"	"			X					1	
"	"	"	"				X				3	
"	"	"	"					X			1	

5 REMARKS

Turnaround Time

Detection Limits Special Limits Required Yes No
Please circle one. If Yes, please describe below or include separate sheet detailing requirements.

6

RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)
[signature]	16Dec97	1120	[signature]				

METHOD OF SHIPMENT	SHIPPED BY: (Signature)	COURIER (Signature)	RECEIVED FOR BATCO BY: (Signature)	DATE/TIME

7

SAMPLE REMAINDER DISPOSAL

☐ RETURN SAMPLE REMAINDER TO CLIENT VIA _____
(SOME SHIPPING CHARGES MAY BE INCURRED)

☐ I REQUEST BATCO TO DISPOSE OF ALL SAMPLE REMAINDERS
_____ (Signature) _____ (Date)
IF SAMPLE REMAINDER IS DETERMINED TO BE HAZARDOUS, A MINIMUM ADDITIONAL CHARGE OF $25.00 PER SAMPLE WILL BE ASSESSED FOR DISPOSAL

REVISION DATE 2/94

Phone: (601) 264-2854
2703 Oak Grove Road Hattiesburg, MS 39402
Fax: (601) 268-7084

BATCO

"Testing Your World for a Safer Tomorrow"

1

YOUR COMPANY ADDRESS _____

NAME OF PERSON TO CONJACT _____

CONTACT PERSON'S PHONE: _____

2

YOUR PROJECT NO.:	YOUR P.O.#	YOUR PROJECT NAME:

3 **4**

YOUR SAMPLE DESCRIPTION:	DATE	TIME	MATRIX	PARAMETERS FOR ANALYSIS: Pest Herb	PCB's	Semi-vol	VOA	METALS				NUMBER OF CONTAINERS	PRESERVATIONS
MW-3	15Dec97	1540	H_2O	X								1	
"	"	"			X		BT 42541					1	
"	"	"				X						1	
"	"	"					X					3	HCl
"	"	"						X				1	HNO_3
MW-4	12Dec97	1310		X								1	
"	"	"			X		BT 42542					1	
"	"	"				X						1	
"	"	"					X					3	HCl
"	"	"						X				1	HNO_3

5 **REMARKS**

Turnaround Time

Detection Limits Special Limits Required Yes No
Please circle one. If Yes, please describe below or include separate sheet detailing requirements.

6

RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY (Signature)
Daniel Carter	16Dec97	1120	[signature]				

METHOD OF SHIPMENT	SHIPPED BY: (Signature)	COURIER (Signature)	RECEIVED FOR BATCO BY: (Signature)	DATE/TIME

7

SAMPLE REMAINDER DISPOSAL

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BATCO
Phone: (601) 264-2854 | 2703 Oak Grove Road, Hattiesburg, MS 39402 | Fax: (601) 268-7084

"Testing Your World for a Safer Tomorrow"

1 YOUR COMPANY ADDRESS ______

NAME OF PERSON TO CONTACT: ______

CONTACT PERSON'S PHONE: ______

2

YOUR PROJECT NO.:	YOUR P.O.#	YOUR PROJECT NAME:

3 / **4** PARAMETERS FOR ANALYSIS / **5** REMARKS

YOUR SAMPLE DESCRIPTION:	DATE	TIME	MATRIX	Pest	PCB's	semivol	VOA	METALS			NUMBER OF CONTAINERS	PRESERVATIONS	REMARKS
MW-5	12 Dec 97	0900		X							1		Turnaround Time
"	"	"			X	BT42543					1		Detection Limits Special Limits Required Yes No Please circle one, if Yes, please describe below or include separate sheet detailing requirements.
"	"	"				X					1		
"	"	"					X				3	HCl	
"	"	"						X			1	HNO_3	
MW-4	"	1310		X							1		
"	"	"			X	BT42544					1		
"	"	"				X					1		
"	"	"					X				3	HCl	
"	"	"						X			1	HNO_3	

6

RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)
[signature]	16 Dec 97	1120	[signature]				

METHOD OF SHIPMENT	SHIPPED BY: (Signature)	COURIER (Signature)	RECEIVED FOR BATCO BY: (Signature)	DATE/TIME

7 SAMPLE REMAINDER DISPOSAL

☐ RETURN SAMPLE REMAINDER TO CLIENT VIA ______
(SOME SHIPPING CHARGES MAY BE INCURRED)

