NUS CORPORATION
A Halliburton Company

137710

[redacted]

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

NUS CORPORATION
SUPERFUND DIVISION

ORIGINAL
(red)

R-585-10-3-04
SITE INSPECTION OF
L. A. CLARKE & SONS
PREPARED UNDER

TDD NO. F3-8304-04
EPA NO. VA-253
CONTRACT NO. 68-01-6699

FOR THE

HAZARDOUS SITE CONTROL DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

MAY 21, 1984

NUS CORPORATION
SUPERFUND DIVISION

SUBMITTED BY

WILLIAM WENTWORTH
ASST. MANAGER

REVIEWED AND APPROVED BY

GARTH GLENN
MANAGER, FIT III

Site Name: L.A. CLARKE & SONS
TDD No.:F3-8304-04

ORIGINAL (red)

TABLE OF CONTENTS

ORIGINAL
(red)

APPENDICES

ORIGINAL
(red)

SECTION 1

ORIGINAL (red)

1.0 INTRODUCTION

1.1 Authorization

NUS Corporation performed this work under Environmental Protection Agency Contract No. 68-01-6699. This report was prepared in accordance with Technical Directive Document No. F3-8304-04 for the L.A. Clarke and Sons site located in Fredericksburg, Virginia.

1.2 Scope of Work

NUS FIT III was tasked to conduct a preliminary assessment and site inspection/sampling of the L.A. Clarke and Sons site in Fredericksburg, Virginia. The preliminary assessment was conducted by NUS personnel William Wentworth and Jeffrey Case. The site inspection/sampling was conducted by NUS personnel William Wentworth, Laura Boornazian, Martin Howe, and Michael Cramer.

1.3 Summary

After reviewing available information and discussing the site with personnel from the Virginia State Water Control Board, NUS FIT III conducted a preliminary assessment of the L.A. Clarke and Sons site on June 7, 1983, and a site inspection/sampling on June 14, 1983.

During the preliminary assessment conducted on June 7, 1983, William Wentworth and Jeffrey Case of FIT III discussed the site with company owners Mark and Ted Curtas.

Lisa Orr, of the Virginia State Water Control Board, accompanied the FIT team during the site inspection on June 14, 1983. John, Mark, and Ted Curtas were also present at that time

On-site samples of surface water, groundwater, sediments, soil, and an evaporation lagoon were collected. Off-site samples consisted of surface water, sediments, and groundwater.

On-site soil, sediment, surface water and monitoring well samples revealed high concentrations of numerous polycyclic aromatic hydrocarbons (PAH), some of which are suspected human carcinogens, as well as other organic compounds commonly associated with creosote or coal tars. In addition, very high concentrations of several toxic metals including lead, arsenic, chromium, and beryllium, were detected in one or more monitoring well samples. A more detailed review of the data is presented in Section 7.0 of this report.

SECTION 2

2.0 THE SITE

2.1 Location

The L.A. Clarke and Sons site is located on Route 608 in Spotsylvania County, Virginia, approximately one mile south of the intersection of county roads 2 and 608.

2.2 Site Layout

The L.A. Clarke and Sons site is an active plant which performs wood preservation by impregnating railroad crossties and switch ties with a creosote, coal/tar solution. The plant proper is situated approximately 1/4 mile east of Route 608. The site covers approximately 10 acres.

The northern property line of the plant contains a drainage ditch which runs east-west and discharges into another ditch located east of the active plant area. This second ditch runs north-south and discharges into the Massaponax Creek downstream of the plant. This discharge point is monitored under NPDES and is identified as discharge #002. The Massaponax Creek runs east-west along the southern perimeter of the plant. Another ditch, located a short distance west of the evaporation lagoon, discharges into the Massaponax Creek west of the active plant process area. This ditch discharge is monitored under NPDES and is identified as discharge #001. The process area is located a short distance south of the drainage ditch which forms the northern property line. Two office buildings are located about 150 yards southeast of the process area. A wastewater evaporation lagoon is situated about 150 yards south of the process area. At the time of the inspection, the evaporation lagoon was flanked to the east by contaminated dirt piles and to the west by waste piles of wood and metal scraps. Two railroad spurs are located in the plant yard.

The plant is located in a rural area and woods surround the perimeter of the plant.

2.3 Ownership History

The plant was built in the late 1930s by Mr. L.A. Clarke, who owned and operated the plant until his death in 1964. The plant continued operation under the direction of Mr. B.L. Clarke until he died in 1971. The plant was taken over by Michael Clarke in 1971, and was managed by him until the plant ceased production in April of 1979. The plant remained closed until the Curtases took over in June of 1980. The plant is presently owned and operated by Mark, John, and Ted Curtas.

2.4 Site Use History

The wood preserving plant was begun in the late 1930s by L.A. Clarke. The site has operated as a wood preserving plant since it was first constructed, having had only one inactive period from April of 1979 until June of 1980.

The wood preserving process takes place in a sealed autoclave under heat and pressure. The wood is placed in the treating cylinder and the creosote solution is pumped into it. Once the autoclave is filled, heat and pressure are applied to force the solution into the cells of the wood. After a sufficient amount of creosote is in the wood, the solution is pumped out and a vacuum is pulled to remove any excess creosote from the surface of the wood ties.

All effluent generated by the treatment process is pumped into a separator tank. In this tank, creosote, which is heavier than water, drops to the bottom and goes to a dehydrator. After dehydration, the creosote is stored for reuse. The wastewater from the separator tank is then pumped to a weir tank. From the weir tank the wastewater goes to a collection tank and is then pumped to an evaporation pond.

The above described wastewater treatment facility was constructed in May of 1979 because of recurring NPDES violations.

ORIGINAL
(red)

2.5 Permit and Regulatory Action History

The following information regarding the chronological history of permit and regulatory action at the L.A. Clarke and Sons site was provided by Lisa Orr, Pollution Control Specialist, Virginia State Water Control Board (SWCB).

In 1948 a State Certification was issued to L.A. Clarke and Sons. On December 5, 1975, NPDES permit no. VAD005398 was issued for this operation. As a result of NPDES violations, L.A. Clarke and Sons was issued a State Water Control Board Directive on November 30, 1976, requiring that the firm take steps to comply with its NPDES permit.

On June 2, 1977, the SWCB requested that L.A. Clarke submit final plans for treatment facilities which were needed to comply with their NPDES permit by July 1, 1977. These plans were submitted on August 19, 1977 and approved by the SWCB on October 3, 1977.

In May of 1979 Mr. Michael Clarke informed the State Water Control Board that the plant had been shutdown due to financial reasons. In May of 1980 the State Department of Health identified L.A. Clarke and Sons as a RCRA site and classified them as a treater of hazardous waste because of the on-site evaporation lagoon. The plant reopened in June of 1980 under the management of Ted and Mark Curtas. Due to numerous NPDES permit violations, the VA SWCB sent letters to Mr. Curtas, during April, August, and September, 1981, stating that necessary measures must be taken to correct the situation. A Consent Decree between the SWCB and L.A. Clarke and Sons was signed on June 2, 1982.

L.A. Clarke and Sons filed a Chapter 11 bankruptcy in March, 1983. Due to the poor conditions and permit violations at L.A. Clarke, the state Assistant Attorney General set a court hearing. Prior to the hearing, an agreement was made in the form of a new Consent Decree. L.A. Clarke's consultant, Urban Engineering, dropped the project because of financial reasons and the services of Clifford & Associates were retained. Since then L.A. Clarke has been working slowly to meet the necessary requirements. They have made efforts to rectify the situation, however, serious problems still exist.

Detailed information concerning regulatory events at L.A. Clarke and Sons can be found in Appendix C.

2.6 Remedial Action To Date

- A diversion ditch along the northern property line has been excavated to decrease the amount of groundwater flow through the contaminated process area. The contaminated soil from the ditch excavation has been stockpiled on site and is covered with a plastic tarp.

- Several hundred cubic yards of contaminated soil from the vicinity of the process area have been excavated and are stockpiled under a cover while awaiting final disposition.

- The engineering consulting firm of Clifford and Associates have been retained by L.A. Clarke and Sons to perform a hydrologic study of the site to determine the extent of the problem.

SECTION 3

3.0 ENVIRONMENTAL SETTING

3.1 Surface Waters

The plant property slopes gently to the south and southeast towards the Massaponax Creek. The Massaponax Creek flows through a marshy area south of the plant and discharges into Ruffins Pond, approximately one mile northeast of the plant. Ruffins Pond eventually discharges into the Rappahannock River about two miles northeast of the plant.

3.2 Geology and Soils

Information provided by Mr. Dexter Hubbard of Technical Associates, in a March 17, 1983 letter to the State Water Control Board, identifies the plant as being located on a fluvial terrace of Massaponax Creek. The geology of the site indicates 8 to 10 feet of sand and gravel overlying a deep clay deposit. In areas where gravel was removed and leveled, the surface is approximately 12 to 18 inches above a perched water table.

According to the well logs developed on July 6, 7, 1982 by T.A. Houston and Associates, the following soil types are present at the site: from zero to three feet consists mainly of fine to coarse sand and fine to coarse gravel with some organic material (a creosote odor has been identifed at a couple of locations in the zero to three feet horizon); from three to five feet consists of sands, clay and gravel; and from five to ten feet, the horizon consists mainly of moist clays, sands and gravel.

3.3 Groundwaters

The well logs recorded by T.A. Houston and Associates on July 6, 7, 1982 indicate groundwater ranging from 1.8 feet to 6.8 feet below the surface of the plant property.

Perched groundwater flow at this site trends from the north to the south towards Massaponax Creek. There is an old gravel pit and swamp to the north of the site, which acts as a recharge area (approximately 50 acres). Precipitation falling on this 50 acre area generally works its way across the Clarke site operation.

3.4 Climate and Meterology

Summers are warm and humid and winters mild; generally pleasant weather prevails in the spring and autumn. The coldest weather occurs in late January and early February. The warmest weather occurs late in July. There are no well pronounced wet and dry seasons. Thunderstorms, during the summer months, often bring sudden and heavy rain showers and may be accompanied by damaging winds, hail, or lightning. Snow accumulations of more than 10 inches are relatively rare.

3.5 Land Use

The L.A. Clarke and Sons operation is located in a rural setting. Unused wooded areas surround much of the plant. A marshy area is located a short distance south of the plant and a number of gravel pits are found in the plant vicinity.

3.6 Population Distribution

The site is located in a rural area and there are probably less than 500 people in a one mile radius of the plant. A scattering of homes is located along Routes 608 and 609, approximately one-half mile from the plant.

3.7 Water Supply

The residents in the vicinity of the plant obtain their drinking water from their own wells. The residential wells that were sampled during the FIT III June 14, 1983 site inspection, had a depth to water ranging from 26 to 52 feet.

3.8 Critical Environments

There are no known critical environments in the vicinity of the plant.

SECTION 4

ORIGINAL
(red)

Site Name: L.A. CLARKE & SONS
TDD No.:F3-8304-04

4.0 WASTE TYPES AND QUANTITIES

The L.A. Clarke and Sons plant has operated for approximately 40 years. During that time numerous leaks and spills, primarily in the area of the creosote storage tanks, have resulted in environmental contamination.

SECTION 5

ORIGINAL
(red)

Site Name: L.A. CLARKE & SONS
TDD No.:F3-8304-04

5.0 FIELD TRIP REPORT

5.1 Summary

NUS FIT III was tasked by EPA to conduct a preliminary assessment and site inspection/sampling of the L.A. Clarke and Sons site in Fredericksburg, Virginia. The preliminary assessment was conducted on June 7, 1983, by NUS personnel William Wentworth and Jeffrey Case. The site inspection/sampling was conducted on June 14, 1983 by NUS personnel William Wentworth, Laura Boornazian, Martin Howe, and Michael Cramer. Lisa Orr of the Virginia State Water Control Board accompanied the FIT team during the site inspection.

The team was on site at approximately 0800 hours and completed their work and departed from the site at about 1815 hours. The weather during the site inspection was hot and sunny with temperatures in the low 90's.

5.2 Persons Contacted

5.2.1 Prior to Field Trip

Mark Curtis
L.A. Clarke and Sons
P.O. Box 217
Fredericksburg, VA 22401
703-898-3305

Ernie Watkins, Director
Division of Surveillance and Field Studies
Northern Regional Office
5515 Cherokee Avenue, Suite 404
Alexandria, VA 22312
703-750-9111

Lisa Orr
Pollution Control Specialist
State Water Control Board
Northern Regional Office
5515 Cherokee Avenue, Suite 404
Alexandria, VA 22312
703-750-9111

5.2.2 At The Site

Individuals contacted during the site inspection were: Mark, John and Ted Curtas, site owners, and Lisa Orr of the Virginia State Water Control Board.

TDD Number F3-8304-04
EPA Number

5.3 SAMPLE LOG

Site Name L.A. Clarke and Sons

TRAFFIC REPORTS Organic	Inorganic	High Hazard	SAMPLING LOCATION	PHASE	SAMPLE DESCRIPTION	DATE	TIME	pH	COMMENTS/OBSERVATIONS	LABORATORY
C3170	MC0663		Evaporation Lagoon	Aqueous	black oil droplets in water	6/14/83	1640	4.54	HNU reading 2.5 ppm organic odor	
C3172	MC0665		Monitor well # 5	Aqueous	oily & turbid	6/14/83	1440	6.23		
C3173	MC0666		Black Aqueous	Aqueous		6/14/83	1200	6.40		
C3174	MC0667		Toe of Lagoon	Aqueous		6/14/83	1240	4.71	HNU reading of 4.5 ppm.	
C3175	MC0695		Monitor well # 4	Aqueous	moderately turbid with black oil like droplets	6/14/83	1430		HNU reading of 12 at well head	
C3196	MC0688		Monitor well # 7	Aqueous	moderately turbid	6/14/83	1445	8.88	HNU reading of 15.6 at well head.	
C3197	MC0689		Monitor Well # 8	Aqueous	moderately turbid	6/14/83	1515		well pipe broken off at ground level.	
C3222	MC0700		Monitor well # 9	Aqueous	moderately turbid	6/14/83	1530	6.28		
C3223	MC0901		Ditch North side	Aqueous		6/14/83	1630	5.60	black oily substance in water and on sides of ditch.	
C3224	MC0902		Office Well	Aqueous		6/14/83	1615	6.92	not used for consumption.	
C3225	MC0903		Upstream, Massapoag	Aqueous		6/14/83	1130	6.82		
C3226	MC0904		downstream Massapoag	Aqueous		6/14/83	1220	5.90		
C3227	MC0905		Hedberg Well	Aqueous		6/14/83	1115	5.08		
C3228	MC0906		Browning Well	Aqueous		6/14/83	1200	5.28		
C3229	MC0907		Garnet Well	Aqueous		6/14/83	1245	6.10		
C3230	MC0908		Process Area	Aqueous		6/14/83	1635	6.35		
C3231	MC0909		Blank	Aqueous		6/14/83	1400			
C3195	MC0690		Soil near black aqueous	Solid		6/14/83	1230			
C3213	MC0691		Sediment Toe of lagoon	Solid		6/14/83	1240			
C3214	MC0692		Sediment back of lagoon	Solid		6/14/83	1240			

ORIGINAL (red)

TDD Number F3-8304-04

EPA Number

5.3 SAMPLE LOG

Site Name L.A. Clarke and Sons

TRAFFIC REPORTS Organic	Inorganic	High Hazard	SAMPLING LOCATION	PHASE	SAMPLE DESCRIPTION	DATE	TIME	pH	COMMENTS/OBSERVATIONS	LABORATORY
C3215	MC0693		Contaminated Soil	Solid	black staining in soil.	6/14/83	1250		soil sample from contaminated soil pile.	
C3216	MC0694		Sediment ditch on the side	Solid	black staining in soil.	6/14/83	1630			
C3217	MC0695		Sediment Massapoag upstream	Solid		6/14/83	1130			
C3218	MC0696		Sediment Massapoag downstream	Solid		6/14/83	1220			
C3219	MC0697		Sediment blank	Solid		6/14/83	1400			

ORIGINAL (red)

AR100025

5.4 Site Observations

- FIT III arrived on site at 0800 hours.
- Weather conditions were hot and sunny with temperatures in the low 90s.
- An HNU background reading of 2.5 ppm was recorded.
- Monitoring well numbers in this report were designated in the field by FIT III and do not necessarily correspond to any previous numerical designation assigned by SWCB or L.A. Clarke and Sons consultants.
- During the site inspection, it was learned through discussions with the Curtases that they were dissatisfied with the well installation work of their consultants, Dexter Hubbard of Technical Associates and Mr. Tom Houston, the well driller. These parties were in litigation at the time of the site inspection.
- In general, the monitoring wells appeared to be in poor condition.
- Monitoring well nos. 1, 2, and 6 were bailed dry and did not recharge sufficiently during the FIT III inspection to be sampled.
- Monitoring well no. 5 apparently had some kind of bend or blockage as the bailer could not be lowered without getting jammed in the casing.
- The casing on monitoring well no. 8 was broken off at the ground level.
- At least one other monitoring well location was identified, but the well had obviously been destroyed.
- Monitoring well no. 4 was bailed and recharged sufficiently for sample collection.

- Monitoring well nos. 3, 7, 8, and 9 were sampled without bailing because of poor recharge. Well no. 8 was bailed dry during the sampling and only enough water was collected for an organic sample.

- No one was at home at the Hedberg residence at the time of the site inspection; however, arrangements had been made with Mrs. Hedberg during the preliminary assessment of June 7, 1983 for the sampling of this well.

- The Garnet home well is a dug well and the residents were in the process of installing a well pump on the day of the site inspection. The sample was collected by bailer.

- Creosote-associated odors were prevalent at the site during the inspection. Odors in and immediately surrounding the process area were extremely strong and caused nose, eye and throat irritation.

- HNU readings above background were recorded at some sample locations and in the plant process area.

- A layer of black stain was observed on both sidewalks of the north drainage ditch.

- A black oily substance was observed on the ground in various locations throughout the plant.

- The black oily substance could be seen on the water in the on-site ditches and also on the straw bail retainers which had been placed in the ditches.

- The contaminated piles of soil, located just east of the evaporation pond, were not completely covered by the tarp material used.

- What appeared to be a pond of black water was observed at the northern toe of the evaporation lagoon.

- FIT III completed their work and departed from the site at approximately 1815 hours.

5.5 PHOTOGRAPHIC LOG

Photo 1 - Bill Wentworth sampling monitoring well no. 7.

Photo 2 - Bill Wentworth sampling well no. 8.

Photo 3 - Bill Wentworth sampling ditch on north site of plant. Picture was taken from a position looking west along the ditch.

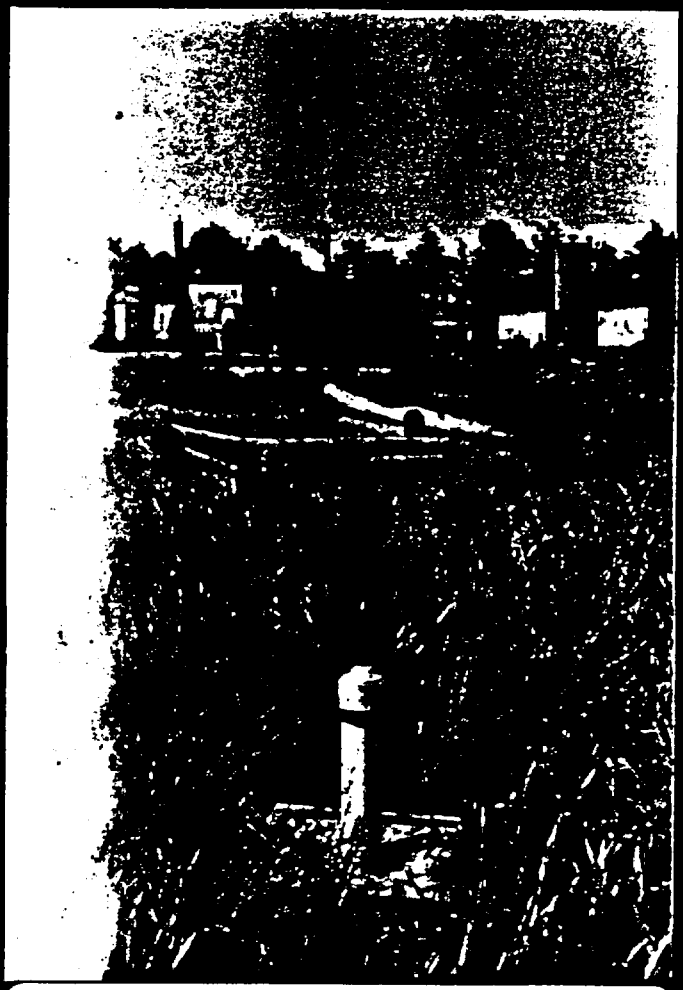


Photo 4 - Monitoring well no. 3 in foreground. Contaminated soil piles in right background.

Photo 5 - Bill Wentworth sampling ponded water in process area.

Photo 6 - Bill Wentworth sampling monitor well no. 9.

Photo 7 - Bill Wentworth sampling evaporation pond.

Photo 8 - Bill Wentworth sampling Massaponax Creek - downstream.

Photo 9 - Yellow and black staining observed on sidewall of ditch northside of plant.

F3-8304-04

POTENTIAL HAZARDOUS WASTE SITE
IDENTIFICATION AND PRELIMINARY ASSESSMENT

REGION: III

SITE NUMBER (to be assigned by Hq):

NOTE: This form is completed for each potential hazardous waste site to help set priorities for site inspection. The information submitted on this form is based on available records and may be updated on subsequent forms as a result of additional inquiries and on-site inspections.

ORIGINAL (red)

GENERAL INSTRUCTIONS: Complete Sections I and III through X as completely as possible before Section II (*Preliminary Assessment*). File this form in the Regional Hazardous Waste Log File and submit a copy to: U.S. Environmental Protection Agency; Site Tracking System; Hazardous Waste Enforcement Task Force (*EN-335*); 401 M St., SW; Washington, DC 20460.

I. SITE IDENTIFICATION

A. SITE NAME: L.A. Clarke and Sons

B. STREET (or other identifier): Route 608

C. CITY: Fredericksburg

D. STATE: VA

E. ZIP CODE: 22404

F. COUNTY NAME: Spotsylvania

G. OWNER/OPERATOR (if known)

1. NAME: John, Mark, and Ted Curtas

2. TELEPHONE NUMBER: 703-898-3305

H. TYPE OF OWNERSHIP

☐ 1. FEDERAL ☐ 2. STATE ☐ 3. COUNTY ☐ 4. MUNICIPAL ☒ 5. PRIVATE ☐ 6. UNKNOWN

I. SITE DESCRIPTION

Active wood preserving plant. The plant has operated for nearly 40 years and numerous creosote spills and leaks have created an environmental problem.

J. HOW IDENTIFIED (i.e., citizen's complaints, OSHA citations, etc.)

State Water Control Board requested EPA assistance in May, 1982. State Health Department identified plant as RCRA site in May, 1980.

K. DATE IDENTIFIED (mo., day, & yr.): 5/80

L. PRINCIPAL STATE CONTACT

1. NAME: Mr. Ernie Watkins, N.R.O. SWCB

2. TELEPHONE NUMBER: 703-750-9111

II. PRELIMINARY ASSESSMENT (complete this section last)

A. APPARENT SERIOUSNESS OF PROBLEM

☐ 1. HIGH ☒ 2. MEDIUM ☐ 3. LOW ☐ 4. NONE ☐ 5. UNKNOWN

B. RECOMMENDATION

☐ 1. NO ACTION NEEDED (*no hazard*)

☒ 2. IMMEDIATE SITE INSPECTION NEEDED
a. TENTATIVELY SCHEDULED FOR: June 14, 1983
b. WILL BE PERFORMED BY: NUS Corporation

☐ 3. SITE INSPECTION NEEDED
a. TENTATIVELY SCHEDULED FOR:
b. WILL BE PERFORMED BY:

☐ 4. SITE INSPECTION NEEDED (*low priority*)

C. PREPARER INFORMATION

1. NAME: William Wentworth, NUS FIT III

2. TELEPHONE NUMBER: 215-687-9510

3. DATE (mo., day, & yr.): 1/11/84

III. SITE INFORMATION

A. SITE STATUS

☒ 1. ACTIVE (*Those industrial or municipal sites which are being used for waste treatment, storage, or disposal on a continuing basis, even if intermittently.*)

☐ 2. INACTIVE (*Those sites which no longer receive wastes.*)

☐ 3. OTHER (*specify*): (*Those sites that include such incidents like "midnight dumping" where no regular or continuing use of the site for waste disposal has occurred.*)

B. IS GENERATOR ON SITE?

☐ 1. NO ☒ 2. YES (*specify generator's four-digit SIC Code*): 2491

C. AREA OF SITE (*in acres*): approx. 10 acres

D. IF APPARENT SERIOUSNESS OF SITE IS HIGH, SPECIFY COORDINATES

1. LATITUDE (*deg.-min.-sec.*): 38° 14' 05"

2. LONGITUDE (*deg.-min.-sec.*): 77° 25' 55"

E. ARE THERE BUILDINGS ON THE SITE?

☐ 1. NO ☒ 2. YES (*specify*): Office and process buildings.

Continued From Page 2

V. WASTE RELATED INFORMATION (continued)

3. LIST SUBSTANCES OF GREATEST CONCERN WHICH MAY BE ON THE SITE (place in descending order of hazard).

N/A

ORIGINAL (red)

4. ADDITIONAL COMMENTS OR NARRATIVE DESCRIPTION OF SITUATION KNOWN OR REPORTED TO EXIST AT THE SITE.

N/A

VI. HAZARD DESCRIPTION

A. TYPE OF HAZARD	B. POTENTIAL HAZARD (mark 'X')	C. ALLEGED INCIDENT (mark 'X')	D. DATE OF INCIDENT (mo., day, yr.)	E. REMARKS
1. NO HAZARD				
2. HUMAN HEALTH	X		observed by FIT III 6/14/83	Possible direct contact with spilled and leaked chemicals on site.
3. NON-WORKER INJURY/EXPOSURE				
4. WORKER INJURY				
5. CONTAMINATION OF WATER SUPPLY	X	X	FIT III sample results 6/14/83	Potential to contaminate local domesti wells in area - site office well already contaminated.
6. CONTAMINATION OF FOOD CHAIN				
7. CONTAMINATION OF GROUND WATER		X	" "	Groundwater at the site is contaminated.
8. CONTAMINATION OF SURFACE WATER		X	" " "	Surface water at the site is contamin[illegible].
9. DAMAGE TO FLORA/FAUNA				
10. FISH KILL				
11. CONTAMINATION OF AIR		X	6/14/83	HNU readings above background levels recorded at site, however site is active.
12. NOTICEABLE ODORS		X	6/14/83	Creosote associated odors noticed at the site.
13. CONTAMINATION OF SOIL		X	FIT III sample results 6/14/83	Soil at the site has been contaminated.
14. PROPERTY DAMAGE				
15. FIRE OR EXPLOSION		X	8/82	Process area had a major fire.
16. SPILLS/LEAKING CONTAINERS/ RUNOFF/STANDING LIQUIDS		X		Plant in operation for nearly 40 years. Numerous creosote spills and leaks.
17. SEWER, STORM DRAIN PROBLEMS				
18. EROSION PROBLEMS				
19. INADEQUATE SECURITY				
20. INCOMPATIBLE WASTES				
21. MIDNIGHT DUMPING				
22. OTHER (specify):				

F3-8304-04

EPA

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT

REGION	SITE NUMBER (to be assigned by HQ)
III	VA-253

GENERAL INSTRUCTIONS: Complete Sections I and III through XV of this form as completely as possible. Then use the information on this form to develop a Tentative Disposition (Section II). File this form in its entirety in the regional Hazardous Waste Log File. Be sure to include all appropriate Supplemental Reports in the file. Submit a copy of the form to U.S. Environmental Protection Agency; Site Tracking System; Hazardous Waste Enforcement Task Force (EN-335); 401 M St. SW; Washington DC 20460.

ORIGINAL (red)

I. SITE IDENTIFICATION

A. SITE NAME	B. STREET (or other identifier)		
L. A. Clarke and Sons	Route 608		
C. CITY	**D. STATE**	**E. ZIP CODE**	**F. COUNTY NAME**
Fredericksburg	VA	22404	Spotsylvania

G. SITE OPERATOR INFORMATION

1. NAME		2. TELEPHONE NUMBER	
John, Mark, and Ted Curtas		703-898-3305	
3. STREET	**4. CITY**	**5. STATE**	**6. ZIP CODE**
P.O. Box 217	Fredericksburg	VA	22404

H. REALTY OWNER INFORMATION (if different from operator of site)

1. NAME		2. TELEPHONE NUMBER	
N/A			
3. CITY		**4. STATE**	**5. ZIP CODE**

I. SITE DESCRIPTION Active wood preserving plant. The plant has operated for nearly 40 years and numerous creosote spills and leaks have created an environmental problem.

J. TYPE OF OWNERSHIP

☐ 1. FEDERAL ☐ 2. STATE ☐ 3. COUNTY ☐ 4. MUNICIPAL ☒ 5. PRIVATE

II. TENTATIVE DISPOSITION (complete this section last)

A. ESTIMATE DATE OF TENTATIVE DISPOSITION (mo., day, & yr.)	B. APPARENT SERIOUSNESS OF PROBLEM
2/13/82	☐ 1. HIGH ☒ 2. MEDIUM ☐ 3. LOW ☐ 4. NONE

C. PREPARER INFORMATION

1. NAME	2. TELEPHONE NUMBER	3. DATE (mo., day, & yr.)
William Wentworth	215-687-9510	1/11/84

III. INSPECTION INFORMATION

A. PRINCIPAL INSPECTOR INFORMATION

1. NAME	2. TITLE	
William Wentworth	Hazardous Waste specialist	
3. ORGANIZATION		**4. TELEPHONE NO. (area code & no.)**
NUS Corporation		215-687-9510

B. INSPECTION PARTICIPANTS

1. NAME	2. ORGANIZATION	3. TELEPHONE NO.
Laura Boornazian	NUS Corporation	215-687-9510
Michael Cramer	" "	" "
Martin Howe	" "	" "
Lisa Orr	VA State Water Control Board	703-750-9111

C. SITE REPRESENTATIVES INTERVIEWED (corporate officials, workers, residents)

1. NAME	2. TITLE & TELEPHONE NO.	3. ADDRESS
Ted Curtas	owner/operator	P.O. Box 217, Fredericksburg, VA 22404
Mark Curtas	" "	" "
John Curtas	" "	" "

AR100020

Continued On Reverse

Continued From Page 6

VIII. HAZARD DESCRIPTION *(continued)*

ORIGINAL
(red)

[X] N. FIRE OR EXPLOSION

There was a major fire in the process area in August 1982.

[X] O. SPILLS/LEAKING CONTAINERS/RUNOFF/STANDING LIQUID

The site has been active for approximately 40 years. There have been numerous leaks and spills during the plant's existence. A black oil-like substance (creosote) can be observed on the ground and in surface waters at the site.

[ ] P. SEWER, STORM DRAIN PROBLEMS

None known.

[ ] Q. EROSION PROBLEMS

None known.

[X] R. INADEQUATE SECURITY

Plant is active and the entrance gate is locked after working hours.

[ ] S. INCOMPATIBLE WASTES

None known.

AR100044

ORIGINAL (red)

Continued From Page 8

X. WATER AND HYDROLOGICAL DATA (continued)

H. LIST ALL DRINKING WATER WELLS WITHIN A 1/4 MILE RADIUS OF SITE

1. WELL	2. DEPTH (specify unit)	3. LOCATION (proximity to population/buildings)	4. NON-COMMUNITY (mark 'X')	5. COMMUNITY (mark 'X')
Hedberg	52'	Rt. 608, approx. 1/4 mi. northwest of site	X	
Browning	26'	Rt. 3, approx. 1/2 mile southwest of the site	X	
Garnet	50'	Approx. 1/2 mile east of the site.	X	
		Other wells are also located within 1 mile of the site		

I. RECEIVING WATER

1. NAME: Massaponax Creek

☐ 2. SEWERS ☒ 3. STREAMS/RIVERS ☐ 4. LAKES/RESERVOIRS ☐ 5. OTHER (specify):

6. SPECIFY USE AND CLASSIFICATION OF RECEIVING WATERS

Surface water flows into Massaponax Creek, which flows into Ruffins Pond which discharges into Rappahannock River approx. 3 miles downstream of the site. Ruffins Pond is used for industrial purposes and the Rappahannock River is used for recreation. The Massaponax Creek has no known use.

XI. SOIL AND VEGITATION DATA

LOCATION OF SITE IS IN:

☐ A. KNOWN FAULT ZONE ☐ B. KARST ZONE ☐ C. 100 YEAR FLOOD PLAIN ☐ D. WETLAND

☐ E. A REGULATED FLOODWAY ☐ F. CRITICAL HABITAT ☐ G. RECHARGE ZONE OR SOLE SOURCE AQUIFER

XII. TYPE OF GEOLOGICAL MATERIAL OBSERVED

Mark 'X' to indicate the type(s) of geological material observed and specify where necessary, the component parts.

'X'	A. OVERBURDEN	'X'	B. BEDROCK (specify below)	'X'	C. OTHER (specify below)
X	1. SAND				
	2. CLAY				
X	3. GRAVEL				

XIII. SOIL PERMEABILITY

☐ A. UNKNOWN ☐ B. VERY HIGH (100,000 to 1000 cm/sec.) ☒ C. HIGH (1000 to 10 cm/sec.)

☐ D. MODERATE (10 to .1 cm/sec.) ☐ E. LOW (.1 to .001 cm/sec.) ☐ F. VERY LOW (.001 to .00001 cm/sec.)

G. RECHARGE AREA

☒ 1. YES ☐ 2. NO 3. COMMENTS:

H. DISCHARGE AREA

☐ 1. YES ☒ 2. NO 3. COMMENTS:

I. SLOPE

1. ESTIMATE % OF SLOPE: less than 5%

2. SPECIFY DIRECTION OF SLOPE, CONDITION OF SLOPE, ETC.: south

J. OTHER GEOLOGICAL DATA

ORIGINAL (red)

Continued From Page 2

IV. SAMPLING INFORMATION (continued)

C. PHOTOS

1. TYPE OF PHOTOS: [X] a. GROUND [ ] b. AERIAL

2. PHOTOS IN CUSTODY OF: FIT III Office

D. SITE MAPPED?

[X] YES. SPECIFY LOCATION OF MAPS: FIT II I report

E. COORDINATES

1. LATITUDE (deg.-min.-sec.): 38° 14' 05"

2. LONGITUDE (deg.-min.-sec.): 77° 25' 55"

V. SITE INFORMATION

A. SITE STATUS

[X] 1. ACTIVE (Those industrial or municipal sites which are being used for waste treatment, storage, or disposal on a continuing basis, even if infrequently.)

[ ] 2. INACTIVE (Those sites which no longer receive wastes.)

[ ] 3. OTHER (specify): _____ (Those sites that include such incidents like "midnight dumping" where no regular or continuing use of the site for waste disposal has occurred.)

B. IS GENERATOR ON SITE?

[ ] 1. NO [X] 2. YES (specify generator's four-digit SIC Code): 2491

C. AREA OF SITE (in acres): approx. 10 acres

D. ARE THERE BUILDINGS ON THE SITE?

[ ] 1. NO [X] 2. YES (specify): process and office buildings

VI. CHARACTERIZATION OF SITE ACTIVITY

Indicate the major site activity(ies) and details relating to each activity by marking 'X' in the appropriate boxes.

X	A. TRANSPORTER	X	B. STORER	X	C. TREATER	X	D. DISPOSER
	1. RAIL		1. PILE		1. FILTRATION		1. LANDFILL
	2. SHIP		2. SURFACE IMPOUNDMENT		2. INCINERATION		2. LANDFARM
	3. BARGE		3. DRUMS		3. VOLUME REDUCTION		3. OPEN DUMP
	4. TRUCK		4. TANK, ABOVE GROUND		4. RECYCLING/RECOVERY		4. SURFACE IMPOUNDMENT
	5. PIPELINE		5. TANK, BELOW GROUND		5. CHEM./PHYS./TREATMENT		5. MIDNIGHT DUMPING
	6. OTHER (specify):		6. OTHER (specify):		6. BIOLOGICAL TREATMENT		6. INCINERATION
					7. WASTE OIL REPROCESSING		7. UNDERGROUND INJECTION
					8. SOLVENT RECOVERY		8. OTHER (specify):
				X	9. OTHER (specify): spray evaporation lagoon		

E. SUPPLEMENTAL REPORTS: If the site falls within any of the categories listed below, Supplemental Reports must be completed. Indicate which Supplemental Reports you have filled out and attached to this for..

[ ] 1. STORAGE [ ] 2. INCINERATION [ ] 3. LANDFILL [ ] 4. SURFACE IMPOUNDMENT [ ] 5. DEEP WELL

[ ] 6. CHEM/BIO/PHYS TREATMENT [ ] 7. LANDFARM [ ] 8. OPEN DUMP [ ] 9. TRANSPORTER [ ] 10. RECYCLOR/RECLAIMER

VII. WASTE RELATED INFORMATION

A. WASTE TYPE

[X] 1. LIQUID [ ] 2. SOLID [ ] 3. SLUDGE [ ] 4. GAS

waste water from process

B. WASTE CHARACTERISTICS

[ ] 1. CORROSIVE [ ] 2. IGNITABLE [ ] 3. RADIOACTIVE [ ] 4. HIGHLY VOLATILE

[X] 5. TOXIC [ ] 6. REACTIVE [ ] 7. INERT [ ] 8. FLAMMABLE

[ ] 9. OTHER (specify):

C. WASTE CATEGORIES

1. Are records of wastes available? Specify items such as manifests, inventories, etc. below.

No

Continue On Reverse

Continued From Page 4

ORIGINAL

(red)

VIII. HAZARD DESCRIPTION (continued)

☐ B. NON-WORKER INJURY/EXPOSURE

None known.

☐ C. WORKER INJURY/EXPOSURE

None known.

☒ D. CONTAMINATION OF WATER SUPPLY

Potential exists - groundwater at the site is contaminated and local residents use domestic wells for water supply.

☐ E. CONTAMINATION OF FOOD CHAIN

None known.

☒ F. CONTAMINATION OF GROUND WATER

Groundater at the site is contaminated.

☒ G. CONTAMINATION OF SURFACE WATER

Surface waters at the site have been contaminated.

Continue On Reverse

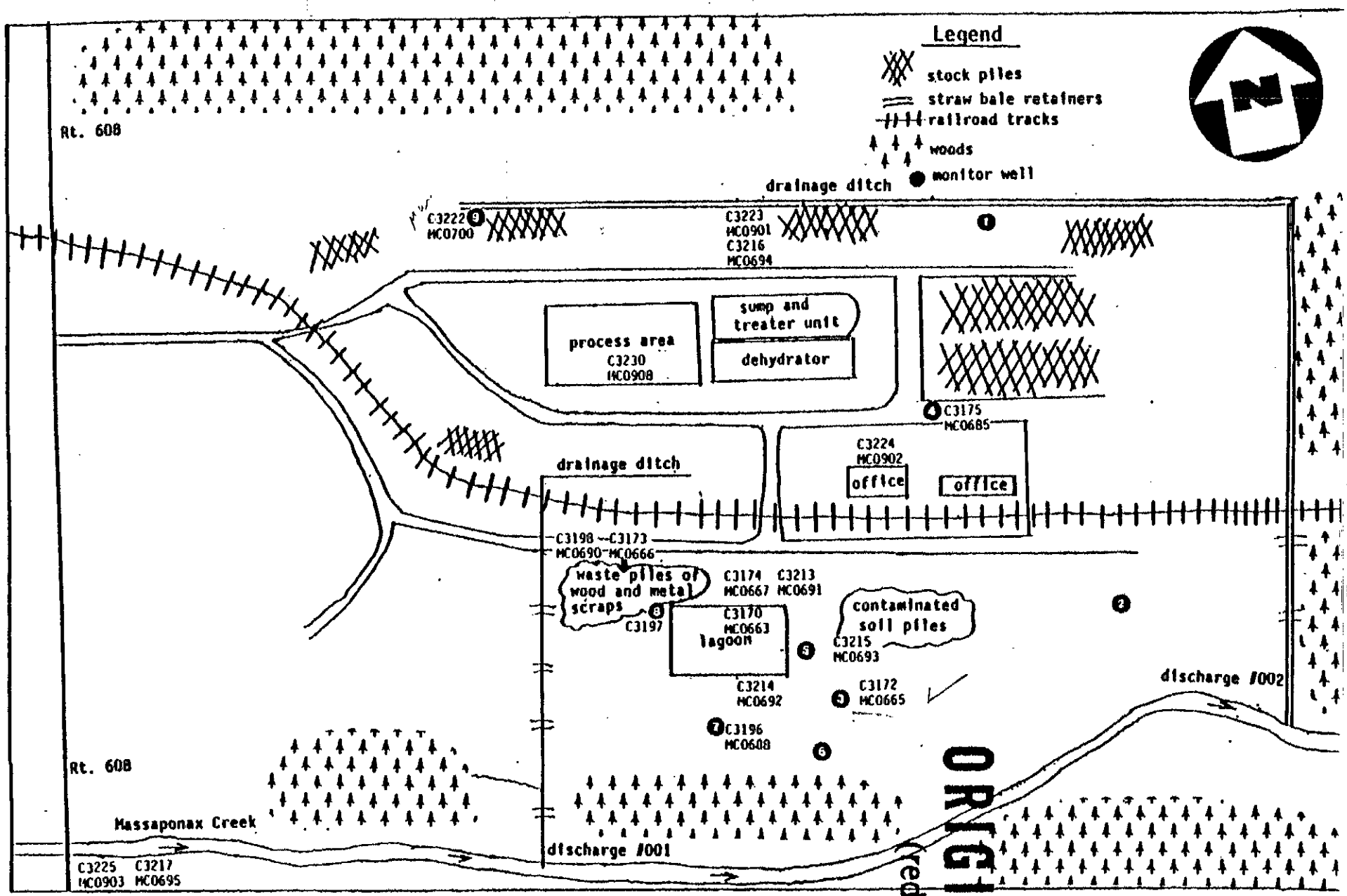
SECTION 6

Site Name: L.A. CLARKE & SONS
TDD No.: F3-8304-04

ORIGINAL
(red)

6.0 LABORATORY DATA

6.1 Sample Data Summary



Sample Location Map

L.A. Clarke Fredericksburg, Virginia

NOT TO SCALE

ORIGINAL (red)

NUS CORPORATION

AR100045

TDD Number F3-8304-04
EPA Number

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

☒ Organic ☐ Inorganic

Site Name L. A. Clarke & Son
Date of Sample 6/14/83

Compounds Detected

Sample Number	Sample Description and Location	Phase	Units	2,4-dimethylphenol	2,4-dinitrophenol	phenol	2-methylphenol	4-methylphenol	acenaphthene	hexachloroethane	1,2-diphenylhydrazine (as azobenzene)	fluoranthene	naphthalene	bis (2-ethylhexyl) phthalate	di-n-butyl phthalate	benzo (a) anthracene	Remarks
C3170	Lagoon	aqueous	µg/l	21,200		414,000	78,700	204,000	11,700			29,600	80,100			410,000	
C3172	Monitoring well #3	aqueous	µg/l	31.8		38	90.6	50.6	344			<20	404	<20 ◊			
C3173	Black aqueous	aqueous	µg/l												<20 ◊		
C3174	Toe of lagoon	aqueous	µg/l					73,300									
C3175	Monitoring well #4	aqueous	µg/l						267,000			372,000	574,000			122,000	
C3196	Monitoring well #7	aqueous	µg/l						21.8				178.4				
C3197	Monitoring well #8	aqueous	µg/l														
C3222	Monitoring well #9	aqueous	µg/l						<20			<20					
C3223	Ditch - north side	aqueous	µg/l			<20	<10		302	20.4	<40				22.4	<20	
C3224	Office well	aqueous	µg/l						68.4 ◊			<20 ◊		26.4 ◊			
C3225	Massaponax Creek Upstream	aqueous	µg/l														
C3226	Massaponax Creek Downstream	aqueous	µg/l														
C3227	Nedberg well	aqueous	µg/l														
C3228	Brown well	aqueous	µg/l														

NOTE: For a [illegible] of this data and non-target, tentatively identified compounds, please see [illegible] Analytical Quality Assurance section of this report.

[illegible] ance based up[illegible]

ORIGINAL (red)

TDD Number F3-8304-04

EPA Number

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

☒ Organic ☐ Inorganic

Site Name L.A. Clarke & Son

Date of Sample 6/14/83

Compounds Detected

Sample Number	Sample Description and Location	Phase	Units	benzo (a) pyrene	benzo (b) fluoranthene II	benzo (k) fluoranthene II	chrysene	acenaphthylene	anthracene	benzo (ghi) perylene	fluorene	phenanthrene	dibenzo (a,h) anthracene	indeno (1,2,3-cd) Pyrene	pyrene	aniline	benzyl alcohol
C3170	Lagoon	aqueous	µg/l		<20,000	<20,000			17,800		15,900	48,400			16,600		
C3172	Monitoring well #3	aqueous	µg/l				<20				130.0				<20		
C3173	Black aqueous	aqueous	µg/l								<20						
C3174	Toe of lagoon	aqueous	µg/l														
C3175	Monitoring well #4	aqueous	µg/l	57,100	65,000	65,000	<10,000	63,300	<20,000	214,000	592,000		<20,000	237,000			
C3196	Monitoring well #7	aqueous	µg/l														
C3197	Monitoring well #8	aqueous	µg/l														
C3222	Monitoring well #9	aqueous	µg/l								<20	<20			<20		
C3223	Ditch - north side	aqueous	µg/l	<40	<40	<40	<40	25.2	32.2		272	378			97.4	<40	
C3224	Office well	aqueous	µg/l					<20 ◇			26.6 ◇	<20 ◇			<20 ◇		
C3225	Massa-pona-x creek Upstream	aqueous	µg/l														
C3226	Massa-pona-x creek Downstream	aqueous	µg/l														
C3227	Hedberg well	aqueous	µg/l														
C3228	Browning well	aqueous	µg/l														

NOTE: For a review of this data and non-target, tentatively identified compounds, please see the Analytical Quality Assurance section of this report.

ORIGINAL (pg)

...ance based upon ...

TDD Number F3-8304-04
EPA Number

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

☒ Organic ☐ Inorganic

Site Name L.A. Clarke & Son
Date of Sample 6/14/83

Compounds Detected ✓

Sample Number	Sample Description and Location	Phase	Units	dibenzofuran	2-methylnaphthalene	benzene	ethylbenzene	methylene chloride	toluene	trichloroethylene	acetone	2-butanone	2-hexanone	4-methyl-2-pentanone	styrene	o-xylene	Remarks
C3170	Lagoon	aqueous	µg/l	12,600	316,000	111	375	45 ◊	338		207 ◊	29.3 ◊	20.2 ◊	32.1 ◊	120	822	
C3172	Monitoring well #3	aqueous	µg/l	184.8	236	62.4	51.9	45 ◊	119		19.2 ◊				108	242	
C3173	Black aqueous	aqueous	µg/l								15.9 ◊				31.3		
C3174	Toe of lagoon	aqueous	µg/l						6.2 ◊		13.6 ◊						
C3175	Monitoring well #4	aqueous	µg/l	183,000	272,000	374	204		644	9.7				22.6	210	292	
C3196	Monitoring well #7	aqueous	µg/l			99.4	140		47.4						9.1	95.8	
C3197	Monitoring well #8	aqueous	µg/l													6.3 ◊	
C3222	Monitoring well #9	aqueous	µg/l														
C3223	ditch-north side	aqueous	µg/l			182	84.0	7.1 ◊	334		7.3 ◊				84.7	170	
C3224	Office well	aqueous	µg/l	25.6 ◊		45 ◊		45 ◊								20.6 ◊	
C3225	Massa Pond X Creek Upstream	aqueous	µg/l					45 ◊		5.7							
C3226	Massa Pond X Creek Downstream	aqueous	µg/l					45 ◊									
C3227	Hedberg well	aqueous	µg/l								31.3 ◊	45 ◊					
C3228	Brown well	aqueous	µg/l														

NOTE: For a re[illegible] this data and non-target, tentatively identified compounds, please see th[illegible]alytical Quality Assurance section of this report.

[illegible] nce based upon

ORIGINAL (red)

TDD Number F3-8304-04

EPA Number

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

☒ Organic ☐ Inorganic

Site Name L.A. Clarke & Son

Date of Sample 6/14/83

Sample Number	Sample Description and Location	Phase	Units	Compounds Detected: dieldrin	heptachlor	Beta - BHC	2,3,7,8-tetrachloro-dibenzo-p-dioxin									Remarks
C3170	Lagoon	aqueous	µg/l		<1.0 ** D	<1.0 ** D	0.043 D									** 2-column confirmation
C3172	Monitoring well #3	aqueous	µg/l				0.038 D									
C3173	Black aqueous	aqueous	µg/l													
C3174	Toe of lagoon	aqueous	µg/l													
C3175	Monitoring well #4	aqueous	µg/l													
C3196	Monitoring well #7	aqueous	µg/l													
C3197	Monitoring well #8	aqueous	µg/l													
C3222	Monitoring well #9	aqueous	µg/l				0.025 D									
C3223	Ditch - north side	aqueous	µg/l													
C3224	Office well	aqueous	µg/l													
C3225	Massa-ponax Creek Upstream	aqueous	µg/l													
C3226	Massa-ponax Creek Downstream	aqueous	µg/l	0.11 ** D												** 2-column confirmation
C3227	Hedberg well	aqueous	µg/l													
C3228	Browning well	aqueous	µg/l													

NOTE: For a review of this data and non-target, tentatively identified compounds, please see the Analytical Quality Assurance section of this report.

ORIGINAL (pen)

TDD Number F3-8304-04

EPA Number

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

☒ Organic ☐ Inorganic

Site Name L.A. Clarke & Son

Date of Sample 6/14/83

Sample Number	Sample Description and Location	Phase	Units	Compounds Detected: 2,4-dimethylphenol	2,4-dinitrophenol	phenol	2-methylphenol	4-methylphenol	acenaphthene	hexachloroethene	1,2-diphenylhydrazine (as azobenzene)	fluoranthene	naphthalene	bis(2-ethylhexyl)-phthalate	di-n-butyl phthalate	benzo(a)-anthracene	Remarks
C3229	Garnet well	aqueous	µg/l														
C3230	Standing water - process area	aqueous	µg/l	1220		13,840	5,840	5,480	83.6			78.4	52.8				
C3231	Blank	aqueous	µg/l														
C3198	Soil near Black Oil.	solid	µg/kg						680 K			680 K			680 K	2710 K	
C3213	Sediment - toe of lagoon	solid	µg/kg	3508 K		22,500			153,000			328,000	441,000		4900 K	46,300	
C3214	Back side of lagoon	solid	µg/kg									6800 K			19,400	740 K	
C3215	Contaminated soil	solid	µg/kg	7720 K	5,090,000				1,780,000			3,170,000				496,000	
C3216	Sediment from ditch - north side	solid	µg/kg						151,000			610,000	158,000		6320 K	83,800	
C3217	Massaponax creek Upstream sediment	solid	µg/kg														
C3218	Massaponax creek Downstream sediment	solid	µg/kg												14,200		
C3219	Blank	solid	µg/l												20		

NOTE: For a review of this data and non-target, tentatively identified compounds, please see the Analytical Quality Assurance section of this report. K-Approximate value detected below quantitation limit.

TDD Number F3-8304-04

EPA Number

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

☒ Organic ☐ Inorganic

Site Name L.A. Clarke & Son

Date of Sample

Sample Number	Sample Description and Location	Phase	Units	Compounds Detected: benzo(a) pyrene	benzo(b)-fluoranthene II	benzo(k)-fluoranthene II	chrysene	acenaphthylene	anthracene	benzo(ghi) perylene	fluorene	phenanthrene	dibenzo(a,h)-anthracene	indeno(1,2,3-cd)-Pyrene	pyrene	aniline	benzyl alcohol
C3229	Garnet well	aqueous	µg/l														
C3230	Standing water - process area	aqueous	µg/l				<80	<40	<40		61.2	159.6			<40	155.2	
C3231	Blank	aqueous	µg/l														
C3198	Soil near black aq.	solid	µg/kg	1360K			4750K				2710K			5420K			
C3213	Sediment - toe of lagoon	solid	µg/kg	12,600	36,300	36,300	48,400	6300K	142,000		110,000	416,000	620K	38,200	152,000		
C3214	Back side of lagoon	solid	µg/kg	1500K			3000K					1500K			4400K		
C3215	Contaminated soil	solid	µg/kg		343,000	343,000	517,000		4,010,000		1,870,000	6,140,000			1,570,000		
C3216	Sediment from ditch - north side	solid	µg/kg	30,800	88,400	88,400	84,600	17,400	188,000	7770K	156,000	532,000	2010K	143,000	262,000		
C3217	Massa Pond x Creek Upstream sediment	solid	µg/kg														
C3218	Massa Pond x Creek Downstream sediment	solid	µg/kg														
C3219	Blank	solid	µg/l														

ORIGINAL (red)

NOTE: For a review of this data and non-target, tentatively identified compounds, please see the Analytical Quality Assurance section of this report. K-Approximate value: detected below quantitation limit.

TDD Number F3-8304-04
EPA Number

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

☒ Organic ☐ Inorganic

Site Name L.A. Clarke & Son
Date of Sample 6/14/83

Sample Number	Sample Description and Location	Phase	Units	Compounds Detected: dibenzofuran	2-methylnaphthalene	benzene	ethylbenzene	methylene chloride	toluene	trichloroethylene	acetone	2-butanone	2-hexanone	4-methyl-2-pentanone	styrene	o-xylene	Remarks
C3229	Garnet well	aqueous	ug/l														
C3230	Standing water - process area	aqueous	ug/l	59.2	146.8	6.9	18.0		13.9 ◊		24.8 ◊				10.7	39.8	
C3231	Blank	aqueous	ug/l					9.8	45		42.4						
C3198	Soil near black aq.	solid	ug/kg														
C3213	Sediment - toe of lagoon	solid	ug/kg				2300		700 K ◊							13,000	
C3214	Back side of lagoon	solid	ug/kg														
C3215	Contaminated soil	solid	ug/kg		<	2000	17,000	22,000 ◊	16,000							88,000	
C3216	Sediment from ditch - north side	solid	ug/kg			7500			7400								
C3217	Massapona Creek Upstream sediment	solid	ug/kg														
C3218	Massapona Creek Downstream sediment	solid	ug/kg														
C3219	Blank	solid	ug/l					26									

ORIGINAL (red)

AR100529

For a r[illegible] of this data and non-target, tentatively identified compounds, please see [illegible] nalytical Quality Assurance section of this report.

[illegible] ance based upo

K-Approximate val[illegible] etected below quantitation limit.

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

☒ Organic ☐ Inorganic

er F3-8304-04
er

Site Name L.A. Clarke & Son
Date of Sample 6/14/83

Compounds Detected

Sample Number	Sample Description and Location	Phase	Units	dieldrin	heptachlor	Beta-BHC	2,3,7,8-tetrachloro-dibenzo-p-dioxin										Remarks
C3229	Garnet well	aqueous	µg/l														
C3230	Standing water - process area	aqueous	µg/l														
C3231	Blank	aqueous	µg/l				0.036[D]										
C3198	Soil near black aq.	solid	µg/kg														
C3213	Sediment - toe of lagoon	solid	µg/kg														
C3214	Back side of lagoon	solid	µg/kg														
C3215	Contaminated soil	solid	µg/kg														
C3216	Sediment from ditch - north side	solid	µg/kg														
C3217	massaponax creek Upstream sediment	solid	µg/kg														
C3218	massaponax creek Downstream sediment	solid	µg/kg														
C3219	Blank	solid	µg/l														

ORIGINAL (red)

AR100053

NOTE: For a review of this data and non-target, tentatively identified compounds, please see the Analytical Quality Assurance section of this report. K-Approximate value: detected below quantitation limit.

TD FB 8304-04
EP

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

☐ Organic ☒ Inorganic

Site Name L A Clarke & Son
Date of Sample 6/14/83

Sample Number	Sample Description and Location	Phase	Units	Compounds Detected: aluminum	chromium	barium	beryllium	cobalt	copper	iron	nickel	manganese	zinc	boron	vanadium	silver	Remarks
MC 0663	Lagoon	aqueous	µg/l	548 ◊					85	34,200		1120	3130	107			
MC 0665	Monitoring well #3	aqueous	µg/l	490 ◊						4370		166	21 ◊				
MC 0666	Black aqueous	aqueous	µg/l	4180		408				79,500		4180	85 ◊	113			
MC 0667	Toe of lagoon	aqueous	µg/l	5840		178		54		24,700		5520	136 ◊				
MC 0685	Monitoring well #4	aqueous	µg/l	59,300	90	639	96	120	180	242,000		7350	469			10	
MC 0688	Monitoring well #7	aqueous	µg/l	88,400	105	1110	14	91	73	147,000	87	2850	562	175			
MC 0700	Monitoring well #9	aqueous	µg/l	341,000	615	3420	109	1900	4450	513,000	140	34,200	18,600		846	14	
MC 0901	ditch - north side	aqueous	µg/l	6490		164				84,900		730	159 ◊	164			
MC 0902	Office well	aqueous	µg/l			102				1910		140	74 ◊				
MC 0903	Massaponax Creek Upstream	aqueous	µg/l	243 ◊						3330		166	16 ◊				
MC 0904	Massaponax Creek Downstream	aqueous	µg/l	200 ◊						2840		97	12 ◊	192			
MC 0905	Hedberg well	aqueous	µg/l	141 ◊					626	70		37	82 ◊				
MC 0906	Browning well	aqueous	µg/l	124 ◊	20					61		15	50 ◊	205			

NOTE: For a review of this data and non-target, tentatively identified compounds, please see the Analytical Quality Assurance section of this report.

ORIGINAL (red)

TDD F3-8304-04

EPA

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

☐ Organic ☒ Inorganic

Site Name L.A. Clarke & Son

Date of Sample 6/14/83

Compounds Detected

Sample Number	Sample Description and Location	Phase	Units	arsenic	antimony	selenium	mercury	tin	cadmium	lead	Remarks
MC 0663	Lagoon	aqueous	µg/l			0.27			20		
MC 0665	Monitoring well #3	aqueous	µg/l								
MC 0666	Black aqueous	aqueous	µg/l	114					29		
MC 0667	Toe of lagoon	aqueous	µg/l				21 ◊		7.0		
MC 0685	Monitoring well #4	aqueous	µg/l	196		3.8	0.25		193		
MC 0688	Monitoring well #7	aqueous	µg/l	68		12	161 ◊		213		
MC 0689	Monitoring well #8	aqueous	µg/l								
MC 0700	Monitoring well #9	aqueous	µg/l	190	41	49	0.94	621	3030		
MC 0901	Ditch - north side	aqueous	µg/l	84					59		
MC 0902	Office well	aqueous	µg/l				33 ◊				
MC 0903	Massapoag Creek Upstream	aqueous	µg/l								
MC 0904	Massapoag Creek Downstream	aqueous	µg/l				23 ◊				
MC 0905	Hedberg well	aqueous	µg/l						6.0		
MC 0906	Browning well	aqueous	µg/l				38 ◊				

ORIGINAL (red)

NOTE: For a review of this data and non-target, tentatively identified compounds, please see the Analytical Quality Assurance section of this report.

pcp based upon

TDD F3-8309-04

EPA

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

☐ Organic ☒ Inorganic

Site Name L.A. Clarke & Son

Date of Sample 6/14/83

Sample Number	Sample Description and Location	Phase	Units	Compounds Detected: aluminum	chromium	barium	beryllium	cobalt	copper	iron	nickel	manganese	zinc	boron	vanadium	silver	Remarks
MC0907	Garnet well	aqueous	µg/l	9160	15	247			84	10,500		167	1990	242			
MC0908	Standing water - process area	aqueous	µg/l	1160						20,100		661	903	213			
MC0909	Blank	aqueous	µg/l										19				
MC0690	Soil near black aq.	solid	mg/Kg	5250	8.9	36		3.4	8.2	12,900	2.9	123	30		21		
MC0691	Sediment - toe of lagoon	solid	mg/kg	8990	12	39	0.33	7.0	16	19,100	3.7	89	47		37		
MC0692	Back side of lagoon	solid	mg/kg	4360	9.4	36	0.30	4.2	10	10,100	3.3	131	32		19		
MC0693	Contaminated soil	solid	mg/kg	4320	6.8	22		5.5	22	9410	2.1	181	33		14		
MC0694	Sediment from ditch - north side	solid	mg/kg	3470	8.6	30	0.26	4.1	12	8800	2.6	91	28		12		
MC0695	Massaponax Creek Upstream sediment	solid	mg/kg	2830	4.6	31	0.39	5.3	3.6	10,800	2.6	148	24		12		
MC0696	Massaponax Creek Downstream sediment	solid	mg/kg	974	2.4	14		4.1		4290		175	9.0				
MC0697	Blank	solid	mg/kg	10						4.3							

ORIGINAL (red)

NOTE: For this data and non-target, tentatively identified compounds, please see the Analytical Quality Assurance section of this report.

TDD N F3-8304-04

EPA N

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

☐ Organic ☒ Inorganic

Site Name L. A. Clarke & Son

Date of Sample 6/14/83

Sample Number	Sample Description and Location	Phase	Units	Compounds Detected: arsenic	antimony	selenium	mercury	tin	cadmium	lead							Remarks
MC0907	Garnet well	aqueous	µg/l					29 ◊		153							
MC0908	Standing water - process area	aqueous	µg/l	13				56 ◊									
MC0909	Blank	aqueous	µg/l														
MC0690	Soil near black aq.	solid	mg/kg	10	2.2			6.8 ◊		16							
MC0691	Sediment - toe of lagoon	solid	mg/kg	7.2	1.5			13 ◊		22							
MC0692	Back side of lagoon	solid	mg/kg	4.3	2.0			6.4 ◊		19							
MC0693	Contaminated soil	solid	mg/kg	5.1			0.14	7.5 ◊		14							
MC0694	Sediment from ditch - north side	solid	mg/kg	6.7	1.4			5.0 ◊		15							
MC0695	Upstream sediment Massaponax creek	solid	mg/kg	3.2	1.2					9.4							
MC0696	Downstream sediment Massaponax creek	solid	mg/kg	0.60				1.5 ◊		4.5							
MC0697	Blank	solid	mg/kg					3.3	0.18								

ORIGINAL (red)

ARI 0050

NOTE: For a review of this data and non-target, tentatively identified compounds, please see the Analytical Quality Assurance section of this report.

ORIGINAL
(red)

6.2 Quality Assurance Review

6.2.1 Organic Data: Lab Case 1793

6.2.1.1 Introduction

The findings offered in this report are based upon a general review of organic analytical data for 25 samples; 18 aqueous samples were sent to Spectrix Laboratories, and 7 sediment samples were sent to ERCO Laboratories on July 7, 1987. Analyses were performed for volatile, base/neutral/acid, pesticide, and dioxin priority pollutants and hazardous substances list compounds, plus tentatively identified compounds.

6.2.1.2 Qualifiers

It is recommended that these data packages be utilized only with the following qualifier statements:

- All positive results for methylene chloride, acetone, 2-butanone, and bis(2-ethylhexyl)phthalate, may be questionable.
- Results for di-n-butylphthalate may be questionable for all samples except for C3223.
- The positive results for toluene in samples C3213, C3174, C3230 and C3231 may be questionable.
- All positive results for 2,3,7,8-TCDD, heptachlor, dieldrin, and beta-BHC may be questionable.
- Results for 2-hexanone and 4-methyl-2-pentanone in sample C3170 may be questionable.
- All positive results reported in C3224 may be questionable. In addition, the results for o-xylene in sample C3197 may be questionable.

- Benzo(b)fluoranthene, benzo(k)fluoranthene, acenaphthylene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene were detected in sample C3213 but were not reported on the tabulated results form. These results have been incorporated in the data summary.

- The detection limits for some acid fraction compounds in sample C3226 may be higher than reported.

- The detection limit for some B/N compounds in sample C3226 may be slightly higher than reported.

- The detection limit for pyrene in sample C3217 may be slightly higher than reported.

- Analysis for 2,3,7,8-TCDD was not performed for samples C3227 and C3229. In addition, actual detection limits for 2,3,7,8-TCDD may be significantly higher than those reported in samples C3197, C3223, C3226 and C3231. Furthermore, the TCDD detection limit may be slightly higher than reported in sample C3174.

- The reported levels of B/N/A compounds in solid samples may not reflect the average concentration of constituents due to sample inhomogeneity.

6.2.1.3 Findings

- Methylene chloride, acetone, toluene, 2-butanone, bis(2-ethylhexyl)phthalate and di-n-butylphthalate were detected in field and/or laboratory blanks at sufficient levels to question the aforementioned sample results for these parameters. (However, di-n-butylphthalate was not found in any blanks analyzed with the aqueous samples, so only the positive aqueous sample results which were less than detection limits were questioned for this compound.)

- Two pieces of evidence suggest that the positive results for 2,3,7,8-TCDD may be questionable:

  1. 2,3,7,8-TCDD was reported in the field blank at sufficient levels to question the positive sample results.

  2. TCDD results may be artifacts of random chromatographic interferences, since this compound was identified from the retention times of single peak responses on a GC column. (Although the reported values were high enough to be seen by GC/MS analysis, none were confirmed by this method.)

- All positive pesticide results may be artifacts of random chromatographic interferences, since these compounds were identified as single peak responses on dual GC columns.

- A transcription oversight may be responsible for the unreported compounds in sample C3213.

- All positive results for PAH compounds, benzene, and o-xylene in sample C3224, results for 2-butanone, 2-hexanone, and 4-methyl-2-pentanone in sample C3170, as well as the result for o-xylene in sample C3197, appear to be artifacts of ghosting resulting from high level samples or standards run immediately preceding these samples.

- Zero recoveries were reported for some acid fraction surrogate and matrix spike compounds in sample C3226. Also, low B/N matrix spike recoveries were reported in sample C3226. In addition, very low matrix spike recovery was reported for pyrene in sample C3217.

- Very low or zero recoveries were reported for the dioxin surrogate (1,2,3,4-TCDD) in samples C3174, C3197, C3223, C3226 and C3231. In addition, samples C3227 and C3229 could not be analyzed for dioxin since the required protocol did not achieve sufficient sample cleanup.

- Duplicate analysis results for sample C3198 suggest variability in results due to insufficient mixing and/or sample inhomogeneity.

- No tentatively identified compounds were reported in the VOA fraction for the sediment samples; however, several substantial unidentified, non target peaks were seen on chromatograms of samples C3213 and C3215. All confident tentatively identified compounds that are not suspected artifacts are listed on the support documentation appendix to this report.

6.2.1.4 Summary

The attached Quality Assurance Review has identified blank contamination, unreported results, chromatographic ghosting, misidentified results, and very low and very high surrogate and matrix spike recoveries as the principal areas of concern. Please see the accompanying Support Documentation Appendix to this report for specifics on this Quality Assurance Review.

Report prepared by Russell J. Sloboda _____ Date: March 22, 1984

Report prepared by Rock J. Vitale _____ Date: March 22, 1984

ORIGINAL
(red)

Site Name: L.A. CLARKE & SONS
TDD No.:F3-8304-04

6.2.2 Inorganic Data: Lab Case 1793

6.2.2.1 Introduction

The findings offered in this report are based upon a general review of all available sample data, blank results, matrix spike recoveries, duplicate analysis results, initial and continuing calibration verifications and quality assurance documentation.

6.2.2.2 Qualifiers

It is recommended that this data package be utilized only with the following qualifier statements:

- All positive results for tin may be questionable except for sample MC0700.
- The results for zinc for samples MC0665, MC0666, MC0667, MC0901 through and including MC0906, and MC0696 may be questionable.
- The results for aluminum for samples MC0663, MC0665, MC0903, MC0904, MC0905, and MC0906 may be questionable.

6.2.2.3 Findings

- Field blank analyses revealed the presence of tin, zinc, and aluminum at levels sufficient to question the aforementioned sample results.

6.2.2.3 Summary

The attached Quality Assurance Review has identified blank contamination as the primary area of concern. Please see the accompanying Support Documentation in the attached appendix for specifics on this Quality Assurance Review.

Report prepared by Atwood F. Davis Atwood F. Davis Date: February 3, 1984

SECTION 7

7.0 TOXICOLOGICAL EVALUATION

7.1 Summary

On-site soil, sediment, surface water and monitoring well samples revealed high concentrations of numerous polycyclic aromatic hydrocarbons (PAH), some of which are suspected human carcinogens, as well as other organic compounds commonly associated with creosote or coal tars. In addition, very high concentrations of several toxic metals including lead, arsenic, chromium, and beryllium, were detected in one or more monitoring well samples.

Of the three off-site residential wells sampled, one (the Garnet well) revealed lead at 3 times the MCL. While no overt symptoms of plumbism are probable at the concentration reported (153 ug/l) in this drinking water supply, subtle behavioral and psychomotor retardatory effects could be possible in children from long-term consumption of the water.

7.2 Scope of Reported Contaminants

Samples taken on or near this site from impounded or flowing surface waters, corresponding sediments, stained soils, and monitoring wells revealed varying levels of numerous priority pollutants which are characteristic of creosote. A stained soil sample was reported to contain concentrations of individual polycyclic aromatic hydrocarbons (PAH) up to several thousand parts per million; fluoranthene alone, for example, was reported at 3,170 mg/kg, or more than 0.3 percent by weight. In addition to numerous PAH, phenolic compounds typically constitute a significant fraction of creosote, but their relative absence in some soil or sediment samples may reflect the tendency for these much more water soluble pollutants to be preferentially leached out. An aqueous sample taken from the lagoon did reveal substantial concentrations of phenols; 414,000 ug/l of phenol, about 280,000 ug/l methylphenol, and 21,200 ug/l dimethylphenol, as well as numerous PAH and other aromatic derivatives.

In addition to compounds associated with creosote, a synthetic wood-preserving agent not normally present in creosote was identified at a very substantial level in a contaminated soil sample. 2,4-Dinitrophenol was reported at a concentration of 5,090 mg/kg or more than 0.5 percent by weight in the sample of stained soil, but was not found within detection limits in any other sample.

Other organic contaminants reported that are not known constituents of creosote or coal tar products include hexachloroethane at 20.4 ug/l in the ditch aqueous sample, di-n-butylphthalate at 22 ug/l in the ditch aqueous sample, and trace levels of TCE in the monitoring well no. 4 and upstream creek samples.

Samples taken from monitoring wells suggest rather severe localized contamination of shallow groundwater. Monitoring well no. 4 revealed the highest extent of organic pollutants with reported PAH concentrations totalling over 0.3 percent by weight or 3,000,000 ug/l. Several of the PAH are suspected carcinogens and were reported at very high levels; e.g. benzo(a)anthracene at 122,000 ug/l. It is unlikely, however, that the concentrations of PAH reported are actual levels dissolved in the groundwater since these PAH are relatively water insoluble. For example, phenanthrene was reported in the bailed monitoring well no. 4 aqueous sample at a concentration of 592,000 ug/l, but it is soluble in water (at 25°C) only to the extent of 1,000 to 1,290 ug/l at saturation. It is more likely, therefore, that an emulsion or phase of creosote residue oil with a very high content of PAH was present in this monitoring well sample. The groundwater sample was described as turbid with black oil droplets in suspension. An HNU reading of 12 ppm was noted at the well head.

Other monitoring well samples also revealed PAH and creosote constituents but at significantly lower concentrations. The sample from monitoring well no. 3, for example, contained phenol at 38 ug/l, methylphenols at 32 to 91 ug/l, naphthalene and derivatives totalling about 1,000 ug/l, benzene and substituted benzenes, respectively at 62.4 ug benzene/l and 520 ug/l, and several PAH which ranged in concentration from less than detection limits of 20 ug/l to 130 ug/l for fluorene. Concentrations are compatible with water solubilities.

Benzene is of particular note since it is a recognized human carcinogen. Benzene was also detected in monitoring well no. 7 at 99.4 ug/l, in the aqueous sample taken from the ditch and corresponding sediment at 7500 ug/kg. Benzene is considerably more water soluble than PAH compounds and is relatively mobile and persistent in groundwater.

Contamination of groundwater underlying this site with metals and metalloids appears to be considerable. Contaminant patterns of inorganics do not correspond to those observed with organics. The sample taken from monitoring well no. 9 revealed very high and toxic concentrations of most metals, but only traces of a few organics (PAH) were identified. Lower but toxicologically significant levels of inorganics were reported in monitoring well nos. 4 and 7, including potentially carcinogenic chromium at 90 to 105 ug/l, beryllium at 9.6 to 14 ug/l, and arsenic at 68 to 196 ug/l. Lead was also detected in monitoring well no. 4 at 193 ug Pb/l, and in monitoring well no. 7 at 213 ug Pb/l, but was reported at 3030 ug/l in monitoring well no. 9.

The detection of lead in the Garnett well at 153 ug/l is of some concern, but there is insufficient information to ascertain whether this residential well is at probable risk of further degradation from contaminants noted in on-site monitoring well samples.

7.3 Toxicological Considerations

7.3.1 Creosote

Wood preserving processes at the L.A. Clarke and Sons plant have been in operation for approximately 40 years utilizing primarily creosote to treat railroad ties. Creosote is a flammable, heavy, oily liquid with a characteristic sharp, smoky smell, and caustic burning taste. It is a distillate of coal tar that is widely used as a wood preservative and has also found use as a lubricant, waterproofing agent, animal dip, and medicinally as an antiseptic, antipyretic, and astringent. Coal tar in turn is a by-product of the destructive distillation of bituminous coal; it is a complex mixture of many compounds with differing polarities and functionalities, including polycyclic aromatic hydrocarbons (PAH), monocyclic aromatics, phenols, sulfur, oxygen and nitrogen heterocyclic compounds. PAH compounds are widely disbursed in the environment and are formed by the incomplete combustion of organic material (e.g. tobacco smoke, fried foods, smoked meats, automotive exhaust, etc.) Coal tar products contain very high levels of PAH; up to several percent by weight.

Creosote is a strong irritant and can produce acute effects following ingestion, inhalation, or contact with eyes or skin. Fatalities have occurred 14 to 36 hours after ingestion of about 7 grams by adults or 1 to 2 grams by children. Cattle have been fatally poisoned by licking creosote from treated telephone poles. Lesions of intense irritation and congestion of the entire gastroenteric tract occur as a result of oral ingestion. Death from large doses appears to be due to cardiovascular collapse.

Contact of creosote with the skin or condensation of vapors of creosote on the skin or mucous membranes may induce an intense burning and itching with local inflamation, discoloration, eruptions on the skin, gangrene, and in isolated instances cancer. Photosensitization of the affected skin has been reported. Creosote is rapidly absorbed percutaneously. Eye injuries can include keratitis, conjuctivitis, and abrasion of the cornea with permanent corneal scarring in about one-third of such cases. Marked irritation of the nose, throat, and lungs can result from prolonged inhalation of creosote vapors, aerosols and creosote-laden particulates. Individuals with fair complexions are very sensitive to dermal burns induced by fine particles of sawdust from creosote-treated lumber.

While creosote is not listed as an occupational carcinogen, the coal tar from which it is derived is considered by the U.S. National Institute of Occupational Health and Safety (1977) to be a known human carcinogenic substance. Creosote is defined under RCRA as a hazardous waste, and is included in the EPA Carcinogen Association Group's List of Carcinogens (1980). Carcinogenic activity is believed to be related to the content of certain PAH compounds that have demonstrated potent tumorigenic activity in animals. The potential for PAH to induce or promote cancer dominates the consideration given to the health hazards resulting from repeated or long-term exposure to low concentrations of creosote constituents.

Substantial concentrations of several carcinogenic PAH were identified in samples taken from the L.A. Clarke and Sons site. These include benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthrancane, and indeno(1,2,3-cd)pyrene. Epidemiological studies have evidenced that repeated exposure to coal tar pitch volatiles is associated with an increased risk of developing bronchitis and cancer of the lungs, skin, bladder, and kidneys in humans.

The yard areas at the L.A. Clarke and Sons property are heavily contaminated with creosote-related compounds as evidenced by on-site inspection and soil sample analyses. Direct contact with highly contaminated materials may represent a route of potentially significant exposure to toxic pollutants at this site.

Vapors and dusts containing creosote constituents can pose additional hazards to those frequently on or near this site. No ambient air monitoring data for specific compounds are available, but the penetrating odor characteristic of creosote was noted as pungent and irritating in the process area at the time of the site inspection (June, 1983). HNU readings of several ppm above background were noted at a number of sample locations and in the process area of the site. A TLV for creosote has not been established. However, the current OSHA standard for coal tar pitch volatiles is 0.2 mg/m^3 and NIOSH has recommended a reduction of the PEL to 0.1 mg/m^3. (For benzopyrene an ambient air concentration of 0.1 mg/m^3 is equivalent to 0.01 ppm.)

ORIGINAL
(red)

Site Name: L.A. CLARKE & SONS
TDD No.: F3-8304-04

The occurrence in these samples of carcinogenic compounds common to coal tar and its derived product creosote is of toxicological significance in this case. Concern over potential human cancer risk posed by PAH present in ambient air stems from studies demonstrating that crude extracts of airborne particulate matter can be carcinogenic in animals.

The potential for off-site migration of creosote-related pollutants is indicated by the detection of low concentrations of PAH and phenolics in the on-site drainage route ditch aqueous sample; high levels of PAH were also identified in the corresponding sediment sample. It should be noted, however, that no PAH or other organic creosote constituents were detected in aqueous or sediment samples taken from the bordering Massaponax Creek.

Of potentially much greater significance is the apparent severe contamination of shallow groundwater underlying the site. The very high concentrations of PAH, exceeding water solubilities, reported in the sample taken from the bailed monitoring well no. 4 suggests the possibility of a creosote oil phase within the shallow water table. Extensive groundwater contamination is very possible. Creosote can enter the groundwater by percolation through the thin unsaturated zone. The high viscosity of creosote residues (creosote oil itself is denser than water) and the relatively immiscible properties of its components can also allow the material to migrate as an independent phase in soil to the groundwater regimen. Once in the saturated zone, these compounds generally are not subject to the same attenuating mechanisms (such as aerobic biodegration, volatilization, chemical oxidation and photolysis) that are normally operational in surface water systems. Although some oxygenated species, such as phenols, are subject to anaerobic biodegradation in groundwater systems, other more persistent species, such as many of the PAH reported here, have estimated half-lives of 10,000 years (Josephson, 1980. Environ. Sci. Technol. 14, 38-44.).

use in screening rule

All on-site monitoring well samples revealed some extent of reported contamination with organic compounds. Benzene is of note since it is recognized as a human carcinogen, relatively soluble in water and fairly mobile in the hydrogeologic environment. Benzene was detected at concentrations between 62.4 and 374 ug/l in monitoring wells. In most of these well samples only low or trace levels of PAH were detected, but it may be re-emphasized here that most PAH exhibit a very low degree of solubility in water, and can pose a significant health risk at concentrations below detection limits.

Because PAH comprise a class of numerous compounds having diverse biological affects and varying carcinogenic potential, water quality critieria have been established for the entire class of compounds. This approach recognizes the fact that environmental exposures to PAH invariably occur with complex, undefined PAH mixtures. The 1970 World Health Organization European Standards for Drinking Water recommends a concentration of PAH not to exceed 0.2 ug/l. Presently, there is no way to quantitate the potential human health risk incurred by complex mixtures of PAH. Risk estimates for induction of cancer are based on carcinogenic potency of orally administered benzo(a)pyrene in animals. Thus, an incremental increase of cancer risk of 1 out of 100,000 (10^{-5}) is estimated to result from daily consumption of 2 liters of water contaminated with 0.031 ug PAH/l. While no carcinogenic PAH were identified within detection limits of 20 to 40 ug/l in the office well sample, it is possible that traces of PAH are present and undetectable levels of carcinogenic PAH may, nevertheless, be a matter of concern. The health hazards associated with repeated exposure (more effective than an equivalent single dose) of carcinogens through drinking water should not be underestimated. It should be noted, however, that the office well on this active site is reportedly not used at present as a drinking water source.

7.3.2 Inorganic Contaminants

Several toxic inorganics were identified at substantial concentrations in monitoring well samples. Monitoring well no. 9 appears to be the most severely contaminated with toxic metals, while monitoring well no. 4 revealed the most extensive contamination with creosote derived organic pollutants. Lead was detected in the monitoring well no. 9 sample at 3030 ug/l, and elevated concentrations of barium, cobalt, copper, iron, manganese, zinc, and the potentially carcinogenic as well as acutely toxic metals (or metalloid) arsenic (190 ug/l), chromium (615 ug/l), and beryllium (109 ug/l). Any one of these parameters would render the affected water unsuitable for potable uses. At the reported concentrations of these inorganics, irrigational, industrial or any other uses of the severely contaminated water would be undesirable.

Elevated concentrations of lead (193 and 213 ug/l), arsenic (196 and 68 ug/l), beryllium (9.6 and 14 ug/l), and chromium (90 and 105 ug/l) were reported in monitoring well nos. 4 and 7, respectively. Arsenic at 84 ug/l and lead at 59 ug/l were also reported in the drainage ditch aqueous sample. However, the downstream sample of Massaponax Creek which receives the drainage ditch runoff did not reveal any inorganics at toxic concentrations. (Iron was reported at 2840 ug/l in the downstream and 3330 ug/l in the upstream samples; the AWQC for protection of aquatic life is set at 1,000 ug Fe/l.)

No organic pollutants were reliably detected within detection limits in the off-site residential wells. However, lead was identified in the Garnet well sample at a concentration of 153 ug/l. Elevated levels of iron (10,500 ug/l) and manganese (167 ug/l) were also reported in this domestic well sample, but these pose little health hazards, rather affecting quality of taste. Whether any connection exists between the appearance of lead in the Garnet and Hedberg (6 ug Pb/l) wells and the high concentration of lead noted in one on-site monitoring well sample cannot be adduced from the available information. It may be noted in this regard that lead and iron and particularly arsenic can be highly mobile in groundwater, in contrast to PAH.

At sufficient dosage lead can adversely affect many organs and systems including the central and peripheral nervous systems, the kidneys, and the hematopoietic system. Lead also has been shown to cause chromosomal aberrations and cancer in animals (the daily dietary level of lead which would predict an incidence of cancer in 2 out of 100,000 people has been estimated at 29 ug Pb/kg or about 2000 ug/day for a 70 kg adult). It should be noted, however, that the International Agency for Research on Cancer (1972) considers the experimental animal evidence to be of dubious significance with regard to cancer in man.

Lead encephalopathy occurs as a result of a chronic or subchronic exposure to high doses of inorganic lead. A major concern today is subtle behavioral effects, particularly in children, at levels of exposure below those causing clinical encephalopathy. Epidemiologic studies suggest that only moderately elevated lead exposure in infants and young children (PbB = 40 to 80 microgram per deciliter) may cause neurobehavioral effects, hyperactivity, deficits reflected in psychometric performance tests. The minimal level of lead exposure, the duration of exposure required, and the period of greatest sensitivity cannot be specified with any degree of certainty.

From the standpoint of standard setting, the effects of lead on the formation of hemoglobin (hematopoeisis) are important since current knowledge suggests that the effects on heme-synthesis are detectable at lower exposure levels than is seen with any other organ or system. Therefore, it has been assumed that the maximum safe blood lead level (PbB) for any given child should be lower than the threshold level which results in a measurable decline in hemoglobin (40 ug Pb/dl). The U.S. EPA, the CDC, and the American Academy of Pediatrics concur in the opinion that 30 ug/dl represents a safe blood level. Normal intake of lead in food and an average water exposure of 10 ug Pb/l results in a PbB of 12 ug/dl. Drinking water containing 100 ug Pb/l has been estimated to increase the PbB from 12 ug/dl to 17.5 ug/dl. Thus, the current standard of 50 ug Pb/l in drinking water is believed to provide a margin of safety.

ORIGINAL

(red)

Site Name: L.A. CLARKE & SONS
TDD No.: F3-8304-04

Furthermore, data from a study of effect of lead in water on the PbB of a population of children in a fairly small town are reassuring. They indicate that among children whose water supply contained 50 to 180 ug Pb/l, PbBs averaged 17.2 ug/dl (Morse, et al., 1978. Am. J. Public Health).

At a lead concentration of 153 ug/l in the drinking water supply of the Garnet residence, it is probable that no adverse effects will be manifest. However, lead intake of the residents via sources other than drinking water are unknown. Fluctuations in lead levels or further degradation of the potable field could result in a more clearly defined hazard. It may be advisable to confirm the quantitation of lead in this and other wells in the vicinity.

Kenneth G. Symms, Ph.D., Toxicologist

APPENDIX A

ORIGINAL
(red)

1. COST CENTER:	REM/FIT ZONE CONTRACT TECHNICAL DIRECTIVE DOCUMENT (TDD)	2. NO.:
ACCOUNT NO.:		F3-8304-04A

3. PRIORITY:	4. ESTIMATE OF TECHNICAL HOURS:	5. EPA SITE ID:	6. COMPLETION DATE:	7. REFERENCE INFO.:
☐ HIGH ☒ MEDIUM ☐ LOW	180	VA		☐ YES ☒ NO ☐ ATTACHED ☒ PICK UP
	4A. ESTIMATE OF SUBCONTRACT COST:	5A. EPA SITE NAME: L.A. Clarke	8/31/83	

8. GENERAL TASK DESCRIPTION:
Conduct a Preliminary Assessment and Site Inspection of L.A. Clarke near Fredericksburg, VA.

9. SPECIFIC ELEMENTS:

	10. INTERIM DEADLINES:
1. Review available EPA files.	
2. Contact Virginia Water Control Board and review information and data for sampling plan and PA. (Ernie Watkins, 703/750-9111)	
3. Conduct a site assessment and sampling.	X6/30/83
4. Sample from available wells, streams, discharges, etc.	
5. Conduct sampling and shipment according to standard protocol.	
6. Submit formal report.	

11. DESIRED REPORT FORM: FORMAL REPORT ☒ LETTER REPORT ☐ FORMAL BRIEFING ☐

OTHER (SPECIFY):

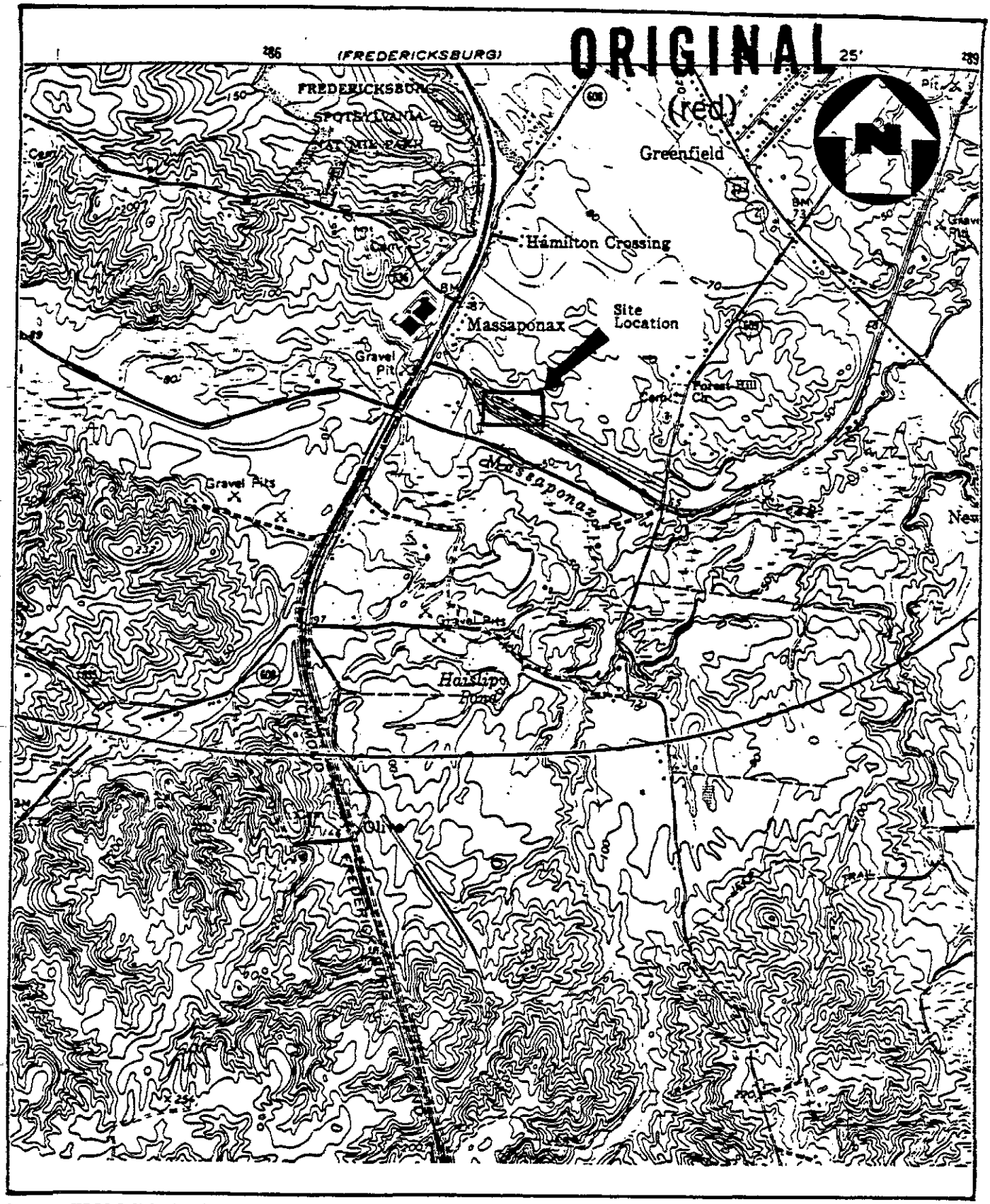
12. COMMENTS: Facility has filed for bankruptcy. Rescheduled to allow for more efficient use of travel time.

13. AUTHORIZING RPO: Linda J. Boornazian (SIGNATURE)	14. DATE: 6/8/83
15. RECEIVED BY: ☒ ACCEPTED ☐ ACCEPTED WITH EXCEPTIONS ☐ REJECTED (CONTRACTOR RPM SIGNATURE)	16. DATE: 6/9/83

Sheet 1 White – FITL Copy
Sheet 2 Canary – DPO Copy
Sheet 3 Pink – Contracting Officer's Copy (Washington, D.
Sheet 4 Goldenrod – Project Officer's Copy (Washington, I

AR100075

APPENDIX B



Source: USGS 7.5' Series Guinea, Va. Quadrangle

Site Location Map

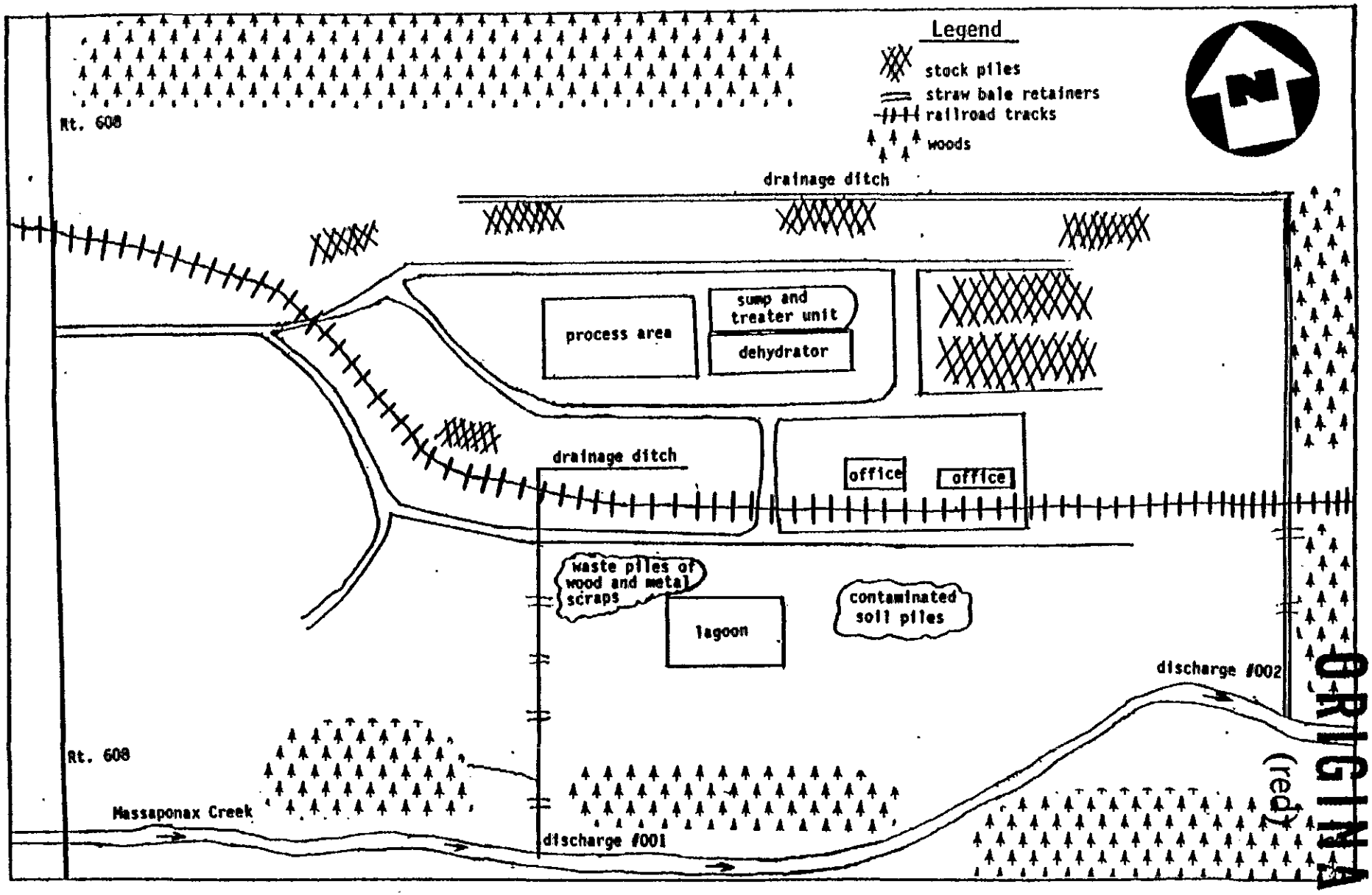
L.A. Clarke Fredericksburg, Virginia

Scale: 1:24,000

NUS CORPORATION

A Halliburton Company

AR100077



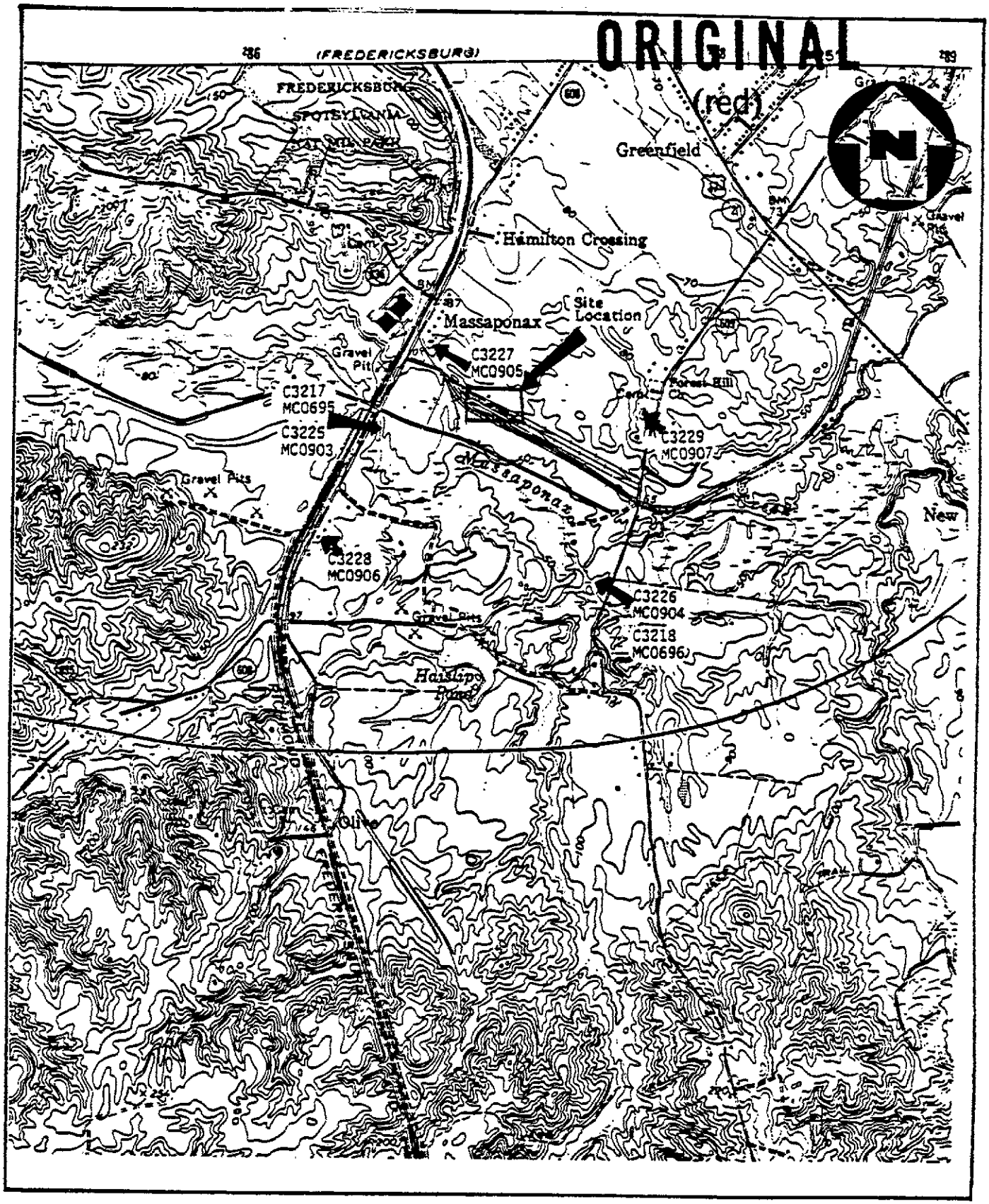
Site Sketch

L.A. Clarke and Sons, Fredericksburg,

NUS CORPORATION

ORIGINAL (red)

ARI00078



Source: USGS 7.5' Series Guinea, Va. Quadrangle

Sample Location Map

L.A. Clarke Fredericksburg, Virginia

Scale: 1:24,000

NUS CORPORATION
A Halliburton Company

AR100079

APPENDIX C

APPENDIX C

1.1 CHRONOLOGICAL HISTORY PROVIDED BY LISA ORR (SWCB)

ORIGINAL

(red)

Chronological History of L. A. Clarke & Sons

1948

State Certificate issued

Early 1970's

Stream sampling and benthic survey showed L. A. Clarke had an impact on Massaponax Creek. High levels of creosote found in sediment, water and aquatic organisms indicated pollution. Treatment of wastewater consisted of draining it to two concrete pits. Overflow went to an earthen pit. Excess water was sprayed on grounds around the storage yard to control dust. There was a notable continual flow of surface run-off water from the pits into a ditch which lead to Massaponax Creek.

1974

Facilities consisted of a four-compartment creosote settling tank and straw filters for the two discharges.

December 5, 1975

NPDES permit VA0005398 was issued with the following limits:

Oil & Grease	10 mg/l avg.	15 mg/l maximum
Phenolics	1 mg/l avg.	2 mg/l maximum
Total Suspended Solids	20 mg/l avg.	30 mg/l maximum

1976 - 1977

See Attachment 1

Summer & Fall 1978

Began work on spray evaporation system but kept having delays. Phenolic violations occurred all during this time (some as high as 129 mg/l).

December 1978

Spary evaporation system finally completed.

May 1979

Mr. Michael Clarke informed the board plant was shut down due to financial reasons.

May 1980

State Department of Health became interested in L. A. Clarke for RCRA requirements. Classified as treater of hazardous wastes because of lagoon.

ORIGINAL
(red)

June 1980

Plant began operating again under management of Ted and Mark Curtas.

December 1981

See Attachment 2

March 1982

See Attachment 3

1982

Dexter Hubbard and Tom Houstan worked on the project to meet consent injunction of March 82.

June 1982

Consent decree was issued. See Attachment 4.

October 1982

Hubbard ceased work with L. A. Clarke because he wasn't paid. Urban Engineering was then on scene.

December 1982

See Attachment 5

March 1983

L. A. Clarke filed a Chapter 11 bankruptcy.

May 1983

Staff sampled black creosote-like discharge point, result was 47 mg/l over permit limit. Also, discharge to creek contained significant levels of polynuclear aronatic hydrocarbons. Lagoon was found to be overflowing due to it being too full and sprayers operating during a rainstorm. Soil piles were uncovered and phenol leaching was occurring.

June 1983

Due to the poor conditions and permit violations at L. A. Clarke our Assistant Attorney General set a court hearing. Prior to the hearing an agreement was made in the form of a new consent decree. Urban Engineering dropped the project due to financial reasons and Clifford & Associates were retained. Since then they have been working slowly on these requirements. They have made efforts to help the situation, however serious problems still exist.

MEMORANDUM

Attachment 1

ORIGINAL (red)

State Water Control Board

2111 North Hamilton Street — P. O. Box 11143 — Richmond, VA

SUBJECT: L. A. Clarke & Son - Fredericksburg Plant

TO: Jake Hamrick

FROM: J. B. Upchurch

DATE: January 20, 1978

COPIES:

As we previously discussed, I am forwarding several documents relative to the background of the L. A. Clarke plant in Fredericksburg. We strongly recommend that a special hearing be convened at the March Board meeting in order to put this plant under a court imposed schedule for constructing the required treatment facilities.

Please let me know if we can provide any additional information.

/s

AR10008

DRAFT

MEMORANDUM

PFE

State Water Control Board

2111 North Hamilton Street | P. O. Box 11143 | Richmond, VA. 23230

SUBJECT: L. A. Clarke & Son, Inc. - Enforcement Document

ORIGINAL (red)

TO: Board Members

FROM: David S. Bailey

DATE:

COPIES:

Summary

Since the effective date (December 5, 1975) of the L. A. Clarke & Son, Inc. (Spotsylvania County) NPDES Permit, numerous violations of the phenolics limitation for discharge 001 have occurred. As result of these violations, L. A. Clarke was issued a Board Directive on November 30, 1976, requiring that the firm take steps to comply with its NPDES permit. Subsequently, L. A. Clarke has failed to comply with all of the terms of the Board Directive and continues to violate the phonolic limit in their NPDES permit. On June 2, 1977, the staff requested that L. A. Clarke submit final plans for treatment facilities needed to comply with their NPDES Permit by July 1, 1977. These plans were submitted on August 19, 1977 and approved by the SWCB on October 3, 1977. On August 8, 1977, L. A. Clarke notified the SWCB that monies to fund the treatment facilities would be made available, however, the company recently informed the SWCB staff that it is having difficulty securing the required funding.

Issues

The issue is "Has L. A. Clarke and Son, Inc., violated its NPDES effluent limitation for phenolics for discharge point source 001".

ORIGINAL PFE

(red)

Introduction

L. A. Clarke and Son, Inc. manufactures creosoted lumber products in Spotsylvania County. The waste treatment plant employed at the facility was authorized to discharge by NPDES Permit No. VA0005398, which became effective on December 5, 1975. The permit contains effluent limits for oil and grease, phenolics, pH and total suspended solids. The treatment process consists of a weir tank, separator, and a series of barriers in an open drainage ditch. The discharge from the plant is to Massaponax Creek, a Class III A stream in the Rappahannock River Basin.

ORIGINAL PTE
(red)

Discussion of Events

Since the issuance of the NPDES permit, there have been numerous violations of the limitation for phenolics. Since phenolics are highly toxic, the staff considers these violations to be very serious.

On June 9, 1976, the staff sent a letter to L. A. Clarke expressing concern over the high phenol level in discharge 001, and requesting that immediate corrective action be taken. The company responded on June 22, 1976, indicating that a separator tank had been ordered and that the frequency of changing the straw filters was being increased to twice a week. The new separator tank was received and installed during August and September 1976. On September 27, 1976, the staff inspected the plant and sampled the discharge. The laboratory analysis indicated a phenolic concentration of 102 mg/l (the NDPES permit limit for phenolics is 2.0 mg/l maximum, 1.0 mg/l average). As a result of this inspection and a subsequent inspection on October 29, 1976, the Executive Secretary issued a Board Directive to L. A. Clarke on November 30, 1976. The Directive required that L. A. Clarke take certain steps to bring its treatment facility into compliance with the terms and conditions of its NPDES permit.

L. A. Clarke failed to comply with the provisions of the Board Directive in that they have continued to violate the phenolic limitation of their NPDES Permit. On June 2, 1977, the staff sent a letter to L. A. Clarke requesting compliance with all of the provisions of the Board Directive and recommending that the firm submit, prior to July 1, 1977, final plans for a treatment system that would achieve compliance with the established NPDES permit parameters.

ORIGINAL PFE
(red)

The plans were submitted to the Board on August 19, 1977, and approved on October 19, 1977.

The staff has been concerned that funds to construct the required facilities would not be available in a timely manner. In response to a request from the staff, L. A. Clarke on August 8, 1977, notified the SWCB that monies to fund the treatment facilities would be made available and that delays in construction would only be hindered by the failure of vendors and/or contractors to provide materials on a timely basis. The company, however, has recently informed the staff that it is having difficulty in securing monies to fund the required treatment facilities. The staff feels that completion of the facilities at the earliest date possible (within 4 to 6 months) is mandatory and that a delay in the construction cannot be allowed.

Conclusions

Based on the foregoing, the staff concludes:

1. That L. A. Clarke has chronically violated its NPDES permit limitation for phenolics at discharge point source 001.
2. That the construction of additional treatment facilities are required in order for L. A. Clarke to consistently comply with the effluent limitations contained in NPDES Permit No. VA0005398.

MEMORANDUM

ORIGINAL (red)

State Water Control Board

2111 North Hamilton Street | P. O Box 11143 | Richmond, VA. 2323

SUBJECT: B77-012 Cursory Biological Survey, Massaponax Creek, Spotsylvania County

TO: E.E. Watkins

FROM: R.W. Ayers

DATE: 26 July 1977

COPIES: T.M. Felvey, R.E. Bowles, BAT, BE

RECEIVED
AUG 4 1977
BY
NORTHERN REGIONAL OFFICE

On 28 June 1977 a cursory biological survey was conducted on Massaponax Creek in the vicinity of the L.A. Clarke & Son discharge. L.A. Clarke is a wood preserving operation which discharges indirectly into Massaponax Creek whenever their holding pond overflows.

Massaponax Creek is a small tributary of the Rappahannock River. It flows east through Spotsylvania County through farmland and swamp. Stream flow during the survey was below normal and the water was clear.

Benthic invertebrate populations were examined at two stations on Massaponax Creek, Rts. 608 and 609, above and below L.A. Clarke. The benthic community at Rt. 608, above Clarke, was dominated by pollution sensitive organisms. The entire community was very diverse in terms of the number and kinds of organisms present. Benthic communities of this type are indicative of productive streams and good water quality.

There was a decline in water quality, as indicated by the invertebrates, at the Rt. 609 bridge below Clarke. None of the pollution sensitive mayflies and stoneflies observed above were present below. The diversity of the benthic population at the second station was high but the density was lower than above the plant. There were more pollution tolerant and facultative organisms below than had been observed above.

From Station 2 at Rt. 609, Massaponax Creek flows into a swamp and then into Ruffins Pond. Ruffins Pond discharges directly into the Rappahannock River. Because the invertebrate populations of the stream and pond are naturally dissimilar, it was not possible to trace the effect of the L.A. Clarke effluent beyond Station 2.

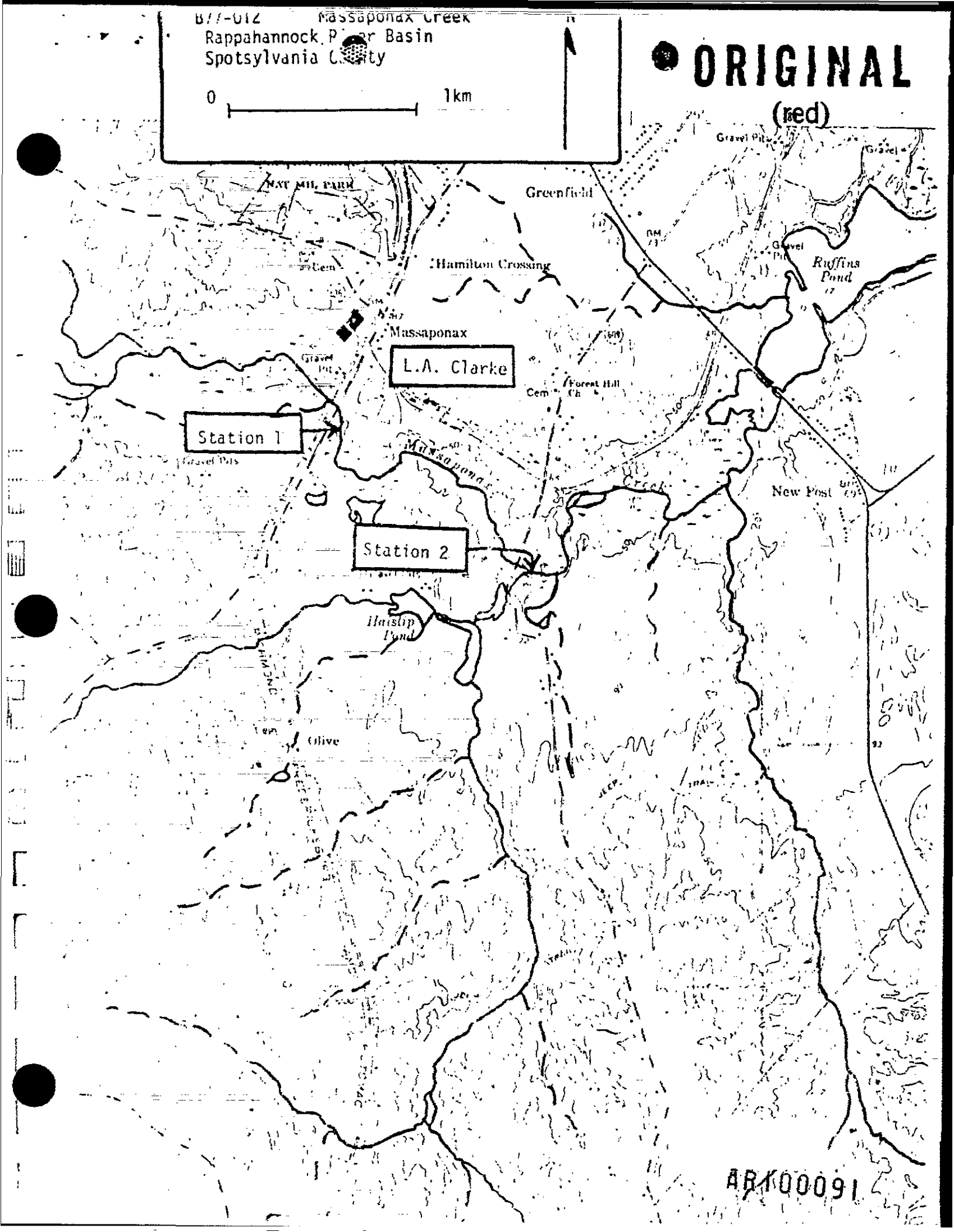
The results of field tests and observations are included for your information along with a map showing station locations.

RWA/jb

Station No. & Description	D.O mg/l	pH	Temp °F	Time	Stream Size W x D	Substrate	Macrobenthic Invertebrates		Notes/ Comments
Station 1. Massaponax Creek, 100 m below Rt. 609 bridge.	6.8	6.7	24	1045	3.3m x 8cm	rocks gravel silt	caddisfly mayfly stonefly crayfish midges Hemiptera whirlegig water mites riffle beetles fingernail clams dragonfly Hellgrammites non-oper. snails	A A C C C C C C F F F F F	Good density, shallow riffle, good water quality.
Station 2. Massaponax Creek, below Rt. 609 bridge 3/4 km. below L.A. Clarke.	6.8	6.7	26	1130	6m x 8cm	rocks gravel silt	caddisfly dragonfly non-oper. snail whirlegig crayfish riffle beetles midges fingernail clam cranefly Hemiptera oligochaetes flatworm Hellgramites blackfly	A C C C F F F F F F F F F F	No may or stoneflies, low density populatio poor, shallow riffle. Decline in water quality from Sta. 1.

Code: Letters Denote Relative Abundance

D - dominant
A - abundant
C - common
F - few


B77-012 Massaponax Creek
Rappahannock River Basin
Spotsylvania County
0
1km
N
ORIGINAL
(red)
Greenfield
Hamilton Crossing
Massaponax
L.A. Clarke
Station 1
Station 2
Ruffins Pond
New Post
Olive
Gravel Pit
Cem
Forest Hill Ch
Hanstip Pond
AR100091

ORIGINAL
(red)

The plans were submitted to the Board on August 19 1977, and approved on October 19, 1977.

The staff has been concerned that funds to construct the required facilities would not be available in a timely manner. In response to a request from the staff, L. A. Clarke on August 8, 1977, notified the SWCB that monies to fund the treatment facilities would be made available and that delays in construction would only be hindered by the failure of vendors and/or contractors to provide materials on a timely basis. The company, however, has recently informed the staff that it is having difficulty in securing monies to fund the required treatment facilities. The staff feels that completion of the facilities at the earliest date possible (within 4 to 6 months) is mandatory and that a delay in the construction cannot be allowed.

Conclusions

Based on the foregoing, the staff concludes:

1. That L. A. Clarke has chronically violated its NPDES permit limitation for phenolics at discharge point source 001.
2. That the construction of additional treatment facilities are required in order for L. A. Clarke to consistently comply with the effluent limitations contained in NPDES Permit No. VA0005398.

MEMORANDUM

ORIGINAL

(red)

State Water Control Board

2111 North Hamilton Street | P. O. Box 11143 | Richmond, VA. 23230

SUBJECT: L. A. Clarke and Sons Grab Data

TO: Joe Upchurch

FROM: Jon D. Byroade JDB

DATE: January 20, 1978

COPIES: E. E. Watkins, Files

The Northern Regional Office first sampled L. A. Clarke and Sons Wood Preserving Plant in Spotsylvania County on March 13, 1975. Since that time numerous samples have been taken for phenolics, oil and grease, BOD_5, and COD. Listed below are the most recent results from samples taken within the last year and a half for discharge 001 (West) in mg/l.

	Phenolics	Oil & Grease	BOD_5	COD
7-26-76	7.55	271	95	215
8- 9-76	4.04	624	60	139
9-27-76	102.8	1	---	---
11-19-76	46.6	---	---	---
1-26-77	2.38	---	---	---
4-18-77	6.0	---	---	---
5-16-77	1.9	---	---	---
8- 9-77	3.0	---	---	---
10-13-77	1.24	---	135	212
1-12-78	No data received yet	---	---	---

Even though this data indicates improvement over the time span it must be noted that these are one-time grab samples and are by no means representative of actual conditions. This is verified by the values reported by Sharpley Laboratory each month.

No surveys have been performed at L. A. Clarke, Inc. because of the relatively constant daily discharge.

An extensive groundwater survey has been planned and is awaiting implementation.

ORIGINAL
(red)

Results of Supplemental Sampling

Received From L. A. Clark & Sons

Sampling Date	Phenolics (mg/l)
[illegible] 1977	13
2	1.1
16	0.34
24	9
[illegible]	0.5
1	2.1
20	21
25	57
[illegible]	30
[illegible]	3.9
[illegible]	10.2
[illegible]	21
8	0.6
[illegible]	18
[illegible]	2.4
[illegible]	3.0
[illegible]	7.2
[illegible]	72
[illegible]	3.0

Water-Permit Monitoring Report Data

Month	Monthly Avg. Phenolics (mg/l)	Monthly Max. Phenolics (mg/l)
[illegible]	-	0.5
[illegible]	-	3.9
[illegible]	-	21
[illegible]	-	3.0

Report now received

AR100094

ORIGINAL (red)
PFE

Attachment 2

Issues

1. Has L. A. Clarke been in violation of its NPDES Permit No. VA0005398 effluent limitations for phenols since September 1980?

2. Has L. A. Clarke failed to take corrective action and submit the necessary plans for the upgrade of the waste treatment facility to meet phenolic effluent limitations?

3. Does the wastewater discharged from L. A. Clarke present a threat to the quality of State waters?

Introduction

Mr. Mark A. Curtas is currently employed by L. A. Clarke as Executive Vice President and General Manager. L. A. Clarke is located off of State Route 17/2 South business, on Route 608 in Spotsylvania County.

L. A. Clarke impregnates railroad crossties and switch ties with a creosote coal tar solution. The process takes place in a sealed autoclove under heat and pressure. The wood is placed in the treating cylinder and the creosote solution is added. Heat and pressure are then applied which forces the solution into the wood. After a sufficient amount of creosote is in the wood, the solution is pumped out and a vacuum is pulled to remove any excess cresote from the surface of the ties.

ORIGINAL

(red)

PFE

All effluent generated from the treatment process is pumped into a separator tank. In this separator tank, creosote, which is heavier than water, drops to the bottom and goes to the dehydrator. There the water is further evaporated from the creosote and the remaining creosote is pumped to a storage tank. The water which is left in the separator tank goes to a weir tank for final separation and the creosote retrieved from this process is again pumped to the dehydrator for further separation. After dehydration, the creosote is stored for reuse. The wastewater from the separator tank is then pumped to a weir tank for measurement. From the weir tank the wastewater goes to a collection tank and is then pumped to an evaporation pond where it is evaporated into the atmosphere via a spray system.

Discussion of Events

The Board issued NPDES Permit No. VA0005398 to L. A. Clarke on December 5, 1975. The permit contains sampling and testing for pH, oil and grease, phenolics, and total suspended solids at Outfall No. 001 which is a drainage ditch serving the active creosoting process area and runoff from the wood storage area, and Outfall No. 002 which serves only runoff from the wood storage area. Both discharges enter an unnamed tributary to Massaponax Creek. The DMRs submitted by L. A. Clarke prior to May, 1979, revealed several violations of their NPDES permit. The majority of these violations were due to high phenolic levels. To resolve this problem, L.A. Clarke closed the operation in May, 1979 and installed the wastewater treatment

ORIGINAL PFE

(red)

facility outlined above. Plant operation was then resumed in June of 1980. The facility operated practically free of NPDES violations until September, 1980. At that time, elevated phenolic levels above the 1.0 mg/l monthly average and 2.0 mg/l daily maximum effluent limitations were reported in Outfall No. 001. In the following months October, 1980 through January, 1981, the facility continued to experience phenolic violations.

On February 25, 1981 members of the NRO staff visited the site and spoke with Mr. Curtas regarding the high phenolic values. He indicated that two breaks in the underground pipe that leads from the plant to the spray evaporation pond had been discovered. Mr. Curtas had no idea how long ago the breaks occurred. As soon as the line breaks were found, a berm was placed around the affected area and a pump was installed to cycle wastewater from the bermed area to the spray evaporation pond. The staff noted one area where the wastewater was welling up and flowing into the ditch that leads to Outfall No. 001. During this visit, the staff also noted additional areas in site where creosote contaminated lot runoff entered drainage ditches feeding outfall 001 and leading to State waters.

The NRO staff members again visited L. A. Clarke on March 20, 1981 and related to Mr. Curtas their environmental concerns as well as suggested steps that should be taken at the facility to eliminate sources of contaminated runoff from entering the drainage ditches, and thus discharging from the outfalls to State waters. The corrective measures requested were incorporated in a letter to Mr. Curtas dated April 7, 1981 which included construction of berms around the tanks and treaters to confine any runoff

ORIGINAL PFE

(red)

that collects in these areas, preparation and submission of an operation/maintenance manual for the wastewater treatment system, and the institution of a ground water monitoring program. One week later, the NRO staff again inspected L. A. Clarke on May 11, 1981. During this visit a breach in the recently constructed bermed area adjacent to the spray evaporation pond was noted and evidence of wastewater flow from the berm into the nearby field was observed. An effluent sample was collected by the NRO staff from the adjacent drainage ditch identified as Outfall No. 001. Results from this sample indicated a phenolic value of 65.6 mg/l. In July, no DMR was received from L.A. Clarke, but the August DMR indicated a monthly average phenolic level of 111.1 mg/l, more than 100 times above the permit requirement.

Following this series of events, coupled with continuing NPDES violations, the Bureau of Enforcement, on August 26, 1981, addressed a letter to Mr. Curtas requesting submission within thirty days of the letter's date of plans and specifications for the upgrade of the wastewater treatment facilities to meet NPDES effluent limitations. After receipt of this letter, Mr. Curtas requested an on site meeting with several of the Board's staff members. The staff consented and on September 21, 1981 they met with Mr. Curtas at L. A. Clarke. On this visit, the staff was informed of additional leaks in the underground pipeline leading to the spray evaporation pond. In addition, it was evident that very little had been done to satisfy the requests made by the staff on April 7, 1981. The staff again expressed concern over the failure to implement any corrective action and indicated that further NPDES noncompliance would serve to initiate

ORIGINAL PFE
(red)

enforcement action. In a letter memorializing this meeting, dated September 22, 1981, Bureau of Enforcement again requested steps be taken to clean up the facility and action taken to upgrade the existing treatment system. Although Mr. Curtas responded on September 25, 1981 with a plan of action to address the effluent violations, a staff inspection on November 2, 1981 revealed that the work to date has been entirely unsatisfactory. In addition to routine phenolic violations, L. A. Clarke has failed to submit DMR's for the months of February, July, and September 1981. These NPDES noncompliance have prompted the staff to initiate enforcement action.

Conclusions

1. The staff believes that L. A. Clarke has experienced eight months of phenolic violations of its NPDES Permit No. VA0005398 for the period September 1980 through September 1981.

2. The staff believes that L. A. Clarke failed to submit DMR's for the months of February, July, and September, 1981 and submitted an incomplete DMR for the month of March, 1981.

3. Furthermore, the staff believes L. A. Clarke has been negligent in that staff requests for cleanup of the facility and staff requests for plans and specifications for upgrade of the wastewater treatment system have not been honored by L. A. Clarke.

Board Members
Sub: L. A. Clarke & Son, Inc. - Enforcement Document

PFE

ORIGINAL

(red)

4. It is the opinion of staff that L. A. Clarke has caused degradation to State surface waters and that the wastewater from said facility poses an imminent threat to the groundwater regime.

5. The staff feels cause exists for Board action.

ENFORCEMENT DOCUMENT APPROVED AND SPECIAL ORDER HEARING AUTHORIZED.

R. V. Davis, Executive Director

Date

Executive Director Approval Number

AR100100

ORIGINAL

(red)

Attachment 3

PFE

BOARD PRESENTATION

L. A. Clarke & Son, Inc.

L. A. Clarke & Son, Inc., located on Route 608 in Sptosylvania County, impregnates railroad crossties and switch ties with a creosote coal tar solution. The process takes place in a sealed autoclave under heat and pressure. The wood is placed in the treatment cylinder and the creosote solution is pumped into it. Once filled, heat and pressure are applied which forces and solution into the cells of the wood. After a sufficient amount of creosote is in the wood, the solution is pumped out and a vacuum is pulled to remove any excess creosote form the surface of the ties.

The Board issued NPDES Permit No. VA0005398 to L. A. Clarke & Son, Inc. on December 5, 1975 for two discharges for drainage ditches that drain the process area and the storage area. Due to phenol violations, the present wastewater treatment system was installed. Phenols are toxic compounds present in the creosote which act to prevent biodegradation of the wood. Although the operation ceased in May 1979, it was resumed in June 1980, under the management of Messrs. Ted and Mark Curtas. From October 1980, to the present, several months of phenol violations have occurred due to pipe breaks and leaks, as well as drainage from spill areas.

In December 1980, the Company elected to pursue a No-Discharge Certificate to replace the NPDES Permit, and the permit was administratively continued. Ground water data submitted by the Company in January 1982, as part of the No-Discharge Certificate package, indicated that the shallow ground water (perched water table) is contaminated. Further sampling by the State Water Control Baord and the Company has confirmed this.