☐ I REQUEST BATCO TO DISPOSE OF ALL SAMPLE REMAINDERS
______ (Signature) ______ (Date)
IF SAMPLE REMAINDER IS DETERMINED TO BE HAZARDOUS, A MINIMUM ADDITIONAL CHARGE OF $25.00 PER SAMPLE WILL BE ASSESSED FOR DISPOSAL

REVISION DATE 2/94

APPENDIX F

Installation of Six Monitoring Wells

at

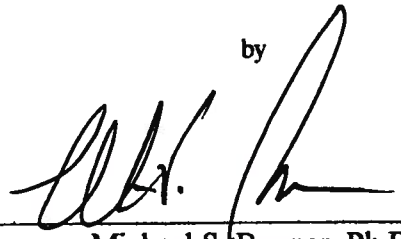
Hercules, Inc.
613 West 7th Street
Hattiesburg, Ms

presented to:

Charles Jordan, Environmental Supervisor
Hercules, Inc.
Hattiesburg, MS

July 31, 1997

by



Michael S. Bonner, Ph.D.
BONNER ANALYTICAL TESTING COMPANY

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INTRODUCTION

At the request of the Mississippi Department of Environmental Quality (MDEQ), Hercules, Inc. of Hattiesburg, MS will install, develop, purge and sample six permanent monitoring wells in the following locations shown on the attached B&V - Figure 2.

The MDEQ will be notified 2 weeks prior to commencement of work.

1.0 MONITORING WELL INSTALLATION

Six two inch by twenty foot PVC monitoring wells shall be installed utilizing hollow stem drilling technology. Well depths shall be advanced deeper within the shallow saturated zone if groundwater is not encountered within the first twenty feet.

A screened interval of ten feet having a 0.01" slot shall be used. The screened interval shall extend a minimum of three feet above the groundwater interface. Casing shall be flush thread design.

Filter pack meeting the following specifications shall be tremied into the annulus to a depth of two feet above the screened interval:

Particle Size in Inches	Allowable
>0.039"	35% Max.
<0.039 - ≥0.01	50% Min.
<0.01	0.5% Max.

Following the filter pack, a two foot layer of fine sand (mason) shall be applied via tremie. If the zone is saturated, two feet of 10% hydrated bentonite shall be tremied, followed by 90/10 grout to the surface. An elevation data marker shall be placed in the grout at the surface as a reference point. If the zone is unsaturated, the bentonite seal will be omitted. Hydration time for bentonite shall be a minimum of 8 hours or the manufacturer's recommended hydration time—whichever is greater. Grout shall be allowed to cure for a minimum of 24 hours prior to installation of the surface pad and protective riser equipped with security locks.

Each well shall be equipped with four 3" pipes installed to a depth of 30" at the corners of each pad and grouted in place. Protective pipes shall be filled with grout and painted as specified.

The well casing will be allowed to extend a minimum of 18" above ground surface and shall be equipped with a locking cap, protective casing and a 2'x2'x4" concrete pad. The wells shall be surveyed with longitude and latitude reported along with elevation above sea level ($\pm$ 0.01 ft.).

The following boring/well construction log information will be included where applicable:

- Well identification #
- Date/time of well construction
- Borehole diameter and well casing diameter
- Well depth $\pm$0.01 ft.
- Casing length

- Casing materials
- Casing and screen joint type
- Screened interval(s)
- Screen materials
- Screen slot size/design
- Filter pack material and size
- Calculated and actual filter pack volume
- Filter pack placement method
- Annular sealant composition
- Annular sealant placement method
- Calculated and actual annular sealant volume
- Surface sealant composition
- Surface seal placement method
- Calculated and actual surface sealant volume
- Surface seal design
- Well development procedure
- Turbidity measurement
- Type/design of protective casing
- Well cap and lock
- Ground surface elevation ($\pm$0.01 ft.)

- Survey reference point elevation on well casing (±0.01 ft.)
- Top of monitoring well casing elevation (±0.01)
- Top of protective steel casing elevation (±0.01 ft.)

2.0 WELL DEVELOPMENT

Completed wells will be allowed to cure a minimum of 24 hours prior to development. Prior to well development, water depth will be determined to ±0.01 ft. Following completion, each well shall be developed by pumping and/or bailing, as deemed most appropriate utilizing the surge block technique. The well will be developed until a turbidity of < 5 NTU's is achieved. As a minimum, the well will be allowed to completely recharge prior to purging.

3.0 PURGING

The object of purging shall be to remove five well volumes at a rate similar to the recharge rate in order that turbidity effects are minimized. The following steps shall be used:

1. Establish the water depth and well depth to ±0.01 ft.
2. Remove liquid from the surface and bottom hole to determine whether organic phases exist.
3. Determine pH, temperature, conductivity and turbidity prior to purging the well.
4. Remove five well volumes at a rate of 0.2 to 0.3 liter/min. utilizing a peristaltic pump if groundwater is within 28 feet of surface. Alternately, if groundwater is deeper, purging may be accomplished by means of centrifuged pump, bladder pump or bailer. (Purging by bailer must be done with caution so as not to disturb the well filter pack).

5. After removing 5 well volumes pH, temperature, conductivity and turbidity must be determined twice within 20 minutes. These data points should be ±10% and further, the turbidity must be <5 NTU's. If turbidity is not <5 NTU's, remove additional well volumes as necessary.

In the event the well is purged dry, the following protocol should be followed:

1. Allow the well to recover.

2. If the well has not fully recovered within two hours but has sufficient water for testing then:

    a. Test the well for pH, temperature, conductivity and turbidity.

    b. Test the well again within 20 minutes for the same parameters.

    c. Collect samples as outlined in the sample collection process.

3. If pH, temperature and conductivity are not ±10% and/or turbidity is >5 NTU and if data reflect elevated levels of any pollutant of concern, consider repurging and sampling the well.

4.0 SAMPLING

Sampling should commence as soon as the well recovers but no later than two hours after purging is completed. Samples shall be collected utilizing disposable Teflon bailers. Analytical parameters shall include the attached Compound List of volatile organics (Method 8260).

VOA samples shall be collected in duplicate in 40 ml vials preserved with hydrochloric acid to a pH of <2. VOA samples must contain no air bubbles. Three replicates of samples shall be collected at one designated well for QA/QC analysis.

5.0 ANALYTICAL PROTOCOL

All analyses will conform to the methodologies outlined in EPA/SW846 current edition.

6.0 QA/QC

One equipment blank, one matrix spike (MS) and one matrix spike duplicate (MSD) shall be analyzed for each event. One trip blank for VOA only shall be analyzed for each sampling event.

6.1 TRIP BLANK (VOLATILE)

Trip blank (volatile) duplicate samples shall be prepared in the laboratory utilizing deionized water and bottles from the batches to be used in the field collection and decontamination procedures. The trip blank will be taken in the field and returned to the laboratory in the same environment as the samples.

6.2 EQUIPMENT BLANK (RINSATE BLANK)

Following decontamination of the drilling equipment, carefully transfer about two liters of analyte-free deionized water to a new disposable Teflon bailer. Allow the contents of the bailer to

drain over a piece of the decontaminated hollow stem into an analyte-free stainless steel bowl. Transfer the rinsate water to appropriate sample containers. Label and archive the rinsate blank as outlined.

7.0 SAMPLE ARCHIVAL

Following sample collection, affix a completed label to each container. Cover the label with clear tape to protect from moisture. Place the sample bottle in a zip-lock bag and wrap the container in bubble wrap. Write the sample ID number on the outside of the bubble wrap with a permanent marker, then secure the bubble-wrapped container with clear tape.

8.0 DECONTAMINATION AND RESIDUALS MANAGEMENT

Borehole cuttings will be left in place at the well site unless VOA readings indicate gross contamination (>50ppm FID readings). In the event gross contamination is encountered, cuttings will be drummed on site and analyzed for disposal.

Well development, purge and decontamination water will be placed in the Hercules treatment facility for disposal, provided levels do not exceed toxicity characteristics.

The hollow stem, drill rod, and associated tools will be decontaminated before each well is advanced. The procedure shall be as follows:

1. Pressure wash with steam and potable water
2. Brush with phosphate-free detergent to remove any additional debris
3. Pressure wash with steam and potable water
4. Rinse with analyte-free water

9.0 HEALTH AND SAFETY

1. All personnel shall have received 40 hours of OSHA training and shall have current update training.
2. Hercules, Inc. shall provide any additional safety briefings deemed appropriate for the scope of this project.
3. During boring, developing and purging operations, FID readings shall be recorded to ensure that a safe environment is maintained.
4. Elevated (>50 ppm) FID readings shall mandate respiratory protection, cease and desist operations, and re-evaluation by project director, project supervisor, project health and safety officers, and Hercules personnel.
5. Any injuries or potentially unsafe conditions shall be reported immediately to the health and safety officer and then to the project supervisor and project director.

10.0 PERSONNEL

Project Director - Michael S. Bonner, Ph.D.

Project Supervisor - David Carter

Health and Safety Officer - Christopher M. Bonner

Hercules, Inc. Contact - Charles Jordan, Environmental Supervisor