On March 18, 1982, the staff met with Mr. Ted Curtas, the Company President, his consultants and attorney to discuss actions necessary to address the ground water and surface water contamination caused by the facility. They have agreed to consent injunction with a schedule to evaluate the extent of contamination and to correct the situation. The terms of the consent injunction primarily address the actions to be taken immediately to prevent any further permit violations or ground water contamination. Plans for a perched water diversion ditch and cleanup of the evaporated pond are to be submitted by March 25, 1982, and implemented when approved by the State Water Control Board. Plans for ground water (perched water table and deep aquifer) and soil sampling are to be submitted by April 1, 1982, and implemented within two weeks of completion of the diversion ditch or upon approval by the State Water Control Board, whichever is later. When the results of soil and ground water testing are available, they will be submitted to the State Water Control Board, along with a proposal for cleanup and restoration of the contaminated areas.

ORIGINAL

(red)

PFE

EXECUTIVE SESSION SUMMARY

L. A. CLARKE & SON, INC.

15-DAY LETTER APPEARANCE

L. A. Clarke & Son, Inc. operates a creosote wood preserving plant which is authorized to discharge to State waters by NPDES permit No. VA0005398. The Company's treatment facilities were designed to operate as a closed system, however the permit contains two outfalls which receive runoff from the active creosoting process area and the wood storage area.

From October 1980 to November 1981, L. A. Clarke & Son, Inc. violated its NPDES effluent limitation for phenols. The staff has requested L. A Clarke on numerous occasions to submit plans and specifications for the clean up of contaminated materials and upgrade of treatment facilities.

In January 1982, L. A. Clarke & Son, Inc. submitted additional information for an application for an Industrial Water No-Discharge Certificate. Included in this submittal were the results of ground water monitoring. These samples showed a serious ground water contamination problem. The phenol concentrations in all of the monitoring wells sampled exceeded the State ground water standard of 0.001 mg/l.

On March 17, 1982, L. A. Clarke submitted a concept plan which outlined the submission of plans for the clean-up of phenol contaminated soil and NPDES permit compliance. The staff met with L. A. Clarke on March 18, 1982 and negotiated consent injunction for implementation of this plan. Based on this plan, the staff recommends that the Board requests the Attorney General's Office to proceed against L. A. Clarke & Son, Inc. with legal action including the entry of the negotiated consent decree and authorization to seek civil penalties, as appropriate.

March 21-23, 1982
Board Meeting

ORIGINAL

(red)

PFE

PROPOSED TERMS FOR CONSENT INJUNCTION
BETWEEN THE STATE WATER CONTROL BOARD
AND L. A. CLARKE & SON, INC.

---

1. L. A. Clarke & Son, Inc. ("L.A. Clarke") agrees to undertake the following actions in accordance with the following timing:

	Action	Timing
a.	Submit to the State Water Control Board ("SWCB") a proposal to excavate a drainage ditch along L.A. Clarke's northern property line and to connect that ditch to the Massaponax Creek including a schedule of completion.	By March 25, 1982
b.	Submit to the SWCB and the State Health Department (SDH) a proposal for removal and treatment, storage or disposal of contaminated soil in the vicinity of the northern side of the evaporation pond including a schedule of completion.	By March 25, 1982
c.	Submit to the SWCB a proposed soil and groundwater (including the perched water table and the deep aquifer) sampling and testing program and proposal for sampling of contaminated sediment in Massaponax Creek.	By April 1, 1982
d.	Commence exacavation of the drainage ditch and connections noted in 1(a) above and complete according to the schedule approved by the SWCB.	Commence within one week of approval of the proposal by the SWCB.
e.	Commence removal and treatment, storage or disposal of contaminated soil in the vicinity of the northern side of the evaporation pond and complete according to the schedule approved by the SWCB and the SDH.	Commence upon approval by the SWCB and, if required, by the SDH, or as soon as weather conditions permit, whichever is later.
f.	Commence the soil, creek sediment and groundwater sampling and testing program.	Within two weeks after completion of excavation of the drainage ditch and connections or upon approval by the SWCB, whichever is later.

	Action	Timing
g.	Submit to the SWCB the results of the soil, creek sediment and groundwater program.	Within three weeks of commencement of the sampling and testing program.
h.	Submit to the SWCB and the SDH a proposal for modification of the plant's operations area, including removal and treatment, storage or disposal of contaminated soil, and restoration of the area with a cap of compacted clay material including a schedule of completion.	At the same time as the results of the soil and groundwater program are submitted.
i.	Commence implementation of the modification plan and complete according to the schedule approved by the SWCB and the SDH.	Commence upon approval by the SWCB Staff and the SDH.
j.	Submit a proposal to the SWCB for removal, if any, of contaminated creek sediment.	

2. The above actions and timing may be modified for good cause upon agreement of the parties which shall include but not limited to, inclement weather or an Act of God.

3. In consideration of L.A. Clarke's agreement to undertake the above actions, the SWCB agrees to exercise reasonable enforcement discretion with regard to any violation of (i) Title 62.1 of the Code of Virginia (1950), as amended, (ii) the SWCB's regulations, or (iii) L.A. Clarke's NPDES permit, while L.A. Clarke is undertaking and completing the actions set forth in Term 1 of this consent injunction.

4. This consent injunction will terminate and have no further effect when L.A. Clarke completes the actions set forth in Term 1 provided, however, if these actions do not achieve NPDES Permit compliance or eliminate further groundwater degradation, the parties shall agree to such further modifications, extension or enlargement of the terms of this injunction as may be deemed necessary.

5. Nothing herein contained shall be construed as an admission by the Company of any violation of any provision of the United States Code, as amended, the Code of Virginia (1950), as amended, or of any violation of or liability pursuant to the principles of common law or federal common law.

ORIGINAL
(red)

signed June 2, 1982

Attachment 4

VIRGINIA:

IN THE CIRCUIT COURT OF SPOTSYLVANIA COUNTY

COMMONWEALTH OF VIRGINIA, ex rel., STATE WATER CONTROL BOARD,

Plaintiff,

v.

L. A. CLARKE & SON, INC.,

Defendant.

Chancery No. ____

CONSENT DECREE

This cause came on this day to be heard upon plaintiff's Motion for Temporary Injunction and it appearing to the Court from the representations of counsel that all parties to the cause have agreed to the following, and for good cause shown, it is hereby ORDERED, ADJUDGED and DECREED:

1. That the defendant L. A. Clarke & Son, Inc. (defendant) shall submit to the State Water Control Board (SWCB) and to the State Department of Health (SDH), a proposal to excavate a drainage ditch along defendant's northern property line and to connect that ditch to the Massaponax Creek. The proposal shall be submitted by the close of business on March 25, 1982.

2. That the defendant shall submit to the SWCB and the SDH a proposal for removal and treatment, storage or disposal of contaminated soil in the vicinity of the northern side of the evaporation pond located at defendant's site, including a schedule of completion by March 25, 1982.

3. That the defendant shall submit to the SWCB a proposed soil and groundwater sampling and testing program and a proposal for sampling of contaminated sediment in Massaponax Creek by April 1, 1982. The groundwater sampling and testing program shall include sampling and testing of

ORIGINAL

(red)

PTE

the perched water table and the aquifer below said perched water table.

4. That the defendant shall, within one week of receipt of SWCB and SDH approval of defendant's proposals submitted pursuant to paragraph 1 above, commence excavation of the drainage ditch and connections noted in paragraph 1.

5. That the defendant shall, upon receipt of approval by the SWCB and the SDH, or as soon as weather conditions permit, whichever is later, commence removal and treatment, storage or disposal of contaminated soil in the vicinity of the northern side of the evaporation pond referenced in paragraph 2 above, and complete according to the schedule approved by the SWCB and the SDH.

6. That the defendant shall, within two weeks after completion of excavation of the drainage ditch and connection referenced in paragraphs 1 and 4, above, or upon approval of the SWCB, whichever is later, commence the soil, creek sediment and groundwater sampling and testing program referenced in paragraph 3 above.

7. That the defendant shall within three weeks of the commencement of the sampling and testing program referenced in paragraphs 3 and 6 above, submit to the SWCB the results of the soil, creek sediment and groundwater program.

8. That simultaneously with the submission of the results of the soil and groundwater sampling program, the defendant shall submit to the SWCB and the SDH a proposal for modification of the plant's operations area, including plans to (1) remove, (2) treat, store or dispose of contaminated soil, and (3) restore any contaminated area with a cap of compacted clay material or other similar impermeable material. The defendant's submission of the modification proposal shall include a schedule for completion of said project.

ORIGINAL

(red)

PFE

9. That the defendant shall upon receipt of SWCB and SDH approval commence implementation of the modification plan referenced in paragraph 8, above, and complete according to the schedule approved by the SWCB and the SDH.

10. That the defendant shall, within four weeks of the submission of the results of the creek sediment sampling program, submit a proposal to the SWCB for removal of contaminated creek sediment, if any.

11. The actions outlined in paragraphs 1 through 10 above, and the timing for completion of said actions shall be modified upon agreement of the parties or for good cause shown. Good cause shall include but not be limited to inclement weather or an act of God. The approvals by the SWCB of any proposals required to be submitted by the defendant referenced herein shall not be unreasonably withheld.

12. The SWCB agrees to exercise reasonable enforcement discretion regarding any violation of Title 62.1 of the Code of Virginia (1950), as amended; the SWCB's regulations or the defendant's NPDES permit during the period that the defendant is undertaking and completing the actions set forth herein according to the approved implementation schedules.

13. This decree will terminate and have no further effect when the defendant completes the action set forth herein provided, however, if these actions do not achieve NPDES permit compliance or eliminate further groundwater degredation, the parties may seek such further modifications, extensions or enlargement of the terms of this injunction as may be deemed necessary.

14. Nothing herein contained shall be construed as an admission by the defendant of (1) violation (a) of any provision of the United States Code as amended, (b) the Code

ORIGINAL

(red)

PFE

of Virginia (1950), as amended, or (c) of any other provision of law; or (2) any liability pursuant to the principles of common law or federal common law.

Let the Clerk send a copy teste of this Decree to each counsel of record.

Entered this _____ day of _____, 1982.

_____
Judge

We ask for this:

Brian L. Buniva

Gerald L. Baliles
Attorney General of Virginia
Brian L. Buniva
Assistant Attorney General
Counsel for plaintiff
101 N. 8th Street, 5th Floor
Richmond, Virginia 23219

William L. Rosbe, Esquire
Jeffrey K. Sherwood, Esquire
Counsel for defendant
Hunton & Williams
707 E. Main Street
P. O. Box 1535
Richmond, Virginia 23212

APPENDIX C
1.2 LETTER FROM TECHNICAL ASSOCIATES TO VIRGINIA SWCB

TECHNICAL ASSOCIATES

ORIGINAL

(red)

Planning/Engineering/Construction Management

DEXTER HUBBARD, JR., P.E. JOHN F. HANCOCK, P.E.

March 17, 1982

Mr. Thomas A. Schwartzberg, Regional Director
State Water Control Board
Northern Virginia Regional Office
2019 Cherokee Avenue, Suite 404
Alexandria, Virginia 22312

cc: L. A. Clarke & Son, Inc.
Spotsylvania County

Dear Mr. Schwartzberg:

It is my understanding that there may be a meeting in your office on Thursday, March 18, at 3:00 p.m. to discuss the possible resolution of problems at the L. A. Clarke plant that have led your staff to take this matter before the Board next Monday. As a basis for a meaningful discussion at the Thursday meeting I would appreciate your considering the information included in, and with, this letter as a beginning of the solution to the existing problems.

During the past several years, and particularly during the time of my involvement during the past eight months, there have been a series of events including confusion, misunderstandings, failures to respond and other things that have contributed to what might be termed a "crisis" situation at the L. A. Clarke & Son, Inc. plant in Spotsylvania County. I'm sure that you and your staff are of the opinion that the preponderance of the problems stem from the non-compliance and failure to respond on the part of the owners and/or their agents. This may be true; however, there were extenuating circumstances involving confusion about who was supposed to do what about testing, reporting, contractors and general bad weather that have contributed to the situation that presently exists.

Rather than trying to place the blame on any one person or thing that may or may not be responsible I would like to attempt to make a brief statement of the major areas of concern for the involved parties and, propose solutions to these areas of concern.

A. MAJOR AREAS OF CONCERN

1. Statement of existing conditions and plant situation.

2. Failure to file monthly lab reports on ditch and stream samples under existing VPDES permit.

ORIGINAL
(red)

3. Failure to clean up plant site including operation pond and other areas of poor drainage.

4. Failure to follow up on non-discharge permit application review.

5. Groundwater and surface water monitoring programs, delay in providing groundwater and soil sampling results.

B. DISCUSSION OF ABOVE ITEMS AND PROPOSED SOLUTIONS

1. Existing plant site problems and recommended remedial measures. These recommendations are to be integrated into the non-discharge permit proposal to be discussed under item 4.

During the latter part of 1981, beginning in September, T. A. Houston & Associates was employed to install groundwater sampling wells and take soil borings, and to make a study of the site hydrogeology. The following comments and recommendations are in part, the results of those activities.

The major source of creosote or phenolics originates from the plant. The plant is plus thrity years old and numerous leaks and creosote spills in the area of the creosote storage tanks have resulted in a build-up of material in this area. Spreading and dispersion of this material normally occurs during periods of wet weather and at times when the groundwater table is high. Dispersion can take two forms: 1) sheet run off - when groundwater is high and when existence of heavy continued rainfall, and 2) ditch confinement - when light precipitation causes runoff into ditches.

The plant and operation is located on a fluvial terrace of Massaponax Creek. For years these fluvial terraces have been a source of sand and gravel. In all probability, the sand and gravel that was removed to the water table was used to develop and level the site.

The geology of the site indicates 8-10 feet of sand and gravel overlying a deep clay deposit. In areas where the gravel was removed and leveled, it is approximately 12-18 inches above perched water table existing in the sand and gravel.

Perched groundwater flow at this site trends from the north to the south toward Massaponax Creek. The old gravel pit and swamp to the north of the site acts as a recharge area (approximately 50 acres). Precipitation falling on this 50 acre area generally works its way across the Clarke site operation.

ORIGINAL
(red)

Proposed Solutions:

(a) To correct problems related to precipitation and groundwater flow, we recommend a drainage ditch be excavated along the north property line extending ± 2000' as shown on plan. Depth should be at least five feet below existing ground contour. This ditch should be connected with the ditch on the western edge of the property which will outfall to the ditch on the southern property line. The principal concept in regard to construction of this ditch will be to lower and drain the perched water table.

(b) The main source of contamination contributing to runoff problems at the plant is within the confines of the plant operation, specifically in the area of the creosote storage tanks, hot creosote make-up tanks and creosote cylinders. This area, according to soil tests, is contaminated to a depth of approximately 18". We recommend that this area be undercut to the necessary depth of greater than 18 inches and removed. At this time, all plumbing lines will be repaired and secured to prevent future leaks. The material removed will be secured on site for testing; recommendations for proper disposal techniques will be forthcoming.

For protection, we recommend a compacted clay material be utilized. The clay cap will be sloped and shaped to insure that any spillage from plant operation will flow to a central sump pit. Initially, the runoff from this area will be pumped into the dehydration system as stated in the previously filed non-discharge permit application.

Due to the high energy cost of evaporating the plant site runoff we would probably recommend the construction of a roof system that will cover the operations shown on the detail plan. This would completely eliminate rainfall inflow problems that have been a problem in the past. In addition to the above activities there will be miscellaneous site grading as required to insure positive runoff of the yard area outside of the plant site itself.

.. Failure to file monthly reports on time:

Since the Sharply laboratory operation in Fredericksburg was taken over by Reed Associates in Newport News, there has been much confusion concerning the taking of samples. This confusion has been over times of sampling, quality of samples, shipment, timely payment of invoices, validity of results, and related items.

In order to correct this situation, our firm has been designated by the owner to direct the sampling operation and to insure that it is

ORIGINAL
(red)

done properly and by qualified personnel. All future reports will be filed on time, regardless of the nature of the results.

2. Failure to clean up plant site:

Since my involvement, beginning in mid-1981, there has been general confusion about what should be done, except that everyone agrees that the plant site should be "cleaned up".

I'm not sure about the chain of events that led to the construction of the so-called "evaporation pond" and the issuance of an NPDES discharge permit with certificate limits of 1 and 2 ppm, phenols for a facility that was apparently supposed to be a non-discharge operation.

Since my involvement there have been leaks and spills that have led to violations of the existing permit limits. [illegible] at one point it was [illegible] agreed that, subject to our [illegible] suitable specification for pond construction, that we should construct a reserve [illegible] to correct the situation.

In [illegible] the above situation, one factor [illegible] remained. The plant site [illegible] never been in [illegible] that [illegible] significant remedial measures could [illegible]. I feel that [illegible] recommendation to construct a ground [illegible] cut-off ditch on the north [illegible] of the site is the only way any [illegible] solution can be achieved. After the construction of this facility, we can proceed with mutually agreeable measures to clean up the plant and to achieve true non-discharge status which should lower the levels of surface and ground water contamination to an acceptable level.

need specific clean up [illegible] time frame

Non-Discharge Permit Application:

Pursuant to our meeting at the [illegible] A. Clarke plant in early December 1981, a non-discharge permit application was filed, dated 12-31-81 (although I think it was actually delivered at mid-day on the 5th). On the 29th of January we received a letter from Patti Jackson requesting that we participate in a split sampling program to verify the results of data that was submitted with the application; and, that owing to the serious nature of the phenolic levels in the [illegible] water table, the staff would not go along with the consent injunction [illegible] at the December meeting.

[illegible] received a letter from [illegible] concerning [illegible] requested to [illegible] the review of the non-discharge [illegible] not working [illegible] the [illegible] did not coordinate as well with the [illegible] know SUCH [illegible] drawings and

ORIGINAL
(red)

extensive groundwater and soil testing. It is my opinion that the testing done to date is indicative of the problems that currently exist; and, that it would not be cost effective to continue to monitor and test until some concept for improving the situation had been agreed upon.

Proposed Action:

We are proposing to carry out the plan as presented with the non-discharge permit. In addition we propose to construct the surface/groundwater interceptor ditch which has been added to the plan. Also, we propose to construct a roof over the process area per the enclosed, revised plan.

Regarding the proposed evaporation pond, it is our intention to pump this material back into the process and dehydrate as required until it can be completely dewatered. After that we will make necessary piping and bottom repairs, line the pond with a waterproof membrane and use it for closed system cooling purposes only.

b. Groundwater/Soil Testing:

Subsequent to a late summer 1981 meeting with Patti and Dan, I had Tom Houston conduct soil and groundwater tests during September. The results of these tests were submitted with the non-discharge permit application. We did not release this information sooner for two reasons. One, the results don't look good; and, two, we weren't sure of their validity. After Patti Jackson's letter of January 29 requesting split sampling, Tom met with SWCB representatives on February 23, and again on March 2, to take the samples. A memo from Tom Houston is attached which summarizes the results of this work. Basically, this testing tells us what we all knew; that the soil in the immediate plant area is high in phenol as is the perched water table we discovered in the area.

Proposed Action:

We propose to construct a deep well, [illegible], in the area to furnish stable water to [illegible] provide a monitoring point for the [illegible] water aquifer. We will [illegible] split samples from [illegible] appropriate time.

In addition we will continue to monitor the groundwater surface water from the existing sample points on some mutually agreeable schedule to document the decline in phenol levels (we hope).

Mr. Thomas A. Schwarberg
March 17, 1982
Page 6

ORIGINAL
(red)

Summary:

I'm sure you and your staff have heard many promises before; however, I feel convinced that we are heading in a direction that will lead to a solution of the problem. The owners have committed a substantial sum of money to be spent this year to maintain the program outlined in this letter and illustrated on the attached bar chart.

I appreciate your consideration [illegible] to [illegible] pr[illegible] [illegible] and [illegible] ef[illegible] future.

Sincerely,

Dexter Hubbard, Jr., P.E.

[illegible]/cb

Enclosure

cc: L. A. Clarke & Son, Inc.
William L. [illegible]osbe, Esquire
SWCB, Richmond
T. A. Houston

AR100115

APPENDIX C

1.3 TEST BORING RECORDS OF T.A. HOUSTON & ASSOCIATES, LTD.

ORIGINAL (red)

T. A. HOUSTON & ASSOCIATES LTD.

ENVIRONMENTAL GEOLOGISTS

TEST BORING RECORD

24 Hr. Reading 6.7

S-6 SURFACE ELEVATION 56.8 SHEET NO. ..... OF ... SHEETS

L.A.Clark & Son, Inc.

Fredericksburg, Va.

7-6-82 JOB NO. .....

GROUND WATER .....

DATE ..... TIME ..... DEPTH .....

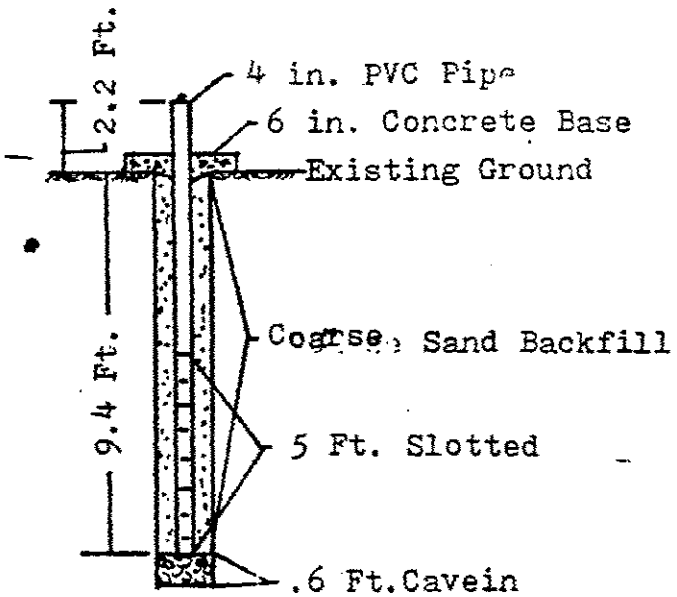
CASING HAMMER WT ..... LBS. DROP .....

SAMPLER HAMMER WT. ..... LBS. DROP .....

SAMPLER SIZE ..... IN. O.D. CASING SIZE .....

DRILLER'S LOG ☐ GEOLOGIST'S LOG ☐ MECHANICAL ANALYSIS ☐

ELEVATION	DEPTH	CASING HAMMER BLOWS		REMARKS	SAMPLE DEPTH	BL SAM
56.8						
55.8	1.0		Black-Gray Fine Sand Coarse Gravel			
53.8	3.0		Yellow Brown Fine to Coarse Sand and Gravel			
51.8	5.0		Yellow Brown Sandy Clay -Moist- Slight Gray Mottling			
49.8	7.0		Gray Clay -Moist-			
48.8	8.0		Gray Brown Clay -Moist-			
46.8	10.0		Red Brown Silty Clay -Moist-			
			Boring Terminated @10.0 Ft. Well Set			



AR 100117

T. A. HOUSTON & ASSOCIATES LTD.

ENVIRONMENTAL GEOLOGISTS

ORIGINAL (red)

TEST BORING RECORD

24 Hr. Reading 2.2 F

S-7 SURFACE 57.5

LE NO. ELEVATION SHEET NO. OF SHEETS

L.A.Clark & Son, Inc.

OR

CATION Fredericksburg, Va.

ARTED COMPLETED 7-6-82 JOB NO.

GROUND WATER

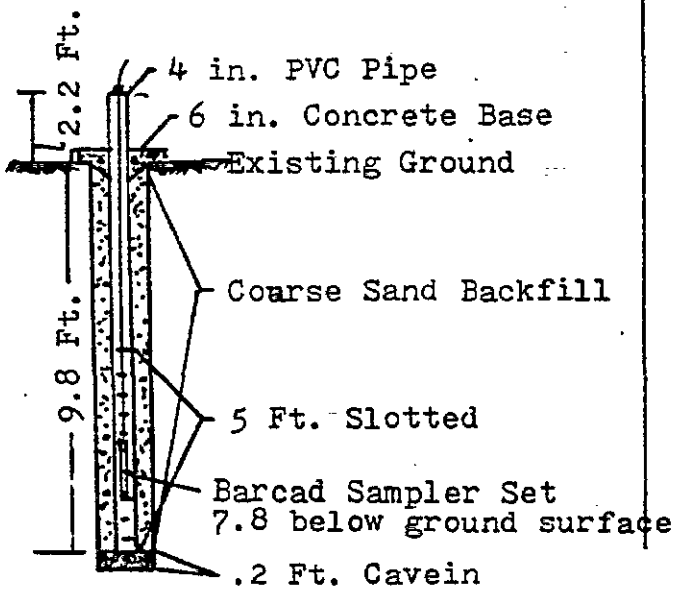
DATE TIME DEPTH

CASING HAMMER WT. LBS. DROP

SAMPLER HAMMER WT. LBS. DROP

SAMPLER SIZE IN. O.D. CASING SIZE

ELEVATION	DEPTH	CASING HAMMER BLOWS	DRILLER'S LOG ☐ GEOLOGIST'S LOG ☐ MECHANICAL ANALYSIS ☐	REMARKS	SAMPLE DEPTH	BL C SAM
57.5						
56.5	1.0		Gray-Tan Fine to Medium Sand			
			Tan Fine to Coarse Sand and Gravel -Wet @5.0 -Creosote Odor-			
52.5	5.0					
			Tan Fine to Medium Silty Sand, -Wet-			
47.5	10.0					
			Boring Terminated @10.0 Ft. and Well Set			



AR100118

T. A. HOUSTON & ASSOCIATES LTD.

ENVIRONMENTAL GEOLOGISTS

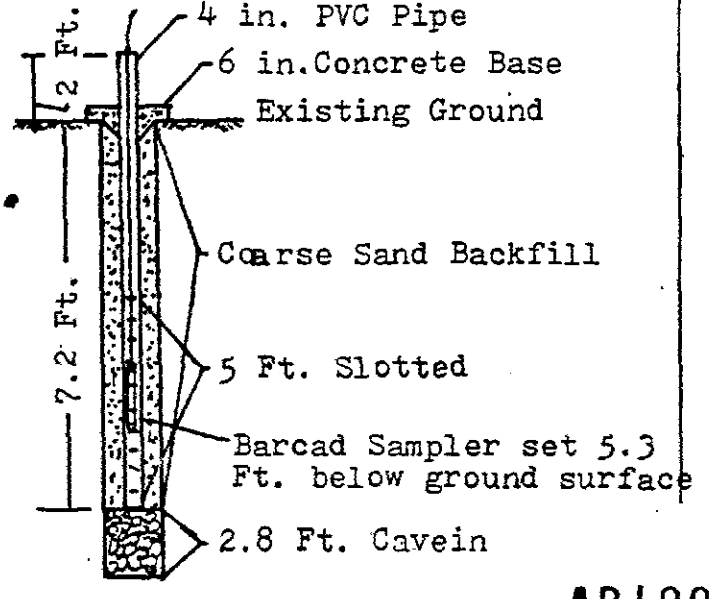
ORIGINAL (red)

TEST BORING RECORD

E NO. S-8 SURFACE ELEVATION 62.5 SHEET NO. ... OF ... SHEETS
L.A. Clark & Son, Inc.
ATION Fredericksburg, Va.
ARTED ... COMPLETED 7-6-82 JOB NO. ...

GROUND WATER 24 Hr. Reading 1.8Ft
DATE ... TIME ... DEPTH ...
CASING HAMMER WT. ... LBS. DROP ...
SAMPLER HAMMER WT. ... LBS. DROP ...
SAMPLER SIZE ... IN. O.D. CASING SIZE ...

ELEVATION 62.5	DEPTH	CASING HAMMER BLOWS	DRILLER'S LOG ☐ GEOLOGIST'S LOG ☐ MECHANICAL ANALYSIS ☐	REMARKS	SAMPLE DEPTH	BLO SAMP
			Yellow Brown Fine to Medium Sand and Gravel			
60.0	2.5					
59.0	3.5		Black-Gray Fine to Medium Sand-Organics			
			Gray Black Fine to Medium Sand			
56.5	6.0					
			Gray Fine to Medium Sand and Gravel -Wet-			
52.5	10.0					
			Boring Terminated @10.0 Ft. Well Set			



AR100119

T. A. HOUSTON & ASSOCIATES LTD.

ENVIRONMENTAL GEOLOGISTS

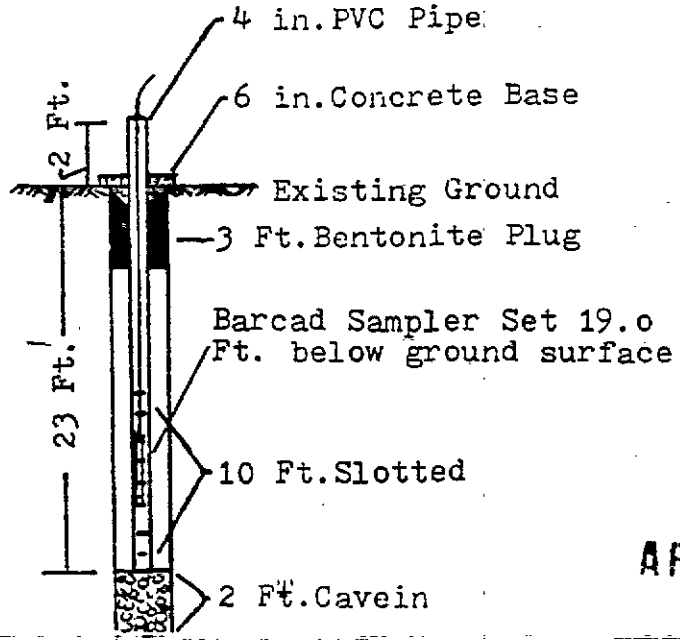
ORIGINAL (red)

TEST BORING RECORD

LE NO. D-5 SURFACE ELEVATION 54.5 SHEET NO. ..... OF ... SHEETS
OR L. A. Clark & Son, Inc.
OCATION ... Fredericksburg, Va.
ARTED ..... COMPLETED 7-6-82 JOB NO. .....

GROUND WATER ... 24 Hr. Reading 3.8 Ft.
DATE ..... TIME ..... DEPTH .....
CASING HAMMER WT ..... LBS. DROP ..... IN
SAMPLER HAMMER WT. ..... LBS. DROP ..... IN
SAMPLER SIZE ..... IN. O.D. CASING SIZE ..... IN

ELEVATION 54.5	DEPTH	CASING HAMMER BLOWS	DRILLER'S LOG ☐ GEOLOGIST'S LOG ☐ MECHANICAL ANALYSIS ☐	REMARKS	SAMPLE DEPTH	BLO C SAMP
			Tan-Brown Fine to Medium Sand & Gravel			
51.5	3.0		Red Brown Fine Sandy Clay			
50.5	4.0		Gray Silty Clay			
46.5	8.0		Red Brown Silty Clay			
41.5	13.0		Gray Brown Silty Clay-Wet @18.0			
29.5	25.0		Boring Terminated @25.0 Ft. and Well Set			



AR100120

T. A. HOUSTON & ASSOCIATES LTD

ENVIRONMENTAL GEOLOGIST

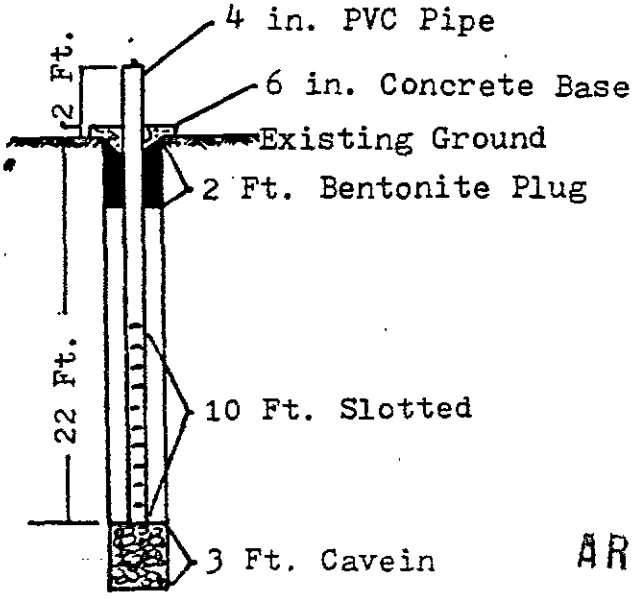
ORIGINAL (red)

TEST BORING RECORD

LE NO. D-6 SURFACE ELEVATION 55.5 SHEET NO. ..... OF ... SHEETS
R ... L.A.Clark & Son, Inc. .....
OCATION .. Fredericksburg, Va. .....
TARTED ..... COMPLETED 7-6-82 JOB NO. .....

GROUND WATER ... 24 Hr. Reading 2.5 Ft. .....
DATE ..... TIME ..... DEPTH .....
CASING HAMMER WT ..... LBS. DROP .....
SAMPLER HAMMER WT. ..... LBS. DROP .....
SAMPLER SIZE ..... IN. O.D. CASING SIZE .....

ELEVATION 55.5	DEPTH	CASING HAMMER BLOWS	DRILLER'S LOG ☐ GEOLOGIST'S LOG ☐ MECHANICAL ANALYSIS ☐	REMARKS	SAMPLE DEPTH	BL C SAM
52.5	3.0		Gray Brown Fine to Medium Sand ..... Medium to Coarse Gravel ..... Tan Medium to Coarse Sand Fine to Medium Gravel-Wet-Creosote Odor			
50.5	5.0					
49.5	6.0		Olive-Brown Clay-Moist			
			Gray Brown Clay -Moist-			
41.5	14.0					
38.5	17.0		Gray Clay -Moist-			
			Gray Brown Silty Clay-Moist- Water @21.0			
30.5	25.0		Boring Terminated @25.0 Ft. Well Set			



AR100121

T. A. HOUSTON & ASSOCIATES

ENVIRONMENTAL GEOLOGISTS

ORIGINAL (red)

TEST BORING RECORD

LE NO. D-7 SURFACE ELEVATION 56.4 SHEET NO. ..... OF ...SHEETS

...ION I.A.Clark & Son, Inc.

...CATION Fredericksburg, Va.

...ARTED ..... COMPLETED 7-7-82 JOB NO. .....

GROUND WATER ..... 24 Hr. Reading 6.8 Ft.

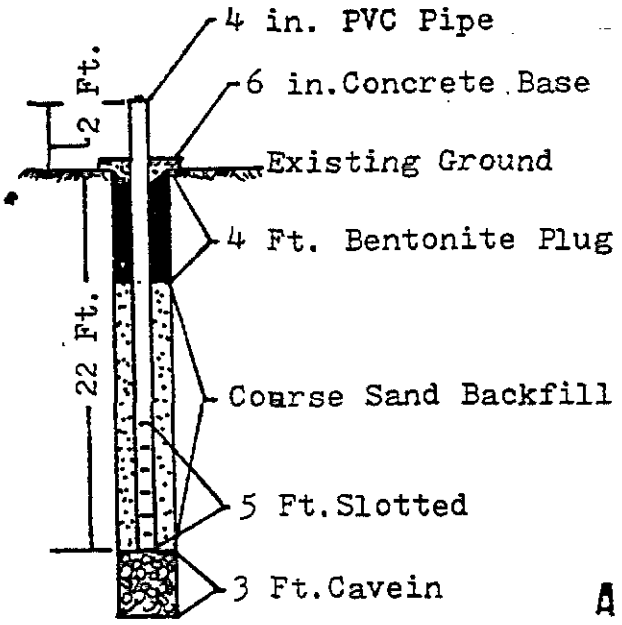
DATE ..... TIME ..... DEPTH .....

CASING HAMMER WT ..... LBS. DROP .....

SAMPLER HAMMER WT. ..... LBS. DROP .....

SAMPLER SIZE ..... IN. O.D. CASING SIZE .....

ELEVATION	DEPTH	CASING HAMMER BLOWS	DRILLER'S LOG ☐ GEOLOGIST'S LOG ☐ MECHANICAL ANALYSIS ☐	REMARKS	SAMPLE DEPTH	BLO C SAMP
56.4						
53.4	3.0		Black-Gray Fine to Medium Sand Fine to Coarse Gravel			
51.4	5.0		Brown Silty Clay -Moist-			
50.4	6.0		Gray Clay -Moist-			
			Brown-Red Silty Clay -Moist			
44.4	12.0					
			Gray Brown Silty Clay -Moist-			
34.4	22.0					
			Brown Silty Clay -Wet @22.0			
31.4	25.0					
			Boring Terminated @25.0			
			Well Set			



AR100122

T. A. HOUSTON & ASSOCIATES LTD

ENVIRONMENTAL GEOLOGISTS

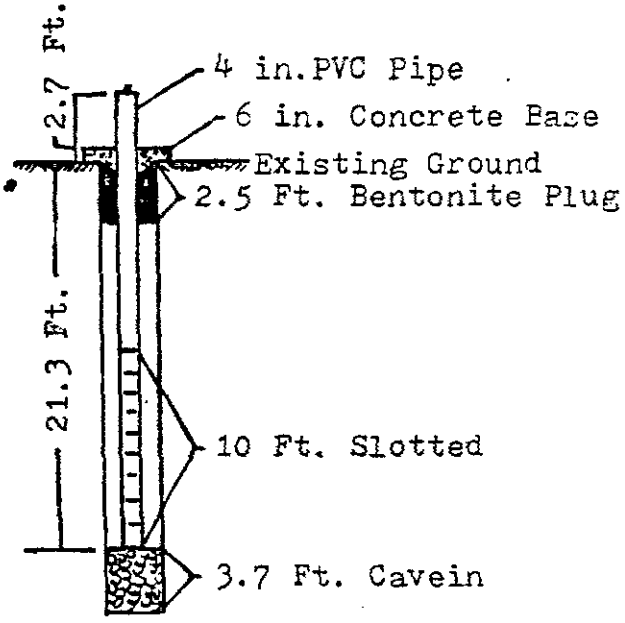
ORIGINAL (red)

TEST BORING RECORD

LE NO. D-8 SURFACE ELEVATION 58.7 SHEET NO. ..... OF ... SHEETS
OR L.A. Clark & Son, Inc.
OCATION ... Fredericksburg, Va.
ARTED ..... COMPLETED 7-7-82 JOB NO. .....

GROUND WATER 24 Hr. Reading 4.6 Ft.
DATE ..... TIME ..... DEPTH .....
CASING HAMMER WT ..... LBS. DROP I
SAMPLER HAMMER WT. ..... LBS. DROP I
SAMPLER SIZE ..... IN. O.D. CASING SIZE I

ELEVATION 58.7	DEPTH	CASING HAMMER BLOWS	DRILLER'S LOG ☐ GEOLOGIST'S LOG ☐ MECHANICAL ANALYSIS ☐	REMARKS	SAMPLE DEPTH	BL C SAM
55.7	3.0		Black-Gray Fine to Coarse Sand Trace Clay -Moist-			
52.7	6.0		Tan Fine to Coarse Sandy Clay -Moist-			
49.7	9.0		Gray Brown Sandy Clay -Moist-			
47.7	11.0		Gray Sandy Clay -Moist-			
43.7	15.0		Gray Clay -Moist-			
41.7	17.0		Gray Brown Silty Clay-Moist-			
33.7	25.0		Gray Brown Clay -Moist -			
			Boring Terminated @25.0			
			Well Set			



AR100123

ORIGINAL (red)

James R. Reed & Associates, Inc.
Environmental Testing & Consulting
813 forrest drive • newport news, virginia 23606 • (804) 599-6750

Laboratory Services Report

T. A. Houston & Associates LTD
Attention: Tom Houston
P. O. Box 891
Culpeper, Virginia 22701

July 27, 1982

Samples received 6/30/82 - Soil Samples
Samples Pulled 6/30/82 - Re: L. A. Clarke & Son

Sample Identification		Analyses	Results
A 21	0-11"	Phenol	0.54 mg/kg
	11-23"	"	0.54 mg/kg
	23-34"	"	0.09 mg/kg
C 15	0-12"	Phenol	0.13 mg/kg
	12-24"	"	< 0.08 mg/kg
D 21	0-7"	Phenol	0.08 mg/kg
	7-13"	"	0.17 mg/kg
	13-24"	"	0.13 mg/kg
D 23	2-14"	Phenol	0.17 mg/kg
	14-26"	"	< 0.08 mg/kg
	36-54"	"	1.42 mg/kg
D 25	0-6"	Phenol	0.83 mg/kg
	6-24"	"	0.63 mg/kg
	24-32"	"	< 0.08 mg/kg
	32-42"	"	0.13 mg/kg
	42-46"	"	< 0.08 mg/kg
E 27	0-18"	Phenol	< 0.08 mg/kg
F 21	0-12"	Phenol	< 0.08 mg/kg
	12-18"	"	< 0.08 mg/kg
	18-36"	"	< 0.08 mg/kg

Respectfully submitted,

ALL TESTS ARE DONE IN ACCORDANCE WITH A.P.H.A., A.O.A.C., A.S.T.M. AND EPA APPROVED METHODS.

CHEMIST
Charles W. Saunders

AR100124 App C 1.3.

ORIGINAL

James R. Reed & Associates, Inc. (red)
Environmental Testing & Consulting
813 forrest drive • newport news, virginia 23606 • (804) 599 6730

Laboratory Services Report

T. A. Houston & Associates LTD
Attention: Tom Houston
P. O. Box 891
Culpeper, Virginia 22701

July 27, 1982

Samples received 6/30/82
Samples pulled 6/30/82 - R.: L. A. Clark & Son

Sample identification		Analyses	Results
[illegible]	0-5"	Phenol	1.25 mg/kg
	5-22"	"	0.83 mg/kg
	22-42"	"	< 0.08 mg/kg
[illegible]	0-12"	Phenol	0.83 mg/kg
	12-21"	"	< 0.08 mg/kg
	21-52"	"	< 0.08 mg/kg
[illegible]	0-12"	Phenol	0.21 mg/kg
	12-22"	"	1.04 mg/kg
[illegible]	0-16"	Phenol	< 0.08 mg/kg
	16-42"	"	< 0.08 mg/kg
[illegible]	0-11"	Phenol	< 0.08 mg/kg
	11-30"	"	< 0.08 mg/kg
[illegible]	0-6"	Phenol	< 0.08 mg/kg
	6-16"	"	0.21 mg/kg

cc: Dexter Hubbard
Ted Curtas

Respectfully submitted,

ALL TESTS ARE DONE IN ACCORDANCE WITH A.P.H.A. A.O.A.C., A.S.T.M. AND EPA APPROVED METHODS

CHEMIST
Charles W. Saunders

AR100125

ORIGINAL

James R. Reed & Associates, Inc. (red)
Environmental Testing & Consulting
513 forrest drive • newport news, virginia 23606 • (804) 599-6750

Laboratory Services Report

T. A. Houston & Associates, LTD
Attention: Tom Houston
P. O. Box 891
Culpeper, Virginia 22701

July 27, 1982

Samples received 7/1/82 - Soil Samples
Samples pulled 7/1/82 - Re: L. A. Clarke & Son

Sample Identification		Analyses	Results
C 21+50	0-12"	Phenol	23.3 mg/kg
	12-24"	"	9.17 mg/kg
C 22	0-12"	Phenol	2.08 mg/kg
	12-24"	"	1.33 mg/kg
C 23	0-12"	Phenol	1.25 mg/kg
C 23+50	0-12"	Phenol	3.92 mg/kg
	12-24"	"	5.63 mg/kg
C 24	0-12"	Phenol	5.63 mg/kg
	12-24"	"	16.7 mg/kg
	24-36"	"	2.29 mg/kg
	36-48"	"	0.63 mg/kg
CB 22	0-12"	Phenol	1.25 mg/kg
	12-24"	"	0.29 mg/kg
FC 23	0-12"	Phenol	1.79 mg/kg
	12-24"	"	6.25 mg/kg
No. Field #	38-48"	Phenol	2.38 mg/kg
Orange sandy soil			

Respectfully submitted,

TESTS ARE DONE IN ACCORDANCE WITH A.P.H.A., A.O.A.C., A.S.T.M. AND EPA APPROVED METHODS.

CHEMIST

Charles W. Saunders

AR100126

ORIGINAL

James R. Reed & Associates, Inc.
Environmental Testing & Consulting
513 forrest drive • newport news, virginia 23606 • (804) 599-6750

Laboratory Services Report

TO
T. A. Houston & Associates LTD
Attention: Tom Houston
P. O. Box 891
Culpeper, Virginia 22701

July 27, 1982

Samples received 7/1/82
Samples pulled 7/1/82 - Re: L. A. Clarke & Son

Sample Identification		Analyses	Results
AB 23+50	0-18"	Phenol	10.4 mg/kg
	18-23"	"	6.25 mg/kg
	23-32"	"	8.75 mg/kg
	47-58"	"	1.13 mg/kg
B 20	0-40"	Phenol	3.33 mg/kg
	40-56"	"	0.13 mg/kg
B 22	0-16"	Phenol	1.96 mg/kg
	16-26"	"	0.21 mg/kg
	26-38"	"	1.46 mg/kg
	38-48"	"	3.50 mg/kg
BC 20+00	12-24"	Phenol	5.00 mg/kg
	24-34"	"	3.08 mg/kg
BC 21	28-38"	Phenol	3.50 mg/kg
	40-56"	"	25.0 mg/kg
C 19	0-14"	Phenol	0.83 mg/kg
	14-22"	"	0.13 mg/kg
	22-32"	"	5.50 mg/kg
C 20+50	10-22"	Phenol	7.50 mg/kg
	22-36"	"	2.08 mg/kg

cc: Dexter Hubbard
Ed Curtas

Respectfully submitted,

ALL TESTS ARE DONE IN ACCORDANCE WITH A.P.H.A., A.O.A.C., A.S.T.M. AND EPA APPROVED METHODS.

CHEMIST
Charles W. Saunders

ORIGINAL

James R. Reed & Associates, Inc.(red)

Environmental Testing & Consulting

813 forrest drive • newport news, virginia 23606 • (804) 599-6750

Laboratory Services Report

TO
T. A. Houston & Associates LTD
Attention: Tom Houston
P. O. Box 891
Culpeper, Virginia 22701

July 27, 1982

Samples received 7/8/82 - Massaponax Creek Sediment
Samples pulled 7/8/82 - Re: L. A. Clarke & Son

Sample Identification		Analyses	Results
001 C	0-3"	Phenol	4.17 mg/kg
	3-6"	"	5.21 mg/kg
001 [illegible]	0-3"	Phenol	3.92 mg/kg
	3-6"	"	1.25 mg/kg
[illegible]	0-3"	Phenol	1.13 mg/kg
	3-6"	"	1.33 mg/kg
00[illegible]	0-3"	Phenol	0.88 mg/kg
	3-6"	"	0.08 mg/kg
00[illegible]	0-3"	Phenol	0.21 mg/kg
	3-6"	"	< 0.08 mg/kg
003 [illegible]R	0-3"	Phenol	< 0.08 mg/kg
	3-6"	"	< 0.08 mg/kg

cc: Dexter Hubbard
Ted Curtas

Respectfully submitted,

AR100128

CHEMIST

Charles W. Saunders

TESTS ARE DONE IN ACCORDANCE WITH A.P.H.A., A.O.A.C., A.S.T.M. AND EPA APPROVED METHODS

ORIGINAL

James R. Reed & Associates, Inc. (red)

Environmental Testing & Consulting

513 forrest drive • newport news, virginia 23606 • (804) 599-6750

Laboratory Services Report

T. A. Houston & Associates LTD
Attention: Tom Houston
P. O. Box 891
Culpeper, Virginia 22701

July 27, 1982

Samples received 7/15/82
Samples pulled 7/15/82 - Re: L. A. Clarke & Son

Sample Identification	Analyses	Results
Preliminary Water Samples		
S	Phenol	1.83 mg/1
	Phenol	< 0.02 mg/1
	Phenol	0.35 mg/1

Dexter Hubbard
Ted Curtas ✓

ARE DONE IN ACCORDANCE WITH A.P.H.A., A.O.A.C., A.S.T.M. AND EPA APPROVED METHODS.

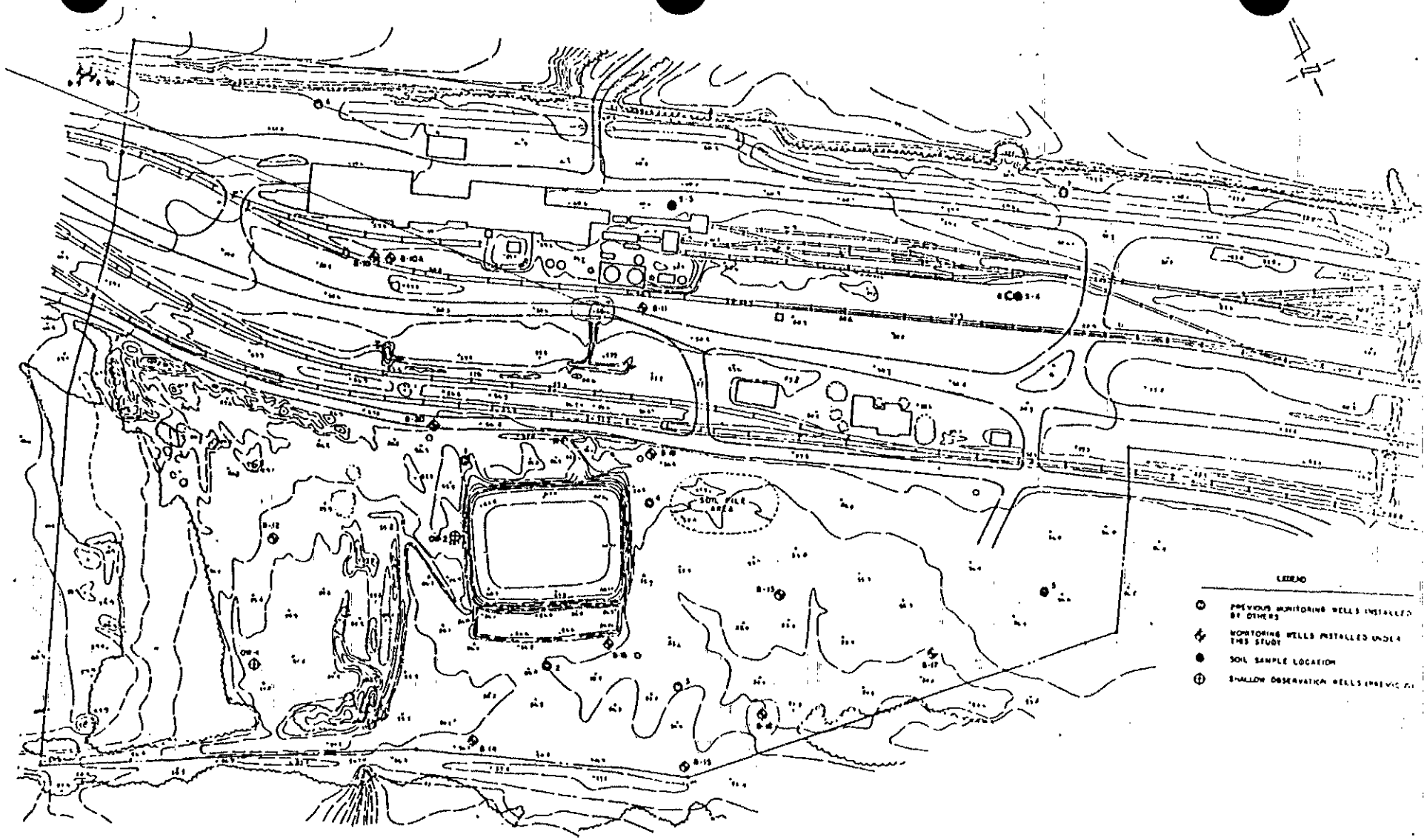
Respectfully submitted,

CHEMIST
Charles W. Saunders

AR100129

APPENDIX C

1.4 WELL INSTALLATION INFORMATION FROM GILBERT W. CLIFFORD & ASSOCIATES



1. REFERENCE
TAKEN FROM TECHNICAL ASSOCIATES DWG DATED 8/18/81
TOPOGRAPHY BY AIR SURVEY CORP MAY 30, 1981

● = Existing monitoring well
Field information obtained 8/28/82

REVISIONS description	by	date

job number 8311
date AUG 1982
designed by
drawn by R C M
approved by

gilbert w. clifford associates, inc.

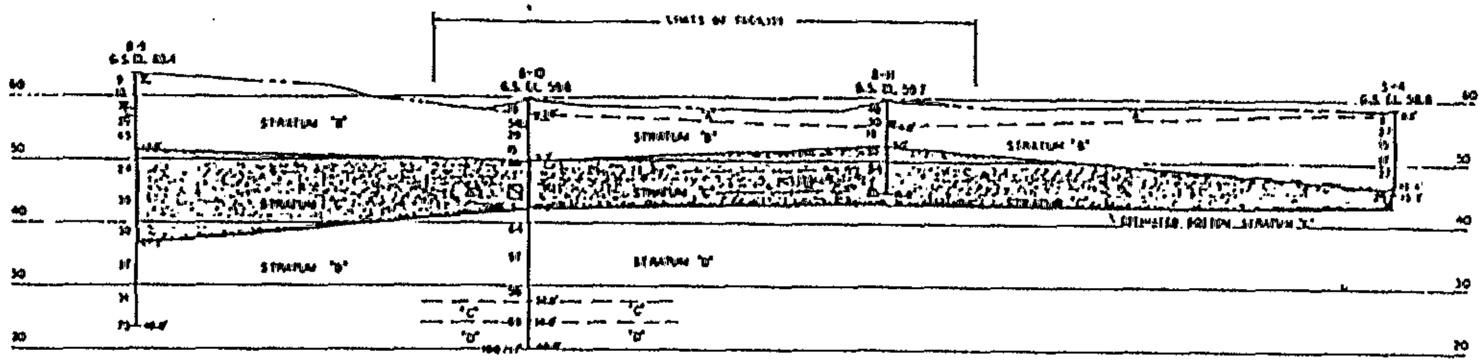
L. A. CLARKE & SON, INC.

WELL LOCATIONS

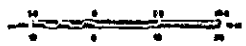
SPOTSYLVANIA COUNTY, VIRGINIA

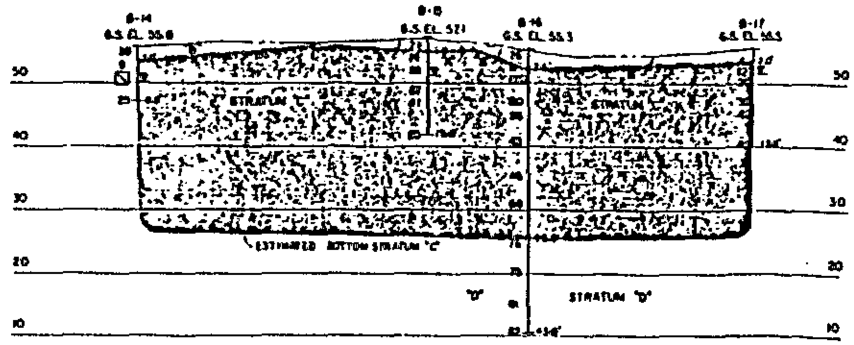
ORIGINAL (red)

AR 001 31



SECTION A-A





SECTION B-B

GENERAL NOTES

1. NUMBERS TO THE LEFT OF THE BORING COLUMNS INDICATE NUMBER OF BLOWS REQUIRED TO DRIVE A 2 INCH O.D., 1-3/8 INCH SAMPLING SPOON 12 INCHES USING A 140 LB HAMMER FALLING 30 INCHES.
2. ESTIMATED UPPER AQUIFER GROUNDWATER LEVEL INDICATED ▼. ESTIMATED PIEZOMETRIC LEVEL OF LOWER GROUNDWATER LEVEL INDICATED BY ▽. THESE LEVELS ARE ONLY ESTIMATES FROM AVAILABLE DATA AND MAY VARY WITH PRECIPITATION, POROSITY OF SOIL, SITE TOPOGRAPHY, ETC.
3. G.S. = GROUND SURFACE ☐ = UNDISTURBED TUBE SAMPLE
4. TEST BORINGS DRILLED BY AYERS AND AYERS, RICHMOND, VIRGINIA.
5. THIS DRAWING CONTAINS INTERPRETATION OF TEST BORING DATA AND SHOULD NOT BE USED AS PART OF THE CONTRACT DOCUMENTS.
6. THESE PROFILES WERE DEVELOPED BY INTERPOLATION OF WIDELY SPACED BORINGS. ONLY AT THE BORING LOCATIONS SHOULD THEY BE CONSIDERED AS AN APPROXIMATELY ACCURATE REPRESENTATIVE AND THEN ONLY TO THE DEGREE IMPLIED BY THE NOTES ON THE BORING LOGS.
7. TEST BORINGS INSPECTED BY SCHNABEL ENGINEERING ASSOCIATES.

STRATA DESCRIPTIONS

Stratum A: Brown to black fine to coarse clayey silty to silty clayey sand, FILL, with organic matter and variable amounts of gravel (SC,SM TO GM); loose to compact density (N=8 to 45).

Stratum B: Brown, gray, red to tan fine to coarse SAND with variable amounts of silty clay, clayey silt, silt and gravel (SC, SM,SP TO GM); very loose to compact density N= 4 to 56).

Stratum C: Brown, blue-gray to gray SILTY CLAY to CLAY, some fine sand with mica and occasional gravel (CL TO CH); stiff to hard consistency (N= 5 to 39).

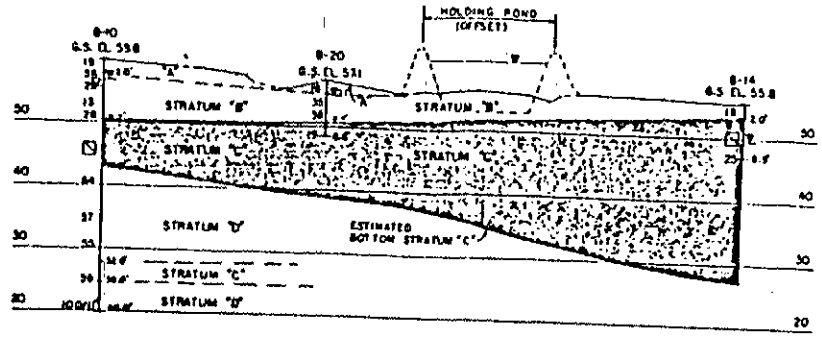
Stratum D: Brown, blue, gray to green fine to medium clayey silty SAND to sandy CLAYEY SILT, with mica and [illegible] (SM TO ML); firm to very compact density (N= 31 to 120).

SCHNABEL ENGINEERING ASSOCIATES
[illegible]
L.A. CLARKE & SON INC.
SPOTSYLVANIA COUNTY, VIRGINIA

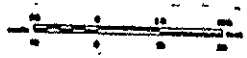
ESTIMATED SUBSURFACE PROFILES

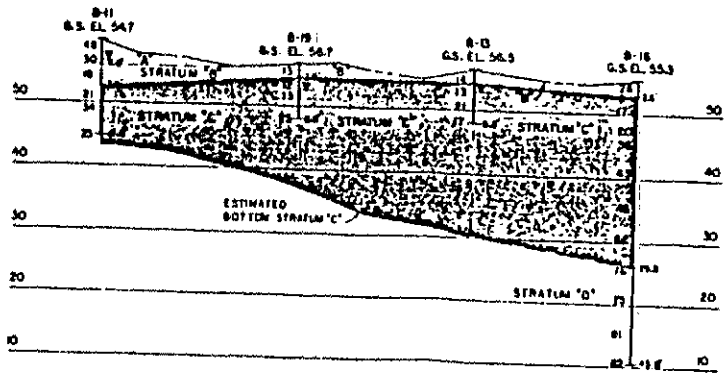
AS SHOWN

ORIGINAL
(red)

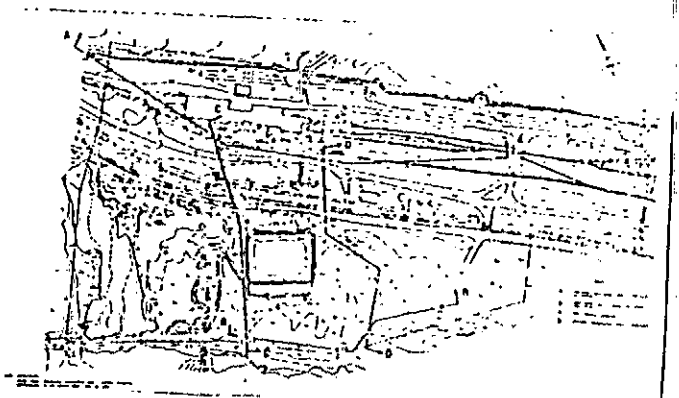


SECTION C-C





SECTION D-D



SCHNABEL ENGINEERING ASSOCIATES

L.A. CLARKE & SON, INC.

SPOTSYLVANIA COUNTY, VIRGINIA

ESTIMATED SUBSURFACE PROFILES

AS SHOWN

ORIGINAL (Red)

AR100133

ORIGINAL
(red)

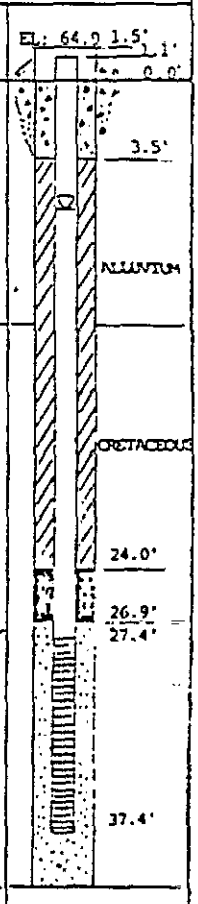
SCHNABEL ENGINEERING ASSOCIATES CONSULTING ENGINEERS	TEST BORING LOG	BORING NO.: B-9
PROJECT L.A. [illegible] & RES. INC. MONTGOMERY COUNTY, VIRGINIA		SHEET NO. 1 OF 1
CLIENT CLIFFORD W. CLIFFORD & ASSOCIATES		JOB NO. VB3512
DRILLING CONTRACTOR AYERS & AYERS, INC.	DRILL [illegible]-40	ELEVATION 63.4'
WATER LEVEL DATA	DRIVE SAMPLER	CASING SIZE 4"
DATE TIME DEPTH CAVED	TYPE S.S.	DATE START 1/16/84
ENCOUNTERED 1/16 1:40 5.0' -	DIA 2.00	DATE FINISHED 1/17/84
AFTER CASING PULLED - - - -	WT 140 #	DRILLER J. AYERS, JR.
— HR READING SEE TABLE BELOW	FALL 30"	INSPECTOR B. FREY

STRATUM	DEPTH FT	ELEV.	BLOWS ON SAMPLE SPOON, PER 6"	SYMBOL	IDENTIFICATION
		60	1-5-4	S	FINE TO COARSE SAND, TRACE SILT AND FINE GRAVEL, MOIST-REDDISH BROWN (SM)
			3-5-8	S	do, FINE TO MEDIUM-SAND
			16-18-19	S	do, FINE TO COARSE GRAVELLY, WET
B			10-15-24	S	
			5-19-26	S	
	12.0	50			
			9-10-14	S	CLAY, TRACE FINE SAND, MOIST-BLUE GRAY & BROWN (CH)
C			5-10-20	S	
		40			
	27.2		11-13-19	S	do, WITH COARSE GRAVEL
			7-14-23	S	FINE CLAYEY SILTY SAND, WITH MICA, MOIST-BLUE GRAY (SM)
D		30			
	34.0		5-11-20	S	CLAYEY SILT, SOME FINE SAND WITH MICA & FINE SAND LENSES, MOIST-BLUE GRAY TO GREEN (MH)
	40.0		7-24-49	S	

BORING TERMINATED AT 40.0 FEET

Water Observation Well Data

Date	Reading	Water Level (ft)	Elev
1/17	1 hr	7.5	57.4
1/17	6 hr	7.8	57.1
1/18	1 day	7.0	57.9
1/23	6 day	7.8	57.1
1/30	13 day	7.6	57.3



Remarks

See installation details above

Water level measured from top of metal casing

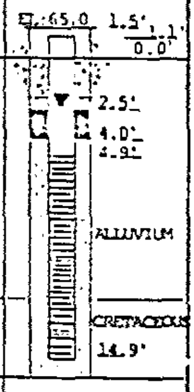
ORIGINAL
(red)

SCHNABEL ENGINEERING ASSOCIATES CONSULTING ENGINEERS	TEST BORING LOG	BORING NO B-9A

PROJECT [illegible]	SHEET NO 1 OF 1
CLIENT [illegible]	JOB NO [illegible]3512
BORING CONTRACTOR [illegible] DRILL [illegible]	ELEVATION 63.5'

WATER LEVEL DATA	DATE	TIME	DEPTH	CAVED	DRIVE	SAMPLER	
					TYPE	S S	CASING SIZE 3"
ENCOUNTERED	1/17	-	3.0'	-	DIA	2" OD	DATE START 1/17/84
AFTER CASING PULLED	1/17	-	-	-	WT	140 #	DATE FINISHED 1/17/84
__ HR. READING	SEE TABLE BELOW				FALL	30"	DRILLER [illegible]
							INSPECTOR: R. FREY

STRATUM	DEPTH FT	ELEV. 63.5±	BLOWS ON SAMPLE SPOON PER 6"	SYMBOL	IDENTIFICATION
B		60			FINE TO COARSE SAND, TRACE SILT WITH FINE TO COARSE GRAVEL, MOIST-REDDISH BROWN TO TAN (SM)
C	12.0	50			CLAY, TRACE FINE SAND, MOIST-BLUE GRAY & BROWN (CH)
	15.4				



BORING TERMINATED AT 15.4 FEET

Water Observation Well Data

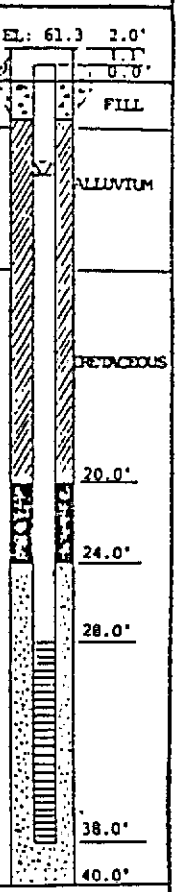
Date	Reading	Water Level (ft)	Elev.	Remarks
1/18	1 day	2.9	62.0	See installation details above
1/19	2 day	4.2	60.7	
1/23	6 day	4.2	60.7	Water level measured from top of metal casing
1/30	13 day	3.0	62.0	

ORIGINAL

(red)

SCHNABEL ENGINEERING ASSOCIATES CONSULTING ENGINEERS	TEST BORING LOG	BORING NO. B-10
PROJECT L.A. CLARKE & SON, INC. SPOTSYLVANIA COUNTY, VIRGINIA		SHEET NO. 1 OF 1
CLIENT CLARKE W. CLIFFORD & ASSOC.		JOB NO V8351
INTERNAL CONTRACTOR AYERS & AYERS, INC.	DRILL CME-45	ELEVATION 59.3±
WATER LEVEL DATA	DRIVE SAMPLER	CASING SIZE 3½"
DATE / TIME / DEPTH / CAVED	TYPE S.S.	DATE START 1/17/84
ENCOUNTERED 1/17 / 1:00 / 5.0' / -	DIA 2" OD	DATE FINISHED 1/17/84
AFTER CASING PULLED - / - / - / -	WT 140 #	DRILLER J. AYERS, JR.
HR READING SEE TABLE BELOW	FALL 30"	INSPECTOR B. FREY

STRATUM	DEPTH FT	ELEV. 59.3±	BLOWS ON SAMPLE SPOON, PER 6"	SYMBOL	IDENTIFICATION
A	2.0		4-9-10	S	FINE TO COARSE SANDY GRAVEL, FILL TRACE SILT WITH ROOT FRAGMENTS, MOIST-BROWN (GM)
	4.0		6-28-28	S	FINE TO COARSE SANDY GRAVEL, TRACE SILT, MOIST-GRAY TO TAN (GM)
B			12-18-11	S	FINE TO COARSE SAND, SOME SILT WITH GRAVEL, WET-BROWN (SM)
			1-5-8	S	
	8.2	50	5-11-15	S	SILTY CLAY, SOME FINE SAND, WITH MICA, AND FINE SAND LENSES, MOIST-BROWN (CL)
C	13.2			3"	CLAY, TRACE FINE SAND, WITH GRAVEL, MOIST-BLUE GRAY & BROWN (CH)
	17.0				
		40	15-26-30	S	FINE SANDY CLAYEY SILT WITH MICA & FELDSPAR, MOIST-BLUE GRAY & BROWN (MH)
D	22.0				FINE CLAYEY SILTY SAND WITH MICA & FELDSPAR, MOIST-LIGHT GREEN (SM)
			6-21-36	S	
		30	9-20-35	S	
	32.0				CLAY, TRACE FINE SAND WITH MICA, DRY-BLUE GREEN & BROWN (CH)
C	35.0		14-26-33	S	
D					FINE TO MEDIUM SAND, SOME CLAYEY SILT, WITH MICA, MOIST-LIGHT GREEN (SM)
	40.0	20	12-100/1"	S	



BORING TERMINATED AT 40.0 FEET

Water Observation Well Data

Date	Reading	Water Level (ft)	Elev
1/18	20 hr	5.1	56.2
1/19	2 day	5.7	55.6
1/23	6 day	5.7	55.6
1/30	13 day	5.7	55.6

Remarks

See installation details above

Water level measured from top of metal casing

AR100136

ORIGINAL
(red)

SCHNABEL ENGINEERING ASSOCIATES CONSULTING ENGINEERS	TEST BORING LOG	BORING NO. B-10A
PROJECT [illegible]		SHEET NO. 1 OF 1
CLIENT GILBERT W. CLIFFORD & ASSOC.		JOB NO V83512
BORING CONTRACTOR ATLAS & ATLAS, INC.	DRILL [illegible]	ELEVATION 59.2 ±

WATER LEVEL DATA	DATE	TIME	DEPTH	CAVED
ENCOUNTERED	1/17	-	4.0	-
AFTER CASING PULLED	-	-	-	-
HR READING	SEE TABLE BELOW			

DRIVE SAMPLER TYPE	S S
DIA	2 00
WT	140 #
FALL	30"

CASING SIZE 3½"
DATE START 1/17/84
DATE FINISHED 1/17/84
DRILLER J. AYERS, JR.
INSPECTOR B. FREY

STRATUM	DEPTH FT	ELEV. 59.2±	BLOWS ON SAMPLE SPOON, PER 6"	SYMBOL	IDENTIFICATION
A	2.0				FINE TO COARSE SANDY GRAVEL, FILL, TRACE SILT, WITH COAL FRAGMENTS, MOIST-BROWN (GM)
	4.0				FINE TO COARSE SANDY GRAVEL, TRACE SILT, MOIST-GRAY TO TAN (GM)
B					FINE TO COARSE SAND, SOME SILT WITH GRAVEL WET-BROWN (SM)
	9.0	50			
C					SILTY CLAY, SOME FINE SAND WITH MICA & FINE SAND LENSES, MOIST-BROWN TO BLUE GRAY (CL to CH)
	15.0				
					BORING TERMINATED AT 15.0 FEET

EL: 60.8 1.6'
1.0'
0.0'
FILL
2.3'
3.5'
4.8'
ALLUVIUM
CRETACEOUS
14.8'

Water Observation Well Data

Date	Reading	Water Level (ft)	Elev.
1/18	18 hr	3.4	57.3
1/19	2 day	4.7	56.0
1/23	6 day	4.7	56.0
1/30	13 day	3.9	56.9

Remarks

See installation details above

Water level measured from top of metal casing

ORIGINAL

(red)

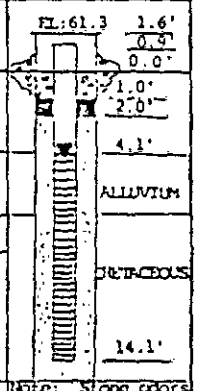
SCHNABEL ENGINEERING ASSOCIATES CONSULTING ENGINEERS	TEST BORING LOG	BORING NO B-11
PROJECT L.A. CLARKE & SONS, INC., SPOTSYLVANIA COUNTY, VIRGINIA		SHEET NO 1 OF 1
CLIENT CHARLES H. CLIFFORD & ASSOC.		JOB NO 1835J2
BORING CONTRACTOR AYERS & AYERS, INC.	DRILL CME-45	ELEVATION 59.7
WATER LEVEL DATA	DRIVE SAMPLER	CASING SIZE 3"
DATE TIME DEPTH CAVED	TYPE S.S.	DATE START 1/18/84
ENCOUNTERED 1/18 - - -	DIA 2" OD	DATE FINISHED 1/18/84
AFTER CASING PULLED 1/18 9:15 DRY 15.0	WT 140 #	DRILLER J. AYERS, JR.
— HR. READING SEE TABLE BELOW	FALL 30"	INSPECTOR B. FREY

STRATUM	DEPTH FT.	ELEV. 59 +	BLOWS ON SAMPLE SPOON, PER 6"	SYMBOL	IDENTIFICATION
A			12-14-14	S	FINE TO COARSE SAND, FILL, TRACE SILT, WITH GRAVEL, MOIST-BROWN & BLACK (SM)
			14-12-18	S	
	4.0				
B			4-8-8	S	FINE TO COARSE SAND, SOME CLAYEY SILT, MOIST-REDDISH BROWN & GRAY (SM)
	7.0				
	8.0		4-8-13	S	SILTY CLAY, TRACE FINE SAND, MOIST-REDDISH BROWN & BLUE GRAY (CL)
		50	5-15-19	S	CLAY, TRACE FINE SAND, MOIST-BROWN & BLUE GRAY (CH)
C					
	15.0		5-10-15	S	do, TRACE MICA

BORING TERMINATED AT 15.0 FEET

Water Observation Well Data

Date	Reading	Water Level (ft)	Elev
1/18	4 hr	Dry	-
1/18	13 hr	5.6	55.7
1/23	5 day	5.6	55.7



Note: Strong odors in first three soil samples taken.

Remarks

See installation details above

Water level measured from top of metal casing

ORIGINAL
(red)

SCHNABEL ENGINEERING ASSOCIATES CONSULTING ENGINEERS	TEST BORING LOG	BORING NO. B-12
PROJECT L.A. CLUBE & GOLF INC., SPOTSYLVANIA COUNTY, VIRGINIA		SHEET NO. 1 OF 1
CLIENT CLIFFORD W. CLIFFORD & ASSOC.		JOB NO V83512
DRILLING CONTRACTOR AYERS & AYERS JR.	DRILL CME 45	ELEVATION 55.9'
WATER LEVEL DATA	DRIVE SAMPLER	CASING SIZE 3"
DATE TIME DEPTH CAVED	TYPE S.S.	DATE START 1/30/84
ENCOUNTERED 1/30 12:30 0.5 -	DIA 2" OD	DATE FINISHED 1/30/84
AFTER CASING PULLED - - - -	WT 140 #	DRILLER J. AYERS JR.
HR READING SEE TABLE BELOW	FALL 30"	INSPECTOR B. FREY

STRATUM	DEPTH FT.	ELEV. 55.9 ±	BLOWS ON SAMPLE SPOON PER 6"	SYMBOL	IDENTIFICATION
B	0		4-11-17	S	FINE TO COURSE SAND, SOME CLAYEY SILT & GRAVEL, WET-BROWN (SM)
	3.5		10-18-7	S	
C		50	4-9-9	S	CLAY, TRACE FINE SAND, MOIST-BLUE GRAY & BROWN (CH)
	8.5		5-11-15	S	

BORING TERMINATED AT 8.5 FEET

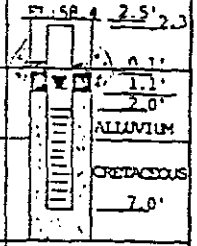
Water Observation Well Data

Date	Reading	Water Level(ft)	Elev.
1/30	2 hr	3.4	55.0
1/31	18 hr	3.6	54.8
2/13	14 day	3.9	54.5

Remarks

See installation deatails above

Water level measured from top of metal casing



ORIGINAL
(red)

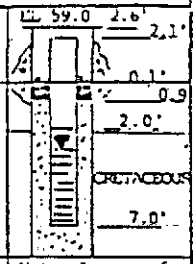
SCHNABEL ENGINEERING ASSOCIATES CONSULTING ENGINEERS	TEST BORING LOG	BORING NO. B-13
PROJECT L.A. CLARKE & SON INC. SPOTSYLVANIA (COUNTY), VIRGINIA		SHEET NO. 1 OF 1
CLIENT GILBERT W. CLIFFORD & ASSOC.		JOB NO. VB3512
DRILLING CONTRACTOR AYERS & AYERS INC.	DRILL CME 45	ELEVATION 56.4±
WATER LEVEL DATA	DRIVE SAMPLER	CASING SIZE 3"
DATE TIME DEPTH CAVED	TYPE S.S.	DATE START 1/30/84
ENCOUNTERED 1/30 11:00 0.5' -	DIA 2.00	DATE FINISHED 1/30/84
AFTER CASING PULLED - - - -	WT 140 lb	DRILLER J. AYERS JR.
24 HR READING SEE TABLE BELOW	FALL 30"	INSPECTOR B. FREY

STRATUM	DEPTH FT.	ELEV. 56.4±	BLOWS ON SAMPLE SPOON, PER 6"	SYMBOL	IDENTIFICATION
B	2.1		1-3-11	S	FINE TO COARSE SAND, SOME CLAYEY SILT & GRAVEL, WET-BROWN (SM)
			6-5-8	S	CLAY, TRACE FINE SAND, MOIST-BLUE GRAY & BROWN (CH)
C		50	4-9-12	S	
	8.5		5-6-11	S	

BORING TERMINATED AT 8.5 FEET

Water Observation Well Data

Date	Reading	Water Level (ft)	Elev
1/30	4 hr	7.0	52.0
1/31	19 hr	5.9	53.1
2/13	14 day	6.3	52.7



Note: Lenses of black oil substance to depth of 4.2 feet

Remarks

See installation details above

Water level measured from top of metal casing

ORIGINAL
(red)

SCHNABEL ENGINEERING ASSOCIATES CONSULTING ENGINEERS	TEST BORING LOG	BORING NO. B-14
PROJECT L.A. CLARKE & SON, INC., SUSSEX COUNTY, VIRGINIA		SHEET NO. 1 OF 1
CLIENT CLARKE W. CLEVELAND & ASSOC.		JOB NO. [illegible]
BORING CONTRACTOR [illegible]	DRILL [illegible]	ELEVATION 55.8±

WATER LEVEL DATA	DATE	TIME	DEPTH	CAVED
ENCOUNTERED	1/18	-	-	-
AFTER CASING PULLED	1/18	3:00	DRY	8.5'
— HR. READING	SET TABLE BELOW			

DRIVE SAMPLER	
TYPE	S S
DIA	2" OD
WT.	140 #
FALL	30"

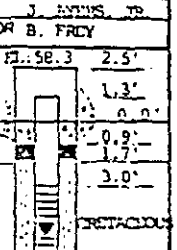
CASING SIZE 3"
DATE START 1/18/84
DATE FINISHED 1/18/84
DRILLER J. [illegible], JR.
INSPECTOR B. FREY

STRATUM	DEPTH FT.	ELEV. 55.9±	BLOWS ON SAMPLE SPOON, PER 6"	SYMBOL	IDENTIFICATION
B	2.0		12-19-9	S	FINE TO COARSE SAND, TRACE GRAVEL & SILT, WET-BROWN (SP)
			2-3-6	S	CLAY, TRACE FINE SAND, MOIST-BROWN & BLUE GRAY (CH)
C		50		3"	
	8.5		2-8-17	S	

BORING TERMINATED AT 8.5 FEET

Water Observation Well Data

Date	Reading	Water Level (ft)	Elev	Remarks
1/18	1 hr	Dry	-	See installation details above
1/19	15 hr	7.2	51.1	
1/19	1 day	6.9	51.4	
1/23	5 day	6.9	51.4	water level measured from top of metal casing
1/30	12 day	7.8	50.5	
2/13	26 day	7.5	50.8	



ORIGINAL

(red)

SCHNABEL ENGINEERING ASSOCIATES CONSULTING ENGINEERS	TEST BORING LOG	BORING NO. B-15

PROJECT L.A. CLARKE & SON, INC. SHORTPUMP VIRGINIA COUNTY, VIRGINIA
CLIENT HARPER W. CLIFFORD & ASSOC.
WORK CONTRACTOR ARMS & AYERS, INC.

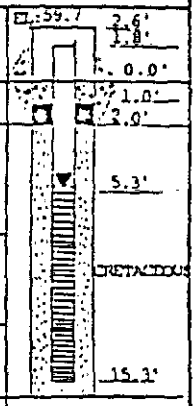
SHEET NO. 1 OF 1
JOB NO. V83512
DRILL CME-45
ELEVATION 57.3'

WATER LEVEL DATA	DATE	TIME	DEPTH	CAVED
ENCOUNTERED	1/18	11:15	1.9'	-
AFTER CASING PULLED	1/18	11:40	6.5'	-
HR. READING	SEE TABLE BELOW			

DRIVE SAMPLER	
TYPE	S.S.
DIA	2.00
WT.	140#
FALL	30"

CASING SIZE 3½"
DATE START 1/18/84
DATE FINISHED 1/18/84
DRILLER J. AYERS, JR
INSPECTOR B. FIELY

STRATUM	DEPTH FT.	ELEV. 57.3+	BLOWS ON SAMPLE SPOON, PER 6"	SYMBOL	IDENTIFICATION
A	3.0	54.3	3-8-18	S	FINE SAND, FILL, SOME SILTY CLAY, WITH COARSE GRAVEL, MOIST-BROWN (SC)
			4-5-9	S	SILTY CLAY, TRACE FINE SAND & COARSE GRAVEL, MOIST-BROWN & GRAY (CL)
			5-11-15	S	do, GRAY
		50			
C			5-15-22	S	CLAY, TRACE FINE SAND & MICA, MOIST-BROWN & GRAY (CH)
			6-17-24	S	
	13.0	44.3			SILTY CLAY, TRACE FINE SAND & MICA, MOIST -GRAY (CL)
			4-10-15	S	
	15.5	41.8			BORING TERMINATED AT 15.5 FEET



Water Observation Well Data

Date	Reading	Water Level (ft)	Elev
1/18	1 hr	7.0	52.7
1/18	10 hr	7.9	51.8
1/19	1 day	8.0	51.6
1/23	5 day	8.0	51.6
1/30	12 day	7.7	52.0

Remarks

See installation details above

Water level measured from top of metal casing

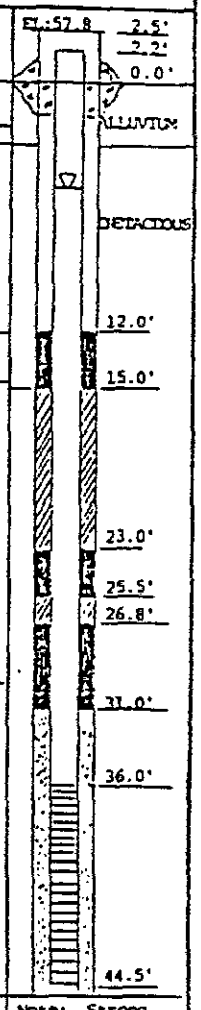
AR100142

ORIGINAL

(red)

SCHNABEL ENGINEERING ASSOCIATES CONSULTING ENGINEERS	TEST BORING LOG	BORING NO.: B-16
PROJECT L.A. CLARKE & SON, INC SPOTSYLVANIA COUNTY, VIRGINIA		SHEET NO. 1 OF 1
CLIENT CLOUGH, HARBOUR & ASSOC.		JOB NO. VE3513
DRILLING CONTRACTOR AYERS & ZYTKO, INC	DRILL [illegible]-35	ELEVATION 55.3'
WATER LEVEL DATA	DRIVE SAMPLER	CASING SIZE: 3¼"
DATE TIME DEPTH CAVED	TYPE S.S.	DATE START 1/19/84
ENCOUNTERED 1/19 10:15 2.3' -	DIA 2" OD	DATE FINISHED: 1/19/84
AFTER CASING PULLED 1/19 12:15 8.0' -	WT. 140 #	DRILLER: J. AYERS, JR.
— HR READING SEE TABLE BELOW	FALL 30"	INSPECTOR: B. TREY

STRATUM	DEPTH FT.	ELEV.	BLOWS ON SAMPLE SPOON, PER 6"	SYMBOL	IDENTIFICATION
B	2.0		2-7-19	S	FINE TO COARSE SILTY CLAYEY SAND, MOIST-BROWN (SC)
	2.5				FINE TO COARSE SILTY GRAVEL, TRACE SILT, WET-BROWN (GP)
			5-4-5	S	
		50	4-6-11	S	CLAY, TRACE FINE SAND & GRAVEL, MOIST-BROWN & BLUE GRAY (CH)
					do, WITH LAYER OF FINE TO COARSE SANDY SILTY CLAY, WET (4-5.5')
			6-9-11	S	do, TRACE MICA
			6-17-19	S	
					SILTY CLAY, SOME FINE SAND, TRACE MICA, MOIST-GRAY (CL)
C	14.5	40	7-16-27	S	
					CLAY, TRACE FINE SAND & MICA, MOIST-BROWN (CH)
			8-17-29	S	
		30	13-25-41	S	do, BROWN & GRAY
	29.5		11-28-48	S	FINE TO MEDIUM CLAYEY SILTY SAND, TRACE FELDSPAR & MICA, MOIST-BLUE GRAY (SM)
D		20	12-28-47	S	do, MOISTER
			10-37-44	S	do, SOME CLAYEY SILT
	45.0		19-33-49	S	do, WITH GRAVEL & CLAY POCKETS-BROWN TO GRAY



BORING TERMINATED AT 45.0 FEET

Water Observation Well Data

Date	Reading	Water Level (ft)	Elev
1/19	5 hr	7.6	50.2
1/23	4 day	7.6	50.2
1/30	11 day	7.4	50.4
2/13	25 day	8.5	49.3

Note: Strong odors noted in first two soil samples taken

Remarks

See installation details above

Water level measured from top of metal casing

ORIGINAL (red)

GEOTECHNICAL ENGINEERING ASSOCIATES
CONSULTING ENGINEERS

TEST BORING LOG

BORING NO.: B-17

PROJECT: [illegible] SHOPPING CENTER, [illegible] VIRGINIA
CLIENT: [illegible]
DRILLING CONTRACTOR: [illegible]

SHEET NO. 1 OF 1
JOB NO. V83512
ELEVATION 55.5±
CASING SIZE 3¼"
DATE START 1/18/84
DATE FINISHED: 1/18/84
DRILLER: J. AYERS JR.
INSPECTOR B. FREY

WATER LEVEL DATA

	DATE	TIME	DEPTH	CAVED
ENCOUNTERED	1/18	9:15	1.5'	-
AFTER CASING PULLED	1/18	9:45	5.2'	-
1 HR READING	PIT TABLE BELOW			

DRILL RIG: [illegible]
DRIVE SAMPLER
TYPE S.S.
DIA 2" OD
WT 140 #
FALL 30"

STRATUM	DEPTH FT	ELEV. 55.5±	BLOWS PER 6" ON SAMPLE SPOON, PER 6	SAMPLE SYMBOL	IDENTIFICATION
B			1-1-1	S	FINE TO COARSE SAND, TRACE SILT, WET-MOIST (SP)
			2-5-7	S	
		50	2-5-15	S	CLAY, TRACE FINE SAND, AND MICA, MOIST BROWN & BLUE GRAY (CH)
			4-12-18	S	
			5-15-27	S	
C					
	15.5		9-15-25	S	do, GRAY & BROWN

BORING TERMINATED AT 15.5 FEET

Water Observation Well Data

Date	Reading	Water Level (ft)	Elev	Remarks
1/18	3 hr	5.2	52.9	See installation details above
1/18	12 hr	6.4	51.7	
1/19	1 day	6.9	51.2	Water level measured from top of metal casing
1/23	5 day	6.9	51.2	
1/30	12 day	6.7	51.4	

EL. 58.1
2.6'
1.0'
0.0'
1.0'
2.0'
4.9'
CRETACEOUS
14.9'

AR100144

ORIGINAL
(red)

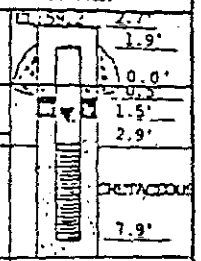
SCHNABEL ENGINEERING ASSOCIATES CONSULTING ENGINEERS	TEST BORING LOG	BORING NO. B-18
PROJECT L.A. Clarke & Son, Inc. (Pennsylvania Quarry Operations)		SHEET NO. 1 OF 1
CLIENT Gilbert W. Graham & Assoc.		JOB NO. 83512
DRILLING CONTRACTOR [illegible]	DRILL [illegible]	ELEVATION 56.5±

WATER LEVEL DATA	DATE	TIME	DEPTH	CAVED
ENCOUNTERED	1/19	9:10	11'	-
AFTER CASING PULLED	1/19	9:40	DRY	8.5
— HR. READING	SEE TABLE BELOW			

SPOON	SAMPLER
TYPE	S.S.
DIA	2" OD
WT	140 #
FALL	30"

CASING SIZE 3½"
DATE START 1/19/84
DATE FINISHED 1/19/84
DRILLER T. [illegible] TR
INSPECTOR B. FREY

STRATUM	DEPTH FT.	ELEV. 56.5±	BLOWS ON SAMPLING SPOON PER 6"	SYMBOL	IDENTIFICATION
A	2.5		6-14-16	S	FINE TO COARSE SAND, LITTLE TRACE SILT WITH GRAVEL, MOIST-BROWN (SM)
B	3.0		8-11-18	S	FINE TO COARSE SAND, SOME GRAVEL, TRACE SILT, MOIST - BROWN (SP)
C		50	2-7-14	S	CLAY, TRACE FINE SAND, WITH SAND LENSE, TRACE ORGANIC MATTER, MOIST-BROWN & BLUE GRAY (CH)
			4-11-19	S	do, TRACE MICA-BROWN & BLUE GRAY
	8.5				BORING TERMINATED AT 8.5 DEPT



Water Observation Well Data

Date	Reading	Water level (ft)	Elev	Remarks
1/19	7 hr	8.5	50.7	See installation details above
1/23	4 day	5.3	53.9	Water level measured from top of metal casing
1/30	11 day	4.3	54.9	
2/13	25 day	4.6	54.6	

ORIGINAL (red)

[illegible] CONSULTING ENGINEERS	TEST BORING LOG	BORING NO. B-19
PROJECT L.A. CLUBS & SPAS INC. [illegible]		SHEET NO. 1 OF 1
CLIENT [illegible]		JOB NO. [illegible]3512
[illegible]		ELEVATION 56.7
WATER LEVEL DATA: DATE / TIME / DEPTH CASED	CASING: TYPE S.S.	CASING SIZE 3"
FINISHED 1/30 10:00 U.S.	DIA 2.00	DATE START 1/30/84
AFTER CASING PULLED - - -	WT 140 #	DATE FINISHED 1/30/84
HR. READING SEE TABLE BELOW	FALL 30"	DRILLER J. ARIAS JR.
		INSPECTOR B. FRAY

STRATUM	DEPTH IN FT	ELEV.	BLOWS ON SAMPLE SPOON PER 6"	SYMBOL	IDENTIFICATION
B	2.0		3-3-10	S	FINE TO COARSE SAND, SOME [illegible]
			2-5-7	S	SILTY CLAY, TRACE FINE SAND & GRAVEL, MOIST [illegible]
	3.0		3-5-8	S	CLAY, TRACE FINE SAND, MOIST, BLUE GRAY & BROWN (CH)
C		50			
			7-10-15	S	

BORING TERMINATED AT 6.5 FEET

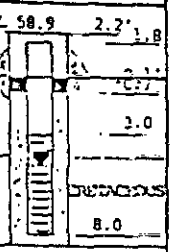
Water Observation Well Data

Date	Reading	Water Level (ft)	Elev.
1/30	5 hr	DRY	-
1/31	24 hr	6.8	52.1
2/13	14 day	6.0	52.9

Remarks

See installation details above

Water level measured from the top of metal casing



AR100146

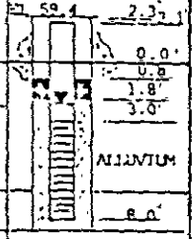
ORIGINAL
(red)

SCHNABEL ENGINEERING ASSOCIATES CONSULTING ENGINEERS	TEST BORING LOG	BORING NO. B-20
PROJECT L.A. CLARKE & SON, INC. - ARLINGTON COUNTY, VIRGINIA		SHEET NO. 1 OF 1
CLIENT CLARKE CONSTRUCTION & DEVELOPMENT CORP.		JOB NO. [illegible]
DRILLING CONTRACTOR [illegible] & SONS, INC.	DRILL RIG [illegible]	ELEVATION 57.1±
WATER LEVEL DATA		CASING SIZE 3"
DATE START 1/30/84		DATE FINISHED 1/30/84
DRILLER J. AYRES JR.		INSPECTOR B. TRILY

WATER LEVEL DATA	DATE	TIME	DEPTH	CAVED
ENCOUNTERED	1/30	-	2.0	-
AFTER CASING PULLED	-	-	-	-
HR. READING	SEE TABLE BELOW			

DRIVE SAMPLER	
TYPE	S.S.
DIA	2.00
WT	140 #
FALL	30"

STRATUM	DEPTH FT.	ELEV.	BLOWS ON SAMPLE SPOON, PER 6"	SYMBOL	IDENTIFICATION
A	2.1		5-9-9	S	FINE TO COARSE SAND, FILL, SOME FINE TO COARSE GRAVEL, TRACE CLAYEY SILT, MOIST-DENSE (SP)
			P-18-12	S	FINE TO COARSE GRAVELLY SAND, TRACE SILT, WET-GRAY (SP)
B			6-14-24	S	
	7.5±	50			
C	8.5		15-8-11	S	CLAY, TRACE FINE SAND, MOIST-BLUE GRAY & BROWN (CH)
					BORING TERMINATED AT 8.5 FEET



Water Well Observation Data

Date	Reading	Water level (ft.)	Elev.
1/30	7 hr	4.1	55.3
1/31	24 hr	4.4	55.0
2/13	14 day	5.1	54.3

Remarks

See installation details above

Water level measured from top of metal casing

ORIGINAL
(red)

SCHNABEL ENGINEERING ASSOCIATES CONSULTING ENGINEERS	TEST BORING LOG	BORING NO S-3
PROJECT [illegible] COUNTY, VIRGINIA		SHEET NO 1 OF 1
CLIENT [illegible]		JOB NO [illegible]
BORING CONTRACTOR [illegible], INC.	DRILL [illegible]	ELEVATION 60.5[illegible]

WATER LEVEL DATA	DATE	TIME	DEPTH	CAVED	DRIVE	SAMPLER	
					TYPE	S.S.	CASING SIZE 3[illegible]"
ENCOUNTERED	1/30	1:00	0.5	-	DIA	2.00	DATE START 1/30/84
AFTER CASING PULLED	-	-	-	-	WT.	140 #	DATE FINISHED 1/30/84
_ HR READING	[illegible] UPON COMPLETION				FALL	30"	DRILLER J. AYERS, JR.
							INSPECTOR B. [illegible]

STRATUM	DEPTH FT.	ELEV.	BLOWS ON SAMPLE SPOON PER 6"	SYMBOL	IDENTIFICATION	REMARKS
A		[illegible]	6-8-12	S	FINE TO COARSE CLAYEY SILTY SAND, FILL, WITH GRAVEL, WET-BROWN (SM)	
			11-12-15	S		FILL
	5.0		6-6-9	S	FINE TO COARSE SAND, [illegible] SILTY WET-GRAY (SM)	
B	5.5					ALLUVIUM
					BORING TERMINATED AT 5.5 FEET	
						Note: Odors noted in first two soil samples

ORIGINAL
(red)

SCHNABEL ENGINEERING ASSOCIATES CONSULTING ENGINEERS	TEST BORING LOG	BORING NO.: S-4
PROJECT L.A. CLARKE & SON INC. - [illegible] COUNTY, VIRGINIA		SHEET NO. 1 OF 1
CLIENT [illegible] & ASSOC.		JOB NO. VA3512
DRILLING CONTRACTOR [illegible] & ASSOC. INC.	DRILL CASING	ELEVATION 28.6
WATER LEVEL DATA	DRIVE SAMPLER	CASING SIZE 3"
DATE / TIME / DEPTH / CAVED	TYPE S.S.	DATE START 12/10/64
ENCOUNTERED 12/10 / 3:15 / 3.7' / —	DIA. 2.00	DATE FINISHED 12/13/64
AFTER CASING PULLED 12/10 / 3:35 / 9.0' / 12.0'	WT. 140#	DRILLER J. [illegible] JR.
HR. READING [illegible]	FALL 30"	INSPECTOR B. [illegible]

STRATUM	DEPTH FT.	ELEV.	BLOWS ON SAMPLE SPOON PER 6"	SYMBOL	IDENTIFICATION	REMARKS
			5-4-4	S	FINE TO COARSE SILTY SAND, FILL, TRACE [illegible] (SM)	FILL
			15-15-12	S	FINE TO COARSE SAND, SOME GRAVEL, TRACE [illegible] (SP)	
			5-6-9	S	FINE TO MEDIUM CLAYEY SILTY SAND, MOTTLED REDDISH BROWN & GRAY (SM)	
B		50	3-6-11	S	do. FINE TO COARSE, WITH STRONG ODORS	ALLUVIUM
			4-11-16	S		
			3-11-17	S	CLAY, TRACE FINE SAND, MOIST-BLUE GRAY & [illegible] (CH)	CRETACEOUS
					BORING TERMINATED AT 13.5 FEET	Note: Odors noted in soil samples nos. 1, 2 and 4

APPENDIX D

ORIGINAL (red)

U.S. Environmental Protection Agency - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

Sample Number C3170 MEDIUM LEVEL

ORGANICS ANALYSIS DATA SHEET - Page 1

FORM II

Doc. Control No: 1793- 3 -00
Laboratory Name: SPECTRIX CORPORATION
Case No: 1793
Lab Sample I.D. No: 8306026
QC Report No: 21

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 1.0

ACID COMPOUNDS

PP #	CAS #		ug/g
(214)	88-06-2	2,4,6-trichlorophenol	10 U
(278)	59-50-7	p-chloro-m-cresol	10 U
(744)	95-57-8	2-chlorophenol	10 U
(214)	120-83-2	2,4-dichlorophenol	10 U
(344)	105-67-9	2,4-dimethylphenol	21.2 ~~10 U~~ OK
(574)	88-75-5	2-nitrophenol	20 U
(588)	100-02-7	4-nitrophenol	50 U
(598)	51-28-5	2,4-dinitrophenol	50 U
(604)	534-52-1	4,6-dinitro-2-methylphenol	20 U
(644)	87-86-5	pentachlorophenol	10 U
(654)	108-95-2	phenol	4.14 ~~10 U~~ OK

(Non-Priority Pollutant Hazardous Substances)

	65-85-0	benzoic acid	100 U
	95-48-7	2-methylphenol	78.7 ~~10 U~~ OK
	108-39-4	4-methylphenol	20.4 ~~10 U~~ OK
	95-95-4	2,4,5-trichlorophenol	100 U

BASE-NEUTRAL COMPOUNDS

(18)	83-32-9	acenaphthene	11.7 ~~10 U~~ OK
(58)	92-87-5	benzidine	40 U
(88)	120-82-1	1,2,4-trichlorobenzene	10 U
(98)	118-74-1	hexachlorobenzene	10 U
(178)	67-72-1	hexachloroethane	10 U
(188)	111-44-4	bis(2-chloroethyl)ether	10 U
(208)	91-58-7	2-chloronaphthalene	10 U
(258)	95-50-1	1,2-dichlorobenzene	10 U
(268)	541-73-1	1,3-dichlorobenzene	10 U
(278)	106-46-7	1,4-dichlorobenzene	10 U
(288)	91-94-1	3,3'-dichlorobenzidine	20 U
(358)	121-14-2	2,4-dinitrotoluene	20 U
(368)	606-20-2	2,6-dinitrotoluene	20 U
		1,2-diphenylhydrazine	
(378)	122-66-7	(as azobenzene)	20 U
(398)	206-44-0	fluoranthene	29.6 ~~10 U~~ OK
(408)	7005-72-3	4-chlorophenyl phenyl ether	10 U
(418)	101-55-3	4-bromophenyl phenyl ether	10 U

BASE-NEUTRAL COMPOUNDS

PP #	CAS #		ug/g
(478)	39638-32-9	bis-(2-chloroisopropyl)ether	20 U
(438)	111-91-1	bis-(2-chloroethoxy)methane	20 U
(528)	87-68-3	hexachlorobutadiene	10 U
(538)	77-47-4	hexachlorocyclopentadiene	10 U
(548)	78-59-1	isophorone	10 U
(558)	91-20-3	naphthalene	80.1 ~~10 U~~ OK
(568)	98-95-3	nitrobenzene	10 U
(628)	86-30-6	N-nitrosodiphenylamine	10 U
(638)	621-64-7	N-nitrosodi-n-propylamine	10 U
(668)	117-81-7	bis(2-ethylhexyl)phthalate	10 U
(678)	85-68-7	butyl benzyl phthalate	10 U
(688)	84-74-2	di-n-butyl phthalate	10 U
(698)	117-84-0	di-n-octyl phthalate	10 U
(708)	84-66-2	diethyl phthalate	10 U
(718)	131-11-3	dimethyl phthalate	10 U
(728)	56-55-3	benzo(a)anthracene	K ~~10 U~~ OK
(738)	50-32-8	benzo(a)pyrene	20 U
(748)	205-99-2	benzo(b)fluoranthene	K 20 U
(758)	207-08-9	benzo(k)fluoranthene	20 U
(768)	218-01-9	chrysene	20 U
(778)	208-96-8	acenaphthylene	10 U
(788)	120-12-7	anthracene	17.8 ~~10 U~~ OK
(798)	191-24-2	benzo(ghi)perylene	20 U
(808)	86-73-7	fluorene	15.9 ~~10 U~~ OK
(818)	85-01-8	phenanthrene	48.4 ~~10 U~~ OK
(828)	53-70-3	dibenzo(a,h)anthracene	20 U
(838)	193-39-5	indeno(1,2,3-cd)pyrene	20 U
(848)	129-00-0	pyrene	16.6 ~~10 U~~ OK

(Non-Priority Pollutant Hazardous Substances)

	62-53-3	aniline	5 U
	100-51-6	benzyl alcohol	20 U
	106-47-8	4-chloroaniline	10 U
	132-64-9	dibenzofuran	12.6 ~~10 U~~ OK
	91-57-6	2-methylnaphthalene	316 ~~10 U~~ OK
	88-74-4	2-nitroaniline	100 U
	99-09-2	3-nitroaniline	100 U
	100-01-6	4-nitroaniline	100 U

FACTOR = $\frac{1.0}{1.0}$ [V_t (mL)] / [D.F.] = ~~[D.F.]~~ OK = 1.0
[W_s (g)]

V_t = Final volume of extract
D.F. = Dilution factor
D.W.F. = Dry weight factor
V_i = Initial volume of sample extracted

~~000084~~ DS

Richard Deol

AR100151

ORIGINAL

C3170 (red)

LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 2

FORM II

DOC. CONTROL NO: 1793-3-8

Laboratory Name: SPECTRIX CORPORATION

Case No: 1793

Lab Sample I.D. No: 8306026

QC Report No: 21

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 1 ☑ or 10 ☐ or ☐ ___

(Check Box for Appropriate Factor)

VOLATILES

PP #	CAS #		ug/l
(2V)	107-02-8	acrolein	100U
(3V)	107-13-1	acrylonitrile	100U
(4V)	71-43-2	benzene 111	5U DK
(6V)	56-23-5	carbon tetrachloride	5U
(7V)	108-90-7	chlorobenzene	5U
(10V)	107-06-2	1,2-dichloroethane	1U
(11V)	71-55-6	1,1,1-trichloroethane	5U
(13V)	75-34-3	1,1-dichloroethane	5U
(14V)	79-00-5	1,1,2-trichloroethane	5U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10U
(16V)	75-00-3	chloroethane	10U
(19V)	110-75-8	2-chloroethylvinyl ether	10U
(23V)	67-66-3	chloroform	5U
(29V)	75-35-4	1,1-dichloroethene	5U
(30V)	156-60-5	1,2-trans-dichloroethene	5U
(32V)	78-87-5	1,2-dichloropropane	10U
(33V)	10061-02-6	trans-1,3-dichloropropene	5U
	10061-01-05	cis,1,3-dichloropropene	5U
(38V)	100-41-4	ethylbenzene 375	DK
(44V)	75-09-2	methylene chloride R	5U
(45V)	74-87-3	chloromethane	10U
(46V)	74-83-9	bromomethane	10U
(47V)	75-25-2	bromoform	10U
(48V)	75-27-4	bromodichloromethane	5U
(61V)	124-48-1	chlorodibromomethane	5U
(85V)	127-18-4	tetrachloroethene	5U
(86V)	108-88-3	toluene 338	DK
(87V)	79-01-6	trichloroethene	5U
(88V)	75-01-4	vinyl chloride	10U

(Non-Priority Pollutant Hazardous Substances)

	67-64-1	acetone 207	DK
	78-93-3	2-butanone 29.3	DK
	75-15-0	carbondisulfide	1U
	519-78-6	2-hexanone 20.2	DK
	108-10-1	4-methyl-2-pentanone 32.1	DK
	100-42-5	styrene 120	DK
	108-05-4	vinyl acetate	5U
	95-47-6	o-xylene 822	DK

Richard Scott

000085 DK

ORIGINAL (red)

Sample Number C3170 LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 3

FORM II

Laboratory Name: SPECTRIX CORPORATION

Lab Sample I.D. No: 8306026

Doc. Control No: 1793-3

Case No: 1793

QC Report No: 21

PESTICIDES

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 0.1

PP #	CAS #		ug/l	PP #	CAS #		ug/l
(89P)	309-00-2	aldrin	10 U	(102P)	319-84-6	BHC-Alpha	10 U
(90P)	60-57-1	dieldrin	10 U	(103P)	319-85-7	BHC-Beta	K 10 U **
(91P)	57-74-9	chlordane	10 U	(104P)	319-86-8	BHC-Delta	10 U
(92P)	50-29-3	4,4'-DDT	10 U	(105P)	58-89-9	BHC-Gamma	10 U
(93P)	72-55-9	4,4'-DDE	10 U	(106P)	53469-21-9	PCB-1242	200 U
(94P)	72-54-8	4,4'-DDD	10 U	(107P)	11097-69-1	PCB-1254	200 U
(95P)	115-29-7	endosulfan I	10 U	(108P)	11104-28-2	PCB-1221	200 U
(96P)	115-29-7	endosulfan II	10 U	(109P)	11141-16-5	PCB-1232	200 U
(97P)	1031-07-8	endosulfan sulfate	10 U	(110P)	12672-29-6	PCB-1248	200 U
(98P)	72-20-8	endrin	10 U	(111P)	11096-82-5	PCB-1260	200 U
(99P)	7421-93-4	endrin aldehyde	10 U	(112P)	12674-11-2	PCB-1016	200 U
(100P)	76-44-8	heptachlor	K 10 U **	(113P)	8001-35-2	toxaphene	200 U
(101P)	1024-57-3	heptachlor epoxide	10 U				

FACTOR: $\frac{5.0}{500}$ $\frac{[V_T(mL)]}{[V_I(mL)]}$ $\frac{10}{[D.F.]}$ = .1

V_T = Final volume of extract

V_I = Initial weight of sample extracted

D.F. = Dilution factor

DIOXINS

MULTIPLY ALL VALUES AND DETECTION LIMITS BY .001

PP #	CAS #		ug/l
(129S)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	43.4 **

FACTOR: $\frac{0.5}{500}$ $\frac{[V_T(mL)]}{[V_I(mL)]}$ $\frac{1}{[D.F.]}$ = .001

V_T = Final volume of extract

V_I = Initial weight of sample extracted

D.F. = Dilution factor

Richard Scott

DATA REPORTING QUALIFIERS

Value - If the result is a value greater than or equal to the detection limit, report the value.

U - Indicates compound was analyzed for but not detected. The number is the minimum detection limit.

K - Actual value, within the limitations of this method, is less than the value given. The mass spectral data indicates the presence of a compound that meets the identification criteria but the quantitative result is less than the specified detection limit but greater than zero.

** - This flag applies to pesticides parameters where the identification has been performed using two column confirmation (as specified in Method 608) but the level is too low for verification of the compound by mass spectrometry.

B - Compound not detected: blank value for the compound was greater than 1/2 of the MDL and greater than of the concentration detected in sample.

ORIGINAL (red)

U.S. Environmental Protection Agency - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

Sample Number C3172
LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 1

FORM II
Laboratory Name: SPECTRIX CORPORATION
Lab Sample I.D. No: 8306026

Doc. Control No: 1793-3 .00
Case No: 1793
QC Report No: 21

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 2.0

ACID COMPOUNDS

PP #	CAS #		ug/l	
(21A)	88-06-2	2,4,6-trichlorophenol	10	U
(22A)	59-50-7	p-chloro-m-cresol	10	U
(24A)	95-57-8	2-chlorophenol	10	U
(31A)	120-83-2	2,4-dichlorophenol	10	U
(34A)	105-67-9	2,4-dimethylphenol	15.9	~~10~~ J
(57A)	88-75-5	2-nitrophenol	20	U
(58A)	100-02-7	4-nitrophenol	50	U
(59A)	51-28-5	2,4-dinitrophenol	50	U
(60A)	534-52-1	4,6-dinitro-2-methylphenol	20	U
(64A)	87-86-5	pentachlorophenol	10	U
(65A)	108-95-2	phenol	19.0	~~10~~ J

(Non-Priority Pollutant Hazardous Substances)

	65-85-0	benzoic acid	100	U
	95-48-7	2-methylphenol	45.3	~~5~~ J
	108-39-4	4-methylphenol	25.3	~~5~~ J
	95-95-4	2,4,5-trichlorophenol	100	U

BASE-NEUTRAL COMPOUNDS

(1B)	83-32-9	acenaphthene	172	~~10~~ J
(5B)	92-87-5	benzidine	40	U
(8B)	120-82-1	1,2,4-trichlorobenzene	10	U
(9B)	118-74-1	hexachlorobenzene	10	U
(12B)	67-72-1	hexachloroethane	10	U
(18B)	111-44-4	bis(2-chloroethyl)ether	10	U
(20B)	91-58-7	2-chloronaphthalene	10	U
(25B)	95-50-1	1,2-dichlorobenzene	10	U
(26B)	541-73-1	1,3-dichlorobenzene	10	U
(27B)	106-46-7	1,4-dichlorobenzene	10	U
(28B)	91-94-1	3,3'-dichlorobenzidine	20	U
(35B)	121-14-2	2,4-dinitrotoluene	20	U
(36B)	606-20-2	2,6-dinitrotoluene	20	U
(37B)	122-66-7	1,2-diphenylhydrazine (as azobenzene)	20	U
(39B)	206-44-0	fluoranthene	K	10 ~~10~~
(40B)	7005-72-3	4-chlorophenyl phenyl ether	10	U
(41B)	101-55-3	4-bromophenyl phenyl ether	10	U

BASE-NEUTRAL COMPOUNDS

PP #	CAS #		ug/l	
(42B)	39638-32-9	bis-(2-chloroisopropyl)ether	20	U
(43B)	111-91-1	bis-(2-chloroethoxy)methane	20	U
(52B)	87-68-3	hexachlorobutadiene	10	U
(53B)	77-47-4	hexachlorocyclopentadiene	10	U
(54B)	78-59-1	isophorone	10	U
(55B)	91-20-3	naphthalene	202	~~10~~ J
(56B)	98-95-3	nitrobenzene	10	U
(62B)	86-30-6	N-nitrosodiphenylamine	10	U
(63B)	621-64-7	N-nitrosodi-n-propylamine	10	U
(66B)	117-81-7	bis(2-ethylhexyl)phthalate	K	10 ~~10~~
(67B)	85-68-7	butyl benzyl phthalate		10 U
(68B)	84-74-2	di-n-butyl phthalate		10 U
(69B)	117-84-0	di-n-octyl phthalate		10 U
(70B)	84-66-2	diethyl phthalate		10 U
(71B)	131-11-3	dimethyl phthalate		10 U
(72B)	56-55-3	benzo(a)anthracene		10 U
(73B)	50-32-8	benzo(a)pyrene		20 U
(74B)	205-99-2	benzo(b)fluoranthene		20 U
(75B)	207-08-9	benzo(k)fluoranthene		20 U
(76B)	218-01-9	chrysene		20 U
(77B)	208-96-8	acenaphthylene	K	10 ~~10~~
(78B)	120-12-7	anthracene		10 U
(79B)	191-24-2	benzo(ghi)perylene		20 U
(80B)	86-73-7	fluorene	660	~~70~~ J
(81B)	85-01-8	phenanthrene		10 U
(82B)	53-70-3	dibenzo(a,h)anthracene		20 U
(83B)	193-39-5	indeno(1,2,3-cd)pyrene		20 U
(84B)	129-00-0	pyrene	K	10 ~~10~~

(Non-Priority Pollutant Hazardous Substances)

	62-53-3	aniline	5	U
	100-51-6	benzyl alcohol	20	U
	106-47-8	4-chloroaniline	50	U
	132-64-9	dibenzofuran	92.4	~~10~~ J
	91-57-6	2-methylnaphthalene	118	~~20~~ J
	88-74-4	2-nitroaniline	100	U
	99-09-2	3-nitroaniline	100	U
	100-01-6	4-nitroaniline	100	U

FACTOR = $\frac{1.0}{1.0}$ [V_t (mL)]/[V_i (L)] 2 [D.F.] = 2.0

V_t = Final volume of extract
V_i = Initial volume of sample extracted
D.F. = Dilution factor

Richard Scott

AR100154

ORIGINAL

SAMPLE NUMBER: C3172 (red)
LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 2

FORM II

DOC. CONTROL NO: 1793-3-8

Laboratory Name: SPECTRIX CORPORATION

Case No: 1793

Lab Sample I.D. No: 8306026

QC Report No: 21

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 1 ☑ or 10 ☐ or ☐ ___

(Check Box for Appropriate Factor)

VOLATILES

PP #	CAS #		ug/l
(2V)	107-02-8	acrolein	100U
(3V)	107-13-1	acrylonitrile	100U
(4V)	71-43-2	benzene 62.4	5U ~~5U~~
(5V)	56-23-5	carbon tetrachloride	5U
(7V)	108-90-7	chlorobenzene	5U
(18V)	107-06-2	1,2-dichloroethane	1U
(11V)	71-55-6	1,1,1-trichloroethane	5U
(13V)	75-34-3	1,1-dichloroethane	5U
(14V)	79-00-5	1,1,2-trichloroethane	5U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10U
(16V)	75-00-3	chloroethane	10U
(19V)	110-75-8	2-chloroethylvinyl ether	10U
(21V)	67-66-3	chloroform	5U
(29V)	75-35-4	1,1-dichloroethene	5U
(30V)	156-60-5	1,2-trans-dichloroethene	5U
(32V)	78-87-5	1,2-dichloropropane	10U
(33V)	10061-02-6	trans-1,3-dichloropropene	5U
	10061-01-05	cis,1,3-dichloropropene	5U
(38V)	100-41-4	ethylbenzene 51.9	5U ~~5U~~
(44V)	75-09-2	methylene chloride K	5U
(45V)	74-87-3	chloromethane	10U
(46V)	74-83-9	bromomethane	10U
(47V)	75-25-2	bromoform	10U
(48V)	75-27-4	bromodichloromethane	5U
(51V)	124-48-1	chlorodibromomethane	5U
(85V)	127-18-4	tetrachloroethene	5U
(86V)	108-88-3	toluene 119	5U ~~5U~~
(87V)	79-01-6	trichloroethene	5U
(88V)	75-01-4	vinyl chloride	10U

(Non-Priority Pollutant Hazardous Substances)

	67-64-1	acetone 19.2	5U ~~5U~~
	78-93-3	2-butanone	5U
	75-15-0	carbondisulfide	1U
	519-78-6	2-hexanone	5U
	108-10-1	4-methyl-2-pentanone	5U
	100-42-5	styrene 108	5U ~~5U~~
	108-05-4	vinyl acetate	5U
	95-47-6	o-xylene 242	5U ~~5U~~

Richard Scott

ARI00155

ORIGINAL (red)

Sample Number C3172
Low Level Water

ORGANICS ANALYSIS DATA SHEET - Page 1

FORM II

Laboratory Name: SPECTRIS CORPORATION
Lab Sample I.D. No: 8306026

Doc. Control No: 1793-3 -08
Case No: 1793
QC Report No: 21

PESTICIDES

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 0.01

PP #	CAS #		ug/l	PP #	CAS #		ug/l
(958P)	309-00-2	aldrin	10 U	(1027P)	319-84-6	BHC-Alpha	10 U
(960P)	60-57-1	dieldrin	10 U	(1028P)	319-85-7	BHC-Beta	10 U
(912P)	57-74-9	chlordane	10 U	(1064P)	319-86-8	BHC-Delta	10 U
(929P)	50-29-3	4,4'-DDT	10 U	(1065P)	58-89-9	BHC-Gamma	10 U
(932P)	72-55-9	4,4'-DDE	10 U	(1066P)	53469-21-9	PCB-1242	200 U
(944P)	72-54-8	4,4'-DDD	10 U	(1070P)	11097-69-7	PCB-1254	200 U
(956P)	115-29-7	endosulfan I	10 U	(1080P)	11104-28-2	PCB-1221	200 U
(960P)	115-29-7	endosulfan II	10 U	(1090P)	11141-16-5	PCB-1232	200 U
(972P)	1031-07-8	endosulfan sulfate	10 U	(1100P)	12672-29-6	PCB-1248	200 U
(988P)	72-20-8	endrin	10 U	(1110P)	11096-82-5	PCB-1260	200 U
(990P)	7421-93-4	endrin aldehyde	10 U	(1120P)	12674-11-2	PCB-1016	200 U
(1000P)	76-44-8	heptachlor	10 U	(1130P)	8001-35-2	toxaphene	200 U
(1010P)	1024-57-3	heptachlor epoxide	10 U				

FACTOR: $\frac{5.0}{500}$ [V_f(mL)]: $\frac{1}{}$ [D.F.] = .01

V_f = Final volume of extract
V_i = Initial weight of sample extracted

D.F. = Dilution factor

DIOXINS

MULTIPLY ALL VALUES AND DETECTION LIMITS BY .001

PP #	CAS #		ug/l
(1298)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	37.7

FACTOR: $\frac{.5}{500}$ [V_f(mL)]: $\frac{1}{}$ [D.F.] = .001

V_f = Final volume of extract
V_i = Initial weight of sample extracted

D.F. = Dilution factor

Richard Scott

DATA REPORTING QUALIFIERS

Value - If the result is a value greater than or equal to the detection limit, report the value.

U - Indicates compound was analyzed for but not detected. The number is the minimum detection limit.

E - Actual value, within the limitations of this method, is less than the value given. The mass spectral data indicates the presence of a compound that meets the identification criteria but the quantitative result is less than the specified detection limit but greater than zero.

QQ - This flag applies to pesticides parameters where the identification has been performed using two column confirmation as specified in Method 8081 but the level is too low for verification of the compound by mass spectrometry.

B - Compound not detected: Blank value for the compound was greater than 1/2 of the MDL and greater than 1/ of the concentration detected in sample.

AR100156

ORIGINAL (red)

U.S. Environmental Protection Agency - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

Sample Number C3173
LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 1

FORM II

Doc. Control No. 1793-3 -01
Laboratory Name: SPECTRIX CORPORATION
Case No: 1793
Lab Sample I.D. No: 8306026
QC Report No: 21

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 2.0

ACID COMPOUNDS

PP #	CAS #		ug/L
(21A)	88-06-2	2,4,6-trichlorophenol	10 U
(27A)	59-50-7	p-chloro-m-cresol	10 U
(29A)	95-57-8	2-chlorophenol	10 U
(31A)	120-83-2	2,4-dichlorophenol	10 U
(34A)	105-67-9	2,4-dimethylphenol	10 U
(57A)	88-75-5	2-nitrophenol	20 U
(58A)	100-02-7	4-nitrophenol	50 U
(59A)	51-28-5	2,4-dinitrophenol	50 U
(60A)	534-52-1	4,6-dinitro-2-methylphenol	20 U
(64A)	87-86-5	pentachlorophenol	10 U
(65A)	108-95-2	phenol	10 U

(Non-Priority Pollutant Hazardous Substances)

	65-85-0	benzoic acid	100 U
	95-48-7	2-methylphenol	5 U
	108-39-4	4-methylphenol	5 U
	95-95-4	2,4,5-trichlorophenol	100 U

BASE-NEUTRAL COMPOUNDS

(1B)	83-32-9	acenaphthene	10 U
(5B)	92-87-5	benzidine	40 U
(8B)	120-82-1	1,2,4-trichlorobenzene	10 U
(9B)	118-74-1	hexachlorobenzene	10 U
(12B)	67-72-1	hexachloroethane	10 U
(18B)	111-44-4	bis(2-chloroethyl)ether	10 U
(20B)	91-58-7	2-chloronaphthalene	10 U
(25B)	95-50-1	1,2-dichlorobenzene	10 U
(26B)	541-73-1	1,3-dichlorobenzene	10 U
(27B)	106-46-7	1,4-dichlorobenzene	10 U
(28B)	91-94-1	3,3'-dichlorobenzidine	20 U
(35B)	121-14-2	2,4-dinitrotoluene	20 U
(36B)	606-20-2	2,6-dinitrotoluene	20 U
		1,2-diphenylhydrazine	
(37B)	122-66-7	(as azobenzene)	20 U
(38B)	206-44-0	fluoranthene	10 U
(40B)	7005-72-3	4-chlorophenyl phenyl ether	10 U
(41B)	101-55-3	4-bromophenyl phenyl ether	10 U

BASE-NEUTRAL COMPOUNDS

PP #	CAS #		ug/L
(42B)	39638-32-9	bis-(2-chloroisopropyl)ether	20 U
(43B)	111-91-1	bis-(2-chloroethoxy)methane	20 U
(52B)	87-68-3	hexachlorobutadiene	10 U
(53B)	77-47-4	hexachlorocyclopentadiene	10 U
(54B)	78-59-1	isophorone	10 U
(55B)	91-20-3	naphthalene	10 U
(56B)	98-95-3	nitrobenzene	10 U
(62B)	86-30-6	N-nitrosodiphenylamine	10 U
(63B)	621-64-7	N-nitrosodi-n-propylamine	10 U
(66B)	117-81-7	bis(2-ethylhexyl)phthalate	10 U
(67B)	85-68-7	butyl benzyl phthalate	10 U
(68B)	84-74-2	di-n-butyl phthalate	K 10 U
(69B)	117-84-0	di-n-octyl phthalate	10 U
(70B)	84-66-2	diethyl phthalate	10 U
(71B)	131-11-3	dimethyl phthalate	10 U
(72B)	56-55-3	benzo(a)anthracene	10 U
(73B)	50-32-8	benzo(a)pyrene	20 U
(74B)	205-99-2	benzo(b)fluoranthene	20 U
(75B)	207-08-9	benzo(k)fluoranthene	20 U
(76B)	218-01-9	chrysene	20 U
(77B)	208-96-8	acenaphthylene	10 U
(78B)	120-12-7	anthracene	10 U
(79B)	191-24-2	benzo(ghi)perylene	20 U
(80B)	86-73-7	fluorene	K 10 U
(81B)	85-01-8	phenanthrene	10 U
(82B)	53-70-3	dibenzo(a,h)anthracene	20 U
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	20 U
(84B)	129-00-0	pyrene	10 U

(Non-Priority Pollutant Hazardous Substances)

	62-53-3	aniline	5 U
	100-51-6	benzyl alcohol	20 U
	106-47-8	4-chloroaniline	50 U
	132-64-9	dibenzofuran	10 U
	91-57-6	2-methylnaphthalene	20 U
	88-74-4	2-nitroaniline	100 U
	99-09-2	3-nitroaniline	100 U
	100-01-6	4-nitroaniline	100 U

FACTOR = $\frac{1.0 \text{ [Vt (mL)]}}{1.0 \text{ [Vi (L)]}}$ $\frac{2 \text{ [D.F.]}}{} = 2.0$

Vt = final volume of extract
Vi = initial volume of sample extracted
D.F. = Dilution factor

Richard Scott

AR100157

ORIGINAL

C 3173 (red)

LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 2

FORM II

DOC. CONTROL NO: 1793-3-8

Laboratory Name: SPECTRIX CORPORATION

Case No: 1793

Lab Sample I.D. No: 8306026

QC Report No: 21

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 1 ☑ or 10 ☐ or ☐ ___

(Check Box for Appropriate Factor)

VOLATILES

PP #	CAS #		ug/l
(2V)	107-02-8	acrolein	1000
(3V)	107-13-1	acrylonitrile	1000
(4V)	71-43-2	benzene	5U
(6V)	56-23-5	carbon tetrachloride	5U
(7V)	108-90-7	chlorobenzene	5U
(10V)	107-06-2	1,2-dichloroethane	10
(11V)	71-55-6	1,1,1-trichloroethane	5U
(13V)	75-34-3	1,1-dichloroethane	5U
(14V)	79-00-5	1,1,2-trichloroethane	5U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10U
(16V)	75-00-3	chloroethane	10U
(19V)	110-75-8	2-chloroethylvinyl ether	10U
(23V)	67-66-3	chloroform	5U
(29V)	75-35-4	1,1-dichloroethene	5U
(30V)	156-60-5	1,2-trans-dichloroethene	5U
(32V)	78-87-5	1,2-dichloropropane	10U
(33V)	10061-02-6	trans-1,3-dichloropropene	5U
	10061-01-5	cis,1,3-dichloropropene	5U
(38V)	100-41-4	ethylbenzene	5U
(44V)	75-09-2	methylene chloride B	5U
(45V)	74-87-3	chloromethane	10U
(46V)	74-83-9	bromomethane	10U
(47V)	75-25-2	bromoform	10U
(48V)	75-27-4	bromodichloromethane	5U
(51V)	124-48-1	chlorodibromomethane	5U
(85V)	127-18-4	tetrachloroethene	5U
(86V)	108-88-3	toluene	5U
(87V)	79-01-6	trichloroethene	5U
(88V)	75-01-4	vinyl chloride	10U

(Non-Priority Pollutant Hazardous Substances)

	67-64-1	acetone 15.9 ~~10~~ ~~50~~	
	78-93-3	2-butanone	5U
	75-15-0	carbondisulfide	10
	519-78-6	2-hexanone	5U
	108-10-1	4-methyl-2-pentanone	5U
	100-42-5	styrene 31.3 ~~10~~ ~~50~~	
	108-05-4	vinyl acetate	5U
	95-47-6	o-xylene	5U

Richard Scott

AR100158

ORIGINAL

Sample Number c3,73 (red)
LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 3

FORM II

Laboratory Name SPECTRIX CORPORATION

Lab Sample I.D. No: 8306026

Doc. Control No: 1793-3 -00

Case No: 1793

QC Report No: 21

PESTICIDES

MULTIPLY ALL VALUES AND DETECTION LIMITS BY .01

PP #	CAS #		ug/l
(89P)	309-00-2	aldrin	10 U
(90P)	60-57-1	dieldrin	10 U
(91P)	57-74-9	chlordane	10 U
(92P)	50-29-3	4,4'-DDT	10 U
(93P)	72-55-9	4,4'-DDE	10 U
(94P)	72-54-8	4,4'-DDD	10 U
(95P)	115-29-7	endosulfan I	10 U
(96P)	115-29-7	endosulfan II	10 U
(97P)	1031-07-8	endosulfan sulfate	10 U
(98P)	72-20-8	endrin	10 U
(99P)	7421-93-4	endrin aldehyde	10 U
(100P)	76-44-8	heptachlor	10 U
(101P)	1024-57-3	heptachlor epoxide	10 U
(102P)	319-84-6	BHC-Alpha	10 U
(103P)	319-85-7	BHC-Beta	10 U
(104P)	319-86-8	BHC-Delta	10 U
(105P)	58-89-9	BHC-Gamma	10 U
(106P)	53469-21-9	PCB-1242	200 U
(107P)	11097-69-1	PCB-1254	200 U
(108P)	11104-28-2	PCB-1221	200 U
(109P)	11141-16-5	PCB-1232	200 U
(110P)	12672-29-6	PCB-1248	200 U
(111P)	11096-82-5	PCB-1260	200 U
(112P)	12674-11-2	PCB-1016	200 U
(113P)	8001-35-2	toxaphene	200 U

FACTOR: $\frac{5.0}{500}$ [V_t(mL)] : $\frac{1.0}{}$ [D.F.] = .01

V_t = Final volume of extract

V_i = Initial weight of sample extracted

D.F. = Dilution factor

DIOXINS

MULTIPLY ALL VALUES AND DETECTION LIMITS BY .001

PP #	CAS #		ug/l
(1998)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	5 U

FACTOR: $\frac{0.5}{500}$ [V_t(mL)] : $\frac{1}{}$ [D.F.] = .001

V_t = Final volume of extract

V_i = Initial weight of sample extracted

D.F. = Dilution factor

Richard Scott

DATA REPORTING QUALIFIERS

Value - If the result is a value greater than or equal to the detection limit, report the value.

U - Indicates compound was analyzed for but not detected. The number is the minimum detection limit.

E - Actual value, within the limitations of this method, is less than the value given. The mass spectral data indicates the presence of a compound that meets the identification criteria but the quantitative result is less than the specified detection limit but greater than zero.

pe - This flag applies to pesticides parameters where the identification has been performed using two column confirmation (as specified in Method 608) but the level is too low for verification of the compound by mass spectrometry.

B - Compound not detected: Blank value for the compound was greater than 1/2 of the MDL and greater than 1/ of the concentration detected in sample.

AR100159

ORIGINAL

U.S. Environmental Protection Agency - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

Sample Number C3174 (red)
MEDIUM LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 1

FORM 1S

Laboratory Name: SPECTRIX CORPORATION
Lab Sample I.D. No: 8306026

Doc. Control No: 1793- 3 -08
Case No: 1793
QC Report No: 21

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 1

ACID COMPOUNDS

PP #	CAS #		ug/l
(21A)	88-06-2	2,4,6-trichlorophenol	10 U
(22A)	59-50-7	p-chloro-m-cresol	10 U
(24A)	95-57-8	2-chlorophenol	10 U
(31A)	120-83-2	2,4-dichlorophenol	10 U
(34A)	105-67-9	2,4-dimethylphenol	10 U
(57A)	88-75-5	2-nitrophenol	20 U
(58A)	100-02-7	4-nitrophenol	50 U
(59A)	51-28-5	2,4-dinitrophenol	50 U
(60A)	534-52-1	4,6-dinitro-2-methylphenol	20 U
(64A)	87-86-5	pentachlorophenol	10 U
(65A)	108-95-2	phenol	10 U

(Non-Priority Pollutant Hazardous Substances)

	65-85-0	benzoic acid	100 U
	95-48-7	2-methylphenol	5 U
	108-39-4	4-methylphenol	73.3
	95-95-4	2,4,5-trichlorophenol	100 U

BASE-NEUTRAL COMPOUNDS

(1B)	83-32-9	acenaphthene	10 U
(5B)	92-87-5	benzidine	40 U
(8B)	120-82-1	1,2,4-trichlorobenzene	10 U
(9B)	118-74-1	hexachlorobenzene	10 U
(12B)	67-72-1	hexachloroethane	10 U
(18B)	111-44-4	bis(2-chloroethyl)ether	10 U
(20B)	91-58-7	2-chloronaphthalene	10 U
(25B)	95-50-1	1,2-dichlorobenzene	10 U
(26B)	541-73-1	1,3-dichlorobenzene	10 U
(27B)	106-46-7	1,4-dichlorobenzene	10 U
(28B)	91-94-1	3,3'-dichlorobenzidine	20 U
(35B)	121-14-2	2,4-dinitrotoluene	20 U
(36B)	606-20-2	2,6-dinitrotoluene	20 U
(37B)	122-66-7	1,2-diphenylhydrazine (as azobenzene)	20 U
(39B)	206-44-0	fluoranthene	10 U
(40B)	7005-72-3	4-chlorophenyl phenyl ether	10 U
(41B)	101-55-3	4-bromophenyl phenyl ether	10 U

BASE-NEUTRAL COMPOUNDS

PP #	CAS #		ug/l
(42B)	39638-32-9	bis-(2-chloroisopropyl)ether	20 U
(43B)	111-91-1	bis-(2-chloroethoxy)methane	20 U
(52B)	87-68-3	hexachlorobutadiene	10 U
(53B)	77-47-4	hexachlorocyclopentadiene	10 U
(54B)	78-59-1	isophorone	10 U
(55B)	91-20-3	naphthalene	10 U
(56B)	98-95-3	nitrobenzene	10 U
(62B)	86-30-6	N-nitrosodiphenylamine	10 U
(63B)	621-64-7	N-nitrosodi-n-propylamine	10 U
(66B)	117-81-7	bis(2-ethylhexyl)phthalate	10 U
(67B)	85-68-7	butyl benzyl phthalate	10 U
(68B)	84-74-2	di-n-butyl phthalate	10 U
(69B)	117-84-0	di-n-octyl phthalate	10 U
(70B)	84-66-2	diethyl phthalate	10 U
(71B)	131-11-3	dimethyl phthalate	10 U
(72B)	56-55-3	benzo(a)anthracene	10 U
(73B)	50-32-8	benzo(a)pyrene	20 U
(74B)	205-99-2	benzo(b)fluoranthene	20 U
(75B)	207-08-9	benzo(k)fluoranthene	20 U
(76B)	218-01-9	chrysene	20 U
(77B)	208-96-8	acenaphthylene	10 U
(78B)	120-12-7	anthracene	10 U
(79B)	191-24-2	benzo(ghi)perylene	20 U
(80B)	86-73-7	fluorene	10 U
(81B)	85-01-8	phenanthrene	10 U
(82B)	53-70-3	dibenz(a,h)anthracene	20 U
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	20 U
(84B)	129-00-0	pyrene	10 U

(Non-Priority Pollutant Hazardous Substances)

	62-53-3	aniline	5 U
	100-51-6	benzyl alcohol	20 U
	106-47-8	4-chloroaniline	50 U
	132-64-9	dibenzofuran	10 U
	91-57-6	2-methylnaphthalene	20 U
	88-74-4	2-nitroaniline	100 U
	99-09-2	3-nitroaniline	100 U
	100-01-6	4-nitroaniline	100 U

FACTOR = $\frac{1.0}{1.0}$ $\frac{[V_t\ (mL)]}{[V_i\ (g)]}$ / [D.F.] / ~~[D.W.F.]~~ = 1

V_t = Final volume of extract
D.W.F. = Dry weight factor
D.F. = Dilution factor
V_i = Initial volume of sample extract

Richard Scott

AR100160

ORIGINAL

Sample Number C3174 (red)
LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 2

FORM II

DOC. CONTROL NO: 1793-3-8

Laboratory Name: SPECTRIX CORPORATION

Case No: 1793

Lab Sample I.D. No: 830626

QC Report No: 21

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 1 ☐ or 10 ☐ or ☐___

(Check Box for Appropriate Factor)

VOLATILES

PP #	CAS #		ug/l
(2V)	107-02-8	acrolein	100U
(3V)	107-13-1	acrylonitrile	100U
(4V)	71-43-2	benzene	5U
(6V)	56-23-5	carbon tetrachloride	5U
(7V)	108-90-7	chlorobenzene	5U
(8V)	107-06-2	1,2-dichloroethane	1U
(11V)	71-55-6	1,1,1-trichloroethane	5U
(13V)	75-34-3	1,1-dichloroethane	5U
(14V)	79-00-5	1,1,2-trichloroethane	5U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10U
(16V)	75-00-3	chloroethane	10U
(19V)	110-75-8	2-chloroethylvinyl ether	10U
(23V)	67-66-3	chloroform	5U
(29V)	75-35-4	1,1-dichloroethene	5U
(30V)	156-60-5	1,2-trans-dichloroethene	5U
(32V)	78-87-5	1,2-dichloropropane	10U
(33V)	10061-02-6	trans-1,3-dichloropropene	5U
	10061-01-05	cis,1,3-dichloropropene	5U
(38V)	100-41-4	ethylbenzene	5U
(44V)	75-09-2	methylene chloride B	5U
(45V)	74-87-3	chloromethane	10U
(46V)	74-83-9	bromomethane	10U
(47V)	75-25-2	bromoform	10U
(48V)	75-27-4	bromodichloromethane	5U
(51V)	124-48-1	chlorodibromomethane	5U
(85V)	127-18-4	tetrachloroethene	5U
(86V)	108-88-3	toluene 6.2	
(87V)	79-01-6	trichloroethene	5U
(88V)	75-01-4	vinyl chloride	10U

(Non-Priority Pollutant Hazardous Substances)

	67-64-1	acetone 13.6	
	78-93-3	2-butanone	5U
	75-15-0	carbondisulfide	1U
	519-78-6	2-hexanone	5U
	108-10-1	4-methyl-2-pentanone	5U
	100-42-5	styrene	5U
	108-05-4	vinyl acetate	5U
	95-47-6	o-xylene	5U

Richard Scott

AR100161

ORIGINAL

Sample Number
c3174 (red)
LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 3

FORM II

Doc. Control No: 1793-3 -08

Laboratory Name: SPECTRUS CORPORATION

Case No 1793

Lab Sample I.D. No: 8306026

QC Report No: 21

PESTICIDES

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 0.1

PP #	CAS #		ug/l	PP #	CAS #		ug/l
(89P)	309-00-2	aldrin	10 U	(102P)	319-84-6	BHC-Alpha	10 U
(90P)	60-57-1	dieldrin	10 U	(103P)	319-85-7	BHC-Beta	10 U
(91P)	57-74-9	chlordane	10 U	(104P)	319-86-8	BHC-Delta	10 U
(92P)	50-29-3	4,4'-DDT	10 U	(105P)	58-89-9	BHC-Gamma	10 U
(93P)	72-55-9	4,4'-DDE	10 U	(106P)	53469-21-9	PCB-1242	200 U
(94P)	72-54-8	4,4'-DDD	10 U	(107P)	11097-69-7	PCB-1254	200 U
(95P)	115-29-7	endosulfan I	10 U	(108P)	11104-28-2	PCB-1221	200 U
(96P)	115-29-7	endosulfan II	10 U	(109P)	11141-16-5	PCB-1232	200 U
(97P)	1031-07-8	endosulfan sulfate	10 U	(110P)	12672-29-6	PCB-1248	200 U
(98P)	72-20-8	endrin	10 U	(111P)	11096-82-5	PCB-1260	200 U
(99P)	7421-93-4	endrin aldehyde	10 U	(112P)	12674-11-2	PCB-1016	200 U
(100P)	76-44-8	heptachlor	10 U	(113P)	8001-35-2	toxaphene	200 U
(101P)	1024-57-3	heptachlor epoxide	10 U				

FACTOR: $\frac{5.0}{500}$ [V_f(mL)]= 10 [V_i(mL)] [D.F.] = 0.1

V_f = Final volume of extract

V_i = Initial weight of sample extracted

D.F. = Dilution factor

DIOXINS

MULTIPLY ALL VALUES AND DETECTION LIMITS BY .001

PP #	CAS #		ug/l
(129P)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	5 U

FACTOR: $\frac{0.5}{500}$ [V_f(mL)]= 1 [V_i(mL)] [D.F.] = .001

V_f = Final volume of extract

V_i = Initial weight of sample extracted

D.F. = Dilution factor

Richard Scott

DATA REPORTING QUALIFIERS

Value - If the result is a value greater than or equal to the detection limit, report the value.

U - Indicates compound was analyzed for but not detected. The number is the minimum detection limit.

E - Actual value, within the limitations of this method, is less than the value given. The mass spectral data indicates the presence of a compound that meets the identification criteria but the quantitative result is less than the specified detection limit but greater than zero.

PE - This flag applies to pesticides parameters where the identification has been performed using two column confirmation (as specified in Method 8081) but the level is too low for verification of the compound by mass spectrometry.

B - Compound not detected: blank value for the compound was greater than 1/2 of the MDL and greater than 1/2 of the concentration detected in sample.

AR100162

ORIGINAL

U.S. Environmental Protection Agency - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

Sample Number C3175 (red)
MEDIUM LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 1

FORM II

Laboratory Name: SPECTRIX CORPORATION
Lab Sample I.D. No: 8306026

Doc. Control No: 1793- 3 -08
Case No: 1793
QC Report No: 21

P 1 of 2

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 1

ACID COMPOUNDS

PP #	CAS #		ug/l
(21A)	88-06-2	2,4,6-trichlorophenol	10 U
(27A)	59-50-7	p-chloro-m-cresol	10 U
(30A)	95-57-8	2-chlorophenol	10 U
(31A)	120-83-2	2,4-dichlorophenol	10 U
(34A)	105-67-9	2,4-dimethylphenol	10 U
(51A)	88-75-5	2-nitrophenol	20 U
(52A)	100-02-7	4-nitrophenol	50 U
(99A)	51-28-5	2,4-dinitrophenol	50 U
(69A)	534-52-1	4,6-dinitro-2-methylphenol	20 U
(64A)	87-86-5	pentachlorophenol	10 U
(65A)	108-95-2	phenol	10 U

(Non-Priority Pollutant Hazardous Substances)

	65-85-0	benzoic acid	100 U
	95-48-7	2-methylphenol	5 U
	108-39-4	4-methylphenol	5 U
	95-95-4	2,4,5-trichlorophenol	100 U

BASE-NEUTRAL COMPOUNDS

PP #	CAS #		ug/l
(1B)	83-32-9	acenaphthene	267 — OK
(5B)	92-87-5	benzidine	40 U
(8B)	120-82-1	1,2,4-trichlorobenzene	10 U
(9B)	118-74-1	hexachlorobenzene	10 U
(12B)	67-72-1	hexachloroethane	10 U
(18B)	111-44-4	bis(2-chloroethyl)ether	10 U
(20B)	91-58-7	2-chloronaphthalene	10 U
(25B)	95-50-1	1,2-dichlorobenzene	10 U
(26B)	541-73-1	1,3-dichlorobenzene	10 U
(27B)	106-46-7	1,4-dichlorobenzene	10 U
(28B)	91-94-1	3,3'-dichlorobenzidine	20 U
(35B)	121-14-2	2,4-dinitrotoluene	20 U
(36B)	606-20-2	2,6-dinitrotoluene	20 U
(37B)	122-66-7	1,2-diphenylhydrazine (as azobenzene)	20 U
(39B)	206-44-0	fluoranthene	10 U
(40B)	7005-72-3	4-chlorophenyl phenyl ether	10 U
(41B)	101-55-3	4-bromophenyl phenyl ether	10 U

BASE-NEUTRAL COMPOUNDS

PP #	CAS #		ug/l
(42B)	39638-32-9	bis-(2-chloroisopropyl)ether	20 U
(43B)	111-91-1	bis-(2-chloroethoxy)methane	20 U
(52B)	87-68-3	hexachlorobutadiene	10 U
(53B)	77-47-4	hexachlorocyclopentadiene	10 U
(54B)	78-59-1	isophorone	10 U
(55B)	91-20-3	naphthalene	10 U
(56B)	98-95-3	nitrobenzene	10 U
(62B)	86-30-6	N-nitrosodiphenylamine	10 U
(63B)	621-64-7	N-nitrosodi-n-propylamine	10 U
(66B)	117-81-7	bis(2-ethylhexyl)phthalate	10 U
(67B)	85-68-7	butyl benzyl phthalate	10 U
(68B)	84-74-2	di-n-butyl phthalate	10 U
(69B)	117-84-0	di-n-octyl phthalate	10 U
(70B)	84-66-2	diethyl phthalate	10 U
(71B)	131-11-3	dimethyl phthalate	10 U
(72B)	56-55-3	benzo(a)anthracene	122 — OK
(73B)	50-32-8	benzo(a)pyrene	57.1 — OK
(74B)	205-99-2	benzo(b)fluoranthene	65.0 — OK
(75B)	207-08-9	benzo(k)fluoranthene	20 U
(76B)	218-01-9	chrysene	20 U
(77B)	208-96-8	acenaphthylene	K — OK
(78B)	120-12-7	anthracene	63.3 — OK
(79B)	191-24-2	benzo(ghi)perylene	K — OK
(80B)	86-73-7	fluorene	214 — OK
(81B)	85-01-8	phenanthrene	10 U
(82B)	53-70-3	dibenzo(a,h)anthracene	20 U
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	K — OK
(84B)	129-00-0	pyrene	237 — OK

(Non-Priority Pollutant Hazardous Substances)

	62-53-3	aniline	5 U
	100-51-6	benzyl alcohol	20 U
	106-47-8	4-chloroaniline	50 U
	132-64-9	dibenzofuran	183 — OK
	91-57-6	2-methylnaphthalene	272 — OK
	88-74-4	2-nitroaniline	100 U
	99-09-2	3-nitroaniline	100 U
	100-01-6	4-nitroaniline	100 U

FACTOR = $\frac{1.0}{1.0}$ [Vt (ml)]s / [B.F.]s / [D.W.F.] = 1 dg

Vt = Final volume of extract
B.W.F. = Dry weight factor
B.F. = Dilution factor
Vi = Initial volume of sample extracted

Richard Scott

AR100163

ORIGINAL

U.S. Environmental Protection Agency - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

Sample Number C3175 (red)
MEDIUM LEVEL

DILUTED REPEAT SV ONLY

ORGANICS ANALYSIS DATA SHEET - Page 1

P20F2

FORM II

Doc. Control No: _____

Laboratory Name: SPECTRIX CORPORATION

Case No: _____

Lab Sample I.D. No: 8306026

QC Report No: 21

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 10

ACID COMPOUNDS

PP #	CAS #		ug/l
(21A)	88-06-2	2,4,6-trichlorophenol	10 U
(22A)	59-50-7	p-chloro-m-cresol	10 U
(24A)	95-57-8	2-chlorophenol	10 U
(31A)	120-83-2	2,4-dichlorophenol	10 U
(34A)	105-67-9	2,4-dimethylphenol	10 U
(57A)	88-75-5	2-nitrophenol	20 U
(58A)	100-02-7	4-nitrophenol	50 U
(59A)	51-28-5	2,4-dinitrophenol	50 U
(60A)	534-52-1	4,6-dinitro-2-methylphenol	20 U
(64A)	87-86-5	pentachlorophenol	10 U
(65A)	108-95-2	phenol	10 U

(Non-Priority Pollutant Hazardous Substances)

	65-85-0	benzoic acid	100 U
	95-48-7	2-methylphenol	5 U
	108-39-4	4-methylphenol	5 U
	95-95-4	2,4,5-trichlorophenol	100 U

BASE-NEUTRAL COMPOUNDS

(1B)	83-32-9	acenaphthene	10 U
(5B)	92-87-5	benzidine	40 U
(8B)	120-82-1	1,2,4-trichlorobenzene	10 U
(9B)	118-74-1	hexachlorobenzene	10 U
(12B)	67-72-1	hexachloroethane	10 U
(18B)	111-44-4	bis(2-chloroethyl)ether	10 U
(20B)	91-58-7	2-chloronaphthalene	10 U
(25B)	95-50-1	1,2-dichlorobenzene	10 U
(26B)	541-73-1	1,3-dichlorobenzene	10 U
(27B)	106-46-7	1,4-dichlorobenzene	10 U
(28B)	91-94-1	3,3'-dichlorobenzidine	20 U
(35B)	121-14-2	2,4-dinitrotoluene	20 U
(36B)	606-20-2	2,6-dinitrotoluene	20 U
(37B)	122-66-7	1,2-diphenylhydrazine (as azobenzene)	20 U
(39B)	206-44-0	fluoranthene	37.2
(40B)	7005-72-3	4-chlorophenyl phenyl ether	10 U
(41B)	101-55-3	4-bromophenyl phenyl ether	10 U

BASE-NEUTRAL COMPOUNDS

PP #	CAS #		ug/l
(42B)	39638-32-9	bis-(2-chloroisopropyl)ether	20 U
(43B)	111-91-1	bis-(2-chloroethoxy)methane	20 U
(52B)	87-68-3	hexachlorobutadiene	10 U
(53B)	77-47-4	hexachlorocyclopentadiene	10 U
(54B)	78-59-1	isophorone	10 U
(55B)	91-20-3	naphthalene	57.4
(56B)	98-95-3	nitrobenzene	10 U
(57B)	86-30-6	N-nitrosodiphenylamine	10 U
(61B)	621-64-7	N-nitrosodi-n-propylamine	10 U
(66B)	117-81-7	bis(2-ethylhexyl)phthalate	10 U
(67B)	85-68-7	butyl benzyl phthalate	10 U
(69B)	84-74-2	di-n-butyl phthalate	10 U
(70B)	117-84-0	di-n-octyl phthalate	10 U
(70B)	84-66-2	diethyl phthalate	10 U
(71B)	131-11-3	dimethyl phthalate	10 U
(72B)	56-55-3	benzo(a)anthracene	10 U
(73B)	50-32-8	benzo(a)pyrene	20 U
(74B)	205-99-2	benzo(b)fluoranthene	20 U
(75B)	207-08-9	benzo(k)fluoranthene	20 U
(76B)	218-01-9	chrysene	20 U
(77B)	208-96-8	acenaphthylene	10 U
(78B)	120-12-7	anthracene	10 U
(79B)	191-24-2	benzo(ghi)perylene	20 U
(80B)	86-73-7	fluorene	10 U
(81B)	85-01-8	phenanthrene	592
(82B)	53-70-3	dibenzo(a,h)anthracene	20 U
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	20 U
(84B)	129-00-0	pyrene	10 U

(Non-Priority Pollutant Hazardous Substances)

	62-53-3	aniline	5 U
	100-51-6	benzyl alcohol	20 U
	106-47-8	4-chloroaniline	50 U
	132-64-9	dibenzofuran	10 U
	91-57-6	2-methylnaphthalene	20 U
	88-74-4	2-nitroaniline	100 U
	99-09-2	3-nitroaniline	100 U
	100-01-6	4-nitroaniline	100 U

FACTOR = $\frac{1.0}{1.0}$ [V_f (mL)]$_s$ 10 [D.F.]$_s$ = 10

V_f = Final volume of extract
D.F. = Dry weight factor
. = Dilution factor
= Initial volume of sample extracted

Richard Scott

ORIGINAL (red)

SAMPLE NUMBER C3175 LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 2

FORM II

SOC. CONTROL NO: 1793-3-8

Laboratory Name: SPECTRIX CORPORATION

Case No: 1793

Lab Sample I.D. No: 8306026

QC Report No: 21

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 1 ☐ or 10 ☐ or ☐ ___

(Check Box for Appropriate Factor)

VOLATILES

PP #	CAS #		ug/l
(2V)	107-02-8	acrolein	100U
(3V)	107-13-1	acrylonitrile	100U
(4V)	71-43-2	benzene 374	5U
(6V)	56-23-5	carbon tetrachloride	5U
(7V)	108-90-7	chlorobenzene	5U
(10V)	107-06-2	1,2-dichloroethane	1U
(11V)	71-55-6	1,1,1-trichloroethane	5U
(13V)	75-34-3	1,1-dichloroethane	5U
(14V)	79-00-5	1,1,2-trichloroethane	5U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10U
(16V)	75-00-3	chloroethane	10U
(19V)	110-75-8	2-chloroethylvinyl ether	10U
(23V)	67-66-3	chloroform	5U
(29V)	75-35-4	1,1-dichloroethene	5U
(30V)	156-60-5	1,2-trans-dichloroethene	5U
(32V)	78-87-5	1,2-dichloropropane	10U
(33V)	10061-02-6	trans-1,3-dichloropropene	5U
	10061-01-05	cis-1,3-dichloropropene	5U
(38V)	100-41-4	ethylbenzene 204	5U
(44V)	75-09-2	methylene chloride	5U
(45V)	74-87-3	chloromethane	10U
(46V)	74-83-9	bromomethane	10U
(47V)	75-25-2	bromoform	10U
(48V)	75-27-4	bromodichloromethane	5U
(51V)	124-48-1	chlorodibromomethane	5U
(85V)	127-18-4	tetrachloroethene	5U
(86V)	108-88-3	toluene 644	5U
(87V)	79-01-6	trichloroethene 9.7	5U
(88V)	75-01-4	vinyl chloride	10U

(Non-Priority Pollutant Hazardous Substances)

	67-64-1	acetone	5U
	78-93-3	2-butanone	5U
	75-15-0	carbondisulfide	1U
	519-78-6	2-hexanone	5U
	108-10-1	4-methyl-2-pentanone 22.6	5U
	100-42-5	styrene 210	5U
	108-05-4	vinyl acetate	5U
	95-47-6	o-xylene 292	5U

Richard Scott

AR100165

ORIGINAL (red)

Sample Number C3175
LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 3

FORM II

Doc. Control No: 1793-3 -08

Laboratory Name: SPECTRIS CORPORATION

Case No. 1793

Lab Sample I.D. No: 8306026

QC Report No: 21

PESTICIDES

MULTIPLY ALL VALUES AND DETECTION LIMITS BY .01

PP #	CAS #		ug/l
(89P)	309-00-2	aldrin	10 U
(90P)	60-57-1	dieldrin	10 U
(91P)	57-74-9	chlordane	10 U
(92P)	50-29-3	4,4'-DDT	10 U
(93P)	72-55-9	4,4'-DDE	10 U
(94P)	72-54-8	4,4'-DDD	10 U
(95P)	115-29-7	endosulfan I	10 U
(96P)	115-29-7	endosulfan II	10 U
(97P)	1031-07-8	endosulfan sulfate	10 U
(98P)	76-20-8	endrin	10 U
(99P)	7421-93-4	endrin aldehyde	10 U
(100P)	76-44-8	heptachlor	10 U
(101P)	1024-57-3	heptachlor epoxide	10 U
(102P)	319-84-6	BHC-Alpha	10 U
(103P)	319-85-7	BHC-Beta	10 U
(104P)	319-86-8	BHC-Delta	10 U
(105P)	58-89-9	BHC-Gamma	10 U
(106P)	53469-21-9	PCB-1242	200 U
(107P)	11097-69-7	PCB-1254	200 U
(108P)	11104-28-2	PCB-1221	200 U
(109P)	11141-16-5	PCB-1232	200 U
(110P)	12672-29-6	PCB-1248	200 U
(111P)	11096-82-5	PCB-1260	200 U
(112P)	12674-11-2	PCB-1016	200 U
(113P)	8001-35-2	Toxaphene	200 U

FACTOR: $\frac{5.0}{500}$ [Vp(mL)]/[Vi(mL)] [D.F.] = .01

Vp = Final volume of extract

Vi = Initial weight of sample extracted

D.F. = Dilution factor

DIOXINS

MULTIPLY ALL VALUES AND DETECTION LIMITS BY .001

PP #	CAS #		ug/l
(129D)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	5 U

FACTOR: $\frac{0.5}{500}$ [Vp(mL)]/[Vi(mL)] / [D.F.] = .001

Vp = Final volume of extract

Vi = Initial weight of sample extracted

D.F. = Dilution factor

Richard Scott

DATA REPORTING QUALIFIERS

Value - If the result is a value greater than or equal to the detection limit, report the value.

U - Indicates compound was analyzed for but not detected. The number is the minimum detection limit.

E - Actual value, within the limitations of this method, is less than the value given. The mass spectral data indicates the presence of a compound that meets the identification criteria but the quantitation result is less than the specified detection limit but greater than zero.

ee - This flag applies to pesticides parameters where the identification has been performed using two column confirmation as specified in Method 8081 but the level is too low for verification of the compound by mass spectrometry.

B - Compound not detected: blank value for the compound was greater than 1/2 of the MDL and greater than 1/. of the concentration detected in sample.

AR100166

ORIGINAL (red)

U.S. Environmental Protection Agency - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

Sample Number C3196
LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 1

FORM II

Laboratory Name SPECTRIS CORPORATION

Lab Sample I.D. No: 8306026

Doc. Control No. 1793 - 3 -88

Case No: 1793

QC Report No: 21

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 2

ACID COMPOUNDS

PP #	CAS #		ug/L
(71A)	88-06-2	2,4,6-trichlorophenol	10 U
(72A)	59-50-7	p-chloro-m-cresol	10 U
(74A)	95-57-8	2-chlorophenol	10 U
(31A)	120-83-2	2,4-dichlorophenol	10 U
(34A)	105-67-9	2,4-dimethylphenol	10 U
(57A)	88-75-5	2-nitrophenol	20 U
(58A)	100-02-7	4-nitrophenol	50 U
(59A)	51-28-5	2,4-dinitrophenol	50 U
(60A)	534-52-1	4,6-dinitro-2-methylphenol	20 U
(64A)	87-86-5	pentachlorophenol	10 U
(65A)	108-95-2	phenol	10 U

(Non-Priority Pollutant Hazardous Substances)

	65-85-0	benzoic acid	100 U
	95-48-7	2-methylphenol	5 U
	108-39-4	4-methylphenol	5 U
	95-95-4	2,4,5-trichlorophenol	100 U

BASE-NEUTRAL COMPOUNDS

(1B)	83-32-9	acenaphthene	10.9 ~~10~~ U
(5B)	92-87-5	benzidine	40 U
(8B)	120-82-1	1,2,4-trichlorobenzene	10 U
(9B)	118-74-1	hexachlorobenzene	10 U
(12B)	67-72-1	hexachloroethane	10 U
(18B)	111-44-4	bis(2-chloroethyl)ether	10 U
(20B)	91-58-7	2-chloronaphthalene	10 U
(25B)	95-50-1	1,2-dichlorobenzene	10 U
(26B)	541-73-1	1,3-dichlorobenzene	10 U
(27B)	106-46-7	1,4-dichlorobenzene	10 U
(28B)	91-94-1	3,3'-dichlorobenzidine	20 U
(35B)	121-14-2	2,4-dinitrotoluene	20 U
(36B)	606-20-2	2,6-dinitrotoluene	20 U
(37B)	122-66-7	1,2-diphenylhydrazine (as azobenzene)	20 U
(39B)	206-44-0	fluoranthene	10 U
(40B)	7005-72-3	4-chlorophenyl phenyl ether	10 U
(41B)	101-55-3	4-bromophenyl phenyl ether	10 U

BASE-NEUTRAL COMPOUNDS

PP #	CAS #		ug/L
(42B)	39638-32-9	bis-(2-chloroisopropyl)ether	20 U
(43B)	111-91-1	bis-(2-chloroethoxy)methane	20 U
(52B)	87-68-3	hexachlorobutadiene	10 U
(53B)	77-47-4	hexachlorocyclopentadiene	10 U
(54B)	78-59-1	isophorone	10 U
(55B)	91-20-3	naphthalene 89.2 ~~10~~ U	
(56B)	98-95-3	nitrobenzene	10 U
(62B)	88-30-6	N-nitrosodiphenylamine	10 U
(63B)	621-64-7	N-nitroso-di-n-propylamine	10 U
(66B)	117-81-7	bis(2-ethylhexyl)phthalate	10 U
(67B)	85-68-7	butyl benzyl phthalate	10 U
(68B)	84-74-2	di-n-butyl phthalate	10 U
(69B)	117-84-0	di-n-octyl phthalate	10 U
(70B)	84-66-2	diethyl phthalate	10 U
(71B)	131-11-3	dimethyl phthalate	10 U
(72B)	56-55-3	benzo(a)anthracene	10 U
(73B)	50-32-8	benzo(a)pyrene	20 U
(74B)	205-99-2	benzo(b)fluoranthene	20 U
(75B)	207-08-9	benzo(k)fluoranthene	20 U
(76B)	218-01-9	chrysene	20 U
(77B)	208-96-8	acenaphthylene	10 U
(78B)	120-12-7	anthracene	10 U
(79B)	191-24-2	benzo(ghi)perylene	20 U
(80B)	86-73-7	fluorene	10 U
(81B)	85-01-8	phenanthrene	10 U
(82B)	53-70-3	dibenzo(a,h)anthracene	20 U
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	20 U
(84B)	129-00-0	pyrene	10 U

(Non-Priority Pollutant Hazardous Substances)

	62-53-3	aniline	5 U
	100-51-6	benzyl alcohol	20 U
	106-47-8	4-chloroaniline	50 U
	132-64-9	dibenzofuran	10 U
	91-57-6	2-methylnaphthalene	20 U
	88-74-4	2-nitroaniline	100 U
	99-09-2	3-nitroaniline	100 U
	100-01-6	4-nitroaniline	100 U

FACTOR = $\frac{1.0}{1.0}$ [V_t (mL)] / [V_i (L)] × 2 (D.F.) = 2

V_t = Final volume of extract

V_i = Initial volume of sample extracted

D.F. = Dilution Factor

Richard Scott

ORIGINAL

SAMPLE NUMBER C3196 (red)
LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 2

FORM II

SOC. CONTROL NO: 1793-3-8

Laboratory Name: SPECTRIX CORPORATION

Case No: 1793

Lab Sample I.D. No: 8306026

QC Report No: 21

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 1 ☐ or 10 ☐ or ☐ ___

(Check Box for Appropriate Factor)

VOLATILES

PP #	CAS #		ug/l
(2V)	107-02-8	acrolein	100U
(3V)	107-13-1	acrylonitrile	100U
(4V)	71-43-2	benzene 99.4	5U
(6V)	56-23-5	carbon tetrachloride	5U
(7V)	108-90-7	chlorobenzene	5U
(10V)	107-06-2	1,2-dichloroethane	1U
(11V)	71-55-6	1,1,1-trichloroethane	5U
(13V)	75-34-3	1,1-dichloroethane	5U
(14V)	79-00-5	1,1,2-trichloroethane	5U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10U
(16V)	75-00-3	chloroethane	10U
(19V)	110-75-8	2-chloroethylvinyl ether	10U
(23V)	67-66-3	chloroform	5U
(29V)	75-35-4	1,1-dichloroethene	5U
(30V)	156-60-5	1,2-trans-dichloroethene	5U
(32V)	78-87-5	1,2-dichloropropane	10U
(33V)	10061-02-6	trans-1,3-dichloropropene	5U
	10061-01-05	cis-1,3-dichloropropene	5U
(38V)	100-41-4	ethylbenzene 140	5U
(44V)	75-09-2	methylene chloride	5U
(45V)	74-87-3	chloromethane	10U
(46V)	74-83-9	bromomethane	10U
(47V)	75-25-2	bromoform	10U
(48V)	75-27-4	bromodichloromethane	5U
(51V)	124-48-1	chlorodibromomethane	5U
(85V)	127-18-4	tetrachloroethene	5U
(86V)	108-88-3	toluene 47.4	5U
(87V)	79-01-6	trichloroethene	5U
(88V)	75-01-4	vinyl chloride	10U

(Non-Priority Pollutant Hazardous Substances)

67-64-1	acetone	5U
78-93-3	2-butanone	5U
75-15-0	carbondisulfide	1U
519-78-6	2-hexanone	5U
108-10-1	4-methyl-2-pentanone	5U
100-42-5	styrene 9.1	5U
108-05-4	vinyl acetate	5U
95-47-6	o-xylene 95.8	5U

Richard Scott

AR100168

ORIGINAL

Sample Number c3196 (red)
LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 3

FORM II

Doc. Control No: 1793-3. -08

Laboratory Name SPECTRIS CORPORATION

Case No. 1793

Lab Sample I.D. No: 8306026

QC Report No: 21

PESTICIDES

MULTIPLY ALL VALUES AND DETECTION LIMITS BY .01

PP #	CAS #		ug/l
(89P)	309-00-2	aldrin	10 U
(90P)	60-57-1	dieldrin	10 U
(91P)	57-74-9	chlordane	10 U
(92P)	50-29-3	4,4'-DDT	10 U
(93P)	72-55-9	4,4'-DDE	10 U
(94P)	72-54-8	4,4'-DDD	10 U
(95P)	115-29-7	endosulfan I	10 U
(96P)	115-29-7	endosulfan II	10 U
(97P)	1031-07-8	endosulfan sulfate	10 U
(98P)	72-20-8	endrin	10 U
(99P)	7421-93-4	endrin aldehyde	10 U
(100P)	76-44-8	heptachlor	10 U
(101P)	1024-57-3	heptachlor epoxide	10 U

PP #	CAS #		ug/l
(102P)	319-84-6	BHC-Alpha	10 U
(103P)	319-85-7	BHC-Beta	10 U
(104P)	319-86-8	BHC-Delta	10 U
(105P)	58-89-9	BHC-Gamma	10 U
(106P)	53469-21-9	PCB-1242	200 U
(107P)	11097-69-1	PCB-1254	200 U
(108P)	11104-28-2	PCB-1221	200 U
(109P)	11141-16-5	PCB-1232	200 U
(110P)	12672-29-6	PCB-1248	200 U
(111P)	11096-82-5	PCB-1260	200 U
(112P)	12674-11-2	PCB-1016	200 U
(113P)	8001-35-2	toxaphene	200 U

FACTOR: $\frac{5.0}{500}$ [Vf(mL)]: $\frac{1}{}$ [D.F.] = .01

Vf = Final volume of extract

Vi = Initial weight of sample extracted

D.F. = Dilution factor

DIOXINS

MULTIPLY ALL VALUES AND DETECTION LIMITS BY .001

PP #	CAS #		ug/l
(1208)	1747-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	5 U

FACTOR: $\frac{0.5}{500}$ [Vf(mL)]: $\frac{1}{}$ [D.F.] = .001

Vf = Final volume of extract

Vi = Initial weight of sample extracted

D.F. = Dilution factor

Richard Scott

DATA REPORTING QUALIFIERS

Value - If the result is a value greater than or equal to the detection limit, report the value.

U - Indicates compound was analyzed for but not detected. The number is the minimum detection limit.

E - Actual value, within the limitations of this method, is less than the value given. The mass spectral data indicates the presence of a compound that meets the identification criteria but the quantitative result is less than the specified detection limit but greater than zero.

ee - This flag applies to pesticides parameters where the identification has been performed using two column confirmation (as specified in Method 608) but the is too low for verification of the compound by a spectrometry.

B - Compound not detected; blank value for the compound was greater than 1/2 of the MDL and greater than 1/2 of the concentration detected in sample.

AR100169

U.S. Environmental Protection Agency - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

ORIGINAL (red)

Sample Number C3197 LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 1

FORM II

Lab. Control No: 1793-3 .00
Laboratory Name: SPECTRIS CORPORATION
Case No: 1793
Lab Sample I.D. No: 8306026
QC Report No: 21

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 2.0

ACID COMPOUNDS

PP #	CAS #		ug/l
(21A)	88-06-2	2,4,6-trichlorophenol	10 U
(22A)	59-50-7	p-chloro-m-cresol	10 U
(24A)	95-57-8	2-chlorophenol	10 U
(31A)	120-83-2	2,4-dichlorophenol	10 U
(34A)	105-67-9	2,4-dimethylphenol	10 U
(57A)	88-75-5	2-nitrophenol	20 U
(58A)	100-02-7	4-nitrophenol	50 U
(59A)	51-28-5	2,4-dinitrophenol	50 U
(60A)	534-52-1	4,6-dinitro-2-methylphenol	20 U
(64A)	87-86-5	pentachlorophenol	10 U
(65A)	108-95-2	phenol	10 U

(Non-Priority Pollutant Hazardous Substances)

	65-85-0	benzoic acid	100 U
	95-48-7	2-methylphenol	5 U
	108-39-4	4-methylphenol	5 U
	95-95-4	2,4,5-trichlorophenol	100 U

BASE-NEUTRAL COMPOUNDS

(15)	83-32-9	acenaphthene	10 U
(58)	92-87-5	benzidine	40 U
(88)	120-82-1	1,2,4-trichlorobenzene	10 U
(98)	118-74-1	hexachlorobenzene	10 U
(128)	67-72-1	hexachloroethane	10 U
(188)	111-44-4	bis(2-chloroethyl)ether	10 U
(208)	91-58-7	2-chloronaphthalene	10 U
(258)	95-50-1	1,2-dichlorobenzene	10 U
(268)	541-73-1	1,3-dichlorobenzene	10 U
(278)	106-46-7	1,4-dichlorobenzene	10 U
(288)	91-94-1	3,3'-dichlorobenzidine	20 U
(358)	121-14-2	2,4-dinitrotoluene	20 U
(368)	606-20-2	2,6-dinitrotoluene	20 U
		1,2-diphenylhydrazine	
(378)	122-66-7	(as azobenzene)	20 U
(398)	206-44-0	fluoranthene	10 U
(408)	7005-72-3	4-chlorophenyl phenyl ether	10 U
(418)	101-55-3	4-bromophenyl phenyl ether	10 U

BASE-NEUTRAL COMPOUNDS

PP #	CAS #		ug/l
(428)	39638-32-9	bis-(2-chloroisopropyl)ether	20 U
(438)	111-91-1	bis-(2-chloroethoxy)methane	20 U
(528)	87-68-3	hexachlorobutadiene	10 U
(538)	77-47-4	hexachlorocyclopentadiene	10 U
(548)	78-59-1	isophorone	10 U
(558)	91-20-3	naphthalene	10 U
(568)	98-95-3	nitrobenzene	10 U
(628)	86-30-6	N-nitrosodiphenylamine	10 U
(638)	621-64-7	N-nitrosodi-n-propylamine	10 U
(668)	117-81-7	bis(2-ethylhexyl)phthalate	10 U
(678)	85-68-7	butyl benzyl phthalate	10 U
(688)	84-74-2	di-n-butyl phthalate	10 U
(698)	117-84-0	di-n-octyl phthalate	10 U
(708)	84-66-2	diethyl phthalate	10 U
(718)	131-11-3	dimethyl phthalate	10 U
(728)	56-55-3	benzo(a)anthracene	10 U
(738)	50-32-8	benzo(a)pyrene	20 U
(748)	205-99-2	benzo(b)fluoranthene	20 U
(758)	207-08-9	benzo(k)fluoranthene	20 U
(768)	218-01-9	chrysene	20 U
(778)	208-96-8	acenaphthylene	10 U
(788)	120-12-7	anthracene	10 U
(798)	191-24-2	benzo(ghi)perylene	20 U
(808)	86-73-7	fluorene	10 U
(818)	85-01-8	phenanthrene	10 U
(828)	53-70-3	dibenz(a,h)anthracene	20 U
(838)	193-39-5	indeno(1,2,3-cd)pyrene	20 U
(848)	129-00-0	pyrene	10 U

(Non-Priority Pollutant Hazardous Substances)

62-53-3	aniline	5 U
100-51-6	benzyl alcohol	20 U
106-47-8	4-chloroaniline	50 U
132-64-9	dibenzofuran	10 U
91-57-6	2-methylnaphthalene	20 U
88-74-4	2-nitroaniline	100 U
99-09-2	3-nitroaniline	100 U
100-01-6	4-nitroaniline	100 U

FACTOR = $\frac{1.0}{1.0}$ [V_t (mL)] / [V_i (L)] 2 [D.F.] = 2.00

V_t = Final volume of extract

V_i = Initial volume of sample extracted

D.F. = Dilution factor

Richard Scott

AR100170

ORIGINAL

SAMPLE NUMBER C3197 LOW LEVEL WATER (red)

ORGANICS ANALYSIS DATA SHEET - Page 2

FORM II

Laboratory Name: SPECTRIX CORPORATION

Lab Sample I.D. No: 8306026

DOC. CONTROL NO: 1793-3-8

Case No: 1793

QC Report No: 21

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 1 ☑ or 10 ☐ or ☐ ___

(Check Box for Appropriate Factor)

VOLATILES

EP #	CAS #		ug/l
(2V)	107-02-8	acrolein	1000
(3V)	107-13-1	acrylonitrile	1000
(4V)	71-43-2	benzene	5U
(6V)	56-23-5	carbon tetrachloride	5U
(7V)	108-90-7	chlorobenzene	5U
(10V)	107-06-2	1,2-dichloroethane	1U
(11V)	71-55-6	1,1,1-trichloroethane	5U
(13V)	75-34-3	1,1-dichloroethane	5U
(14V)	79-00-5	1,1,2-trichloroethane	5U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	100
(16V)	75-00-3	chloroethane	100
(19V)	110-75-8	2-chloroethylvinyl ether	100
(23V)	67-66-3	chloroform	5U
(29V)	75-35-4	1,1-dichloroethene	5U
(30V)	156-60-5	1,2-trans-dichloroethene	5U
(32V)	78-87-5	1,2-dichloropropane	100
(33V)	10061-02-6	trans-1,3-dichloropropene	5U
	10061-01-05	cis,1,3-dichloropropene	5U
(38V)	100-41-4	ethylbenzene	5U
(44V)	75-09-2	methylene chloride B	5U
(45V)	74-87-3	chloromethane	100
(46V)	74-83-9	bromomethane	100
(47V)	75-25-2	bromoform	100
(48V)	75-27-4	bromodichloromethane	5U
(51V)	124-48-1	chlorodibromomethane	5U
(85V)	127-18-4	tetrachloroethene	5U
(86V)	108-88-3	toluene	5U
(87V)	79-01-6	trichloroethene	5U
(88V)	75-01-4	vinyl chloride	100

(Non-Priority Pollutant Hazardous Substances)

67-64-1	acetone	5U
78-93-3	2-butanone	5U
75-15-0	carbondisulfide	1U
519-78-6	2-hexanone	5U
108-10-1	4-methyl-2-pentanone	5U
100-42-5	styrene	5U
108-05-4	vinyl acetate	5U
95-47-6	o-xylene 6.3	5U ok

Richard Scott

AR100171

ORIGINAL (red)

Sample Number C3197
LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 3

FORM II

Laboratory Name: SPECTRIX CORPORATION

Lab Sample I.D. No: 8306026

Sac. Control No: 1793-3 -08

Case No: 1793

QC Report No: 21

PESTICIDES

MULTIPLY ALL VALUES AND DETECTION LIMITS BY .01

PP #	CAS #		ug/l
(89P)	309-00-2	aldrin	10 U
(90P)	60-57-1	dieldrin	10 U
(91P)	57-74-9	chlordane	10 U
(92P)	50-29-3	4,4'-DDT	10 U
(93P)	72-55-9	4,4'-DDE	10 U
(94P)	72-54-8	4,4'-DDD	10 U
(95P)	115-29-7	endosulfan I	10 U
(96P)	115-29-7	endosulfan II	10 U
(97P)	1031-07-8	endosulfan sulfate	10 U
(98P)	72-20-8	endrin	10 U
(99P)	7421-93-4	endrin aldehyde	10 U
(100P)	76-44-8	heptachlor	10 U
(101P)	1024-57-3	heptachlor epoxide	10 U
(102P)	319-84-6	BHC-Alpha	10 U
(103P)	319-85-7	BHC-Beta	10 U
(104P)	319-86-8	BHC-Delta	10 U
(105P)	58-89-9	BHC-Gamma	10 U
(106P)	53469-21-9	PCB-1242	200 U
(107P)	11097-69-1	PCB-1254	200 U
(108P)	11104-28-2	PCB-1221	200 U
(109P)	11141-16-5	PCB-1232	200 U
(110P)	12672-29-6	PCB-1248	200 U
(111P)	11096-82-5	PCB-1260	200 U
(112P)	12674-11-2	PCB-1016	200 U
(113P)	8001-35-2	toxaphene	200 U

FACTOR: $\frac{5.0}{500}$ [Vf(mL)]= $\frac{1}{}$ [D.F.] = .01

Vf = Final volume of extract

Vi = Initial weight of sample extracted

D.F. = Dilution factor

DIOXINS

MULTIPLY ALL VALUES AND DETECTION LIMITS BY .001

PP #	CAS #		ug/l
(129P)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	5 U

FACTOR: $\frac{0.5}{500}$ [Vf(mL)]= $\frac{1}{}$ [D.F.] = .001

Vf = Final volume of extract

Vi = Initial weight of sample extracted

D.F. = Dilution factor

Richard Sweet

DATA REPORTING QUALIFIERS

Value - If the result is a value greater than or equal to the detection limit, report the value.

U - Indicates compound was analyzed for but not detected. The number is the minimum detection limit.

E - Actual value, within the limitations of this method, is less than the value given. The mass spectral data indicates the presence of a compound that meets the identification criteria but the quantitative result is less than the specified detection limit but greater than zero.

PE - This flag applies to pesticides parameters where the identification has been performed using two column confirmation (as specified in Method 8081) but the level is too low for verification of the compound by mass spectrometry.

B - Compound not detected: blank value for the compound was greater than 1/2 of the MDL and greater than 1/2 of the concentration detected in sample.

AR100172

U.S. Environmental Protection Agency - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

ORIGINAL (red)

Sample Number C3222
LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 1

FORM II

Laboratory Name: SPECTRIX CORPORATION
Lab Sample I.D. No. 8306026

Sac. Control No: 1793 - 3 .00
Case No: 1793
QC Report No: 21

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 2

ACID COMPOUNDS

PP #	CAS #		ug/l
(21A)	88-06-2	2,4,6-trichlorophenol	10 U
(22A)	59-50-7	p-chloro-m-cresol	10 U
(24A)	95-57-8	2-chlorophenol	10 U
(31A)	120-83-7	2,4-dichlorophenol	10 U
(36A)	105-67-9	2,4-dimethylphenol	10 U
(37A)	88-75-5	2-nitrophenol	20 U
(38A)	100-02-7	4-nitrophenol	50 U
(39A)	51-28-5	2,4-dinitrophenol	50 U
(40A)	534-52-1	4,6-dinitro-2-methylphenol	20 U
(44A)	87-86-5	pentachlorophenol	10 U
(45A)	108-95-2	phenol	10 U

(Non-Priority Pollutant Hazardous Substances)

	65-85-0	benzoic acid	100 U
	95-48-7	2-methylphenol	5 U
	108-39-4	4-methylphenol	5 U
	95-95-4	2,4,5-trichlorophenol	100 U

BASE-NEUTRAL COMPOUNDS

(1B)	83-32-9	acenaphthene	K	10
(5B)	92-87-5	benzidine		40 U
(8B)	120-82-1	1,2,4-trichlorobenzene		10 U
(9B)	118-74-1	hexachlorobenzene		10 U
(17B)	67-72-1	hexachloroethane		10 U
(18B)	111-44-4	bis(2-chloroethyl)ether		10 U
(19B)	91-58-7	2-chloronaphthalene		10 U
(20B)	95-50-1	1,2-dichlorobenzene		10 U
(26B)	541-73-1	1,3-dichlorobenzene		10 U
(27B)	106-46-7	1,4-dichlorobenzene		10 U
(28B)	91-94-1	3,3'-dichlorobenzidine		20 U
(35B)	121-14-2	2,4-dinitrotoluene		20 U
(36B)	606-20-2	2,6-dinitrotoluene		20 U
		1,2-diphenylhydrazine		
(37B)	122-66-7	(as azobenzene)		20 U
(39B)	206-44-0	fluoranthene	K	10
(40B)	7005-72-3	4-chlorophenyl phenyl ether		10 U
(41B)	101-55-3	4-bromophenyl phenyl ether		10 U

BASE-NEUTRAL COMPOUNDS

PP #	CAS #		ug/l
(42B)	39638-32-9	bis-(2-chloroisopropyl)ether	20 U
(43B)	111-91-1	bis-(2-chloroethoxy)methane	20 U
(52B)	87-68-3	hexachlorobutadiene	10 U
(53B)	77-47-4	hexachlorocyclopentadiene	10 U
(54B)	78-59-1	isophorone	10 U
(55B)	91-20-3	naphthalene	10 U
(56B)	98-95-3	nitrobenzene	10 U
(57B)	86-30-6	N-nitrosodiphenylamine	10 U
(63B)	621-64-7	N-nitroso-di-n-propylamine	10 U
(66B)	117-81-7	bis(2-ethylhexyl)phthalate	10 U
(67B)	85-68-7	butyl benzyl phthalate	10 U
(68B)	84-74-2	di-n-butyl phthalate	10 U
(69B)	117-84-0	di-n-octyl phthalate	10 U
(70B)	84-66-2	diethyl phthalate	10 U
(71B)	131-11-3	dimethyl phthalate	10 U
(72B)	56-55-3	benzo(a)anthracene	10 U
(73B)	50-32-8	benzo(a)pyrene	20 U
(74B)	205-99-2	benzo(b)fluoranthene	20 U
(75B)	207-08-9	benzo(k)fluoranthene	20 U
(76B)	218-01-9	chrysene	20 U
(77B)	208-96-8	acenaphthylene	10 U
(78B)	120-12-7	anthracene	10 U
(79B)	191-24-2	benzo(ghi)perylene	20 U
(80B)	86-73-7	fluorene	K 10
(81B)	85-01-8	phenanthrene	K 10
(82B)	53-70-3	dibenzo(a,h)anthracene	20 U
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	20 U
(84B)	129-00-0	pyrene	K 10

(Non-Priority Pollutant Hazardous Substances)

	62-53-3	aniline	5 U
	100-51-6	benzyl alcohol	20 U
	106-47-8	4-chloroaniline	50 U
	132-64-9	dibenzofuran	10 U
	91-57-6	2-methylnaphthalene	20 U
	88-74-4	2-nitroaniline	100 U
	99-09-2	3-nitroaniline	100 U
	100-01-6	4-nitroaniline	100 U

FACTOR = $\frac{1.0}{1.0}$ [Vt (ml)]/[Vi (L)] × 2 (D.F.) = 2

Richard Scott

Vt = Final volume of extract
Vi = Initial volume of sample extracted
D.F. = Dilution factor

AR100173

ORIGINAL

SAMPLE NUMBER C3222 LOW LEVEL WATER (red)

ORGANICS ANALYSIS DATA SHEET - Page 2

FORM II

DOC. CONTROL NO: 1793-3-8

Laboratory Name: SPECTRIS CORPORATION

Case No: 1793

Lab Sample I.D. No: 8306026

QC Report No: 21

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 1 ☑ or 10 ☐ or ☐ ___

(Check Box for Appropriate Factor)

VOLATILES

PP #	CAS #		ug/l
(2V)	107-02-8	acrolein	100U
(3V)	107-13-1	acrylonitrile	100U
(4V)	71-43-2	benzene	5U
(5V)	56-23-5	carbon tetrachloride	5U
(7V)	108-90-7	chlorobenzene	5U
(10V)	107-06-2	1,2-dichloroethane	1U
(11V)	71-55-6	1,1,1-trichloroethane	5U
(13V)	75-34-3	1,1-dichloroethane	5U
(14V)	79-00-5	1,1,2-trichloroethane	5U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10U
(16V)	75-00-3	chloroethane	10U
(19V)	110-75-8	2-chloroethylvinyl ether	10U
(23V)	67-66-3	chloroform	5U
(29V)	75-35-4	1,1-dichloroethene	5U
(30V)	156-60-5	1,2-trans-dichloroethene	5U
(32V)	78-87-5	1,2-dichloropropane	10U
(33V)	10061-02-6	trans-1,3-dichloropropene	5U
	10061-01-05	cis,1,3-dichloropropene	5U
(38V)	100-41-4	ethylbenzene	5U
(44V)	75-09-2	methylene chloride B	5U
(45V)	74-87-3	chloromethane	10U
(46V)	74-83-9	bromomethane	10U
(47V)	75-25-2	bromoform	10U
(48V)	75-27-4	bromodichloromethane	5U
(51V)	124-48-1	chlorodibromomethane	5U
(85V)	127-18-4	tetrachloroethene	5U
(86V)	108-88-3	toluene	5U
(87V)	79-01-6	trichloroethene	5U
(88V)	75-01-4	vinyl chloride	10U

(Non-Priority Pollutant Hazardous Substances)

67-64-1	acetone	5U
78-93-3	2-butanone	5U
75-15-0	carbondisulfide	1U
519-78-6	2-hexanone	5U
108-10-1	4-methyl-2-pentanone	5U
100-42-5	styrene	5U
108-05-4	vinyl acetate	5U
95-47-6	o-xylene	5U

Richard Scott

AR100174

ORIGINAL

Sample Number C3222 (red)
LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 3

FORM II

Doc. Control No: 1793-3 -00

Laboratory Name SPECTRIX CORPORATION

Case No 1793

Lab Sample I.D. No: 8306026

QC Report No: 21

PESTICIDES

MULTIPLY ALL VALUES AND DETECTION LIMITS BY .101

PP #	CAS #		ug/l	PP #	CAS #		ug/l
(89P)	309-00-2	aldrin	10 U	(102P)	319-84-6	BHC-Alpha	10 U
(90P)	60-57-1	dieldrin	10 U	(103P)	319-85-7	BHC-Beta	10 U
(91P)	57-74-9	chlordane	10 U	(104P)	319-86-8	BHC-Delta	10 U
(92P)	50-29-3	4,4'-DDT	10 U	(105P)	58-89-9	BHC-Gamma	10 U
(93P)	72-55-9	4,4'-DDE	10 U	(106P)	53469-21-9	PCB-1242	200 U
(94P)	72-54-8	4,4'-DDD	10 U	(107P)	11097-69-1	PCB-1254	200 U
(95P)	115-29-7	endosulfan I	10 U	(108P)	11104-28-2	PCB-1221	200 U
(96P)	115-29-7	endosulfan II	10 U	(109P)	11141-16-5	PCB-1232	200 U
(97P)	1031-07-8	endosulfan sulfate	10 U	(110P)	12672-29-6	PCB-1248	200 U
(98P)	72-20-8	endrin	10 U	(111P)	11096-82-5	PCB-1260	200 U
(99P)	7421-93-4	endrin aldehyde	10 U	(112P)	12674-11-2	PCB-1016	200 U
(100P)	76-44-8	heptachlor	10 U	(113P)	8001-35-2	toxaphene	200 U
(101P)	1024-57-3	heptachlor epoxide	10 U				

FACTOR: $\frac{5.0}{500}$ [Vf(mL)] / [Vi(mL)] [D.F.] = .101

Vf = Final volume of extract

Vi = Initial weight of sample extracted

D.F. = Dilution factor

DIOXINS

MULTIPLY ALL VALUES AND DETECTION LIMITS BY .001

PP #	CAS #		ug/l
(129D)	1747-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	25.4 dd

FACTOR: $\frac{.05}{500}$ [Vf(mL)] / [Vi(mL)] [D.F.] = .001

Vf = Final volume of extract

Vi = Initial weight of sample extracted

D.F. = Dilution factor

Richard Scott

DATA REPORTING QUALIFIERS

Value - If the result is a value greater than or equal to the detection limit, report the value.

U - Indicates compound was analyzed for but not detected. The number is the minimum detection limit.

E - Actual value, within the limitations of this method, is less than the value given. The mass spectral data indicates the presence of a compound that meets the identification criteria but the quantitative result is less than the specified detection limit but greater than zero.

dd - This flag applies to pesticides parameters where the identification has been performed using two column confirmation (as specified in Method 8080) but the level is too low for verification of the compound by mass spectrometry.

B - Compound not detected: blank value for the compound was greater than 1/2 of the MDL and greater than 1/2 of the concentration detected in sample.

AR100175

ORIGINAL (red)

U.S. Environmental Protection Agency - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

Sample Number C3223
LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 1

FORM II

Laboratory Name: SPECTRIS CORPORATION
Lab Sample I.D. No: 8306026

Doc. Control No: 1793 - 3 -08
Case No: 1793
QC Report No: 21

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 2.0

ACID COMPOUNDS

PP #	CAS #		ug/L
(21A)	88-06-2	2,4,6-trichlorophenol	10 U
(22A)	59-50-7	p-chloro-m-cresol	10 U
(24A)	95-57-8	2-chlorophenol	10 U
(31A)	120-83-2	2,4-dichlorophenol	10 U
(34A)	105-67-9	2,4-dimethylphenol	10 U
(57A)	88-75-5	2-nitrophenol	20 U
(58A)	100-02-7	4-nitrophenol	50 U
(59A)	51-28-5	2,4-dinitrophenol	50 U
(60A)	534-52-1	4,6-dinitro-2-methylphenol	20 U
(64A)	87-86-5	pentachlorophenol	10 U
(65A)	108-95-2	phenol K	10 U OK

(Non-Priority Pollutant Hazardous Substances)

	65-85-0	benzoic acid	100 U
	95-48-7	2-methylphenol K	5 U OK
	108-39-4	4-methylphenol	5 U
	95-95-4	2,4,5-trichlorophenol	100 U

BASE-NEUTRAL COMPOUNDS

(1B)	83-32-9	acenaphthene 151	10 U OK
(5B)	92-87-5	benzidine	40 U
(6B)	120-82-1	1,2,4-trichlorobenzene	10 U
(9B)	118-74-1	hexachlorobenzene	10 U
(12B)	67-72-1	hexachloroethane 10.2	10 U OK
(18B)	111-44-4	bis(2-chloroethyl)ether	10 U
(20B)	91-58-7	2-chloronaphthalene	10 U
(25B)	95-50-1	1,2-dichlorobenzene	10 U
(26B)	541-73-1	1,3-dichlorobenzene	10 U
(27B)	106-46-7	1,4-dichlorobenzene	10 U
(28B)	91-94-1	3,3'-dichlorobenzidine	20 U
(35B)	121-14-2	2,4-dinitrotoluene	20 U
(36B)	606-20-2	2,6-dinitrotoluene	20 U
(37B)	122-66-7	1,2-diphenylhydrazine (as azobenzene) K	20 U OK
(39B)	206-44-0	fluoranthene	10 U
(40B)	7005-72-3	4-chlorophenyl phenyl ether	10 U
(41B)	101-55-3	4-bromophenyl phenyl ether	10 U

BASE-NEUTRAL COMPOUNDS

PP #	CAS #		ug/L
(42B)	39638-32-9	bis-(2-chloroisopropyl)ether	20 U
(43B)	111-91-1	bis-(2-chloroethoxy)methane	20 U
(52B)	87-68-3	hexachlorobutadiene	10 U
(53B)	77-47-4	hexachlorocyclopentadiene	10 U
(54B)	78-59-1	isophorone	10 U
(55B)	91-20-3	naphthalene	10 U
(56B)	98-95-3	nitrobenzene	10 U
(62B)	86-30-6	N-nitrosodiphenylamine	10 U
(63B)	621-64-7	N-nitroso-di-n-propylamine	10 U
(66B)	117-81-7	bis(2-ethylhexyl)phthalate	10 U
(67B)	85-68-7	butyl benzyl phthalate	10 U
(68B)	84-74-2	di-n-butyl phthalate 11.2	10 U OK
(69B)	117-84-0	di-n-octyl phthalate	10 U
(70B)	84-66-2	diethyl phthalate	10 U
(71B)	131-11-3	dimethyl phthalate	10 U
(72B)	56-55-3	benzo(a)anthracene K	10 U OK
(73B)	50-32-8	benzo(a)pyrene K	20 U OK
(74B)	205-99-2	benzo(b)fluoranthene > K	20 U OK
(75B)	207-08-9	benzo(k)fluoranthene	20 U
(76B)	218-01-9	chrysene K	20 U OK
(77B)	208-96-8	acenaphthylene 12.6	10 U OK
(78B)	120-12-7	anthracene 16.1	10 U OK
(79B)	191-24-2	benzo(ghi)perylene	20 U
(80B)	86-73-7	fluorene 136	10 U OK
(81B)	85-01-8	phenanthrene 189	10 U OK
(82B)	53-70-3	dibenzo(a,h)anthracene	20 U
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	20 U
(84B)	129-00-0	pyrene 48.7	10 U OK

(Non-Priority Pollutant Hazardous Substances)

	62-53-3	aniline	5 U
	100-51-6	benzyl alcohol K	20 U OK
	106-47-8	4-chloroaniline	50 U
	132-64-9	dibenzofuran	10 U
	91-57-6	2-methylnaphthalene	20 U
	88-74-4	2-nitroaniline	100 U
	99-09-2	3-nitroaniline	100 U
	100-01-6	4-nitroaniline	100 U

FACTOR = $\frac{1.0}{1.0}$ [V_t (mL)] / [V_i (L)] × 2 (D.F.) = 2.0

V_t = final volume of extract
V_i = initial volume of sample extracted

D.F. = Dilution factor

Richard Scott

AR100176

ORIGINAL

C3223 (red)

ORGANICS ANALYSIS DATA SHEET - Page 2

FORM II

SOC. CONTROL NO: 1793-3-8

Laboratory Name: SPECTRIS CORPORATION

Case No: 1793

Lab Sample I.D. No: 8306026

SC Report No: 21

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 1 ☑ or 10 ☐ or ☐ ___

(Check Box for Appropriate Factor)

VOLATILES

PP #	CAS #		ug/l
(2V)	107-02-8	acrolein	100U
(3V)	107-13-1	acrylonitrile	100U
(4V)	71-43-2	benzene 182 ~~5U~~ DK	
(6V)	56-23-5	carbon tetrachloride	5U
(7V)	108-90-7	chlorobenzene	5U
(10V)	107-06-2	1,2-dichloroethane	1U
(11V)	71-55-6	1,1,1-trichloroethane	5U
(13V)	75-34-3	1,1-dichloroethane	5U
(14V)	79-00-5	1,1,2-trichloroethane	5U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10U
(16V)	75-00-3	chloroethane	10U
(19V)	110-75-8	2-chloroethylvinyl ether	10U
(23V)	67-66-3	chloroform	5U
(29V)	75-35-4	1,1-dichloroethene	5U
(30V)	156-60-5	1,2-trans-dichloroethene	5U
(32V)	78-87-5	1,2-dichloropropane	10U
(33V)	10061-02-6	trans-1,3-dichloropropene	5U
	10061-01-05	cis-1,3-dichloropropene	5U
(38V)	100-41-4	ethylbenzene 84.0 ~~5U~~ DK	
(44V)	75-09-2	methylene chloride 71 ~~5U~~ DK	
(45V)	74-87-3	chloromethane	10U
(46V)	74-83-9	bromomethane	10U
(47V)	75-25-2	bromoform	10U
(48V)	75-27-4	bromodichloromethane	5U
(51V)	124-48-1	chlorodibromomethane	5U
(85V)	127-18-4	tetrachloroethene	5U
(86V)	108-88-3	toluene 334 ~~5U~~ DK	
(87V)	79-01-6	trichloroethene	5U
(88V)	75-01-4	vinyl chloride	10U

(Non-Priority Pollutant Hazardous Substances)

67-64-1	acetone 7.3 ~~5U~~ DK	
78-93-3	2-butanone	5U
75-15-0	carbondisulfide	1U
519-78-6	2-hexanone	5U
108-10-1	4-methyl-2-pentanone	5U
100-42-5	styrene 84.7 ~~5U~~ DK	
108-05-4	vinyl acetate	5U
95-47-6	o-xylene 170 ~~5U~~ DK	

Richard Scott

AR100177

ORIGINAL (red)

Sample Number C3223
LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 1

FORM II

Laboratory Name: SPECTRIS CORPORATION
Lab Sample I.D. No: 8306026

Doc. Control No: 1793-3 -00
Case No: 1793
QC Report No: 21

PESTICIDES

MULTIPLY ALL VALUES AND DETECTION LIMITS BY .01

PP #	CAS #		ug/l	PP #	CAS #		ug/l
(89P)	309-00-2	aldrin	10 U	(102P)	319-84-6	BHC-Alpha	10 U
(90P)	60-57-1	dieldrin	10 U	(103P)	319-85-7	BHC-Beta	10 U
(91P)	57-74-9	chlordane	10 U	(104P)	319-86-8	BHC-Delta	10 U
(92P)	50-29-3	4,4'-DDT	10 U	(105P)	58-89-9	BHC-Gamma	10 U
(93P)	72-55-9	4,4'-DDE	10 U	(106P)	53469-21-9	PCB-1242	200 U
(94P)	72-54-8	4,4'-DDD	10 U	(107P)	11097-69-1	PCB-1254	200 U
(95P)	115-29-7	endosulfan I	10 U	(108P)	11104-28-2	PCB-1221	200 U
(96P)	115-29-7	endosulfan II	10 U	(109P)	11141-16-5	PCB-1232	200 U
(97P)	1031-07-8	endosulfan sulfate	10 U	(110P)	12672-29-6	PCB-1248	200 U
(98P)	72-20-8	endrin	10 U	(111P)	11096-82-5	PCB-1260	200 U
(99P)	7421-93-4	endrin aldehyde	10 U	(112P)	12674-11-2	PCB-1016	200 U
(100P)	76-44-8	heptachlor	10 U	(113P)	8001-35-2	toxaphene	200 U
(101P)	1024-57-3	heptachlor epoxide	10 U				

FACTOR: $\frac{5.0}{500}$ [V_T(mL)]: [V_I(mL)] / [D.F.] = .01

V_T = Final volume of extract
V_I = Initial weight of sample extracted

D.F. = Dilution factor

DIOXINS

MULTIPLY ALL VALUES AND DETECTION LIMITS BY .001

PP #	CAS #		ug/l
(129S)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	5 U

FACTOR: $\frac{0.5}{500}$ [V_T(mL)]: [V_I(mL)] / [D.F.] = .001

V_T = Final volume of extract
V_I = Initial weight of sample extracted

D.F. = Dilution factor

Richard Scott

DATA REPORTING QUALIFIERS

Value - If the result is a value greater than or equal to the detection limit, report the value.

U - Indicates compound was analyzed for but not detected. The number is the minimum detection limit.

E - Actual value, within the limitations of this method, is less than the value given. The mass spectral data indicates the presence of a compound that meets the identification criteria but the quantitative result is less than the specified detection limit but greater than zero.

PE - This flag applies to pesticides parameters where the identification has been performed using two column confirmation (as specified in Method 608) but the level is too low for verification of the compound by mass spectrometry.

B - Compound not detected: blank value for the compound was greater than 1/2 of the MDL and greater than 1/ of the concentration detected in sample.

AR100178

ORIGINAL (red)

U.S. Environmental Protection Agency - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

Sample Number C3224
LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 1

FORM II

Laboratory Name: SPECTRIX CORPORATION
Lab Sample I.D. No: 8306026

Sac. Control No: 1793 - 3 -08
Case No: 1793
QC Report No: 21

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 2.0

ACID COMPOUNDS

PP #	CAS #		ug/l
(21A)	88-06-2	2,4,6-trichlorophenol	10 U
(22A)	59-50-7	p-chloro-m-cresol	10 U
(24A)	95-57-8	2-chlorophenol	10 U
(31A)	120-83-2	2,4-dichlorophenol	10 U
(34A)	105-67-9	2,4-dimethylphenol	10 U
(57A)	88-75-5	2-nitrophenol	20 U
(68A)	100-02-7	4-nitrophenol	50 U
(69A)	51-28-5	2,4-dinitrophenol	50 U
(68A)	534-52-1	4,6-dinitro-2-methylphenol	20 U
(64A)	87-86-5	pentachlorophenol	10 U
(65A)	108-95-2	phenol	10 U

(Non-Priority Pollutant Hazardous Substances)

	65-85-0	benzoic acid	100 U
	95-48-7	2-methylphenol	5 U
	108-39-4	4-methylphenol	5 U
	95-95-4	2,4,5-trichlorophenol	100 U

BASE-NEUTRAL COMPOUNDS

(1B)	83-32-9	acenaphthene	34.2 10 U
(5B)	92-87-5	benzidine	40 U
(8B)	120-82-1	1,2,4-trichlorobenzene	10 U
(9B)	118-74-1	hexachlorobenzene	10 U
(12B)	67-72-1	hexachloroethane	10 U
(18B)	111-44-4	bis(2-chloroethyl)ether	10 U
(79B)	91-58-7	2-chloronaphthalene	10 U
(25B)	95-50-1	1,2-dichlorobenzene	10 U
(26B)	541-73-1	1,3-dichlorobenzene	10 U
(27B)	106-46-7	1,4-dichlorobenzene	10 U
(28B)	91-94-1	3,3'-dichlorobenzidine	20 U
(35B)	121-14-2	2,4-dinitrotoluene	20 U
(36B)	606-20-2	2,6-dinitrotoluene	20 U
		1,2-diphenylhydrazine	
(37B)	122-66-7	(as azobenzene)	20 U
(38B)	206-44-0	fluoranthene K	10 10 U
(40B)	7005-72-3	4-chlorophenyl phenyl ether	10 U
(41B)	101-55-3	4-bromophenyl phenyl ether	10 U

BASE-NEUTRAL COMPOUNDS

PP #	CAS #		ug/l
(42B)	39638-32-9	bis(2-chloroisopropyl)ether	20 U
(43B)	111-91-1	bis(2-chloroethoxy)methane	20 U
(52B)	87-68-3	hexachlorobutadiene	10 U
(53B)	77-47-4	hexachlorocyclopentadiene	10 U
(54B)	78-59-1	isophorone	10 U
(55B)	91-20-3	naphthalene	10 U
(56B)	98-95-3	nitrobenzene	10 U
(62B)	86-30-6	N-nitrosodiphenylamine	10 U
(63B)	621-64-7	N-nitroso-di-n-propylamine	10 U
(66B)	117-81-7	bis(2-ethylhexyl)phthalate	13.2 10 U
(67B)	85-68-7	butyl benzyl phthalate	10 U
(69B)	84-74-2	di-n-butyl phthalate	10 U
(70B)	117-84-0	di-n-octyl phthalate	10 U
(71B)	84-66-2	diethyl phthalate	10 U
(72B)	131-11-3	dimethyl phthalate	10 U
(73B)	56-55-3	benzo(a)anthracene	10 U
(74B)	50-32-8	benzo(a)pyrene	20 U
(75B)	205-99-2	benzo(b)fluoranthene	20 U
(76B)	207-08-9	benzo(k)fluoranthene	20 U
(77B)	218-01-9	chrysene	20 U
(78B)	208-96-8	acenaphthylene K	10 10 U
(79B)	120-12-7	anthracene	10 U
(80B)	191-24-2	benzo(ghi)perylene	20 U
(80B)	86-73-7	fluorene	13.3 10 U
(81B)	85-01-8	phenanthrene K	10 10 U
(82B)	53-70-3	dibenzo(a,h)anthracene	20 U
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	20 U
(84B)	129-00-0	pyrene K	10 10 U

(Non-Priority Pollutant Hazardous Substances)

	62-53-3	aniline	5 U
	100-51-6	benzyl alcohol	20 U
	106-47-8	4-chloroaniline	50 U
	132-64-9	dibenzofuran	12.8 10 U
	91-57-6	2-methylnaphthalene	20 U
	88-74-4	2-nitroaniline	100 U
	99-09-2	3-nitroaniline	100 U
	100-01-6	4-nitroaniline	100 U

FACTOR = $\frac{1.0}{1.0}$ [V_t (mL)] / [V_i (L)] × 2 [D.F.] = 2.0

V_t = Final volume of extract
V_i = Initial volume of sample extracted

D.F. = Dilution factor

Richard Scott

AR100179

ORIGINAL

SAMPLE NUMBER C3224 (red)
LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 2

FORM II

SOC. CONTROL NO: 1793-3-8

Laboratory Name: SPECTRIS CORPORATION

Case No: 1793

Lab Sample I.D. No: 8306026

QC Report No: 21

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 1 ☐ or 10 ☐ or ☐ ___

(Check Box for Appropriate Factor)

VOLATILES

PP #	CAS #		ug/l
(2V)	107-02-8	acrolein	100U
(3V)	107-13-1	acrylonitrile	100U
(4V)	71-43-2	benzene K	5U
(6V)	56-23-5	carbon tetrachloride	5U
(7V)	108-90-7	chlorobenzene	5U
(10V)	107-06-2	1,2-dichloroethane	1U
(11V)	71-55-6	1,1,1-trichloroethane	5U
(13V)	75-34-3	1,1-dichloroethane	5U
(14V)	79-00-5	1,1,2-trichloroethane	5U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10U
(16V)	75-00-3	chloroethane	10U
(19V)	110-75-8	2-chloroethylvinyl ether	10U
(23V)	67-66-3	chloroform	5U
(29V)	75-35-4	1,1-dichloroethene	5U
(30V)	156-60-5	1,2-trans-dichloroethene	5U
(32V)	78-87-5	1,2-dichloropropane	10U
(33V)	10061-02-6	trans-1,3-dichloropropene	5U
	10061-01-05	cis,1,3-dichloropropene	5U
(38V)	100-41-4	ethylbenzene	5U
(44V)	75-09-2	methylene chloride K	5U
(45V)	74-87-3	chloromethane	10U
(46V)	74-83-9	bromomethane	10U
(47V)	75-25-2	bromoform	10U
(48V)	75-27-4	bromodichloromethane	5U
(51V)	124-48-1	chlorodibromomethane	5U
(85V)	127-18-4	tetrachloroethene	5U
(86V)	108-88-3	toluene	5U
(87V)	79-01-6	trichloroethene	5U
(88V)	75-01-4	vinyl chloride	10U

(Non-Priority Pollutant Hazardous Substances)

67-64-1	acetone	5U
78-93-3	2-butanone	5U
75-15-0	carbondisulfide	1U
519-78-6	2-hexanone	5U
108-10-1	4-methyl-2-pentanone	5U
100-42-5	styrene	5U
108-05-4	vinyl acetate	5U
95-47-6	o-xylene 20.6 JK	

Richard Scott

AR100180

ORIGINAL

Sample Number C3224 (red)

LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 2

FORM II

Laboratory Name: SPECTRIX CORPORATION

Lab Sample I.D. No: 8306026

Doc. Control No: 1793-3 -08

Case No: 1793

QC Report No: 21

PESTICIDES

MULTIPLY ALL VALUES AND DETECTION LIMITS BY .01

PP #	CAS #		ug/l
(89P)	309-00-2	aldrin	10 U
(90P)	60-57-1	dieldrin	10 U
(91P)	57-74-9	chlordane	10 U
(92P)	50-29-3	4,4'-DDT	10 U
(93P)	72-55-9	4,4'-DDE	10 U
(94P)	72-54-8	4,4'-DDD	10 U
(95P)	115-29-7	endosulfan I	10 U
(96P)	115-29-7	endosulfan II	10 U
(97P)	1031-07-8	endosulfan sulfate	10 U
(98P)	76-78-8	endrin	10 U
(99P)	7421-93-4	endrin aldehyde	10 U
(100P)	76-44-8	heptachlor	10 U
(101P)	1024-57-3	heptachlor epoxide	10 U

PP #	CAS #		ug/l
(102P)	319-84-6	BHC-Alpha	10 U
(103P)	319-85-7	BHC-Beta	10 U
(104P)	319-86-8	BHC-Delta	10 U
(105P)	58-89-9	BHC-Gamma	10 U
(106P)	53469-21-9	PCB-1242	200 U
(107P)	11097-69-1	PCB-1254	200 U
(108P)	11104-28-2	PCB-1221	200 U
(109P)	11141-16-5	PCB-1232	200 U
(110P)	12672-29-6	PCB-1248	200 U
(111P)	11096-82-5	PCB-1260	200 U
(112P)	12674-11-2	PCB-1016	200 U
(113P)	8001-35-2	toxaphene	200 U

FACTOR: $\frac{5.0}{500}$ [V_T(mL)]$_s$ / [D.F.] = .01

V_f = Final volume of extract D.F. = Dilution factor

V_I = Initial weight of sample extracted

DIOXINS

MULTIPLY ALL VALUES AND DETECTION LIMITS BY .001

PP #	CAS #		ug/l
(129D)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	5 U

FACTOR: $\frac{05}{500}$ [V_T(mL)]$_s$ / [D.F.] = .001

V_f = Final volume of extract D.F. = Dilution factor

V_I = Initial weight of sample extracted

Richard Scott

DATA REPORTING QUALIFIERS

Value - If the result is a value greater than or equal to the detection limit, report the value.

U - Indicates compound was analyzed for but not detected. The number is the minimum detection limit.

E - Actual value, within the limitations of this method, is less than the value given. The mass spectral data indicates the presence of a compound that meets the identification criteria but the quantitative result is less than the specified detection limit but greater than zero.

QQ - This flag applies to pesticides parameters where the identification has been performed using two column confirmation (as specified in Method 8080) but the level is too low for verification of the compound by mass spectrometry.

B - Compound not detected: blank value for the compound was greater than 1/2 of the MDL and greater than of the concentration detection to sample.

AR100181

ORIGINAL (red)

U.S. Environmental Protection Agency - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

Sample Number C3225
LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 1

FORM II

Laboratory Name: SPECTRIS CORPORATION
Lab Sample I.D. No: 8306026

Sac. Control No: 1793 - 3 -BB
Case No: 1793
QC Report No: 21

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 2.0

ACID COMPOUNDS

PP #	CAS #		ug/L
(21A)	88-06-2	2,4,6-trichlorophenol	10 U
(22A)	59-50-7	p-chloro-m-cresol	10 U
(26A)	95-57-8	2-chlorophenol	10 U
(31A)	120-83-2	2,4-dichlorophenol	10 U
(34A)	105-67-9	2,4-dimethylphenol	10 U
(57A)	88-75-5	2-nitrophenol	20 U
(58A)	100-02-7	4-nitrophenol	50 U
(59A)	51-28-5	2,4-dinitrophenol	50 U
(60A)	534-52-1	4,6-dinitro-2-methylphenol	20 U
(64A)	87-86-5	pentachlorophenol	10 U
(65A)	108-95-2	phenol	10 U

(Non-Priority Pollutant Hazardous Substances)

	65-85-0	benzoic acid	100 U
	95-48-7	2-methylphenol	5 U
	108-39-4	4-methylphenol	5 U
	95-95-4	2,4,5-trichlorophenol	100 U

BASE-NEUTRAL COMPOUNDS

(1B)	83-32-9	acenaphthene	10 U
(5B)	92-87-5	benzidine	40 U
(8B)	120-82-1	1,2,4-trichlorobenzene	10 U
(9B)	118-74-1	hexachlorobenzene	10 U
(12B)	67-72-1	hexachloroethane	10 U
(18B)	111-44-4	bis(2-chloroethyl)ether	10 U
(20B)	91-58-7	2-chloronaphthalene	10 U
(25B)	95-50-1	1,2-dichlorobenzene	10 U
(26B)	541-73-1	1,3-dichlorobenzene	10 U
(27B)	106-46-7	1,4-dichlorobenzene	10 U
(28B)	91-94-1	3,3'-dichlorobenzidine	20 U
(35B)	121-14-2	2,4-dinitrotoluene	20 U
(36B)	606-20-2	2,6-dinitrotoluene	20 U
		1,2-diphenylhydrazine	
(37B)	122-66-7	(as azobenzene)	20 U
(39B)	206-44-0	fluoranthene	10 U
(40B)	7005-72-3	4-chlorophenyl phenyl ether	10 U
(41B)	101-55-3	4-bromophenyl phenyl ether	10 U

BASE-NEUTRAL COMPOUNDS

PP #	CAS #		ug/L
(47B)	39638-32-9	bis-(2-chloroisopropyl)ether	20 U
(43B)	111-91-1	bis-(2-chloroethoxy)methane	20 U
(52B)	87-68-3	hexachlorobutadiene	10 U
(53B)	77-47-4	hexachlorocyclopentadiene	10 U
(54B)	78-59-1	isophorone	10 U
(55B)	91-20-3	naphthalene	10 U
(56B)	98-95-3	nitrobenzene	10 U
(62B)	86-30-6	N-nitrosodiphenylamine	10 U
(63B)	621-64-7	N-nitrosodi-n-propylamine	10 U
(66B)	117-81-7	bis(2-ethylhexyl)phthalate	10 U
(67B)	85-68-7	butyl benzyl phthalate	10 U
(68B)	84-74-2	di-n-butyl phthalate	10 U
(69B)	117-84-0	di-n-octyl phthalate	10 U
(70B)	84-66-2	diethyl phthalate	10 U
(71B)	131-11-3	dimethyl phthalate	10 U
(72B)	56-55-3	benzo(a)anthracene	10 U
(73B)	50-32-8	benzo(a)pyrene	20 U
(74B)	205-99-2	benzo(b)fluoranthene	20 U
(75B)	207-08-9	benzo(k)fluoranthene	20 U
(76B)	218-01-9	chrysene	20 U
(77B)	208-96-8	acenaphthylene	10 U
(78B)	120-12-7	anthracene	10 U
(79B)	191-24-2	benzo(ghi)perylene	20 U
(80B)	86-73-7	fluorene	10 U
(81B)	85-01-8	phenanthrene	10 U
(82B)	53-70-3	dibenzo(a,h)anthracene	20 U
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	20 U
(84B)	129-00-0	pyrene	10 U

(Non-Priority Pollutant Hazardous Substances)

	62-53-3	aniline	5 U
	100-51-6	benzyl alcohol	20 U
	106-47-8	4-chloroaniline	50 U
	132-64-9	dibenzofuran	10 U
	91-57-6	2-methylnaphthalene	20 U
	88-74-4	2-nitroaniline	100 U
	99-09-2	3-nitroaniline	100 U
	100-01-6	4-nitroaniline	100 U

FACTOR = $\frac{1.0}{1.0}$ (Vf (mL)) / (Vi (L)) 2 (D.F.) = 2.0

Vf = Final volume of extract
Vi = Initial volume of sample extracted
D.F. = Dilution factor

Richard Scott

AR100182

ORIGINAL (red)

SAMPLE NUMBER C3225 LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 2

FORM II

Doc. CONTROL NO: 1793-3-8

Laboratory Name: SPECTRIX CORPORATION

Case No: 1793

Lab Sample I.D. No: 8306026

QC Report No: 21

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 1 ☐ or 10 ☐ or ☐ ___

(Check Box for Appropriate Factor)

VOLATILES

FP #	CAS #		ug/l
(2V)	107-02-8	acrolein	1000
(3V)	107-13-1	acrylonitrile	1000
(4V)	71-43-2	benzene	5U
(6V)	56-23-5	carbon tetrachloride	5U
(7V)	108-90-7	chlorobenzene	5U
(10V)	107-06-2	1,2-dichloroethane	1U
(11V)	71-55-6	1,1,1-trichloroethane	5U
(13V)	75-34-3	1,1-dichloroethane	5U
(14V)	79-00-5	1,1,2-trichloroethane	5U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10U
(16V)	75-00-3	chloroethane	10U
(19V)	110-75-8	2-chloroethylvinyl ether	10U
(23V)	67-66-3	chloroform	5U
(29V)	75-35-4	1,1-dichloroethene	5U
(30V)	156-60-5	1,2-trans-dichloroethene	5U
(32V)	78-87-5	1,2-dichloropropane	10U
(33V)	10061-02-6	trans-1,3-dichloropropene	5U
	10061-01-5	cis,1,3-dichloropropene	5U
(38V)	100-41-4	ethylbenzene	5U
(44V)	75-09-2	methylene chloride K	5U
(45V)	74-87-3	chloromethane	10U
(46V)	74-83-9	bromomethane	10U
(47V)	75-25-2	bromoform	10U
(48V)	75-27-4	bromodichloromethane	5U
(51V)	124-48-1	chlorodibromomethane	5U
(85V)	127-18-4	tetrachloroethene	5U
(86V)	108-88-3	toluene	5U
(87V)	79-01-6	trichloroethene 5.7	5U
(88V)	75-01-4	vinyl chloride	10U

(Non-Priority Pollutant Hazardous Substances)

67-64-1	acetone	5U
78-93-3	2-butanone	5U
75-15-0	carbondisulfide	1U
519-78-6	2-hexanone	5U
108-10-1	4-methyl-2-pentanone	5U
100-42-5	styrene	5U
108-05-4	vinyl acetate	5U
95-47-6	o-xylene	5U

Richard Scott

AR100183

ORIGINAL

Sample Number C3225 (red)
LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 3

FORM II

Laboratory Name: SPECTRIX CORPORATION

Lab Sample I.D. No: 8306026

Doc. Control No: 1793-3 .00

Case No: 1793

QC Report No: 21

PESTICIDES

MULTIPLY ALL VALUES AND DETECTION LIMITS BY .01

PP #	CAS #		ug/l
(89P)	309-00-2	aldrin	10 U
(90P)	60-57-1	dieldrin	10 U
(91P)	57-74-9	chlordane	10 U
(92P)	50-29-3	4,4'-DDT	10 U
(93P)	72-55-9	4,4'-DDE	10 U
(94P)	72-54-8	4,4'-DDD	10 U
(95P)	115-29-7	endosulfan I	10 U
(96P)	115-29-7	endosulfan II	10 U
(97P)	1031-07-8	endosulfan sulfate	10 U
(98P)	72-20-8	endrin	10 U
(99P)	7421-93-4	endrin aldehyde	10 U
(100P)	76-44-8	heptachlor	10 U
(101P)	1024-57-3	heptachlor epoxide	10 U

PP #	CAS #		ug/l
(102P)	319-84-6	BHC-Alpha	10 U
(103P)	319-85-7	BHC-Beta	10 U
(104P)	319-86-8	BHC-Delta	10 U
(105P)	58-89-9	BHC-Gamma	10 U
(106P)	53469-21-9	PCB-1242	200 U
(107P)	11097-69-1	PCB-1254	200 U
(108P)	11104-28-2	PCB-1221	200 U
(109P)	11141-16-5	PCB-1232	200 U
(110P)	12672-29-6	PCB-1248	200 U
(111P)	11096-82-5	PCB-1260	200 U
(112P)	12674-11-2	PCB-1016	200 U
(113P)	8001-35-2	toxaphene	200 U

FACTOR: $\frac{5.0}{500}$ [Vt(mL)]s / [V$_i$(mL)] / [B.F.] = .01

Vt = Final volume of extract

V$_i$ = Initial weight of sample extracted

B.F. = Dilution factor

DIOXINS

MULTIPLY ALL VALUES AND DETECTION LIMITS BY .001

PP #	CAS #		ug/l	
(129B)	1747-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	5 U	Z

FACTOR: $\frac{.5}{500}$ [Vt(mL)]s / [V$_i$(mL)] / [B.F.] = .001

Vt = Final volume of extract

V$_i$ = Initial weight of sample extracted

B.F. = Dilution factor

Richard Scott

DATA REPORTING QUALIFIERS

Value - If the result is a value greater than or equal to the detection limit, report the value.

U - Indicates compound was analyzed for but not detected. The number is the minimum detection limit.

E - Actual value, within the limitations of this method, is less than the value given. The mass spectral data indicates the presence of a compound that meets the identification criteria but the quantitative result is less than the specified detection limit but greater than zero.

* - This flag applies to pesticides parameters where the identification has been performed using two column confirmation (as specified in Method 608) but the level is too low for verification of the compound by mass spectrometry.

B - Compound not detected: blank value for it was greater than 1/2 of the MDL and great of the concentration detected in samcle.

AR100184

ORIGINAL (red)

U.S. Environmental Protection Agency - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

Sample Number C3226
LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 1

FORM 11

Laboratory Name: SPECTRIS CORPORATION
Lab Sample I.D. No: 8306026

Doc. Control No: 1793 - 3 -00
Case No: 1793
QC Report No: 21

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 2.0

ACID COMPOUNDS

PP #	CAS #		ug/L
(71A)	88-06-2	2,4,6-trichlorophenol	10 U
(27A)	59-50-7	p-chloro-m-cresol	10 U
(74A)	95-57-8	2-chlorophenol	10 U
(31A)	120-83-2	2,4-dichlorophenol	10 U
(34A)	105-67-9	2,4-dimethylphenol	10 U
(57A)	88-75-5	2-nitrophenol	20 U
(68A)	100-02-7	4-nitrophenol	50 U
(59A)	51-28-5	2,4-dinitrophenol	50 U
(68A)	534-52-1	4,6-dinitro-2-methylphenol	20 U
(64A)	87-86-5	pentachlorophenol	10 U
(65A)	108-95-2	phenol	10 U

(Non-Priority Pollutant Hazardous Substances)

	65-85-0	benzoic acid	100 U
	95-48-7	2-methylphenol	5 U
	108-39-4	4-methylphenol	5 U
	95-95-4	2,4,5-trichlorophenol	100 U

BASE-NEUTRAL COMPOUNDS

(1B)	83-32-9	acenaphthene	10 U
(5B)	92-87-5	benzidine	40 U
(8B)	120-82-1	1,2,4-trichlorobenzene	10 U
(9B)	118-74-1	hexachlorobenzene	10 U
(12B)	67-72-1	hexachloroethane	10 U
(18B)	111-44-4	bis(2-chloroethyl)ether	10 U
(29B)	91-58-7	2-chloronaphthalene	10 U
(25B)	95-50-1	1,2-dichlorobenzene	10 U
(26B)	541-73-1	1,3-dichlorobenzene	10 U
(27B)	106-46-7	1,4-dichlorobenzene	10 U
(28B)	91-94-1	3,3'-dichlorobenzidine	20 U
(35B)	121-14-2	2,4-dinitrotoluene	20 U
(36B)	606-20-2	2,6-dinitrotoluene	20 U
		1,2-diphenylhydrazine	
(37B)	122-66-7	(as azobenzene)	20 U
(39B)	206-44-0	fluoranthene	10 U
(40B)	7005-72-3	4-chlorophenyl phenyl ether	10 U
(41B)	101-55-3	4-bromophenyl phenyl ether	10 U

BASE-NEUTRAL COMPOUNDS

PP #	CAS #		ug/L
(42B)	39638-32-9	bis-(2-chloroisopropyl)ether	20 U
(43B)	111-91-1	bis-(2-chloroethoxy)methane	20 U
(52B)	87-68-3	hexachlorobutadiene	10 U
(53B)	77-47-4	hexachlorocyclopentadiene	10 U
(54B)	78-59-1	isophorone	10 U
(55B)	91-20-3	naphthalene	10 U
(56B)	98-95-3	nitrobenzene	10 U
(62B)	86-30-6	N-nitrosodiphenylamine	10 U
(63B)	621-64-7	N-nitroso-di-n-propylamine	10 U
(66B)	117-81-7	bis(2-ethylhexyl)phthalate	10 U
(67B)	85-68-7	butyl benzyl phthalate	10 U
(68B)	84-74-2	di-n-butyl phthalate	10 U
(69B)	117-84-0	di-n-octyl phthalate	10 U
(70B)	84-66-2	diethyl phthalate	10 U
(71B)	131-11-3	dimethyl phthalate	10 U
(72B)	56-55-3	benzo(a)anthracene	10 U
(73B)	50-32-8	benzo(a)pyrene	20 U
(74B)	205-99-2	benzo(b)fluoranthene	20 U
(75B)	207-08-9	benzo(k)fluoranthene	20 U
(76B)	218-01-9	chrysene	20 U
(77B)	208-96-8	acenaphthylene	10 U
(78B)	120-12-7	anthracene	10 U
(79B)	191-24-2	benzo(ghi)perylene	20 U
(80B)	86-73-7	fluorene	10 U
(81B)	85-01-8	phenanthrene	10 U
(82B)	53-70-3	dibenzo(a,h)anthracene	20 U
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	20 U
(84B)	129-00-0	pyrene	10 U

(Non-Priority Pollutant Hazardous Substances)

	62-53-3	aniline	5 U
	100-51-6	benzyl alcohol	20 U
	106-47-8	4-chloroaniline	50 U
	132-64-9	dibenzofuran	10 U
	91-57-6	2-methylnaphthalene	20 U
	88-74-4	2-nitroaniline	100 U
	99-09-2	3-nitroaniline	100 U
	100-01-6	4-nitroaniline	100 U

FACTOR = $\frac{1.0}{1.0\ \cancel{0.5}}$ [V_f (ml)] / [V_i (L)] × 2 [D.F.] = 2.0

V_f = Final volume of extract
V_i = Initial volume of sample extracted
D.F. = Dilution Factor

Richard Scott

AR100185

ORIGINAL

C 3226 (red)

LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 2

FORM II

Laboratory Name: SPECTRIS CORPORATION

Lab Sample I.D. No: 8306026

DOC. CONTROL NO: 1793-3-8

Case No: 1793

QC Report No: 21

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 1 ☑ or 10 ☐ or ☐ ___

(Check Box for Appropriate Factor)

VOLATILES

PP #	CAS #		ug/l
(2V)	107-02-8	acrolein	100U
(3V)	107-13-1	acrylonitrile	100U
(4V)	71-43-2	benzene	5U
(6V)	56-23-5	carbon tetrachloride	5U
(7V)	108-90-7	chlorobenzene	5U
(10V)	107-06-2	1,2-dichloroethane	1U
(11V)	71-55-6	1,1,1-trichloroethane	5U
(13V)	75-34-3	1,1-dichloroethane	5U
(14V)	79-00-5	1,1,2-trichloroethane	5U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10U
(16V)	75-00-3	chloroethane	10U
(19V)	110-75-8	2-chloroethylvinyl ether	10U
(23V)	67-66-3	chloroform	5U
(29V)	75-35-4	1,1-dichloroethene	5U
(30V)	156-60-5	1,2-trans-dichloroethene	5U
(32V)	78-87-5	1,2-dichloropropane	10U
(33V)	10061-02-6	trans-1,3-dichloropropene	5U
	10061-01-05	cis,1,3-dichloropropene	5U
(38V)	100-41-4	ethylbenzene	5U
(44V)	75-09-2	methylene chloride	K 5U
(45V)	74-87-3	chloromethane	10U
(46V)	74-83-9	bromomethane	10U
(47V)	75-25-2	bromoform	10U
(48V)	75-27-4	bromodichloromethane	5U
(51V)	124-48-1	chlorodibromomethane	5U
(85V)	127-18-4	tetrachloroethene	5U
(86V)	108-88-3	toluene	5U
(87V)	79-01-6	trichloroethene	5U
(88V)	75-01-4	vinyl chloride	10U

(Non-Priority Pollutant Hazardous Substances)

67-64-1	acetone	5U
78-93-3	2-butanone	5U
75-15-0	carbondisulfide	1U
519-78-6	2-hexanone	5U
108-10-1	4-methyl-2-pentanone	5U
100-42-5	styrene	5U
108-05-4	vinyl acetate	5U
95-47-6	o-xylene	5U

Richard Scott

AR100186

ORIGINAL

Sample Number C3226 (red)
LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 3

FORM II

Laboratory Name: SPECTRIX CORPORATION

Lab Sample I.D. No: 8306026

Doc. Control No: 1793-3 -88

Case No: 1793

QC Report No: 21

PESTICIDES

MULTIPLY ALL VALUES AND DETECTION LIMITS BY .01

PP #	CAS #		ug/l	PP #	CAS #		ug/l
(959P)	309-00-2	aldrin	10 U	(1027P)	319-84-6	BHC-Alpha	10 U
(960P)	60-57-1	dieldrin	10.7 **	(1028P)	319-85-7	BHC-Beta	10 U
(961P)	57-74-9	chlordane	10 U	(1029P)	319-86-8	BHC-Delta	10 U
(962P)	50-29-3	4,4'-DDT	10 U	(1030P)	58-89-9	BHC-Gamma	10 U
(963P)	72-55-9	4,4'-DDE	10 U	(1046P)	53469-21-9	PCB-1242	200 U
(964P)	72-54-8	4,4'-DDD	10 U	(1047P)	11097-69-1	PCB-1254	200 U
(965P)	115-29-7	endosulfan I	10 U	(1048P)	11104-28-2	PCB-1221	200 U
(966P)	115-29-7	endosulfan II	10 U	(1049P)	11141-16-5	PCB-1232	200 U
(967P)	1031-07-8	endosulfan sulfate	10 U	(1109P)	12672-29-6	PCB-1248	200 U
(968P)	72-20-8	endrin	10 U	(1110P)	11096-82-5	PCB-1260	200 U
(969P)	7421-93-4	endrin aldehyde	10 U	(1127P)	12674-11-2	PCB-1016	200 U
(1044P)	76-44-8	heptachlor	10 U	(1128P)	8001-35-2	toxaphene	200 U
(1045P)	1024-57-3	heptachlor epoxide	10 U				

FACTOR: $\frac{5.0}{500}$ [V_f(mL)] x $\frac{1}{}$ [D.F.] = .01

V_f = Final volume of extract

V_i = Initial weight of sample extracted

D.F. = Dilution factor

DIOXINS

MULTIPLY ALL VALUES AND DETECTION LIMITS BY .001

PP #	CAS #		ug/l
		2,3,7,8-tetrachlorodibenzo-	
(1798)	1747-01-6	p-dioxin	5 U

FACTOR: $\frac{0.5}{500}$ [V_f(mL)] x $\frac{1}{}$ [D.F.] = .001

V_f = Final volume of extract

V_i = Initial weight of sample extracted

D.F. = Dilution factor

Richard Scott

DATA REPORTING QUALIFIERS

Value - If the result is a value greater than or equal to the detection limit, report the value.

U - Indicates compound was analyzed for but not detected. The number is the minimum detection limit.

E - Actual value, within the limitations of this method, is less than the value given. The mass spectral data indicates the presence of a compound that meets the identification criteria but the quantitative result is less than the specified detection limit but greater than zero.

** - This flag applies to pesticides parameters where the identification has been performed using two column confirmation (as specified in Method 608) but the level is too low for verification of the compound by mass spectrometry.

B - Compound was detected. Blank value for the compound was greater than 1/2 of the MDL and greater than [illegible] of the concentration detected in sample.

AR100187

ORIGINAL (red)

U.S. Environmental Protection Agency - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

Sample Number C3227
LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 1

FORM II

Laboratory Name: SPECTRIS CORPORATION
Lab Sample I.D. No: 8306026

Doc. Control No: 1793-3 -88
Case No: 1793
QC Report No: 21

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 2.0

ACID COMPOUNDS

PP #	CAS #		ug/l
(21A)	88-06-2	2,4,6-trichlorophenol	10 U
(22A)	59-50-7	p-chloro-m-cresol	10 U
(26A)	95-57-8	2-chlorophenol	10 U
(31A)	120-83-2	2,4-dichlorophenol	10 U
(34A)	105-67-9	2,4-dimethylphenol	10 U
(57A)	88-75-5	2-nitrophenol	20 U
(58A)	100-02-7	4-nitrophenol	50 U
(59A)	51-28-5	2,4-dinitrophenol	50 U
(60A)	534-52-1	4,6-dinitro-2-methylphenol	20 U
(64A)	87-86-5	pentachlorophenol	10 U
(65A)	108-95-2	phenol	10 U

(Non-Priority Pollutant Hazardous Substances)

	65-85-0	benzoic acid	100 U
	95-48-7	2-methylphenol	5 U
	108-39-4	4-methylphenol	5 U
	95-95-4	2,4,5-trichlorophenol	100 U

BASE-NEUTRAL COMPOUNDS

(1B)	83-32-9	acenaphthene	10 U
(5B)	92-87-5	benzidine	40 U
(8B)	120-82-1	1,2,4-trichlorobenzene	10 U
(9B)	118-74-1	hexachlorobenzene	10 U
(12B)	67-72-1	hexachloroethane	10 U
(18B)	111-44-4	bis(2-chloroethyl)ether	10 U
(20B)	91-58-7	2-chloronaphthalene	10 U
(25B)	95-50-1	1,2-dichlorobenzene	10 U
(26B)	541-73-1	1,3-dichlorobenzene	10 U
(27B)	106-46-7	1,4-dichlorobenzene	10 U
(28B)	91-94-1	3,3'-dichlorobenzidine	20 U
(35B)	121-14-2	2,4-dinitrotoluene	20 U
(36B)	606-20-2	2,6-dinitrotoluene	20 U
		1,2-diphenylhydrazine	
(37B)	122-66-7	(as azobenzene)	20 U
(39B)	206-44-0	fluoranthene	10 U
(40B)	7005-72-3	4-chlorophenyl phenyl ether	10 U
(41B)	101-55-3	4-bromophenyl phenyl ether	10 U

BASE-NEUTRAL COMPOUNDS

PP #	CAS #		ug/l
(42B)	39638-32-9	bis-(2-chloroisopropyl)ether	20 U
(43B)	111-91-1	bis-(2-chloroethoxy)methane	20 U
(52B)	87-68-3	hexachlorobutadiene	10 U
(53B)	77-47-4	hexachlorocyclopentadiene	10 U
(54B)	78-59-1	isophorone	10 U
(55B)	91-20-3	naphthalene	10 U
(56B)	98-95-3	nitrobenzene	10 U
(67B)	86-30-6	N-nitrosodiphenylamine	10 U
(63B)	621-64-7	N-nitrosodi-n-propylamine	10 U
(66B)	117-81-7	bis(2-ethylhexyl)phthalate	10 U
(67B)	85-68-7	butyl benzyl phthalate	10 U
(68B)	84-74-2	di-n-butyl phthalate	10 U
(69B)	117-84-0	di-n-octyl phthalate	10 U
(70B)	84-66-2	diethyl phthalate	10 U
(71B)	131-11-3	dimethyl phthalate	10 U
(72B)	56-55-3	benzo(a)anthracene	10 U
(73B)	50-32-8	benzo(a)pyrene	20 U
(74B)	205-99-2	benzo(b)fluoranthene	20 U
(75B)	207-08-9	benzo(k)fluoranthene	20 U
(76B)	218-01-9	chrysene	20 U
(77B)	208-96-8	acenaphthylene	10 U
(78B)	120-12-7	anthracene	10 U
(79B)	191-24-2	benzo(ghi)perylene	20 U
(80B)	86-73-7	fluorene	10 U
(81B)	85-01-8	phenanthrene	10 U
(82B)	53-70-3	dibenz(a,h)anthracene	20 U
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	20 U
(84B)	129-00-0	pyrene	10 U

(Non-Priority Pollutant Hazardous Substances)

	62-53-3	aniline	5 U
	100-51-6	benzyl alcohol	20 U
	106-47-8	4-chloroaniline	50 U
	132-64-9	dibenzofuran	10 U
	91-57-6	2-methylnaphthalene	20 U
	88-74-4	2-nitroaniline	100 U
	99-09-2	3-nitroaniline	100 U
	100-01-6	4-nitroaniline	100 U

FACTOR = $\frac{1.0}{1.0}$ (V_T (mL)) / (V_I (L)) × 2 (D.F.) = 2.0

V_T = Final volume of extract
V_I = Initial volume of sample extracted
D.F. = Dilution factor

Richard Trott

AR100188

ORIGINAL

SAMPLE NUMBER C3227 (red)
LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 2

FORM II

SOC. CONTROL NO: 1793-3-8

Laboratory Name: SPECTRIX CORPORATION

Case No: 1793

Lab Sample I.D. No: 8306026

QC Report No: 21

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 1 [X] or 10 [ ] or [ ]

(Check Box for Appropriate Factor)

VOLATILES

EP #	CAS #		ug/l
(2V)	107-02-8	acrolein	100U
(3V)	107-13-1	acrylonitrile	100U
(4V)	71-43-2	benzene	5U
(6V)	56-23-5	carbon tetrachloride	5U
(7V)	108-90-7	chlorobenzene	5U
(10V)	107-06-2	1,2-dichloroethane	1U
(11V)	71-55-6	1,1,1-trichloroethane	5U
(13V)	75-34-3	1,1-dichloroethane	5U
(14V)	79-00-5	1,1,2-trichloroethane	5U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10U
(16V)	75-00-3	chloroethane	10U
(19V)	110-75-8	2-chloroethylvinyl ether	10U
(23V)	67-66-3	chloroform	5U
(29V)	75-35-4	1,1-dichloroethene	5U
(30V)	156-60-5	1,2-trans-dichloroethene	5U
(32V)	78-87-5	1,2-dichloropropane	10U
(33V)	10061-02-6	trans-1,3-dichloropropene	5U
	10061-01-05	cis-1,3-dichloropropene	5U
(38V)	100-41-4	ethylbenzene	5U
(44V)	75-09-2	methylene chloride	5U
(45V)	74-87-3	chloromethane	10U
(46V)	74-83-9	bromomethane	10U
(47V)	75-25-2	bromoform	10U
(48V)	75-27-4	bromodichloromethane	5U
(51V)	124-48-1	chlorodibromomethane	5U
(85V)	127-18-4	tetrachloroethene	5U
(86V)	108-88-3	toluene	5U
(87V)	79-01-6	trichloroethene	5U
(88V)	75-01-4	vinyl chloride	10U

(Non-Priority Pollutant Hazardous Substances)

	67-64-1	acetone	31.3 ~~5U~~ 25K
	78-93-3	2-butanone	K 5U
	75-15-0	carbondisulfide	1U
	519-78-6	2-hexanone	5U
	108-10-1	4-methyl-2-pentanone	5U
	100-42-5	styrene	5U
	108-05-4	vinyl acetate	5U
	95-47-6	o-xylene	5U

Richard Scott

AR100189

ORIGINAL

Sample Number C3227 LOW LEVEL WATER (red)

ORGANICS ANALYSIS DATA SHEET - Page 1

FORM II

Laboratory Name: SPECTRIX CORPORATION

Lab Sample I.D. No: 830626

Doc. Control No: 1793-3 .00

Case No: 1743

QC Report No: 21

PESTICIDES

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 0.01

PP #	CAS #		ug/l
(89P)	309-00-2	aldrin	10 U
(90P)	60-57-1	dieldrin	10 U
(91P)	57-74-9	chlordane	10 U
(92P)	50-29-3	4,4'-DDT	10 U
(93P)	72-55-9	4,4'-DDE	10 U
(94P)	72-54-8	4,4'-DDD	10 U
(95P)	115-29-7	endosulfan I	10 U
(96P)	115-29-7	endosulfan II	10 U
(97P)	1031-07-8	endosulfan sulfate	10 U
(98P)	72-20-8	endrin	10 U
(99P)	7421-93-4	endrin aldehyde	10 U
(100P)	76-44-8	heptachlor	10 U
(101P)	1024-57-3	heptachlor epoxide	10 U

PP #	CAS #		ug/l
(102P)	319-84-6	BHC-Alpha	10 U
(103P)	319-85-7	BHC-Beta	10 U
(104P)	319-86-8	BHC-Delta	10 U
(105P)	58-89-9	BHC-Gamma	10 U
(106P)	53469-21-9	PCB-1242	200 U
(107P)	11097-69-1	PCB-1254	200 U
(108P)	11104-28-2	PCB-1221	200 U
(109P)	11141-16-5	PCB-1232	200 U
(110P)	12672-29-6	PCB-1248	200 U
(111P)	11096-82-5	PCB-1260	200 U
(112P)	12674-11-2	PCB-1016	200 U
(113P)	8001-35-2	toxaphene	200 U

FACTOR: $\frac{5.0}{580}$ [Vf(mL)]: $\frac{1}{}$ [V_i(mL)] [D.F.] = .01

V_f = Final volume of extract

V_i = Initial weight of sample extracted

D.F. = Dilution factor

DIOXINS

MULTIPLY ALL VALUES AND DETECTION LIMITS BY _____

PP #	CAS #		ug/l
(129D)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	5 U

FACTOR: _____ [Vf(mL)]: _____ [V_i(mL)] [D.F.] =

V_f = Final volume of extract

V_i = Initial weight of sample extracted

D.F. = Dilution factor

Note: No dioxin data available sample needs to be cleaned up.

Richard Scott

DATA REPORTING QUALIFIERS

Value - If the result is a value greater than or equal to the detection limit, report the value.

U - Indicates compound was analyzed for but not detected. The number is the minimum detection limit.

E - Actual value, while the limitations of this method, is less than the value given. The mass spectral data indicates the presence of a compound that meets the identification criteria but the quantitative result is less than the specified detection limit but greater than zero.

QQ - This flag applies to pesticides parameters where the identification has been performed using two column confirmation (as specified in Method 608) but the level is too low for verification of the compound by mass spectrometry.

B - Compound not detected: blank value for the compound was greater than 1/2 of the MDL and greater than 1/2 of the concentration detected in sample.

ORIGINAL

(red)

U.S. Environmental Protection Agency - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

Sample Number C3228
LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 1

FORM II

Laboratory Name: SPECTRIS CORPORATION

Lab Sample I.D. No: 8306026

Doc. Control No: 1793 - 3 -00

Case No: 1793

QC Report No: 21

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 2.0

ACID COMPOUNDS

PP #	CAS #		ug/l
(21A)	88-06-2	2,4,6-trichlorophenol	10 U
(22A)	59-50-7	p-chloro-m-cresol	10 U
(26A)	95-57-8	2-chlorophenol	10 U
(31A)	120-83-2	2,4-dichlorophenol	10 U
(34A)	105-67-9	2,4-dimethylphenol	10 U
(57A)	88-75-5	2-nitrophenol	20 U
(58A)	100-02-7	4-nitrophenol	50 U
(59A)	51-28-5	2,4-dinitrophenol	50 U
(60A)	534-52-1	4,6-dinitro-2-methylphenol	20 U
(64A)	87-86-5	pentachlorophenol	10 U
(66A)	108-95-2	phenol	10 U

(Non-Priority Pollutant Hazardous Substances)

	65-85-0	benzoic acid	100 U
	95-48-7	2-methylphenol	5 U
	108-39-4	4-methylphenol	5 U
	95-95-4	2,4,5-trichlorophenol	100 U

BASE-NEUTRAL COMPOUNDS

(1B)	83-32-9	acenaphthene	10 U
(5B)	87-87-5	pentachlorophenol	40 U
(8B)	120-82-1	1,2,4-trichlorobenzene	10 U
(9B)	118-74-1	hexachlorobenzene	10 U
(12B)	67-72-1	hexachloroethane	10 U
(18B)	111-44-4	bis(2-chloroethyl)ether	10 U
(29B)	91-58-7	2-chloronaphthalene	10 U
(35B)	95-50-1	1,2-dichlorobenzene	10 U
(36B)	541-73-1	1,3-dichlorobenzene	10 U
(37B)	106-46-7	1,4-dichlorobenzene	10 U
(39B)	91-94-1	3,3'-dichlorobenzidine	20 U
(35B)	121-14-2	2,4-dinitrotoluene	20 U
(36B)	606-20-2	2,6-dinitrotoluene	20 U
		1,2-diphenylhydrazine	
(37B)	122-66-7	(as azobenzene)	20 U
(39B)	206-44-0	fluoranthene	10 U
(60B)	7005-72-3	4-chlorophenyl phenyl ether	10 U
(61B)	101-55-3	4-bromophenyl phenyl ether	10 U

BASE-NEUTRAL COMPOUNDS

PP #	CAS #		ug/l
(62B)	39638-32-9	bis(2-chloroisopropyl)ether	20 U
(63B)	111-91-1	bis(2-chloroethoxy)methane	20 U
(52B)	87-68-3	hexachlorobutadiene	10 U
(53B)	77-47-4	hexachlorocyclopentadiene	10 U
(54B)	78-59-1	isophorone	10 U
(55B)	91-20-3	naphthalene	10 U
(56B)	98-95-3	nitrobenzene	10 U
(62B)	86-30-6	N-nitrosodiphenylamine	10 U
(63B)	621-64-7	N-nitroso-di-n-propylamine	10 U
(64B)	117-81-7	bis(2-ethylhexyl)phthalate	10 U
(67B)	85-68-7	butyl benzyl phthalate	10 U
(68B)	84-74-2	di-n-butyl phthalate	10 U
(69B)	117-84-0	di-n-octyl phthalate	10 U
(70B)	84-66-2	diethyl phthalate	10 U
(71B)	131-11-3	dimethyl phthalate	10 U
(72B)	56-55-3	benzo(a)anthracene	10 U
(73B)	50-32-8	benzo(a)pyrene	20 U
(74B)	205-99-2	benzo(b)fluoranthene	20 U
(75B)	207-08-9	benzo(k)fluoranthene	20 U
(76B)	218-01-9	chrysene	20 U
(77B)	208-96-8	acenaphthylene	10 U
(78B)	120-12-7	anthracene	10 U
(79B)	191-24-2	benzo(ghi)perylene	20 U
(80B)	86-73-7	fluorene	10 U
(81B)	85-01-8	phenanthrene	10 U
(82B)	53-70-3	dibenzo(a,h)anthracene	20 U
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	20 U
(84B)	129-00-0	pyrene	10 U

(Non-Priority Pollutant Hazardous Substances)

	62-53-3	aniline	5 U
	100-51-6	benzyl alcohol	20 U
	106-47-8	4-chloroaniline	50 U
	132-64-9	dibenzofuran	10 U
	91-57-6	2-methylnaphthalene	20 U
	88-74-4	2-nitroaniline	100 U
	99-09-2	3-nitroaniline	100 U
	100-01-6	4-nitroaniline	

FACTOR = $\frac{1.0}{1.0}$ [V_T (mL)'s / [V_I (L)] $\frac{2}{}$ [D.F.] = 2.0

Richard Scott

V_T = final volume of extract

D.F. = Dilution factor

V_I = initial volume of sample extracted

AR100191

ORIGINAL

Sample Number C3228 (red)
Low Level Water

ORGANICS ANALYSIS DATA SHEET - Page 2

FORM II

DOC. CONTROL NO: 1793-3-8

Laboratory Name: SPECTRIX CORPORATION

Case No: 1793

Lab Sample I.D. No: 8306026

QC Report No: 21

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 1 ☑ or 10 ☐ or ☐ ___

(Check Box for Appropriate Factor)

VOLATILES

PP #	CAS #		ug/l
(2V)	107-02-8	acrolein	100U
(3V)	107-13-1	acrylonitrile	100U
(4V)	71-43-2	benzene	5U
(6V)	56-23-5	carbon tetrachloride	5U
(7V)	108-90-7	chlorobenzene	5U
(10V)	107-06-2	1,2-dichloroethane	1U
(11V)	71-55-6	1,1,1-trichloroethane	5U
(13V)	75-34-3	1,1-dichloroethane	5U
(14V)	79-00-5	1,1,2-trichloroethane	5U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10U
(16V)	75-00-3	chloroethane	10U
(19V)	110-75-8	2-chloroethylvinyl ether	10U
(23V)	67-66-3	chloroform	5U
(29V)	75-35-4	1,1-dichloroethene	5U
(30V)	156-60-5	1,2-trans-dichloroethene	5U
(32V)	78-87-5	1,2-dichloropropane	10U
(33V)	10061-02-6	trans-1,3-dichloropropene	5U
	10061-01-05	cis,1,3-dichloropropene	5U
(38V)	100-41-4	ethylbenzene	5U
(44V)	75-09-2	methylene chloride	5U
(45V)	74-87-3	chloromethane	10U
(46V)	74-83-9	bromomethane	10U
(47V)	75-25-2	bromoform	10U
(48V)	75-27-4	bromodichloromethane	5U
(51V)	124-48-1	chlorodibromomethane	5U
(85V)	127-18-4	tetrachloroethene	5U
(86V)	108-88-3	toluene	5U
(87V)	79-01-6	trichloroethene	5U
(88V)	75-01-4	vinyl chloride	10U

(Non-Priority Pollutant Hazardous Substances)

67-64-1	acetone	5U
78-93-3	2-butanone	5U
75-15-0	carbondisulfide	1U
519-78-6	2-hexanone	5U
108-10-1	4-methyl-2-pentanone	5U
100-42-5	styrene	5U
108-05-4	vinyl acetate	5U
95-47-6	o-xylene	5U

Richard Scott

AR100192

ORIGINAL (red)

Sample Number C3228 LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 1

FORM II

Laboratory Name: SPECTRIS CORPORATION

Lab Sample I.D. No: 8306026

Doc. Control No: 1793-3 -00

Case No: 1793

QC Report No: 21

PESTICIDES

MULTIPLY ALL VALUES AND DETECTION LIMITS BY .01

PP #	CAS #		ug/l	PP #	CAS #		ug/l
(89P)	309-00-2	aldrin	10 U	(102P)	319-84-6	BHC-Alpha	10 U
(90P)	60-57-1	dieldrin	10 U	(103P)	319-85-7	BHC-Beta	10 U
(91P)	57-74-9	chlordane	10 U	(104P)	319-86-8	BHC-Delta	10 U
(92P)	50-29-3	4,4'-DDT	10 U	(105P)	58-89-9	BHC-Gamma	10 U
(93P)	72-55-9	4,4'-DDE	10 U	(106P)	53469-21-9	PCB-1242	200 U
(94P)	72-54-8	4,4'-DDD	10 U	(107P)	11097-69-1	PCB-1254	200 U
(95P)	115-29-7	endosulfan I	10 U	(108P)	11104-28-2	PCB-1221	200 U
(96P)	115-29-7	endosulfan II	10 U	(109P)	11141-16-5	PCB-1232	200 U
(97P)	1031-07-8	endosulfan sulfate	10 U	(110P)	12672-29-6	PCB-1248	200 U
(98P)	72-20-8	endrin	10 U	(111P)	11096-82-5	PCB-1260	200 U
(99P)	7421-93-4	endrin aldehyde	10 U	(112P)	12674-11-2	PCB-1016	200 U
(100P)	76-44-8	heptachlor	10 U	(113P)	8001-35-2	toxaphene	200 U
(101P)	1024-57-3	heptachlor epoxide	10 U				

FACTOR: $\frac{5.0}{500}$ [V_f(mL)]: $\frac{1}{}$ [D.F.] = .01

V_f = Final volume of extract

V_i = Initial weight of sample extracted

D.F. = Dilution factor

DIOXINS

MULTIPLY ALL VALUES AND DETECTION LIMITS BY .001

PP #	CAS #		ug/l
(129S)	1747-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	5 U

FACTOR: $\frac{0.5}{500}$ [V_f(mL)]: $\frac{1}{}$ [D.F.] = .001

V_f = Final volume of extract

V_i = Initial weight of sample extracted

D.F. = Dilution factor

Richard Scott

DATA REPORTING QUALIFIERS

Value - If the result is a value greater than or equal to the detection limit, report the value.

U - Indicates compound was analyzed for but not detected. The number is the minimum detection limit.

E - Actual value, within the limitations of this method, is less than the value given. The mass spectral data indicates the presence of a compound that meets the identification criteria but the quantitative result is less than the specified detection limit but greater than zero.

oo - This flag applies to pesticides parameters where the identification has been performed using two column confirmation (as specified in Method 608) but the level is too low for verification of the compound by mass spectrometry.

B - Compound not detected: Blank value for the compound was greater than 1/2 of the MDL and greater than 1/ of the concentration detected in sample.

AR100193

U.S. Environmental Protection Agency - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

ORIGINAL (red)

Sample Number C3229
LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 1

FORM II

Laboratory Name: SPECTRIS CORPORATION

Lab Sample I.D. No: 8306026

Doc. Control No: 1793 - 3 -00

Case No: 1793

QC Report No: 21

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 2.0

ACID COMPOUNDS

PP #	CAS #		ug/L
(21A)	88-06-2	2,4,6-trichlorophenol	10 U
(22A)	59-50-7	p-chloro-m-cresol	10 U
(24A)	95-57-8	2-chlorophenol	10 U
(31A)	120-83-2	2,4-dichlorophenol	10 U
(36A)	105-67-9	2,4-dimethylphenol	10 U
(57A)	88-75-5	2-nitrophenol	20 U
(58A)	100-02-7	4-nitrophenol	50 U
(59A)	51-28-5	2,4-dinitrophenol	50 U
(60A)	534-52-1	4,6-dinitro-2-methylphenol	20 U
(64A)	87-86-5	pentachlorophenol	10 U
(65A)	108-95-2	phenol	10 U

(Non-Priority Pollutant Hazardous Substances)

	65-85-0	benzoic acid	100 U
	95-48-7	2-methylphenol	5 U
	108-39-4	4-methylphenol	5 U
	95-95-4	2,4,5-trichlorophenol	100 U

BASE-NEUTRAL COMPOUNDS

(1B)	83-32-9	acenaphthene	10 U
(5B)	92-87-5	benzidine	40 U
(6B)	120-82-1	1,2,4-trichlorobenzene	10 U
(9B)	118-74-1	hexachlorobenzene	10 U
(12B)	67-72-1	hexachloroethane	10 U
(18B)	111-44-4	bis(2-chloroethyl)ether	10 U
(20B)	91-58-7	2-chloronaphthalene	10 U
(25B)	95-50-1	1,2-dichlorobenzene	10 U
(26B)	541-73-1	1,3-dichlorobenzene	10 U
(27B)	106-46-7	1,4-dichlorobenzene	10 U
(28B)	91-94-1	3,3'-dichlorobenzidine	20 U
(35B)	121-14-2	2,4-dinitrotoluene	20 U
(36B)	606-20-2	2,6-dinitrotoluene	20 U
(37B)	122-66-7	1,2-diphenylhydrazine (as azobenzene)	20 U
(39B)	206-44-0	fluoranthene	10 U
(40B)	7005-72-3	4-chlorophenyl phenyl ether	10 U
(41B)	101-55-3	4-bromophenyl phenyl ether	10 U

BASE-NEUTRAL COMPOUNDS

PP #	CAS #		ug/L
(42B)	39638-32-9	bis-(2-chloroisopropyl)ether	20 U
(43B)	111-91-1	bis-(2-chloroethoxy)methane	20 U
(52B)	87-68-3	hexachlorobutadiene	10 U
(53B)	77-47-4	hexachlorocyclopentadiene	10 U
(54B)	78-59-1	isophorone	10 U
(55B)	91-20-3	naphthalene	10 U
(56B)	98-95-3	nitrobenzene	10 U
(62B)	86-30-6	N-nitrosodiphenylamine	10 U
(63B)	621-64-7	N-nitrosodi-n-propylamine	10 U
(66B)	117-81-7	bis(2-ethylhexyl)phthalate	10 U
(67B)	85-68-7	butyl benzyl phthalate	10 U
(68B)	84-74-2	di-n-butyl phthalate	10 U
(69B)	117-84-0	di-n-octyl phthalate	10 U
(70B)	84-66-2	diethyl phthalate	10 U
(71B)	131-11-3	dimethyl phthalate	10 U
(72B)	56-55-3	benzo(a)anthracene	10 U
(73B)	50-32-8	benzo(a)pyrene	20 U
(74B)	205-99-2	benzo(b)fluoranthene	20 U
(75B)	207-08-9	benzo(k)fluoranthene	20 U
(76B)	218-01-9	chrysene	20 U
(77B)	208-96-8	acenaphthylene	10 U
(78B)	120-12-7	anthracene	10 U
(79B)	191-24-2	benzo(ghi)perylene	20 U
(80B)	86-73-7	fluorene	10 U
(81B)	85-01-8	phenanthrene	10 U
(82B)	53-70-3	dibenzo(a,h)anthracene	20 U
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	20 U
(84B)	129-00-0	pyrene	10 U

(Non-Priority Pollutant Hazardous Substances)

	62-53-3	aniline	5 U
	100-51-6	benzyl alcohol	20 U
	106-47-8	4-chloroaniline	50 U
	132-64-9	dibenzofuran	10 U
	91-57-6	2-methylnaphthalene	20 U
	88-74-4	2-nitroaniline	100 U
	99-09-2	3-nitroaniline	100 U
	100-01-6	4-nitroaniline	100 U

FACTOR = $\frac{1.0}{1.0}$ $\frac{(V_f)(dL)}{(V_i)(L)}$ $\frac{2}{}$ [D.F.] = 2.0

V_f = Final volume of extract

V_i = Initial volume of sample extracted

D.F. = Dilution factor

Richard Scott

AR100194

Sample Number
E3226
Low Level

ORIGINAL (red)

ORGANICS ANALYSIS DATA SHEET - Page 2

FORM II

DOC. CONTROL NO: 1793-3-8

Laboratory Name: SPECTRIS CORPORATION

Case No: 1793

Lab Sample I.D. No: 8306026

QC Report No: 21

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 1 ☑ or 10 ☐ or ☐ ___

(Check Box for Appropriate Factor)

VOLATILES

EP #	CAS #		ug/l
(2V)	107-02-8	acrolein	100U
(3V)	107-13-1	acrylonitrile	100U
(4V)	71-43-2	benzene	5U
(6V)	56-23-5	carbon tetrachloride	5U
(7V)	108-90-7	chlorobenzene	5U
(18V)	107-06-2	1,2-dichloroethane	1U
(21V)	71-55-6	1,1,1-trichloroethane	5U
(13V)	75-34-3	1,1-dichloroethane	5U
(14V)	79-00-5	1,1,2-trichloroethane	5U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10U
(16V)	75-00-3	chloroethane	10U
(19V)	110-75-8	2-chloroethylvinyl ether	10U
(22V)	67-66-3	chloroform	5U
(29V)	75-35-4	1,1-dichloroethene	5U
(30V)	156-60-5	1,2-trans-dichloroethene	5U
(32V)	78-87-5	1,2-dichloropropane	10U
(33V)	10061-02-6	trans-1,3-dichloropropene	5U
	10061-01-05	cis,1,3-dichloropropene	5U
(38V)	100-41-4	ethylbenzene	5U
(44V)	75-09-2	methylene chloride	5U
(45V)	74-87-3	chloromethane	10U
(46V)	74-83-9	bromomethane	10U
(47V)	75-25-2	bromoform	10U
(48V)	75-27-4	bromodichloromethane	5U
(51V)	124-48-1	chlorodibromomethane	5U
(85V)	127-18-4	tetrachloroethene	5U
(86V)	108-88-3	toluene	5U
(87V)	79-01-6	trichloroethene	5U
(88V)	75-01-4	vinyl chloride	10U

(Non-Priority Pollutant Hazardous Substances)

67-64-1	acetone	5U
78-93-3	2-butanone	5U
75-15-0	carbondisulfide	1U
110-78-6	2-Hexanone	5U
108-10-1	4-methyl-2-pentanone	5U
100-42-5	styrene	5U
108-05-4	vinyl acetate	5U
95-47-6	o-xylene	5U

Richard Scott

Sample Number
C3229
LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 3

ORIGINAL (red)

FORM II

Laboratory Name: SPECTRIS CORPORATION

Lab Sample I.D. No: 8306026

Doc. Control No: 1793-3

Case No: 1793

QC Report No: 21

PESTICIDES

MULTIPLY ALL VALUES AND DETECTION LIMITS BY _____

PP #	CAS #		ug/l	PP #	CAS #		ug/l
(89P)	309-00-2	aldrin	10 U	(102P)	319-84-6	BHC-Alpha	10 U
(90P)	60-57-1	dieldrin	10 U	(103P)	319-85-7	BHC-Beta	10 U
(91P)	57-74-9	chlordane	10 U	(104P)	319-86-8	BHC-Delta	10 U
(92P)	50-29-3	4,4'-DDT	10 U	(105P)	58-89-9	BHC-Gamma	10 U
(93P)	72-55-9	4,4'-DDE	10 U	(106P)	53469-21-9	PCB-1242	200 U
(94P)	72-54-8	4,4'-DDD	10 U	(107P)	11097-69-7	PCB-1254	200 U
(95P)	115-29-7	endosulfan I	10 U	(108P)	11104-28-2	PCB-1221	200 U
(96P)	115-29-7	endosulfan II	10 U	(109P)	11141-16-5	PCB-1232	200 U
(97P)	1031-07-8	endosulfan sulfate	10 U	(110P)	12672-29-6	PCB-1248	200 U
(98P)	72-20-8	endrin	10 U	(111P)	11096-82-5	PCB-1260	200 U
(99P)	7421-93-4	endrin aldehyde	10 U	(112P)	12674-11-2	PCB-1016	200 U
(100P)	76-44-8	heptachlor	10 U	(113P)	8001-35-2	toxaphene	200 U
(101P)	1024-57-3	heptachlor epoxide	10 U				

FACTOR: $\frac{5.0}{500}$ [V_T(mL)] / [D.F.] . 01

V_T = Final volume of extract D.F. = Dilution factor

W_I = Initial weight of sample extracted

DIOXINS

MULTIPLY ALL VALUES AND DETECTION LIMITS BY .001

PP #	CAS #		ug/l
(1298)	1747-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	5 U

FACTOR: $\frac{0.5}{500}$ [V_T(mL)] / [D.F.] . 001

Note: no dioxin data available. Sample needs further cleanup

Richard Scott

V_T = Final volume of extract D.F. = Dilution factor

W_I = Initial weight of sample extracted

DATA REPORTING QUALIFIERS

Value - If the result is a value greater than or equal to the detection limit, report the value.

U - Indicates compound was analyzed for but not detected. The number is the minimum detection limit.

J - Actual value, within the limitations of this method, is less than the value given. The mass spectral data indicates the presence of a compound that meets the identification criteria but the quantitative result is less than the specified detection limit but greater than zero.

pp - This flag applies to pesticides parameters where the identification has been performed using two column confirmation (as specified in Method 8080) but the level is too low for verification of the compound by mass spectrometry.

B - Compound not detected: blank value for the compound was greater than 1/2 of the MDL and greater than 1/ of the concentration detected in sample.

AR100196

U.S. Environmental Protection Agency - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

Sample Number C3230
LOW LEVEL WATER

P.1 part 1

ORGANICS ANALYSIS DATA SHEET - Page 1

FORM II

Laboratory Name: SPECTRIS CORPORATION
Lab Sample I.D. No: 830602G

Doc. Control No: 1793 - 3
Case No: 1793
QC Report No: 21

ORIGINAL (red)

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 4

ACID COMPOUNDS

PP #	CAS #		ug/l
(21A)	88-06-2	2,4,6-trichlorophenol	10 U
(22A)	59-50-7	p-chloro-m-cresol	10 U
(24A)	95-57-8	2-chlorophenol	10 U
(31A)	120-83-2	2,4-dichlorophenol	10 U
(34A)	105-67-9	2,4-dimethylphenol	305
(57A)	88-75-5	2-nitrophenol	20 U
(58A)	100-02-7	4-nitrophenol	50 U
(59A)	51-28-5	2,4-dinitrophenol	50 U
(60A)	534-52-1	4,6-dinitro-2-methylphenol	20 U
(64A)	87-86-5	pentachlorophenol	10 U
(65A)	108-95-2	phenol	10 U

(Non-Priority Pollutant Hazardous Substances)

65-85-0	benzoic acid	100 U
95-48-7	2-methylphenol	5 U
108-39-4	4-methylphenol	5 U
95-95-4	2,4,5-trichlorophenol	100 U

BASE-NEUTRAL COMPOUNDS

(1B)	83-32-9	acenaphthene	20.9
(5B)	92-87-5	benzidine	40 U
(8B)	120-82-1	1,2,4-trichlorobenzene	10 U
(9B)	118-74-1	hexachlorobenzene	10 U
(12B)	67-72-1	hexachloroethane	10 U
(18B)	111-44-4	bis(2-chloroethyl)ether	10 U
(19B)	91-58-7	2-chloronaphthalene	10 U
(25B)	95-50-1	1,2-dichlorobenzene	10 U
(26B)	541-73-1	1,3-dichlorobenzene	10 U
(27B)	106-46-7	1,4-dichlorobenzene	10 U
(28B)	91-94-1	3,3'-dichlorobenzidine	20 U
(35B)	121-14-2	2,4-dinitrotoluene	20 U
(36B)	606-20-2	2,6-dinitrotoluene	20 U
(37B)	122-66-7	1,2-diphenylhydrazine (as azobenzene)	20 U
(38B)	206-44-0	fluoranthene	19.6
(40B)	7005-72-3	4-chlorophenyl phenyl ether	10 U
(41B)	101-55-3	4-bromophenyl phenyl ether	10 U

BASE-NEUTRAL COMPOUNDS

PP #	CAS #		ug/l
(42B)	39638-32-9	bis(2-chloroisopropyl)ether	20 U
(43B)	111-91-1	bis(2-chloroethoxy)methane	20 U
(52B)	87-68-3	hexachlorobutadiene	10 U
(53B)	77-47-4	hexachlorocyclopentadiene	10 U
(54B)	78-59-1	isophorone	10 U
(55B)	91-20-3	naphthalene	13.2
(56B)	98-95-3	nitrobenzene	10 U
(62B)	86-30-6	N-nitrosodiphenylamine	10 U
(63B)	621-64-7	N-nitrosodi-n-propylamine	10 U
(66B)	117-81-7	bis(2-ethylhexyl)phthalate	10 U
(67B)	85-68-7	butyl benzyl phthalate	10 U
(69B)	84-74-2	di-n-butyl phthalate	10 U
(69B)	117-84-0	di-n-octyl phthalate	10 U
(70B)	84-66-2	diethyl phthalate	10 U
(71B)	131-11-3	dimethyl phthalate	10 U
(72B)	56-55-3	benzo(a)anthracene	10 U
(73B)	50-32-8	benzo(a)pyrene	20 U
(74B)	205-99-2	benzo(b)fluoranthene	20 U
(75B)	207-08-9	benzo(k)fluoranthene	20 U
(76B)	218-01-9	chrysene	K 20
(77B)	208-96-8	acenaphthylene	K 10
(78B)	120-12-7	anthracene	K 10
(79B)	191-24-2	benzo(ghi)perylene	20 U
(80B)	86-73-7	fluorene	15.3
(81B)	85-01-8	phenanthrene	39.9
(82B)	53-70-3	dibenzo(a,h)anthracene	20 U
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	20 U
(84B)	129-00-0	pyrene	K 10

(Non-Priority Pollutant Hazardous Substances)

62-53-3	aniline	38.8
100-51-6	benzyl alcohol	20 U
106-47-8	4-chloroaniline	50 U
132-64-9	dibenzofuran	14.8
91-57-6	2-methylnaphthalene	36.7
88-74-4	2-nitroaniline	100 U
99-09-2	3-nitroaniline	100 U
100-01-6	4-nitroaniline	100 U

FACTOR = $\frac{1.0}{1.0}$ [Vt (mL)]/[Vi (L)] × 4 [D.F.] = 4.0

Vt = Final volume of extract
Vi = Initial volume of sample extracted
D.F. = Dilution factor

Richard Scott

AR100197

U.S. Environmental Protection Agency - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

Sample Number
C3230
LOW LEVEL WATER

diluted repeat
P1 part 2

ORGANICS ANALYSIS DATA SHEET - Page 1

FORM II

Doc. Control No: 1793-3 -BB
Laboratory Name: SPECTRIX CORPORATION
Case No: 1793
Lab Sample I.D. No: 8306026
QC Report No: 21

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 40

ORIGINAL
(red)

ACID COMPOUNDS

PP #	CAS #		ug/L
(21A)	88-06-2	2,4,6-trichlorophenol	10 U
(22A)	59-50-7	p-chloro-m-cresol	10 U
(26A)	95-57-8	2-chlorophenol	10 U
(31A)	120-83-2	2,4-dichlorophenol	10 U
(34A)	105-67-9	2,4-dimethylphenol	10 U
(57A)	88-75-5	2-nitrophenol	20 U
(58A)	100-02-7	4-nitrophenol	50 U
(59A)	51-28-5	2,4-dinitrophenol	50 U
(60A)	534-52-1	4,6-dinitro-2-methylphenol	20 U
(64A)	87-86-5	pentachlorophenol	10 U
(65A)	108-95-2	phenol	346 ~~10 U~~

(Non-Priority Pollutant Hazardous Substances)

	65-85-0	benzoic acid	100 U
	95-48-7	2-methylphenol	146 ~~10 U~~
	108-39-4	4-methylphenol	137 ~~10 U~~
	95-95-4	2,4,5-trichlorophenol	100 U

BASE-NEUTRAL COMPOUNDS

PP #	CAS #		ug/L
(1B)	83-32-9	acenaphthene	10 U
(5B)	92-87-5	benzidine	40 U
(9B)	120-82-1	1,2,4-trichlorobenzene	10 U
(9B)	118-74-1	hexachlorobenzene	10 U
(12B)	67-72-1	hexachloroethane	10 U
(18B)	111-44-4	bis(2-chloroethyl)ether	10 U
(20B)	91-58-7	2-chloronaphthalene	10 U
(25B)	95-50-1	1,2-dichlorobenzene	10 U
(26B)	541-73-1	1,3-dichlorobenzene	10 U
(27B)	106-46-7	1,4-dichlorobenzene	10 U
(28B)	91-94-1	3,3'-dichlorobenzidine	20 U
(35B)	121-14-2	2,4-dinitrotoluene	20 U
(36B)	606-20-2	2,6-dinitrotoluene	20 U
		1,2-diphenylhydrazine	
(37B)	122-66-7	(as azobenzene)	20 U
(39B)	206-44-0	fluoranthene	10 U
(40B)	7005-72-3	4-chlorophenyl phenyl ether	10 U
(41B)	101-55-3	4-bromophenyl phenyl ether	10 U

BASE-NEUTRAL COMPOUNDS

PP #	CAS #		ug/L
(42B)	39638-32-9	bis-(2-chloroisopropyl)ether	20 U
(43B)	111-91-1	bis-(2-chloroethoxy)methane	20 U
(52B)	87-68-3	hexachlorobutadiene	10 U
(53B)	77-47-4	hexachlorocyclopentadiene	10 U
(54B)	78-59-1	isophorone	10 U
(55B)	91-20-3	naphthalene	10 U
(56B)	98-95-3	nitrobenzene	10 U
(62B)	86-30-6	N-nitrosodiphenylamine	10 U
(63B)	621-64-7	N-nitrosodi-n-propylamine	10 U
(66B)	117-81-7	bis(2-ethylhexyl)phthalate	10 U
(67B)	85-68-7	butyl benzyl phthalate	10 U
(68B)	84-74-2	di-n-butyl phthalate	10 U
(69B)	117-84-0	di-n-octyl phthalate	10 U
(70B)	84-66-2	diethyl phthalate	10 U
(71B)	131-11-3	dimethyl phthalate	10 U
(72B)	56-55-3	benzo(a)anthracene	10 U
(73B)	50-32-8	benzo(a)pyrene	20 U
(74B)	205-99-2	benzo(b)fluoranthene	20 U
(75B)	207-08-9	benzo(k)fluoranthene	20 U
(76B)	218-01-9	chrysene	20 U
(77B)	208-96-8	acenaphthylene	10 U
(78B)	120-12-7	anthracene	10 U
(79B)	191-24-2	benzo(ghi)perylene	20 U
(80B)	86-73-7	fluorene	10 U
(81B)	85-01-8	phenanthrene	10 U
(82B)	53-70-3	dibenzo(a,h)anthracene	20 U
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	20 U
(84B)	129-00-0	pyrene	10 U

(Non-Priority Pollutant Hazardous Substances)

	62-53-3	aniline	5 U
	100-51-6	benzyl alcohol	20 U
	106-47-8	4-chloroaniline	50 U
	132-64-9	dibenzofuran	10 U
	91-57-6	2-methylnaphthalene	20 U
	88-74-4	2-nitroaniline	100 U
	99-09-2	3-nitroaniline	100 U
	100-01-6	4-nitroaniline	100 U

FACTOR = $\frac{1.0}{1.0}$ $\frac{[V_f\ (mL)]}{[V_i\ (L)]}$ x 40 [D.F.] = 40.0

V_f = Final volume of extract
V_i = Initial volume of sample extracted
D.F. = Dilution factor

Richard Scott

AR100198

SAMPLE NUMBER
C 3230
LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 2

FORM II

SOC. CONTROL NO: 1793-3-8

Laboratory Name: SPECTRIX CORPORATION

Case No: 1793

Lab Sample I.D. No: 8306026

QC Report No: 21

ORIGINAL (red)

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 1 ☑ or 10 ☐ or ☐

(Check Box for Appropriate Factor)

VOLATILES

PP #	CAS #		ug/l
(2V)	107-02-8	acrolein	100U
(3V)	107-13-1	acrylonitrile	100U
(4V)	71-43-2	benzene 6.9	5U
(6V)	56-23-5	carbon tetrachloride	5U
(7V)	108-90-7	chlorobenzene	5U
(10V)	107-06-2	1,2-dichloroethane	1U
(11V)	71-55-6	1,1,1-trichloroethane	5U
(13V)	75-34-3	1,1-dichloroethane	5U
(14V)	79-00-5	1,1,2-trichloroethane	5U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10U
(16V)	75-00-3	chloroethane	10U
(19V)	110-75-8	2-chloroethylvinyl ether	10U
(23V)	67-66-3	chloroform	5U
(29V)	75-35-4	1,1-dichloroethene	5U
(30V)	156-60-5	1,2-trans-dichloroethene	5U
(32V)	78-87-5	1,2-dichloropropane	10U
(33V)	10061-02-6	trans-1,3-dichloropropene	5U
	10061-01-5	cis,1,3-dichloropropene	5U
(38V)	100-41-4	ethylbenzene 18.0	5U
(44V)	75-09-2	methylene chloride	5U
(45V)	74-87-3	chloromethane	10U
(46V)	74-83-9	bromomethane	10U
(47V)	75-25-2	bromoform	10U
(48V)	75-27-4	bromodichloromethane	5U
(51V)	124-48-1	chlorodibromomethane	5U
(85V)	127-18-4	tetrachloroethene	5U
(86V)	108-88-3	toluene 13.9	5U
(87V)	79-01-6	trichloroethene	5U
(88V)	75-01-4	vinyl chloride	10U

(Non-Priority Pollutant Hazardous Substances)

	67-64-1	acetone 24.8	5U
	78-93-3	2-butanone	5U
	75-15-0	carbondisulfide	1U
	519-78-6	2-hexanone	5U
	108-10-1	4-methyl-2-pentanone	5U
	100-42-5	styrene 10.7	5U
	108-05-4	vinyl acetate	5U
	95-47-6	o-xylene 39.8	5U

Richard Scott

AR100199

Sample Number
C3230
LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 3

Doc. Control No: 1793-3 .00

Case No: 1793

QC Report No: 21

ORIGINAL (red)

Laboratory Name: SPECTRIX CORPORATION

Lab Sample I.D. No: 8306026

PESTICIDES

MULTIPLY ALL VALUES AND DETECTION LIMITS BY .01

PP #	CAS #		ug/l
(89P)	309-00-2	aldrin	10 U
(90P)	60-57-1	dieldrin	10 U
(91P)	57-74-9	chlordane	10 U
(92P)	50-29-3	4,4'-DDT	10 U
(93P)	72-55-9	4,4'-DDE	10 U
(94P)	72-54-8	4,4'-DDD	10 U
(95P)	115-29-7	endosulfan I	10 U
(96P)	115-29-7	endosulfan II	10 U
(97P)	1031-07-8	endosulfan sulfate	10 U
(98P)	72-20-8	endrin	10 U
(99P)	7421-93-4	endrin aldehyde	10 U
(100P)	76-44-8	heptachlor	10 U
(101P)	1024-57-3	heptachlor epoxide	10 U

PP #	CAS #		ug/l
(102P)	319-84-6	BHC-Alpha	10 U
(103P)	319-85-7	BHC-Beta	10 U
(104P)	319-86-8	BHC-Delta	10 U
(105P)	58-89-9	BHC-Gamma	10 U
(106P)	53469-21-9	PCB-1242	200 U
(107P)	11097-69-7	PCB-1254	200 U
(108P)	11104-28-2	PCB-1221	200 U
(109P)	11141-16-5	PCB-1232	200 U
(110P)	12672-29-6	PCB-1248	200 U
(111P)	11096-82-5	PCB-1260	200 U
(112P)	12674-11-2	PCB-1016	200 U
(113P)	8001-35-2	toxaphene	200 U

FACTOR: $\frac{5.0}{500}$ [V_p(mL)]: [V_i(mL)] / [D.F.] . .01

V_p = Final volume of extract D.F. = Dilution factor

V_i = Initial weight of sample extracted

DIOXINS

MULTIPLY ALL VALUES AND DETECTION LIMITS BY .001

PP #	CAS #		ug/l
(129B)	1747-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	5 U

FACTOR: $\frac{0.5}{500}$ [V_p(mL)]: [V_i(mL)] / [D.F.] . .001

V_p = Final volume of extract D.F. = Dilution factor

V_i = Initial weight of sample extracted

Richard Scott

DATA REPORTING QUALIFIERS

Value - If the result is a value greater than or equal to the detection limit, report the value.

U - Indicates compound was analyzed for but not detected. The number is the minimum detection limit.

E - Actual value, within the limitations of this method, is less than the value given. The mass spectral data indicates the presence of a compound that meets the identification criteria but the quantitative result is less than the specified detection limit but greater

PP - This flag applies to pesticides parameters where the identification has been performed using two column confirmation (as specified in Method 608) but the level is too low for verification of the compound by mass spectrometry.

B - Compound not detected: blank value for the compound was greater than 1/2 of the MDL and greater than 1/2 of the concentration detected in samp-

AR100200

U.S. Environmental Protection Agency - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-7400

Sample Number
C3231
LOW LEVEL WATER

ORIGINAL (red)

ORGANICS ANALYSIS DATA SHEET - Page 1

FORM II

Lab. Control No: 1793 - 3
Case No: 1793
QC Report No: 21

Laboratory Name: SPECTRIS CORPORATION
Lab Sample I.D. No: 8306026

MULTIPLY ALL VALUES AND DETECTION LIMITS BY 2.0

ACID COMPOUNDS

PP #	CAS #		ug/L
(21A)	88-06-2	2,4,6-trichlorophenol	10 U
(22A)	59-50-7	p-chloro-m-cresol	10 U
(24A)	95-57-8	2-chlorophenol	10 U
(31A)	120-83-2	2,4-dichlorophenol	10 U
(34A)	105-67-9	2,4-dimethylphenol	10 U
(57A)	88-75-5	2-nitrophenol	20 U
(58A)	100-02-7	4-nitrophenol	50 U
(59A)	51-28-5	2,4-dinitrophenol	50 U
(60A)	534-52-1	4,6-dinitro-2-methylphenol	20 U
(64A)	87-86-5	pentachlorophenol	10 U
(65A)	108-95-2	phenol	10 U

(Non-Priority Pollutant Hazardous Substances)

	65-85-0	benzoic acid	100 U
	95-48-7	2-methylphenol	5 U
	108-39-4	4-methylphenol	5 U
	95-95-4	2,4,5-trichlorophenol	100 U

BASE-NEUTRAL COMPOUNDS

(1B)	83-32-9	acenaphthene	10 U
(5B)	92-87-5	benzidine	40 U
(8B)	120-82-1	1,2,4-trichlorobenzene	10 U
(9B)	118-74-1	hexachlorobenzene	10 U
(12B)	67-72-1	hexachloroethane	10 U
(18B)	111-44-4	bis(2-chloroethyl)ether	10 U
(20B)	91-58-7	2-chloronaphthalene	10 U
(25B)	95-50-1	1,2-dichlorobenzene	10 U
(26B)	541-73-1	1,3-dichlorobenzene	10 U
(27B)	106-46-7	1,4-dichlorobenzene	10 U
(28B)	91-94-1	3,3'-dichlorobenzidine	20 U
(35B)	121-14-2	2,4-dinitrotoluene	20 U
(36B)	606-20-2	2,6-dinitrotoluene	20 U
		1,2-diphenylhydrazine	
(37B)	122-66-7	(as azobenzene)	20 U
(39B)	206-44-0	fluoranthene	10 U
(40B)	7005-72-3	4-chlorophenyl phenyl ether	10 U
(41B)	101-55-3	4-bromophenyl phenyl ether	10 U

BASE-NEUTRAL COMPOUNDS

PP #	CAS #		ug/L
(42B)	39638-32-9	bis-(2-chloroisopropyl)ether	20 U
(43B)	111-91-1	bis-(2-chloroethoxy)methane	20 U
(52B)	87-68-3	hexachlorobutadiene	10 U
(53B)	77-47-4	hexachlorocyclopentadiene	10 U
(54B)	78-59-1	isophorone	10 U
(55B)	91-20-3	naphthalene	10 U
(56B)	98-95-3	nitrobenzene	10 U
(62B)	86-30-6	N-nitrosodiphenylamine	10 U
(63B)	621-64-7	N-nitrosodi-n-propylamine	10 U
(66B)	117-81-7	bis(2-ethylhexyl)phthalate	10 U
(67B)	85-68-7	butyl benzyl phthalate	10 U
(68B)	84-74-2	di-n-butyl phthalate	10 U
(69B)	117-84-0	di-n-octyl phthalate	10 U
(70B)	84-66-2	diethyl phthalate	10 U
(71B)	131-11-3	dimethyl phthalate	10 U
(72B)	56-55-3	benzo(a)anthracene	10 U
(73B)	50-32-8	benzo(a)pyrene	20 U
(74B)	205-99-2	benzo(b)fluoranthene	20 U
(75B)	207-08-9	benzo(k)fluoranthene	20 U
(76B)	218-01-9	chrysene	20 U
(77B)	208-96-8	acenaphthylene	10 U
(78B)	120-12-7	anthracene	10 U
(79B)	191-24-2	benzo(ghi)perylene	20 U
(80B)	86-73-7	fluorene	10 U
(81B)	85-01-8	phenanthrene	10 U
(82B)	53-70-3	dibenz(a,h)anthracene	20 U
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	20 U
(84B)	129-00-0	pyrene	10 U

(Non-Priority Pollutant Hazardous Substances)

	62-53-3	aniline	5 U
	100-51-6	benzyl alcohol	20 U
	106-47-8	4-chloroaniline	50 U
	132-64-9	dibenzofuran	10 U
	91-57-6	2-methylnaphthalene	20 U
	88-74-4	2-nitroaniline	100 U
	99-09-2	3-nitroaniline	100 U
	100-01-6	4-nitroaniline	100 U

FACTOR = $\frac{1.0}{1.0}$ $\frac{[V_f\ (mL)]}{[V_i\ (L)]}$ $\frac{2}{[D.F.]}$ = 2.0

V_f = Final volume of extract
V_i = Initial volume of sample extracted
D.F. = Dilution factor

Richard H

AR100201

C3231
LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 2

FORM II

SOC. CONTROL NO: 1793-3-8

Laboratory Name: SPECTRIX CORPORATION

Case No: 1793

Lab Sample I.D. No: 8306026

QC Report No: 21

ORIGINAL (red)

MULTIPLY ALL VALUES AND DETECTION LIMITS BY : ☑ or 10 ☐ or ☐

(Check Box for Appropriate Factor)

VOLATILES

PP #	CAS #		ug/l
(2V)	107-02-8	acrolein	100U
(3V)	107-13-1	acrylonitrile	100U
(4V)	71-43-2	benzene	5U
(6V)	56-23-5	carbon tetrachloride	5U
(7V)	108-90-7	chlorobenzene	5U
(10V)	107-06-2	1,2-dichloroethane	1U
(11V)	71-55-6	1,1,1-trichloroethane	5U
(13V)	75-34-3	1,1-dichloroethane	5U
(14V)	79-00-5	1,1,2-trichloroethane	5U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10U
(16V)	75-00-3	chloroethane	10U
(19V)	110-75-8	2-chloroethylvinyl ether	10U
(23V)	67-66-3	chloroform	5U
(29V)	75-35-4	1,1-dichloroethene	5U
(30V)	156-60-5	1,2-trans-dichloroethene	5U
(32V)	78-87-5	1,2-dichloropropane	10U
(33V)	10061-02-6	trans-1,3-dichloropropene	5U
	10061-01-05	cis,1,3-dichloropropene	5U
(38V)	100-41-4	ethylbenzene	5U
(44V)	75-09-2	methylene chloride 9.8	~~5U~~ 5U
(45V)	74-87-3	chloromethane	10U
(46V)	74-83-9	bromomethane	10U
(47V)	75-25-2	bromoform	10U
(48V)	75-27-4	bromodichloromethane	5U
(51V)	124-48-1	chlorodibromomethane	5U
(85V)	127-18-4	tetrachloroethene	5U
(86V)	108-88-3	toluene K	5U
(87V)	79-01-6	trichloroethene	5U
(88V)	75-01-4	vinyl chloride	10U

(Non-Priority Pollutant Hazardous Substances)

	67-64-1	acetone 42.4	~~5U~~ 5U
	78-93-3	2-butanone	5U
	75-15-0	carbondisulfide	1U
	519-78-6	2-hexanone	5U
	108-10-1	4-methyl-2-pentanone	5U
	100-42-5	styrene	5U
	108-05-4	vinyl acetate	5U
	95-47-6	o-xylene	5U

Richard Scott

AR100202

Sample Number
C323/
LOW LEVEL WATER

ORGANICS ANALYSIS DATA SHEET - Page 1

FORM II

Laboratory Name: SPECTRIS CORPORATION
Lab Sample I.D. No: 8306026

Doc. Control No: 1793-3
Case No: 1793
QC Report No: 21

ORIGINAL (red)

PESTICIDES

MULTIPLY ALL VALUES AND DETECTION LIMITS BY .01

PP #	CAS #		ug/l
(95P)	309-00-2	aldrin	10 U
(96P)	60-57-1	dieldrin	10 U
(91P)	57-74-9	chlordane	10 U
(97P)	50-29-3	4,4'-DDT	10 U
(93P)	72-55-9	4,4'-DDE	10 U
(94P)	72-54-8	4,4'-DDD	10 U
(99P)	115-29-7	endosulfan I	10 U
(98P)	115-29-7	endosulfan II	10 U
(92P)	1031-07-8	endosulfan sulfate	10 U
(88P)	72-20-8	endrin	10 U
(89P)	7421-93-4	endrin aldehyde	10 U
(100P)	76-44-8	heptachlor	10 U
(101P)	1024-57-3	heptachlor epoxide	10 U

PP #	CAS #		ug/l
(102P)	319-84-6	BHC-Alpha	10 U
(103P)	319-85-7	BHC-Beta	10 U
(104P)	319-86-8	BHC-Delta	10 U
(105P)	58-89-9	BHC-Gamma	10 U
(106P)	53469-21-9	PCB-1242	200 U
(107P)	11097-69-7	PCB-1254	200 U
(108P)	11104-28-2	PCB-1221	200 U
(109P)	11141-16-5	PCB-1232	200 U
(110P)	12672-29-6	PCB-1248	200 U
(111P)	11096-82-5	PCB-1260	200 U
(112P)	12674-11-2	PCB-1016	200 U
(113P)	8001-35-2	toxaphene	200 U

FACTOR: $\frac{5.0}{500}$ [V_f(mL)]: 1 [D.F.] = .01

V_f = Final volume of extract
V_i = Initial weight of sample extracted
D.F. = Dilution factor

DIOXINS

MULTIPLY ALL VALUES AND DETECTION LIMITS BY .001

PP #	CAS #		ug/l
(179S)	1747-81-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	36.1 EMPC

FACTOR: $\frac{0.5}{500}$ [V_f(mL)]: 1 [D.F.] = .001

V_f = Final volume of extract
V_i = Initial weight of sample extracted
D.F. = Dilution factor

Richard Scott

DATA REPORTING QUALIFIERS

Value - If the result is a value greater than or equal to the detection limit, report the value.

U - Indicates compound was analyzed for but not detected. The number is the minimum detection limit.

E - Actual value, within the limitations of this method, is less than the value given. The mass spectral data indicates the presence of a compound that meets the identification criteria but the quantitative result is less than the specified detection limit but greater than zero.

EP - This flag applies to pesticides parameters where the identification has been performed using two column confirmation (as specified in Method 8080) but the level is too low for verification of the compound by mass spectrometry.

B - Compound not detected: blank value for the compound was greater than 1/2 of the MDL and great of the concentration detected in sample.

AR100203

C3198

ORGANICS ANALYSIS DATA SHEET

ORIGINAL

Laboratory Name: Energy Resources Co Inc. Case No: 1793

Sample I.D. Nos: 34-368 1:20 QC Report No: 61

Multiply Detection Limits by 1 ☑ or 10 ☐ (Check Box for Appropriate Factor)

(red)

ACID COMPOUNDS

PP #	CAS #		ug/l or ug/kg (circle one)
(1A)	88-06-2	2,4,6- trichlorophenol	8000 U
(2A)	59-50-7	p-chloro-m-cresol	8000 U
(24A)	95-57-8	2- chlorophenol	8000 U
(1A)	120-83-2	2,4-dichlorophenol	8000 U
(A)	105-67-9	2,4-dimethylphenol	8000 U
(57A)	88-75-5	2- nitrophenol	8000 U
(A)	100-02-7	4-nitrophenol	8000 U
(A)	51-28-5	2,4-dinitrophenol	8000 U
(60A)	534-52-1	4,6-dinitro-2-methylphenol	8000 U
(A)	87-86-5	pentachlorophenol	8000 U
(A)	108-95-2	phenol	8000 U

BASE/NEUTRAL COMPOUNDS

(B)	83-32-9	acenaphthene	680 K
(58B)	92-87-5	benzidine	8000 U
(B)	120-82-1	1,2,4-trichlorobenzene	8000 U
(B)	118-74-1	hexachlorobenzene	8000 U
(12B)	67-72-1	hexachloroethane	8000 U
	111-44-4	bis(2-chloroethyl)ether	8000 U
	91-58-7	2-chloronaphthalene	8000 U
(25B)	95-50-1	1,2-dichlorobenzene	8000 U
(B)	541-73-1	1,3-dichlorobenzene	8000 U
(B)	106-46-7	1,4-dichlorobenzene	8000 U
(28B)	91-94-1	3,3'-dichlorobenzidine	8000 U
(B)	121-14-2	2,4-dinitrotoluene	8000 U
(B)	606-20-2	2,6-dinitrotoluene	8000 U
(37B)	122-66-7	1,2-diphenylhydrazine	8000 U
(B)	206-44-0	fluoranthene	680 K
(B)	7005-72-3	4-chlorophenyl phenyl ether	8000 U
(41B)	101-55-3	4-bromophenyl phenyl ether	8000 U
(B)	39638-32-9	bis (2-chloroisopropyl) ether	8000 U
(B)	111-91-1	bis (2-chloroethoxy) methane	8000 U
(52B)	87-68-3	hexachlorobutadiene	8000 U
(B)	77-47-4	hexachlorocyclopentadiene	8000 U
(B)	78-59-1	isophorone	8000 U
(55B)	91-20-3	naphthalene	8000 U
(B)	98-95-3	nitrobenzene	8000 U
(62B)	86-30-6	N-nitrosodiphenylamine	8000 U
(63B)	621-64-7	N-nitrosodipropylamine	8000 U
(B)	117-81-7	bis (2-ethylhexyl) phthalate	8000 U
	85-68-7	benzyl butyl phthalate	8000 U
	84-74-2	di-n-butyl phthalate	680 K
(B)	117-84-0	di-n-octyl phthalate	8000 U
(70B)	84-66-2	diethyl phthalate	8000 U
(71B)	131-11-3	dimethyl phthalate	8000 U
(B)	56-55-3	benzo(a)anthracene	2710 K

BASE/NEUTRAL COMPOUNDS

PP #	CAS #		ug/l or ug/kg (circle one)
(73B)	50-32-8	benzo(a)pyrene	1360 K
(74B)	205-99-2	benzo(b)fluoranthene	8000 U
(75B)	207-08-9	benzo(k)fluoranthene	8000 U
(76B)	218-01-9	chrysene	4750 K
(77B)	208-96-8	acenaphthylene	8000 U
(78B)	120-12-7	anthracene	8000 U
(79B)	191-24-2	benzo(ghi)perylene	8000 U
(80B)	86-73-7	fluorene	8000 U
(81B)	85-01-8	phenanthrene	2710 K
(82B)	53-70-3	dibenzo(a,h)anthracene	8000 U
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	8000 U
(84B)	129-00-0	pyrene	5420 K

VOLATILES

(2V)	107-02-8	acrolein	10000 U
(3V)	107-13-1	acrylonitrile	10000 U
(4V)	71-43-2	benzene	1000 U
(6V)	56-23-5	carbon tetrachloride	1000 U
(7V)	108-90-7	chlorobenzene	1000 U
(10V)	107-06-2	1,2-dichloroethane	1000 U
(11V)	71-55-6	1,1,1-trichloroethane	1000 U
(13V)	75-34-3	1,1-dichloroethane	1000 U
(14V)	79-00-5	1,1,2-trichloroethane	1000 U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	1000 U
(16V)	75-00-3	chloroethane	1000 U
(19V)	110-75-8	2-chloroethylvinyl ether	1000 U
(23V)	67-66-3	chloroform	1000 U
(29V)	75-35-4	1,1-dichloroethene	1000 U
(30V)	156-60-5	trans-1,2-dichloroethene	1000 U
(32V)	78-87-5	1,2-dichloropropane	1000 U
(33V)	10061-02-6	trans-1,3-dichloropropene	1000 U
	10061-01-05	cis-1,3-dichloropropene	1000 U
(38V)	100-41-4	ethylbenzene	1000 U
(44V)	75-09-2	methylene chloride	1000 U
(45V)	74-87-3	chloromethane	1000 U
(46V)	74-83-9	bromomethane	1000 U
(47V)	75-25-2	bromoform	1000 U
(48V)	75-27-4	bromodichloromethane	1000 U
(49V)	75-69-4	fluorotrichloromethane	1000 U
(50V)	75-71-8	dichlorodifluoromethane	1000 U
(51V)	124-48-1	chlorodibromomethane	1000 U
(85V)	127-18-4	tetrachloroethene	1000 U
(86V)	108-88-3	toluene	1000 U
(87V)	79-01-6	trichloroethene	1000 U
(88V)	75-01-4	vinyl chloride	1000 U

C3/98

ratory Name: Energy Resources Co Inc. Case No: 1793

Sample I.D. Nos: 34-368 1:20 QC Report No: 61

Multiply Detection Limits by 1 ☑ or 10 ☐ (Check Box for Appropriate Factor)

ORIGINAL (red)

PESTICIDES

PP #	CAS #		ug/l or ug/kg (circle one)
P)	309-00-2	aldrin	100 u
P)	60-57-1	dieldrin	100 u
91P)	57-74-9	chlordane	100 u
P)	50-29-3	4,4'-DDT	100 u
3P)	72-55-9	4,4'-DDE	100 u
4P)	72-54-8	4,4'-DDD	100 u
P)	115-29-7	α-endosulfan	100 u
6P)	115-29-7	β-endosulfan	100 u
97P)	1031-07-8	endosulfan sulfate	100 u
P)	72-20-8	endrin	100 u
99P)	7421-93-4	endrin aldehyde	100 u
00P)	76-44-8	heptachlor	100 u
1P)	1024-57-3	heptachlor epoxide	100 u
02P)	319-84-6	α-BHC	100 u

PESTICIDES

PP #	CAS #		ug/l or ug/kg (circle one)
(103P)	319-85-7	β-BHC	100 u
(104P)	319-86-8	δ-BHC	100 u
(105P)	58-89-9	γ-BHC (lindane)	100 u
(106P)	53469-21-9	PCB-1242	100 u
(107P)	11097-69-1	PCB-1254	100 u
(108P)	11104-28-2	PCB-1221	100 u
(109P)	11141-16-5	PCB-1232	100 u
(110P)	12672-29-6	PCB-1248	100 u
(111P)	11096-82-5	PCB-1260	100 u
(112P)	12674-11-2	PCB-1016	100 u
(113P)	8001-35-2	toxaphene	100 u

DIOXINS

(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	100 u

Non-Priority Pollutant Hazardous Substances List Compounds

ACID COMPOUNDS

CAS #		ug/l or ug/kg (circle one)
65-85-0	benzoic acid	50000 u
95-48-7	2-methylphenol	50000 u
108-39-4	4-methylphenol	50000 u
95-95-4	2,4,5-trichlorophenol	50000 u

BASE/NEUTRAL COMPOUNDS

62-53-3	aniline	50000 u
100-51-6	benzyl alcohol	50000 u
106-47-8	4-chloroaniline	50000 u
132-64-9	dibenzofuran	50000 u
91-57-6	2-methylnaphthalene	50000 u
88-74-4	2-nitroaniline	50000 u
99-09-2	3-nitroaniline	50000 u
100-01-6	4-nitroaniline	50000 u

VOLATILES

CAS #		ug/l or ug/kg (circle one)
67-64-1	acetone	10000 u
78-93-3	2-butanone	10000 u
75-15-0	carbondisulfide	10000 u
519-78-6	2-hexanone	10000 u
108-10-1	4-methyl-2-pentanone	10000 u
100-42-5	styrene	10000 u
108-05-4	vinyl acetate	10000 u
95-47-6	o-xylene	10000

4/

ORGANICS ANALYSIS DATA SHEET

C3213

Laboratory Name: Energy Resources Co Inc. Case No: 1793

Lab Sample I.D. No: 34-369 QC Report No: 61

Multiply Detection Limits by 1 [X] or 10 [ ] (Check Box for Appropriate Factor)

ORIGINAL

ACID COMPOUNDS

PP #	CAS #		ug/l or ug/kg (circle one)
(21A)	88-06-2	2,4,6- trichlorophenol	8000 U
(22A)	59-50-7	p-chloro-m-cresol	8000 U
(23A)	95-57-8	2- chlorophenol	8000 U
(31A)	120-83-2	2,4-dichlorophenol	8000 U
(34A)	105-67-9	2,4-dimethylphenol	3,508 K
(36A)	88-75-5	2- nitrophenol	8000 U
(58A)	100-02-7	4-nitrophenol	8000 U
(59A)	51-28-5	2,4-dinitrophenol	8000 U
(60A)	534-52-1	4,6-dinitro-2-methylphenol	8000 U
(64A)	87-86-5	pentachlorophenol	8000 U
(65A)	108-95-2	phenol	22,500

BASE/NEUTRAL COMPOUNDS

PP #	CAS #		ug/l or ug/kg (circle one)
(1B)	83-32-9	acenaphthene	153,000
(2B)	92-87-5	benzidine	8000 U
(5B)	120-82-1	1,2,4-trichlorobenzene	8000 U
(6B)	118-74-1	hexachlorobenzene	8000 U
(7B)	67-72-1	hexachloroethane	8000 U
(8B)	111-44-4	bis(2-chloroethyl)ether	8000 U
(10B)	91-58-7	2-chloronaphthalene	8000 U
(11B)	95-50-1	1,2-dichlorobenzene	8000 U
(26B)	541-73-1	1,3-dichlorobenzene	8000 U
(27B)	106-46-7	1,4-dichlorobenzene	8000 U
(28B)	91-94-1	3,3'-dichlorobenzidine	8000 U
(35B)	121-14-2	2,4-dinitrotoluene	8000 U
(37B)	606-20-2	2,6-dinitrotoluene	8000 U
(39B)	122-66-7	1,2-diphenylhydrazine	8000 U
(39B)	206-44-0	fluoranthene	329,000
(40B)	7005-72-3	4-chlorophenyl phenyl ether	8000 U
(41B)	101-55-3	4-bromophenyl phenyl ether	8000 U
(42B)	39638-32-9	bis (2-chloroisopropyl) ether	8000 U
(43B)	111-91-1	bis (2-chloroethoxy) methane	8000 U
(54B)	87-68-3	hexachlorobutadiene	8000 U
(53B)	77-47-4	hexachlorocyclopentadiene	8000 U
(55B)	78-59-1	isophorone	8000 U
(56B)	91-20-3	naphthalene	441,000
(56B)	98-95-3	nitrobenzene	8000 U
(62B)	86-30-6	N-nitrosodiphenylamine	8000 U
(63B)	621-64-7	N-nitrosodipropylamine	8000 U
(66B)	117-81-7	bis (2-ethylhexyl) phthalate	8000 U
(67B)	85-68-7	benzyl butyl phthalate	8000 U
(70B)	84-74-2	di-n-butyl phthalate	4,900 K
(71B)	117-84-0	di-n-octyl phthalate	8000 U
(72B)	84-66-2	diethyl phthalate	8000 U
(73B)	131-11-3	dimethyl phthalate	8000 U
(74B)	56-55-3	benzo(a)anthracene	46,300

BASE/NEUTRAL COMPOUNDS

PP #	CAS #		(red) ug/l or ug/kg (circle one)
(73B)	50-32-8	benzo(a)pyrene	12,600
(74B)	205-99-2	benzo(b)fluoranthene	8000 U
(75B)	207-08-9	benzo(k)fluoranthene	8000 U
(76B)	218-01-9	chrysene	48,400
(77B)	208-96-8	acenaphthylene	6320 K
(78B)	120-12-7	anthracene	142,000
(79B)	191-24-2	benzo(ghi)perylene	8000 U
(80B)	86-73-7	fluorene	110,000
(81B)	85-01-8	phenanthrene	416,000
(82B)	53-70-3	dibenzo(a,h)anthracene	8000 U
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	8000 U
(84B)	129-00-0	pyrene	152,000

VOLATILES

(2V)	107-02-8	acrolein	10000 U
(3V)	107-13-1	acrylonitrile	10000 U
(4V)	71-43-2	benzene	1000 U
(6V)	56-23-5	carbon tetrachloride	1000 U
(7V)	108-90-7	chlorobenzene	1000 U
(10V)	107-06-2	1,2-dichloroethane	1000 U
(11V)	71-55-6	1,1,1-trichloroethane	1000 U
(13V)	75-34-3	1,1-dichloroethane	1000 U
(14V)	79-00-5	1,1,2-trichloroethane	1000 U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	1000 U
(16V)	75-00-3	chloroethane	1000 U
(19V)	110-75-8	2-chloroethylvinyl ether	1000 U
(23V)	67-66-3	chloroform	1000 U
(29V)	75-35-4	1,1-dichloroethene	1000 U
(30V)	156-60-5	trans-1,2-dichloroethene	1000 U
(32V)	78-87-5	1,2-dichloropropane	1000 U
(33V)	10061-02-6	trans-1,3-dichloropropene	1000 U
	10061-01-05	cis-1,3-dichloropropene	1000 U
(38V)	100-41-4	ethylbenzene	2300
(44V)	75-09-2	methylene chloride	1000 U
(45V)	74-87-3	chloromethane	1000 U
(46V)	74-83-9	bromomethane	1000 U
(47V)	75-25-2	bromoform	1000 U
(48V)	75-27-4	bromodichloromethane	1000 U
(49V)	75-69-4	fluorotrichloromethane	1000 U
(50V)	75-71-8	dichlorodifluoromethane	1000 U
(51V)	124-48-1	chlorodibromomethane	1000 U
(85V)	127-18-4	tetrachloroethene	1000 U
(86V)	108-88-3	toluene	700 K
(87V)	79-01-6	trichloroethene	1000 U
(88V)	75-01-4	vinyl chloride	1000 U

6/82

Laboratory Name: Energy Resources Co Inc. Case No: 1793

Sample I.D. Nos: 34-369 QC Report No: 61

Multiply Detection Limits by 1 ☑ or 10 ☐ (Check Box for Appropriate Factor)

ORIGINAL (red)

PESTICIDES

PP #	CAS #		ug/l or ug/kg (circle one)
(89P)	309-00-2	aldrin	100 u
(90P)	60-57-1	dieldrin	100 u
(91P)	57-74-9	chlordane	100 u
(92P)	50-29-3	4,4'-DDT	100 u
(93P)	72-55-9	4,4'-DDE	100 u
(94P)	72-54-8	4,4'-DDD	100 u
(95P)	115-29-7	α-endosulfan	100 u
(96P)	115-29-7	β-endosulfan	100 u
(97P)	1031-07-8	endosulfan sulfate	100 u
(98P)	72-20-8	endrin	100 u
(99P)	7421-93-4	endrin aldehyde	100 u
(100P)	76-44-8	heptachlor	100 u
(101P)	1024-57-3	heptachlor epoxide	100 u
(102P)	319-84-6	α-BHC	100 u

PESTICIDES

PP #	CAS #		(circle one)
(103P)	319-85-7	β-BHC	100 u
(104P)	319-86-8	δ-BHC	100 u
(105P)	58-89-9	γ-BHC (lindane)	100 u
(106P)	53469-21-9	PCB-1242	100 u
(107P)	11097-69-1	PCB-1254	100 u
(108P)	11104-28-2	PCB-1221	100 u
(109P)	11141-16-5	PCB-1232	100 u
(110P)	12672-29-6	PCB-1248	100 u
(111P)	11096-82-5	PCB-1260	100 u
(112P)	12674-11-2	PCB-1016	100 u
(113P)	8001-35-2	toxaphene	100 u

DIOXINS

(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	100 u

Non-Priority Pollutant Hazardous Substances List Compounds

ACID COMPOUNDS

CAS #		ug/l or ug/kg (circle one)
65-85-0	benzoic acid	50000 u
95-48-7	2-methylphenol	50000 u
108-39-4	4-methylphenol	50000 u
95-95-4	2,4,5-trichlorophenol	50000 u

BASE/NEUTRAL COMPOUNDS

CAS #		
62-53-3	aniline	50000 u
100-51-6	benzyl alcohol	50000 u
106-47-8	4-chloroaniline	50000 u
132-64-9	dibenzofuran	50000 u
91-57-6	2-methylnaphthalene	50000 u
88-74-4	2-nitroaniline	50000 u
99-09-2	3-nitroaniline	50000 u
100-01-6	4-nitroaniline	50000 u

VOLATILES

CAS #		(circle one)
67-64-1	acetone	10000 u
78-93-3	2-butanone	10000 u
75-15-0	carbondisulfide	10000 u
519-78-6	2-hexanone	10000 u
108-10-1	4-methyl-2-pentanone	10000 u
100-42-5	styrene	10000 u
108-05-4	vinyl acetate	10000 u
95-47-6	o-xylene	13,000

ORGANICS ANALYSIS DATA SHEET

C3214

Laboratory Name: Energy Resources Co Inc. Case No: 1793

Sample I.D. No: 34-370 1:20 QC Report No: 6

ORIGINAL

Multiply Detection Limits by 1 ☑ or 10 ☐ (Check Box for Appropriate Fact

ACID COMPOUNDS

PP #	CAS #		ug/l or ug/kg (circle one)
(21A)	88-06-2	2,4,6-trichlorophenol	8000U
(2A)	59-50-7	p-chloro-m-cresol	8000U
(29A)	95-57-8	2-chlorophenol	8000U
(31A)	120-83-2	2,4-dichlorophenol	8000U
(A)	105-67-9	2,4-dimethylphenol	8000U
(37A)	88-75-5	2-nitrophenol	8000U
(58A)	100-02-7	4-nitrophenol	8000U
(A)	51-28-5	2,4-dinitrophenol	8000U
(60A)	534-52-1	4,6-dinitro-2-methylphenol	8000U
(A)	87-86-5	pentachlorophenol	8000U
(A)	108-95-2	phenol	8000U

BASE/NEUTRAL COMPOUNDS

(B)	83-32-9	acenaphthene	8000U
(5B)	92-87-5	benzidine	8000U
(B)	120-82-1	1,2,4-trichlorobenzene	8000U
(B)	118-74-1	hexachlorobenzene	8000U
(12B)	67-72-1	hexachloroethane	8000U
(B)	111-44-4	bis(2-chloroethyl)ether	8000U
	91-58-7	2-chloronaphthalene	8000U
(B)	95-50-1	1,2-dichlorobenzene	8000U
(6B)	541-73-1	1,3-dichlorobenzene	8000U
(B)	106-46-7	1,4-dichlorobenzene	8000U
(28B)	91-94-1	3,3'-dichlorobenzidine	8000U
(3B)	121-14-2	2,4-dinitrotoluene	8000U
(6B)	606-20-2	2,6-dinitrotoluene	8000U
(37B)	122-66-7	1,2-diphenylhydrazine	8000U
(9B)	206-44-0	fluoranthene	6800K
(0B)	7005-72-3	4-chlorophenyl phenyl ether	8000U
(41B)	101-55-3	4-bromophenyl phenyl ether	8000U
(42B)	39638-32-9	bis (2-chloroisopropyl) ether	8000U
(3B)	111-91-1	bis (2-chloroethoxy) methane	8000U
(52B)	87-68-3	hexachlorobutadiene	8000U
(3B)	77-47-4	hexachlorocyclopentadiene	8000U
(8)	78-59-1	isophorone	8000U
(55B)	91-20-3	naphthalene	8000U
(6B)	98-95-3	nitrobenzene	8000U
(2B)	86-30-6	N-nitrosodiphenylamine	8000U
(63B)	621-64-7	N-nitrosodipropylamine	8000U
(6B)	117-81-7	bis (2-ethylhexyl) phthalate	8000U
(7B)	85-68-7	benzyl butyl phthalate	8000U
	84-74-2	di-n-butyl phthalate	19400
(B)	117-84-0	di-n-octyl phthalate	8000U
(70B)	84-66-2	diethyl phthalate	8000U
(71B)	131-11-3	dimethyl phthalate	8000U
72B)	56-55-3	benzo(a)anthracene	740K

BASE/NEUTRAL COMPOUNDS (cont'd)

PP #	CAS #		ug/l or ug/kg (circle one)
(73B)	50-32-8	benzo(a)pyrene	1500K
(74B)	205-99-2	benzo(b)fluoranthene	8000U
(75B)	207-08-9	benzo(k)fluoranthene	8000U
(76B)	218-01-9	chrysene	3000K
(77B)	208-96-8	acenaphthylene	8000U
(78B)	120-12-7	anthracene	8000U
(79B)	191-24-2	benzo(ghi)perylene	8000U
(80B)	86-73-7	fluorene	8000U
(81B)	85-01-8	phenanthrene	1500K
(82B)	53-70-3	dibenzo(a,h)anthracene	8000U
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	8000U
(84B)	129-00-0	pyrene	4400K

VOLATILES

(2V)	107-02-8	acrolein	100U
(3V)	107-13-1	acrylonitrile	100U
(4V)	71-43-2	benzene	10U
(6V)	56-23-5	carbon tetrachloride	10U
(7V)	108-90-7	chlorobenzene	10U
(10V)	107-06-2	1,2-dichloroethane	10U
(11V)	71-55-6	1,1,1-trichloroethane	10U
(13V)	75-34-3	1,1-dichloroethane	10U
(14V)	79-00-5	1,1,2-trichloroethane	10U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10U
(16V)	75-00-3	chloroethane	10U
(19V)	110-75-8	2-chloroethylvinyl ether	10U
(23V)	67-66-3	chloroform	10U
(29V)	75-35-4	1,1-dichloroethene	10U
(30V)	156-60-5	trans-1,2-dichloroethene	10U
(32V)	78-87-5	1,2-dichloropropane	10U
(33V)	10061-02-6	trans-1,3-dichloropropene	10U
	10061-01-05	cis-1,3-dichloropropene	10U
(38V)	100-41-4	ethylbenzene	10U
(44V)	75-09-2	methylene chloride	10U
(45V)	74-87-3	chloromethane	10U
(46V)	74-83-9	bromomethane	10U
(47V)	75-25-2	bromoform	10U
(48V)	75-27-4	bromodichloromethane	10U
(49V)	75-69-4	fluorotrichloromethane	10U
(50V)	75-71-8	dichlorodifluoromethane	10U
(51V)	124-48-1	chlorodibromomethane	10U
(85V)	127-18-4	tetrachloroethene	10U
(86V)	108-88-3	toluene	10U
(87V)	79-01-6	trichloroethene	10U
(88V)	75-01-4	vinyl chloride	10U

AR100208

4/82

C3214

Laboratory Name: Energy Resources Co Inc. Case No: 1793

Sample I.D. No: 34-370 QC Report No: 61

Multiply Detection Limits by 1 ☑ or 10 ☐ (Check Box for Appropriate Factor)

ORIGINAL (red)

PESTICIDES

PP #	CAS #		ug/l or ug/kg (circle one)
(89P)	309-00-2	aldrin	100 U
(90P)	60-57-1	dieldrin	100 U
(91P)	57-74-9	chlordane	100 U
(92P)	50-29-3	4,4'-DDT	100 U
(93P)	72-55-9	4,4'-DDE	100 U
(94P)	72-54-8	4,4'-DDD	100 U
(95P)	115-29-7	α-endosulfan	100 U
(96P)	115-29-7	β-endosulfan	100 U
(97P)	1031-07-8	endosulfan sulfate	100 U
(98P)	72-20-8	endrin	100 U
(99P)	7421-93-4	endrin aldehyde	100 U
(100P)	76-44-8	heptachlor	100 U
(101P)	1024-57-3	heptachlor epoxide	100 U
(102P)	319-84-6	α-BHC	100 U

PESTICIDES

PP #	CAS #		ug/l or ug/kg (circle one)
(103P)	319-85-7	β-BHC	100 U
(104P)	319-86-8	δ-BHC	100 U
(105P)	58-89-9	γ-BHC (lindane)	100 U
(106P)	53469-21-9	PCB-1242	100 U
(107P)	11097-69-1	PCB-1254	100 U
(108P)	11104-28-2	PCB-1221	100 U
(109P)	11141-16-5	PCB-1232	100 U
(110P)	12672-29-6	PCB-1248	100 U
(111P)	11096-82-5	PCB-1260	100 U
(112P)	12674-11-2	PCB-1016	100 U
(113P)	8001-35-2	toxaphene	100 U

DIOXINS

(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	100 U

Non-Priority Pollutant Hazardous Substances List Compounds

ACID COMPOUNDS

CAS #		ug/l or ug/kg (circle one)
65-85-0	benzoic acid	8000 U
95-48-7	2-methylphenol	8000 U
108-39-4	4-methylphenol	8000 U
95-95-4	2,4,5-trichlorophenol	8000 U

BASE/NEUTRAL COMPOUNDS

62-53-3	aniline	8000 U
100-51-6	benzyl alcohol	8000 U
106-47-8	4-chloroaniline	8000 U
132-64-9	dibenzofuran	8000 U
91-57-6	2-methylnaphthalene	8000 U
88-74-4	2-nitroaniline	8000 U
99-09-2	3-nitroaniline	8000 U
100-01-6	4-nitroaniline	8000 U

VOLATILES

CAS #		ug/l or ug/kg (circle one)
67-64-1	acetone	10 U
78-93-3	2-butanone	10 U
75-15-0	carbondisulfide	10 U
519-78-6	2-hexanone	10 U
108-10-1	4-methyl-2-pentanone	10 U
100-42-5	styrene	10 U
108-05-4	vinyl acetate	10 U
95-47-6	o-xylene	10 U

4/

ORGANICS ANALYSIS DATA SHEET

C3215

Laboratory Name: Energy Resources Co Inc. Case No: 1793

Sample I.D. No: 34-371 QC Report No: 61

Multiply Detection Limits by 1 ☑ or 10 ☐ (Check Box for Appropriate Factor)

ORIGINAL (red)

ACID COMPOUNDS

CP #	CAS #		ug/l or ug/kg (circle one)
(21A)	88-06-2	2,4,6- trichlorophenol	80,000 U
2A)	59-50-7	p-chloro-m-cresol	80,000 U
4A)	95-57-8	2- chlorophenol	80,000 U
(31A)	120-83-2	2,4-dichlorophenol	80,000 U
1A)	105-67-9	2,4-dimethylphenol	7726 K
7A)	88-75-5	2- nitrophenol	80,000 U
(58A)	100-02-7	4-nitrophenol	80,000 U
9A)	51-28-5	2,4-dinitrophenol	5,090,000
0A)	534-52-1	4,6-dinitro-2-methylphenol	80,000 U
(64A)	87-86-5	pentachlorophenol	80,000 U
5A)	108-95-2	phenol	80,000 U

BASE/NEUTRAL COMPOUNDS

B)	83-32-9	acenaphthene	1,780,000
3B)	92-87-5	benzidine	80,000 U
8B)	120-82-1	1,2,4-trichlorobenzene	80,000 U
B)	118-74-1	hexachlorobenzene	80,000 U
(12B)	67-72-1	hexachloroethane	80,000 U
	111-44-4	bis(2-chloroethyl)ether	80,000 U
	91-58-7	2-chloronaphthalene	80,000 U
(25B)	95-50-1	1,2-dichlorobenzene	80,000 U
(26B)	541-73-1	1,3-dichlorobenzene	80,000 U
7B)	106-46-7	1,4-dichlorobenzene	80,000 U
(28B)	91-94-1	3,3'-dichlorobenzidine	80,000 U
(35B)	121-14-2	2,4-dinitrotoluene	80,000 U
6B)	606-20-2	2,6-dinitrotoluene	80,000 U
(37B)	122-66-7	1,2-diphenylhydrazine	80,000 U
9B)	206-44-0	fluoranthene	3,170,000
0B)	7005-72-3	4-chlorophenyl phenyl ether	80,000 U
(41B)	101-55-3	4-bromophenyl phenyl ether	80,000 U
(2B)	39638-32-9	bis (2-chloroisopropyl) ether	80,000 U
3B)	111-91-1	bis (2-chloroethoxy) methane	80,000 U
(52B)	87-68-3	hexachlorobutadiene	80,000 U
3B)	77-47-4	hexachlorocyclopentadiene	80,000 U
4B)	78-59-1	isophorone	80,000 U
(55B)	91-20-3	naphthalene	80,000 U
6B)	98-95-3	nitrobenzene	80,000 U
2B)	86-30-6	N-nitrosodiphenylamine	80,000 U
(63B)	621-64-7	N-nitrosodipropylamine	80,000 U
6B)	117-81-7	bis (2-ethylhexyl) phthalate	80,000 U
7B)	85-68-7	benzyl butyl phthalate	80,000 U
	84-74-2	di-n-butyl phthalate	80,000 U
	117-84-0	di-n-octyl phthalate	80,000 U
0B)	84-66-2	diethyl phthalate	80,000 U
(71B)	131-11-3	dimethyl phthalate	80,000 U
2B)	56-55-3	benzo(a)anthracene	486,000

Ignore

BASE/NEUTRAL COMPOUNDS

PP #	CAS #		ug/l or ug/kg (circle one)
(73B)	50-32-8	benzo(a)pyrene	80,000 U
(74B)	205-99-2	benzo(b)fluoranthene	343,000
(75B)	207-08-9	benzo(k)fluoranthene	80,000 U
(76B)	218-01-9	chrysene	517,000
(77B)	208-96-8	acenaphthylene	80,000 U
(78B)	120-12-7	anthracene	4,010,000
(79B)	191-24-2	benzo(ghi)perylene	80,000 U
(80B)	86-73-7	fluorene	1,870,000
(81B)	85-01-8	phenanthrene	6,140,000
(82B)	53-70-3	dibenzo(a,h)anthracene	80,000 U
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	80,000 U
(84B)	129-00-0	pyrene	1,570,000

VOLATILES

(2V)	107-02-8	acrolein	10000 U
(3V)	107-13-1	acrylonitrile	10000 U
(4V)	71-43-2	benzene	2000
(6V)	56-23-5	carbon tetrachloride	1000 U
(7V)	108-90-7	chlorobenzene	1000 U
(10V)	107-06-2	1,2-dichloroethane	1000 U
(11V)	71-55-6	1,1,1-trichloroethane	1000 U
(13V)	75-34-3	1,1-dichloroethane	1000 U
(14V)	79-00-5	1,1,2-trichloroethane	1000 U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	1000 U
(16V)	75-00-3	chloroethane	1000 U
(19V)	110-75-8	2-chloroethylvinyl ether	1000 U
(23V)	67-66-3	chloroform	1000 U
(29V)	75-35-4	1,1-dichloroethene	1000 U
(30V)	156-60-5	trans-1,2-dichloroethene	1000 U
(32V)	78-87-5	1,2-dichloropropane	1000 U
(33V)	10061-02-6	trans-1,3-dichloropropene	1000 U
	10061-01-05	cis-1,3-dichloropropene	1000 U
(38V)	100-41-4	ethylbenzene	17000
(44V)	75-09-2	methylene chloride	22000
(45V)	74-87-3	chloromethane	1000 U
(46V)	74-83-9	bromomethane	1000 U
(47V)	75-25-2	bromoform	1000 U
(48V)	75-27-4	bromodichloromethane	1000 U
(49V)	75-69-4	fluorotrichloromethane	1000 U
(50V)	75-71-8	dichlorodifluoromethane	1000 U
(51V)	124-48-1	chlorodibromomethane	1000 U
(85V)	127-18-4	tetrachloroethene	1000 U
(86V)	108-88-3	toluene	16000
(87V)	79-01-6	trichloroethene	1000 U
(88V)	75-01-4	vinyl chloride	1000 U

AR100210

C3215

Laboratory Name: Energy Resources Co Inc. Case No: 1793

→ Sample I.D. No: 34-371 QC Report No: 61

Multiply Detection Limits by 1 ☑ or 10 ☐ (Check Box for Appropriate Factor)

ORIGINAL

(red)

PESTICIDES

PP #	CAS #		ug/l or ug/kg (circle one)
(89P)	309-00-2	aldrin	100 U
(90P)	60-57-1	dieldrin	100 U
(91P)	57-74-9	chlordane	100 U
(92P)	50-29-3	4,4'-DDT	100 U
(93P)	72-55-9	4,4'-DDE	100 U
(94P)	72-54-8	4,4'-DDD	100 U
(95P)	115-29-7	α-endosulfan	100 U
	115-29-7	β-endosulfan	100 U
(97P)	1031-07-8	endosulfan sulfate	100 U
(98P)	72-20-8	endrin	100 U
(99P)	7421-93-4	endrin aldehyde	100 U
(100P)	76-44-8	heptachlor	100 U
(101P)	1024-57-3	heptachlor epoxide	100 U
(102P)	319-84-6	α-BHC	100 U
(103P)	319-85-7	β-BHC	100 U
(104P)	319-86-8	δ-BHC	100 U
(105P)	58-89-9	γ-BHC (lindane)	100 U
(106P)	53469-21-9	PCB-1242	100 U
(107P)	11097-69-1	PCB-1254	100 U
(108P)	11104-28-2	PCB-1221	100 U
(109P)	11141-16-5	PCB-1232	100 U
(110P)	12672-29-6	PCB-1248	100 U
(111P)	11096-82-5	PCB-1260	100 U
(112P)	12674-11-2	PCB-1016	100 U
(113P)	8001-35-2	toxaphene	100 U

DIOXINS

(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	100 U

Non-Priority Pollutant Hazardous Substances List Compounds

ACID COMPOUNDS

CAS #		ug/l or ug/kg (circle one)
65-85-0	benzoic acid	80,000 U
95-48-7	2-methylphenol	80,000 U
108-39-4	4-methylphenol	80,000 U
95-95-4	2,4,5-trichlorophenol	80,000 U

BASE/NEUTRAL COMPOUNDS

62-53-3	aniline	80,000 U
100-51-6	benzyl alcohol	80,000 U
106-47-8	4-chloroaniline	80,000 U
132-64-9	dibenzofuran	80,000 U
91-57-6	2-methylnaphthalene	80,000 U
88-74-4	2-nitroaniline	80,000 U
99-09-2	3-nitroaniline	80,000 U
100-01-6	4-nitroaniline	80,000 U

VOLATILES

CAS #		(circle one)
67-64-1	acetone	1000
78-93-3	2-butanone	1000 U
75-15-0	carbondisulfide	1000 U
519-78-6	2-hexanone	1000 U
108-10-1	4-methyl-2-pentanone	1000 U
100-42-5	styrene	1000 U
108-05-4	vinyl acetate	1000 U
95-47-6	o-xylene	1000 U

6/

ORGANICS ANALYSIS DATA SHEET

C3216

Laboratory Name: Energy Resources Co Inc. Case No: 1793

Lab Sample I.D. Nos: 34-372 QC Report No: 61

Multiply Detection Limits by 1 [X] or 10 [ ] (Check Box for Appropriate Factor)

ORIGINAL (red)

ACID COMPOUNDS

PP #	CAS #		ug/l or ug/kg (circle one)
(21A)	88-06-2	2,4,6- trichlorophenol	8000 U
(22A)	59-50-7	p-chloro-m-cresol	8000 U
(24A)	95-57-8	2- chlorophenol	8000 U
(31A)	120-83-2	2,4-dichlorophenol	8000 U
(34A)	105-67-9	2,4-dimethylphenol	8000 U
(57A)	88-75-5	2- nitrophenol	8000 U
(58A)	100-02-7	4-nitrophenol	8000 U
(59A)	51-28-5	2,4-dinitrophenol	8000 U
(60A)	534-52-1	4,6-dinitro-2-methylphenol	8000 U
(64A)	87-86-5	pentachlorophenol	8000 U
(65A)	108-95-2	phenol	8000 U

BASE/NEUTRAL COMPOUNDS

(1B)	83-32-9	acenaphthene	151,000
(3B)	92-87-5	benzidine	8000 U
(8B)	120-82-1	1,2,4-trichlorobenzene	8000 U
(9B)	118-74-1	hexachlorobenzene	8000 U
(12B)	67-72-1	hexachloroethane	8000 U
(13B)	111-44-4	bis(2-chloroethyl)ether	8000 U
	91-58-7	2-chloronaphthalene	8000 U
(16)	95-50-1	1,2-dichlorobenzene	8000 U
(26B)	541-73-1	1,3-dichlorobenzene	8000 U
(27B)	106-46-7	1,4-dichlorobenzene	8000 U
(28B)	91-94-1	3,3'-dichlorobenzidine	8000 U
(35B)	121-14-2	2,4-dinitrotoluene	8000 U
(36B)	606-20-2	2,6-dinitrotoluene	8000 U
(37B)	122-66-7	1,2-diphenylhydrazine	8000 U
(39B)	206-44-0	fluoranthene	610,000
(40B)	7005-72-3	4-chlorophenyl phenyl ether	8000 U
(41B)	101-55-3	4-bromophenyl phenyl ether	8000 U
(42B)	39638-32-9	bis (2-chloroisopropyl) ether	8000 U
(43B)	111-91-1	bis (2-chloroethoxy) methane	8000 U
(52B)	87-68-3	hexachlorobutadiene	8000 U
(53B)	77-47-4	hexachlorocyclopentadiene	8000 U
(54B)	78-59-1	isophorone	8000 U
(55B)	91-20-3	naphthalene	158,000
(56B)	98-95-3	nitrobenzene	8000 U
(62B)	86-30-6	N-nitrosodiphenylamine	8000 U
(63B)	621-64-7	N-nitrosodipropylamine	8000 U
(66B)	117-81-7	bis (2-ethylhexyl) phthalate	8000 U
(70B)	85-68-7	benzyl butyl phthalate	8000 U
	84-74-2	di-n-butyl phthalate	6320 K
	117-84-0	di-n-octyl phthalate	8000 U
(69B)	84-66-2	diethyl phthalate	8000 U
(71B)	131-11-3	dimethyl phthalate	8000 U
(72B)	56-55-3	benzo(a)anthracene	83,800

BASE/NEUTRAL COMPOUNDS (red)

PP #	CAS #		ug/l or ug/kg (circle one)
(73B)	50-32-8	benzo(a)pyrene	36,800
(74B)	205-99-2	benzo(b)fluoranthene	88,400
(75B)	207-08-9	benzo(k)fluoranthene	
(76B)	218-01-9	chrysene	84,600
(77B)	208-96-8	acenaphthylene	17,400
(78B)	120-12-7	anthracene	188,000
(79B)	191-24-2	benzo(ghi)perylene	7710 K
(80B)	86-73-7	fluorene	156,000
(81B)	85-01-8	phenanthrene	532,000
(82B)	53-70-3	dibenzo(a,h)anthracene	2610 K
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	143,000
(84B)	129-00-0	pyrene	262,000

VOLATILES

(2V)	107-02-8	acrolein	10000 U
(3V)	107-13-1	acrylonitrile	10000 U
(4V)	71-43-2	benzene	7500
(6V)	56-23-5	carbon tetrachloride	10000 U
(7V)	108-90-7	chlorobenzene	10000 U
(10V)	107-06-2	1,2-dichloroethane	10000 U
(11V)	71-55-6	1,1,1-trichloroethane	10000 U
(13V)	75-34-3	1,1-dichloroethane	10000 U
(14V)	79-00-5	1,1,2-trichloroethane	10000 U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10000 U
(16V)	75-00-3	chloroethane	10000 U
(19V)	110-75-8	2-chloroethylvinyl ether	10000 U
(23V)	67-66-3	chloroform	10000 U
(29V)	75-35-4	1,1-dichloroethene	10000 U
(30V)	156-60-5	trans-1,2-dichloroethene	10000 U
(32V)	78-87-5	1,2-dichloropropane	10000 U
(33V)	10061-02-6	trans-1,3-dichloropropene	10000 U
	10061-01-05	cis-1,3-dichloropropene	10000 U
(38V)	100-41-4	ethylbenzene	10000 U
(44V)	75-09-2	methylene chloride	10000 U
(45V)	74-87-3	chloromethane	10000 U
(46V)	74-83-9	bromomethane	10000 U
(47V)	75-25-2	bromoform	10000 U
(48V)	75-27-4	bromodichloromethane	10000 U
(49V)	75-69-4	fluorotrichloromethane	10000 U
(50V)	75-71-8	dichlorodifluoromethane	10000 U
(51V)	124-48-1	chlorodibromomethane	10000 U
(85V)	127-18-4	tetrachloroethene	10000 U
(86V)	108-88-3	toluene	7400
(87V)	79-01-6	trichloroethene	10000 U
(88V)	75-01-4	vinyl chloride	10000 U

AR100212

C3216

boratory Name: Energy Resources Co Inc. Case No: 1793

Sample I.D. No: 34-372 QC Report No: 61

ORIGINAL

Multiply Detection Limits by 1 ☑ or 10 ☐ (Check Box for Appropriate Factor)

PESTICIDES

PP #	CAS #		(circle one)
(89P)	309-00-2	aldrin	100 U
(90P)	60-57-1	dieldrin	100 U
(91P)	57-74-9	chlordane	100 U
(92P)	50-29-3	4,4'-DDT	100 U
(93P)	72-55-9	4,4'-DDE	100 U
(94P)	72-54-8	4,4'-DDD	100 U
(95P)	115-29-7	α-endosulfan	100 U
(96P)	115-29-7	β-endosulfan	100 U
(97P)	1031-07-8	endosulfan sulfate	100 U
(98P)	72-20-8	endrin	100 U
(99P)	7421-93-4	endrin aldehyde	100 U
(100P)	76-44-8	heptachlor	100 U
(101P)	1024-57-3	heptachlor epoxide	100 U
(102P)	319-84-6	α-BHC	100 U

PESTICIDES (cont'd)

PP #	CAS #		(circle one)
(103P)	319-85-7	β-BHC	100 U
(104P)	319-86-8	δ-BHC	100 U
(105P)	58-89-9	γ-BHC (lindane)	100 U
(106P)	53469-21-9	PCB-1242	100 U
(107P)	11097-69-1	PCB-1254	100 U
(108P)	11104-28-2	PCB-1221	100 U
(109P)	11141-16-5	PCB-1232	100 U
(110P)	12672-29-6	PCB-1248	100 U
(111P)	11096-82-5	PCB-1260	100 U
(112P)	12674-11-2	PCB-1016	100 U
(113P)	8001-35-2	toxaphene	100 U

DIOXINS

(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	100 U

Non-Priority Pollutant Hazardous Substances List Compounds

ACID COMPOUNDS

CAS #		(circle one)
65-85-0	benzoic acid	8000 U
95-48-7	2-methylphenol	8000 U
108-39-4	4-methylphenol	8000 U
95-95-4	2,4,5-trichlorophenol	8000 U

BASE/NEUTRAL COMPOUNDS

62-53-3	aniline	8000 U
100-51-6	benzyl alcohol	8000 U
106-47-8	4-chloroaniline	8000 U
132-64-9	dibenzofuran	8000 U
91-57-6	2-methylnaphthalene	8000 U
88-74-4	2-nitroaniline	8000 U
99-09-2	3-nitroaniline	8000 U
100-01-6	4-nitroaniline	8000 U

VOLATILES

CAS #		(circle one)
67-64-1	acetone	100
78-93-3	2-butanone	100
75-15-0	carbondisulfide	1000
519-78-6	2-hexanone	1000
108-10-1	4-methyl-2-pentanone	1000 U
100-42-5	styrene	1000 U
108-05-4	vinyl acetate	1000 U
95-47-6	o-xylene	1000 U

ORGANICS ANALYSIS DATA SHEET

C3217

Laboratory Name: Energy Resources Co Inc. Case No: 1793

Sample I.D. Nos: 34-373 QC Report No: 61

Multiply Detection Limits by 1 ☑ or 10 ☐ (Check Box for Appropriate Factor)

ORIGINAL (red)

ACID COMPOUNDS

PP #	CAS #		ug/l or ug/kg (circle one)
(21A)	88-06-2	2,4,6- trichlorophenol	400U
(2A)	59-50-7	p-chloro-m-cresol	400U
(4A)	95-57-8	2- chlorophenol	400U
(31A)	120-83-2	2,4-dichlorophenol	400U
(4A)	105-67-9	2,4-dimethylphenol	400U
(37A)	88-75-5	2- nitrophenol	400U
(38A)	100-02-7	4-nitrophenol	400U
(9A)	51-28-5	2,4-dinitrophenol	400U
(60A)	534-52-1	4,6-dinitro-2-methylphenol	400U
(A)	87-86-5	pentachlorophenol	400U
(5A)	108-95-2	phenol	400U

BASE/NEUTRAL COMPOUNDS

(B)	83-32-9	acenaphthene	400U
(5B)	92-87-5	benzidine	400U
(B)	120-82-1	1,2,4-trichlorobenzene	400U
(B)	118-74-1	hexachlorobenzene	400U
(12B)	67-72-1	hexachloroethane	400U
	111-44-4	bis(2-chloroethyl)ether	400U
	91-58-7	2-chloronaphthalene	400U
(2B)	95-50-1	1,2-dichlorobenzene	400U
(6B)	541-73-1	1,3-dichlorobenzene	400U
(7B)	106-46-7	1,4-dichlorobenzene	400U
(28B)	91-94-1	3,3'-dichlorobenzidine	400U
(35B)	121-14-2	2,4-dinitrotoluene	400U
(36B)	606-20-2	2,6-dinitrotoluene	400U
(37B)	122-66-7	1,2-diphenylhydrazine	400U
(9B)	206-44-0	fluoranthene	400U
(40B)	7005-72-3	4-chlorophenyl phenyl ether	400U
(41B)	101-55-3	4-bromophenyl phenyl ether	400U
(42B)	39638-32-9	bis (2-chloroisopropyl) ether	400U
(43B)	111-91-1	bis (2-chloroethoxy) methane	400U
(52B)	87-68-3	hexachlorobutadiene	400U
(53B)	77-47-4	hexachlorocyclopentadiene	400U
(54B)	78-59-1	isophorone	400U
(55B)	91-20-3	naphthalene	400U
(56B)	98-95-3	nitrobenzene	400U
(62B)	86-30-6	N-nitrosodiphenylamine	400U
(63B)	621-64-7	N-nitrosodipropylamine	400U
(66B)	117-81-7	bis (2-ethylhexyl) phthalate	400U
(67B)	85-68-7	benzyl butyl phthalate	400U
	84-74-2	di-n-butyl phthalate	400U
(B)	117-84-0	di-n-octyl phthalate	400U
(70B)	84-66-2	diethyl phthalate	400U
(71B)	131-11-3	dimethyl phthalate	400U
(72B)	56-55-3	benzo(a)anthracene	400U

BASE/NEUTRAL COMPOUNDS

PP #	CAS #		ug/l or ug/kg (circle one)
(73B)	50-32-8	benzo(a)pyrene	400U
(74B)	205-99-2	benzo(b)fluoranthene	400U
(75B)	207-08-9	benzo(k)fluoranthene	400U
(76B)	218-01-9	chrysene	400U
(77B)	208-96-8	acenaphthylene	400U
(78B)	120-12-7	anthracene	400U
(79B)	191-24-2	benzo(ghi)perylene	400U
(80B)	86-73-7	fluorene	400U
(81B)	85-01-8	phenanthrene	400U
(82B)	53-70-3	dibenzo(a,h)anthracene	400U
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	400U
(84B)	129-00-0	pyrene	400U

VOLATILES

(2V)	107-02-8	acrolein	100U
(3V)	107-13-1	acrylonitrile	100U
(4V)	71-43-2	benzene	10U
(6V)	56-23-5	carbon tetrachloride	10U
(7V)	108-90-7	chlorobenzene	10U
(10V)	107-06-2	1,2-dichloroethane	10U
(11V)	71-55-6	1,1,1-trichloroethane	10U
(13V)	75-34-3	1,1-dichloroethane	10U
(14V)	79-00-5	1,1,2-trichloroethane	10U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10U
(16V)	75-00-3	chloroethane	10U
(19V)	110-75-8	2-chloroethylvinyl ether	10U
(23V)	67-66-3	chloroform	10U
(29V)	75-35-4	1,1-dichloroethene	10U
(30V)	156-60-5	trans-1,2-dichloroethene	10U
(32V)	78-87-5	1,2-dichloropropane	10U
(33V)	10061-02-6	trans-1,3-dichloropropene	10U
	10061-01-05	cis-1,3-dichloropropene	10U
(38V)	100-41-4	ethylbenzene	10U
(44V)	75-09-2	methylene chloride	10U
(45V)	74-87-3	chloromethane	10U
(46V)	74-83-9	bromomethane	10U
(47V)	75-25-2	bromoform	10U
(48V)	75-27-4	bromodichloromethane	10U
(49V)	75-69-4	fluorotrichloromethane	10U
(50V)	75-71-8	dichlorodifluoromethane	10U
(51V)	124-48-1	chlorodibromomethane	10U
(85V)	127-18-4	tetrachloroethene	10U
(86V)	108-88-3	toluene	10U
(87V)	79-01-6	trichloroethene	10U
(88V)	75-01-4	vinyl chloride	10U

4/82

boratory Name: Energy Resources Co Inc. Case No: 1793 C3217

Sample I.D. No: 34-373 QC Report No: 61

ORIGINAL

Multiply Detection Limits by 1 ☑ or 10 ☐ (Check Box for Appropriate Factor)

PESTICIDES

PP #	CAS #		ug/l or ug/kg (circle one)
P)	309-00-2	aldrin	100 U
90P)	60-57-1	dieldrin	100 U
91P)	57-74-9	chlordane	100 U
P)	50-29-3	4,4'-DDT	100 U
93P)	72-55-9	4,4'-DDE	100 U
P)	72-54-8	4,4'-DDD	100 U
P)	115-29-7	α-endosulfan	100 U
96P)	115-29-7	β-endosulfan	100 U
P)	1031-07-8	endosulfan sulfate	100 U
P)	72-20-8	endrin	100 U
99P)	7421-93-4	endrin aldehyde	100 U
P)	76-44-8	heptachlor	100 U
P)	1024-57-3	heptachlor epoxide	100 U
102P)	319-84-6	α-BHC	100 U

PESTICIDES (red)

PP #	CAS #		ug/l or ug/kg (circle one)
(103P)	319-85-7	β-BHC	100 U
(104P)	319-86-8	δ-BHC	100 U
(105P)	58-89-9	γ-BHC (lindane)	100 U
(106P)	53469-21-9	PCB-1242	100 U
(107P)	11097-69-1	PCB-1254	100 U
(108P)	11104-28-2	PCB-1221	100 U
(109P)	11141-16-5	PCB-1232	100 U
(110P)	12672-29-6	PCB-1248	100 U
(111P)	11096-82-5	PCB-1260	100 U
(112P)	12674-11-2	PCB-1016	100 U
(113P)	8001-35-2	toxaphene	100 U

DIOXINS

(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	100 U

Non-Priority Pollutant Hazardous Substances List Compounds

ACID COMPOUNDS

CAS #		ug/l or ug/kg (circle one)
65-85-0	benzoic acid	400 U
95-48-7	2-methylphenol	400 U
108-39-4	4-methylphenol	400 U
95-95-4	2,4,5-trichlorophenol	400 U

BASE/NEUTRAL COMPOUNDS

62-53-3	aniline	400 U
100-51-6	benzyl alcohol	400 U
106-47-8	4-chloroaniline	400 U
132-64-9	dibenzofuran	400 U
91-57-6	2-methylnaphthalene	400 U
88-74-4	2-nitroaniline	400 U
99-09-2	3-nitroaniline	400 U
100-01-6	4-nitroaniline	400 U

VOLATILES

CAS #		ug/l or ug/kg (circle one)
67-64-1	acetone	10 U
78-93-3	2-butanone	10 U
75-15-0	carbondisulfide	10 U
519-78-6	2-hexanone	10 U
108-10-1	4-methyl-2-pentanone	10 U
100-42-5	styrene	10 U
108-05-4	vinyl acetate	10 U
95-47-6	o-xylene	10 U

4/2

AR100215

ORGANICS ANALYSIS DATA SHEET

C3218

Laboratory Name: Energy Resources Co Inc. Case No: 1793

Lab Sample I.D. No: 34-374 1:20 QC Report No: 61

ORIGINAL

Multiply Detection Limits by 1 [x] or 10 [ ] (Check Box for Appropriate Factor)

(red)

ACID COMPOUNDS

PP #	CAS #		ug/l or ug/kg (circle one)
(21A)	88-06-2	2,4,6- trichlorophenol	8900u
(22A)	59-50-7	p-chloro-m-cresol	8900u
(24A)	95-57-8	2- chlorophenol	8900u
(31A)	120-83-2	2,4-dichlorophenol	8900u
(34A)	105-67-9	2,4-dimethylphenol	8900u
(57A)	88-75-5	2- nitrophenol	8900u
(58A)	100-02-7	4-nitrophenol	8900u
(59A)	51-28-5	2,4-dinitrophenol	8900u
(60A)	534-52-1	4,6-dinitro-2-methylphenol	8900u
(64A)	87-86-5	pentachlorophenol	8900u
(65A)	108-95-2	phenol	8900u

BASE/NEUTRAL COMPOUNDS

PP #	CAS #		ug/l or ug/kg (circle one)
(1B)	83-32-9	acenaphthene	8900u
(5B)	92-87-5	benzidine	8900u
(8B)	120-82-1	1,2,4-trichlorobenzene	8900u
(9B)	118-74-1	hexachlorobenzene	8900u
(12B)	67-72-1	hexachloroethane	8900u
(16B)	111-44-4	bis(2-chloroethyl)ether	8900u
	91-58-7	2-chloronaphthalene	8900u
(20B)	95-50-1	1,2-dichlorobenzene	8900u
(26B)	541-73-1	1,3-dichlorobenzene	8900u
(27B)	106-46-7	1,4-dichlorobenzene	8900u
(28B)	91-94-1	3,3'-dichlorobenzidine	8900u
(35B)	121-14-2	2,4-dinitrotoluene	8900u
(36B)	606-20-2	2,6-dinitrotoluene	8900u
(37B)	122-66-7	1,2-diphenylhydrazine	8900u
(39B)	206-44-0	fluoranthene	8900u
(40B)	7005-72-3	4-chlorophenyl phenyl ether	8900u
(41B)	101-55-3	4-bromophenyl phenyl ether	8900u
(42B)	39638-32-9	bis (2-chloroisopropyl) ether	8900u
(43B)	111-91-1	bis (2-chloroethoxy) methane	8900u
(52B)	87-68-3	hexachlorobutadiene	8900u
(53B)	77-47-4	hexachlorocyclopentadiene	8900u
(54B)	78-59-1	isophorone	8900u
(55B)	91-20-3	naphthalene	8900u
(56B)	98-95-3	nitrobenzene	8900u
(62B)	86-30-6	N-nitrosodiphenylamine	8900u
(63B)	621-64-7	N-nitrosodipropylamine	8900u
(66B)	117-81-7	bis (2-ethylhexyl) phthalate	8900u
(70B)	85-68-7	benzyl butyl phthalate	8900u
	84-74-2	di-n-butyl phthalate	14200
	117-84-0	di-n-octyl phthalate	8900u
(70B)	84-66-2	diethyl phthalate	8900u
(71B)	131-11-3	dimethyl phthalate	8900u
(72B)	56-55-3	benzo(a)anthracene	8900u
(73B)	50-32-8	benzo(a)pyrene	8900u
(74B)	205-99-2	benzo(b)fluoranthene	8900u
(75B)	207-08-9	benzo(k)fluoranthene	8900u
(76B)	218-01-9	chrysene	8900u
(77B)	208-96-8	acenaphthylene	8900u
(78B)	120-12-7	anthracene	8900u
(79B)	191-24-2	benzo(ghi)perylene	8900u
(80B)	86-73-7	fluorene	8900u
(81B)	85-01-8	phenanthrene	8900u
(82B)	53-70-3	dibenzo(a,h)anthracene	8900u
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	8900u
(84B)	129-00-0	pyrene	8900u

VOLATILES

(2V)	107-02-8	acrolein	100u
(3V)	107-13-1	acrylonitrile	100u
(4V)	71-43-2	benzene	10u
(6V)	56-23-5	carbon tetrachloride	10u
(7V)	108-90-7	chlorobenzene	10u
(10V)	107-06-2	1,2-dichloroethane	10u
(11V)	71-55-6	1,1,1-trichloroethane	10u
(13V)	75-34-3	1,1-dichloroethane	10u
(14V)	79-00-5	1,1,2-trichloroethane	10u
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10u
(16V)	75-00-3	chloroethane	10u
(19V)	110-75-8	2-chloroethylvinyl ether	10u
(23V)	67-66-3	chloroform	10u
(29V)	75-35-4	1,1-dichloroethene	10u
(30V)	156-60-5	trans-1,2-dichloroethene	10u
(32V)	78-87-5	1,2-dichloropropane	10u
(33V)	10061-02-6	trans-1,3-dichloropropene	10u
	10061-01-05	cis-1,3-dichloropropene	10u
(38V)	100-41-4	ethylbenzene	10u
(44V)	75-09-2	methylene chloride	10u
(45V)	74-87-3	chloromethane	10u
(46V)	74-83-9	bromomethane	10u
(47V)	75-25-2	bromoform	10u
(48V)	75-27-4	bromodichloromethane	10u
(49V)	75-69-4	fluorotrichloromethane	10u
(50V)	75-71-8	dichlorodifluoromethane	10u
(51V)	124-48-1	chlorodibromomethane	10u
(85V)	127-18-4	tetrachloroethene	10u
(86V)	108-88-3	toluene	5
(87V)	79-01-6	trichloroethene	5
(88V)	75-01-4	vinyl chloride	10u

AR100216

C5218

Laboratory Name: Energy Resources Co Inc. Case No: 1793

Sample I.D. Nos: 34-374 QC Report No: 61

ORIGINAL

Multiply Detection Limits by 1 ☑ or 10 ☐ (Check Box for Appropriate Factor)

PESTICIDES

PP #	CAS #		ug/l or ug/kg (circle one)
(89P)	309-00-2	aldrin	100 U
(90P)	60-57-1	dieldrin	100 U
(91P)	57-74-9	chlordane	100 U
(92P)	50-29-3	4,4'-DDT	100 U
(93P)	72-55-9	4,4'-DDE	100 U
(94P)	72-54-8	4,4'-DDD	100 U
(95P)	115-29-7	α-endosulfan	100 U
(96P)	115-29-7	β-endosulfan	100 U
(97P)	1031-07-8	endosulfan sulfate	100 U
(98P)	72-20-8	endrin	100 U
(99P)	7421-93-4	endrin aldehyde	100 U
(100P)	76-44-8	heptachlor	100 U
(101P)	1024-57-3	heptachlor epoxide	100 U
(102P)	319-84-6	α-BHC	100 U

PESTICIDES (red)

PP #	CAS #		ug/l or ug/kg (circle one)
(103P)	319-85-7	β-BHC	100 U
(104P)	319-86-8	δ-BHC	100 U
(105P)	58-89-9	γ-BHC (lindane)	100 U
(106P)	53469-21-9	PCB-1242	100 U
(107P)	11097-69-1	PCB-1254	100 U
(108P)	11104-28-2	PCB-1221	100 U
(109P)	11141-16-5	PCB-1232	100 U
(110P)	12672-29-6	PCB-1248	100 U
(111P)	11096-82-5	PCB-1260	100 U
(112P)	12674-11-2	PCB-1016	100 U
(113P)	8001-35-2	toxaphene	100 U

DIOXINS

(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	100 U

Non-Priority Pollutant Hazardous Substances List Compounds

ACID COMPOUNDS

CAS #		ug/l or ug/kg (circle one)
65-85-0	benzoic acid	8000 U
95-48-7	2-methylphenol	8000 U
108-39-4	4-methylphenol	8000 U
95-95-4	2,4,5-trichlorophenol	8000 U

BASE/NEUTRAL COMPOUNDS

62-53-3	aniline	8000 U
100-51-6	benzyl alcohol	8000 U
106-47-8	4-chloroaniline	8000 U
132-64-9	dibenzofuran	8000 U
91-57-6	2-methylnaphthalene	8000 U
88-74-4	2-nitroaniline	8000 U
99-09-2	3-nitroaniline	8000 U
100-01-6	4-nitroaniline	8000 U

VOLATILES

CAS #		ug/kg (circle one)
67-64-1	acetone	10 U
78-93-3	2-butanone	10 U
75-15-0	carbondisulfide	10 U
519-78-6	2-hexanone	10 U
108-10-1	4-methyl-2-pentanone	10 U
100-42-5	styrene	10 U
108-05-4	vinyl acetate	10 U
95-47-6	o-xylene	10 U

ORGANICS ANALYSIS DATA SHEET

C3219

Laboratory Name: Energy Resources Co Inc. Case No: 1793

Lab Sample I.D. Nos: 34-375 QC Report No: 6

ORIGINAL

Multiply Detection Limits by 1 [x] or 10 [ ] (Check Box for Appropriate Factor)

(red)

ACID COMPOUNDS

PP #	CAS #		(ug/l) or (ug/kg) (circle one)
(21A)	88-06-2	2,4,6- trichlorophenol	10U
(22A)	59-50-7	p-chloro-m-cresol	10U
(24A)	95-57-8	2- chlorophenol	10U
(31A)	120-83-2	2,4-dichlorophenol	10U
(34A)	105-67-9	2,4-dimethylphenol	10U
(57A)	88-75-5	2- nitrophenol	10U
(58A)	100-02-7	4-nitrophenol	10U
(59A)	51-28-5	2,4-dinitrophenol	10U
(60A)	534-52-1	4,6-dinitro-2-methylphenol	10U
(64A)	87-86-5	pentachlorophenol	10U
(65A)	108-95-2	phenol	10U

BASE/NEUTRAL COMPOUNDS

(1B)	83-32-9	acenaphthene	10U
(5B)	92-87-5	benzidine	10U
(8B)	120-82-1	1,2,4-trichlorobenzene	10U
(9B)	118-74-1	hexachlorobenzene	10U
(12B)	67-72-1	hexachloroethane	10U
(18B)	111-44-4	bis(2-chloroethyl)ether	10U
	91-58-7	2-chloronaphthalene	10U
	95-50-1	1,2-dichlorobenzene	10U
(26B)	541-73-1	1,3-dichlorobenzene	10U
(27B)	106-46-7	1,4-dichlorobenzene	10U
(28B)	91-94-1	3,3'-dichlorobenzidine	10U
(35B)	121-14-2	2,4-dinitrotoluene	10U
(36B)	606-20-2	2,6-dinitrotoluene	10U
(37B)	122-66-7	1,2-diphenylhydrazine	10U
(39B)	206-44-0	fluoranthene	10U
(40B)	7005-72-3	4-chlorophenyl phenyl ether	10U
(41B)	101-55-3	4-bromophenyl phenyl ether	10U
(42B)	39638-32-9	bis (2-chloroisopropyl) ether	10U
(43B)	111-91-1	bis (2-chloroethoxy) methane	10U
(52B)	87-68-3	hexachlorobutadiene	10U
(53B)	77-47-4	hexachlorocyclopentadiene	10U
(54B)	78-59-1	isophorone	10U
(55B)	91-20-3	naphthalene	10U
(56B)	98-95-3	nitrobenzene	10U
(62B)	86-30-6	N-nitrosodiphenylamine	10U
(63B)	621-64-7	N-nitrosodipropylamine	10U
(66B)	117-81-7	bis (2-ethylhexyl) phthalate	10U
(67B)	85-68-7	benzyl butyl phthalate	10U
	84-74-2	di-n-butyl phthalate	20
	117-84-0	di-n-octyl phthalate	10U
(70B)	84-66-2	diethyl phthalate	10U
(71B)	131-11-3	dimethyl phthalate	10U
(72B)	56-55-3	benzo(a)anthracene	10U

BASE/NEUTRAL COMPOUNDS

PP #	CAS #		(ug/l) or (ug/kg) (circle one)
(73B)	50-32-8	benzo(a)pyrene	10U
(74B)	205-99-2	benzo(b)fluoranthene	10U
(75B)	207-08-9	benzo(k)fluoranthene	10U
(76B)	218-01-9	chrysene	10U
(77B)	208-96-8	acenaphthylene	10U
(78B)	120-12-7	anthracene	10U
(79B)	191-24-2	benzo(ghi)perylene	10U
(80B)	86-73-7	fluorene	10U
(81B)	85-01-8	phenanthrene	10U
(82B)	53-70-3	dibenzo(a,h)anthracene	10U
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	10U
(84B)	129-00-0	pyrene	10U

VOLATILES

(2V)	107-02-8	acrolein	100U
(3V)	107-13-1	acrylonitrile	100U
(4V)	71-43-2	benzene	10U
(6V)	56-23-5	carbon tetrachloride	10U
(7V)	108-90-7	chlorobenzene	10U
(10V)	107-06-2	1,2-dichloroethane	10U
(11V)	71-55-6	1,1,1-trichloroethane	10U
(13V)	75-34-3	1,1-dichloroethane	10U
(14V)	79-00-5	1,1,2-trichloroethane	10U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10U
(16V)	75-00-3	chloroethane	10U
(19V)	110-75-8	2-chloroethylvinyl ether	10U
(23V)	67-66-3	chloroform	10U
(29V)	75-35-4	1,1-dichloroethene	10U
(30V)	156-60-5	trans-1,2-dichloroethene	10U
(32V)	78-87-5	1,2-dichloropropane	10U
(33V)	10061-02-6	trans-1,3-dichloropropene	10U
	10061-01-05	cis-1,3-dichloropropene	10U
(38V)	100-41-4	ethylbenzene	10U
(44V)	75-09-2	methylene chloride	26
(45V)	74-87-3	chloromethane	10U
(46V)	74-83-9	bromomethane	10U
(47V)	75-25-2	bromoform	10U
(48V)	75-27-4	bromodichloromethane	10U
(49V)	75-69-4	fluorotrichloromethane	10U
(50V)	75-71-8	dichlorodifluoromethane	10U
(51V)	124-48-1	chlorodibromomethane	10U
(85V)	127-18-4	tetrachloroethene	10U
(86V)	108-88-3	toluene	10U
(87V)	79-01-6	trichloroethene	10U
(88V)	75-01-4	vinyl chloride	10U

4/82

C3219

aboratory Name: Energy Resources Co Inc. Case No: 1793

- Sample I.D. Nos: 34-375 QC Report No: 61

ORIGINAL

Multiply Detection Limits by 1 ☑ or 10 ☐ (Check Box for Appropriate Factor)

PESTICIDES

P #	CAS #		(circle one)
89P)	309-00-2	aldrin	100 u
(90P)	60-57-1	dieldrin	100 u
1P)	57-74-9	chlordane	100 u
92P)	50-29-3	4,4'-DDT	100 u
93P)	72-55-9	4,4'-DDE	100 u
4P)	72-54-8	4,4'-DDD	100 u
(95P)	115-29-7	α-endosulfan	100 u
96P)	115-29-7	β-endosulfan	100 u
7P)	1031-07-8	endosulfan sulfate	100 u
(98P)	72-20-8	endrin	100 u
9P)	7421-93-4	endrin aldehyde	100 u
00P)	76-44-8	heptachlor	100 u
(101P)	1024-57-3	heptachlor epoxide	100 u
02P)	319-84-6	α-BHC	100 u

PESTICIDES (red)

PP #	CAS #		(circle one)
(103P)	319-85-7	β-BHC	100 u
(104P)	319-86-8	δ-BHC	100 u
(105P)	58-89-9	γ-BHC (lindane)	100 u
(106P)	53469-21-9	PCB-1242	100 u
(107P)	11097-69-1	PCB-1254	100 u
(108P)	11104-28-2	PCB-1221	100 u
(109P)	11141-16-5	PCB-1232	100 u
(110P)	12672-29-6	PCB-1248	100 u
(111P)	11096-82-5	PCB-1260	100 u
(112P)	12674-11-2	PCB-1016	100 u
(113P)	8001-35-2	toxaphene	100

DIOXINS

(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-o-dioxin	100

Non-Priority Pollutant Hazardous Substances List Compounds

ACID COMPOUNDS

CAS #		(circle one)
65-85-0	benzoic acid	10 u
95-48-7	2-methylphenol	10 u
108-39-4	4-methylphenol	10 u
95-95-4	2,4,5-trichlorophenol	10 u

BASE/NEUTRAL COMPOUNDS

62-53-3	aniline	10 u
100-51-6	benzyl alcohol	10 u
106-47-8	4-chloroaniline	10 u
132-64-9	dibenzofuran	10 u
91-57-6	2-methylnaphthalene	10 u
88-74-4	2-nitroaniline	10 u
99-09-2	3-nitroaniline	10 u
100-01-6	4-nitroaniline	10 u

VOLATILES

CAS #		(circle one)
67-64-1	acetone	10 u
78-93-3	2-butanone	10 u
75-15-0	carbondisulfide	10 u
519-78-6	2-hexanone	10 u
108-10-1	4-methyl-2-pentanone	10 u
100-42-5	styrene	10 u
108-05-4	vinyl acetate	10 u
95-47-6	o-xylene	10 u

US ENVIRONMENTAL PROTECTION AGENCY
HWI Sample Management Office
P.O. Box 818 – Alexandria, Virginia 22313
703/557-2490 FTS 8-557-2490

ORIGINAL (red)

Sample No. MC0663

INORGANICS ANALYSIS DATA SHEET
WATER

LAB NAME RMA CASE NO. SAS 603I
LAB SAMPLE ID. NO. 5222-01 QC REPORT NO. 316

TASK 1 (Elements to be Identified and Measured)

		ug/l			ug/l
1.	Aluminum	548	10.	Zinc	3130
2.	Chromium	<10	11.	Boron	107
3.	Barium	<100	12.	Vanadium	<200
4.	Beryllium	<5	13.	Silver	<10
5.	Cobalt	<50			
6.	Copper	85			
7.	Iron	34200			
8.	Nickel	<40			
9.	Manganese	1120			

TASK 2 (Elements to be Identified and Measured)

		ug/l			ug/l
1.	Arsenic	<10	5.	Mercury	0.27
2.	Antimony	<20	6.	Tin	<20
3.	Selenium	<2	7.	Cadmium	<1
4.	Thallium	<10	8.	Lead	20

TASK 3 (Elements to be Identified and Measured)

		ug/l
1.	Ammonia	
2.	Cyanide	<10
3.	Sulfide	

COMMENTS:

AR100220

US ENVIRONMENTAL PROTECTION AGENCY
HWI Sample Management Office
P.O. Box 818 — Alexandria, Virginia 22313
703/557-2490 FTS 8-557-2490

ORIGINAL
(red)

Sample No.
MC0665

INORGANICS ANALYSIS DATA SHEET
WATER

LAB NAME RMA CASE NO. SAS 603I
LAB SAMPLE ID. NO. 5222-02 QC REPORT NO. 316

TASK 1 (Elements to be Identified and Measured)

		ug/l			ug/l
1.	Aluminum	490	10.	Zinc	21
2.	Chromium	<10	11.	Boron	<100
3.	Barium	<100	12.	Vanadium	<200
4.	Beryllium	<5	13.	Silver	<10
5.	Cobalt	<50			
6.	Copper	<50			
7.	Iron	4370 (S)			
8.	Nickel	<40			
	Manganese	166			

TASK 2 (Elements to be Identified and Measured)

		ug/l			ug/l
1.	Arsenic	<10	5.	Mercury	<0.2
2.	Antimony	<20	6.	Tin	<20
3.	Selenium	<2	7.	Cadmium	<1
4.	Thallium	<10	8.	Lead	<5

TASK 3 (Elements to be Identified and Measured)

		ug/l
1.	Ammonia	
2.	Cyanide	<10
3.	Sulfide	

COMMENTS:

AR100221

US ENVIRONMENTAL PROTECTION AGENCY
HWI Sample Management Office
P.O. Box 818 — Alexandria, Virginia 22313
703/557-2490 FTS 8-557-2490

ORIGINAL (red)

Sample No. MC0666

INORGANICS ANALYSIS DATA SHEET
WATER

LAB NAME RMA CASE NO. SAS 603I

LAB SAMPLE ID. NO. 5222-03 QC REPORT NO. 316

TASK 1 (Elements to be Identified and Measured)

		ug/l			ug/l
1.	Aluminum	4180	10.	Zinc	85
2.	Chromium	<10	11.	Boron	113
3.	Barium	408	12.	Vanadium	<200
4.	Beryllium	<5	13.	Silver	<10
5.	Cobalt	<50			
6.	Copper	<50			
7.	Iron	79500			
8.	Nickel	<40			
9.	Manganese	4180			

TASK 2 (Elements to be Identified and Measured)

		ug/l			ug/l
1.	Arsenic	114	5.	Mercury	<0.2
2.	Antimony	<20	6.	Tin	<20
3.	Selenium	<2	7.	Cadmium	<1
4.	Thallium	<10	8.	Lead	29

TASK 3 (Elements to be Identified and Measured)

		ug/l
1.	Ammonia	
2.	Cyanide	<10
3.	Sulfide	

COMMENTS:

AR100222

US ENVIRONMENTAL PROTECTION AGENCY
HWI Sample Management Office
P.O. Box 818 — Alexandria, Virginia 22313
703/557-2490 FTS 8-557-2490

ORIGINAL
(red)

Sample No.
MC0667

INORGANICS ANALYSIS DATA SHEET
WATER

LAB NAME RMA CASE NO. SAS 603I
LAB SAMPLE ID. NO. 5222-04 QC REPORT NO. 316

TASK 1 (Elements to be Identified and Measured)

		ug/l			ug/l
1.	Aluminum	5840	10.	Zinc	136
2.	Chromium	<10	11.	Boron	<100
3.	Barium	178	12.	Vanadium	<200
4.	Beryllium	<5	13.	Silver	<10
5.	Cobalt	54			
6.	Copper	<50			
7.	Iron	24700			
8.	Nickel	<40			
9.	Manganese	5520			

TASK 2 (Elements to be Identified and Measured)

		ug/l			ug/l
1.	Arsenic	<10	5.	Mercury	<0.2
2.	Antimony	<20	6.	Tin	21
3.	Selenium	<2	7.	Cadmium	<1
4.	Thallium	<10	8.	Lead	7.0

TASK 3 (Elements to be Identified and Measured)

		ug/l
1.	Ammonia	
2.	Cyanide	<10
3.	Sulfide	

COMMENTS:

US ENVIRONMENTAL PROTECTION AGENCY
HWI Sample Management Office
P.O. Box 818 — Alexandria, Virginia 22313
703/557-2490 FTS 8-557-2490

ORIGINAL
(red)

Sample No.
MC0685

INORGANICS ANALYSIS DATA SHEET
WATER

LAB NAME RMA CASE NO. SAS 603I
LAB SAMPLE ID. NO. 5222-05 QC REPORT NO. 316

TASK 1 (Elements to be Identified and Measured)

		ug/l			ug/l
1.	Aluminum	59300	10.	Zinc	469
2.	Chromium	90	11.	Boron	<100
3.	Barium	639	12.	Vanadium	<200
4.	Beryllium	9.6	13.	Silver	10
5.	Cobalt	120			
6.	Copper	180			
7.	Iron	~~24~~ mL 242000			
8.	Nickel	<40			
	Manganese	7350			

TASK 2 (Elements to be Identified and Measured)

		ug/l			ug/l
1.	Arsenic	196	5.	Mercury	0.25
2.	Antimony	<20	6.	Tin	<20
3.	Selenium	3.8	7.	Cadmium	<1
4.	Thallium	<10	8.	Lead	193

TASK 3 (Elements to be Identified and Measured)

		ug/l
1.	Ammonia	
2.	Cyanide	<10
3.	Sulfide	

COMMENTS:

AR100224

US ENVIRONMENTAL PROTECTION AGENCY
HWI Sample Management Office
P.O. Box 818 — Alexandria, Virginia 22313
703/557-2490 FTS 8-557-2490

ORIGINAL
(red)

Sample No.
MC0688

INORGANICS ANALYSIS DATA SHEET
WATER

LAB NAME RMA CASE NO. SAS603I
LAB SAMPLE ID. NO. 5222-06 QC REPORT NO. 316

TASK 1 (Elements to be Identified and Measured)

		ug/l			ug/l
1.	Aluminum	88400	10.	Zinc	562
2.	Chromium	105	11.	Boron	175
3.	Barium	1110	12.	Vanadium	<200
4.	Beryllium	14	13.	Silver	<10
5.	Cobalt	91			
6.	Copper	73			
7.	Iron	147000			
8.	Nickel	87			
	Manganese	2850			

TASK 2 (Elements to be Identified and Measured)

		ug/l			ug/l
1.	Arsenic	68	5.	Mercury	<0.2
2.	Antimony	<20	6.	Tin	161
3.	Selenium	12	7.	Cadmium	<1
4.	Thallium	<10	8.	Lead	213

TASK 3 (Elements to be Identified and Measured)

		ug/l
1.	Ammonia	
2.	Cyanide	<10
3.	Sulfide	

COMMENTS:

AR100225

US ENVIRONMENTAL PROTECTION AGENCY
WI Sample Management Office
P.O. Box 818 — Alexandria, Virginia 22313
703/557-2490 FTS 8-557-2490

ORIGINAL
(red)

Sample No. MC0700

INORGANICS ANALYSIS DATA SHEET
WATER

NAME RMA CASE NO. SAS603I

SAMPLE ID. NO. S222-07 QC REPORT NO. 316

TASK 1 (Elements to be Identified and Measured)

		ug/l			ug/l
	Aluminum	341000	10.	Zinc	18600
	Chromium	615	11.	Boron	<100
	Barium	3420	12.	Vanadium	846
	Beryllium	109	13.	Silver	14
	Cobalt	1900			
	Copper	4450			
	Iron	513000			
	Nickel	140			
	Manganese	34200			

TASK 2 (Elements to be Identified and Measured)

		ug/l			ug/l
	Arsenic	190	5.	Mercury	0.94
	Antimony	41	6.	Tin	621
	Selenium	49	7.	Cadmium	<1
	Thallium	<10	8.	Lead	3030

TASK 3 (Elements to be Identified and Measured)

		ug/l
1.	Ammonia	
2.	Cyanide	<10
3.	Sulfide	

COMMENTS:

AR100226

US ENVIRONMENTAL PROTECTION AGENCY
HWI Sample Management Office
P.O. Box 818 — Alexandria, Virginia 22313
703/557-2490 FTS 8-557-2490

ORIGINAL (red)

Sample No. MC0901

INORGANICS ANALYSIS DATA SHEET
WATER

LAB NAME RMA CASE NO. SAS603I
LAB SAMPLE ID. NO. 5222-08 QC REPORT NO. 316

TASK 1 (Elements to be Identified and Measured)

		ug/l			ug/l
1.	Aluminum	6490	10.	Zinc	159
2.	Chromium	<10	11.	Boron	164
3.	Barium	154	12.	Vanadium	<200
4.	Beryllium	<5	13.	Silver	<10
5.	Cobalt	<50			
6.	Copper	<50			
7.	Iron	86900			
8.	Nickel	<40			
	Manganese	730			

TASK 2 (Elements to be Identified and Measured)

		ug/l			ug/l
1.	Arsenic	84	5.	Mercury	<0.2
2.	Antimony	<20	6.	Tin	<20
3.	Selenium	<2	7.	Cadmium	<1
4.	Thallium	<10	8.	Lead	59

TASK 3 (Elements to be Identified and Measured)

		ug/l
1.	Ammonia	
2.	Cyanide	<10
3.	Sulfide	

COMMENTS:

US ENVIRONMENTAL PROTECTION AGENCY
HWI Sample Management Office
P.O. Box 818 — Alexandria, Virginia 22313
703/557-2490 FTS 8-557-2490

ORIGINAL
(red)

Sample No. MC0902

INORGANICS ANALYSIS DATA SHEET
WATER

LAB NAME RMA CASE NO. SAS 603I
LAB SAMPLE ID. NO. 5222-09 QC REPORT NO. 316

TASK 1 (Elements to be Identified and Measured)

		ug/l			ug/l
1.	Aluminum	~~117~~ SMC <200	10.	Zinc	74
2.	Chromium	<10	11.	Boron	<100
3.	Barium	102	12.	Vanadium	<200
4.	Beryllium	<5	13.	Silver	<10
5.	Cobalt	<50			
6.	Copper	<50			
7.	Iron	1910			
8.	Nickel	<40			
9.	Manganese	140			

TASK 2 (Elements to be Identified and Measured)

		ug/l			ug/l
1.	Arsenic	<10	5.	Mercury	<0.2
2.	Antimony	<20	6.	Tin	23
3.	Selenium	<2	7.	Cadmium	<1
4.	Thallium	<10	8.	Lead	<5

TASK 3 (Elements to be Identified and Measured)

		ug/l
1.	Ammonia	
2.	Cyanide	<10
3.	Sulfide	

COMMENTS:

AR100228

US ENVIRONMENTAL PROTECTION AGENCY.
HWI Sample Management Office
P.O. Box 818 — Alexandria, Virginia 22313
703/557-2490 FTS 8-557-2490

ORIGINAL
(red)

Sample No. MC0903

INORGANICS ANALYSIS DATA SHEET
WATER

LAB NAME RMA CASE NO. SAS 603I
LAB SAMPLE ID. NO. 5222-10 QC REPORT NO. 316

TASK 1 (Elements to be Identified and Measured)

		ug/l			ug/l
1.	Aluminum	243	10.	Zinc	16
2.	Chromium	<10	11.	Boron	<100
3.	Barium	<100	12.	Vanadium	<200
4.	Beryllium	<5	13.	Silver	<10
5.	Cobalt	<50			
6.	Copper	<50			
7.	Iron	3330			
8.	Nickel	<40			
9.	Manganese	165			

TASK 2 (Elements to be Identified and Measured)

		ug/l			ug/l
1.	Arsenic	<10	5.	Mercury	<0.2
2.	Antimony	<20	6.	Tin	<20
3.	Selenium	<2	7.	Cadmium	<1
4.	Thallium	<10	8.	Lead	<5

TASK 3 (Elements to be Identified and Measured)

		ug/l
1.	Ammonia	
2.	Cyanide	<10
3.	Sulfide	

COMMENTS:

AR100229

US ENVIRONMENTAL PROTECTION AGENCY
HWI Sample Management Office
P.O. Box 818 – Alexandria, Virginia 22313
703/557-2490 FTS 8-557-2490

ORIGINAL
(red)

Sample No. MC0904

INORGANICS ANALYSIS DATA SHEET
WATER

LAB NAME RMA CASE NO. SAS 603I
LAB SAMPLE ID. NO. 5222-11 QC REPORT NO. 3/6

TASK 1 (Elements to be Identified and Measured)

		ug/l			ug/l
1.	Aluminum	200	10.	Zinc	12
2.	Chromium	<10	11.	Boron	192
3.	Barium	<100	12.	Vanadium	<200
4.	Beryllium	<5	13.	Silver	<10
5.	Cobalt	<50			
6.	Copper	<50			
7.	Iron	2840			
8.	Nickel	<40			
	Manganese	97			

TASK 2 (Elements to be Identified and Measured)

		ug/l			ug/l
1.	Arsenic	<10	5.	Mercury	<0.2
2.	Antimony	<20	6.	Tin	23
3.	Selenium	<2	7.	Cadmium	<1
4.	Thallium	<10	8.	Lead	<5

TASK 3 (Elements to be Identified and Measured)

		ug/l
1.	Ammonia	
2.	Cyanide	<10
3.	Sulfide	

COMMENTS:

AR100230

US ENVIRONMENTAL PROTECTION AGENCY.
HWI Sample Management Office
P.O. Box 818 — Alexandria, Virginia 22313
703/557-2490 FTS 8-557-2490

ORIGINAL
(red)

Sample No.
MC0905

INORGANICS ANALYSIS DATA SHEET
WATER

LAB NAME RMA CASE NO. SAS 603I
LAB SAMPLE ID. NO. 5222-12 QC REPORT NO. 316

TASK 1 (Elements to be Identified and Measured)

		ug/l			ug/l
1.	Aluminum	141	10.	Zinc	82
2.	Chromium	<10	11.	Boron	<100
3.	Barium	<100	12.	Vanadium	<200
4.	Beryllium	<5	13.	Silver	<10
5.	Cobalt	<50			
6.	Copper	626			
7.	Iron	70			
8.	Nickel	<40			
9.	Manganese	37			

TASK 2 (Elements to be Identified and Measured)

		ug/l			ug/l
1.	Arsenic	<10	5.	Mercury	<0.2
2.	Antimony	<20	6.	Tin	<20
3.	Selenium	<2	7.	Cadmium	<1
4.	Thallium	<10	8.	Lead	6.0

TASK 3 (Elements to be Identified and Measured)

		ug/l
1.	Ammonia	
2.	Cyanide	<10
3.	Sulfide	

COMMENTS:

AR100231

US ENVIRONMENTAL PROTECTION AGENCY
HWI Sample Management Office
P.O. Box 818 — Alexandria, Virginia 22313
703/557-2490 FTS 8-557-2490

ORIGINAL
(red)

Sample No.
MC0906

INORGANICS ANALYSIS DATA SHEET
WATER

LAB NAME RMA CASE NO. SAS 603I
LAB SAMPLE ID. NO. 5222-13 QC REPORT NO. 3/6

TASK 1 (Elements to be Identified and Measured)

		ug/l			ug/l
1.	Alumirum	124	10.	Zinc	50
2.	Chromium	20	11.	Boron	205
3.	Barium	<100	12.	Vanadium	<200
4.	Beryllium	<5	13.	Silver	<10
5.	Cobalt	<50			
6.	Copper	448			
7.	Iron	61			
8.	Nickel	<40			
	Manganese	15			

TASK 2 (Elements to be Identified and Measured)

		ug/l			ug/l
1.	Arsenic	<10	5.	Mercury	<0.2
2.	Antimony	<20	6.	Tin	38
3.	Selenium	<2	7.	Cadmium	<1
4.	Thallium	<10	8.	Lead	<5

TASK 3 (Elements to be Identified and Measured)

		ug/l
1.	Ammonia	
2.	Cyanide	<10
3.	Sulfide	

COMMENTS:

AR100232

US ENVIRONMENTAL PROTECTION AGENCY
HWI Sample Management Office
P.O. Box 818 — Alexandria, Virginia 22313
703/557-2490 FTS 8-557-2490

ORIGINAL
(red)

Sample No. MC0907

INORGANICS ANALYSIS DATA SHEET
WATER

LAB NAME RMA CASE NO. SAS 603I
LAB SAMPLE ID. NO. 5222-14 QC REPORT NO. 316

TASK 1 (Elements to be Identified and Measured)

		ug/l			ug/l
1.	Aluminum	9150	10.	Zinc	1990
2.	Chromium	15	11.	Boron	242
3.	Barium	247	12.	Vanadium	<200
4.	Beryllium	<5	13.	Silver	<10
5.	Cobalt	<50			
6.	Copper	84			
7.	Iron	10500			
8.	Nickel	<40			
9.	Manganese	167			

TASK 2 (Elements to be Identified and Measured)

		ug/l			ug/l
1.	Arsenic	<10	5.	Mercury	<0.2
2.	Antimony	<20	6.	Tin	29
3.	Selenium	<2	7.	Cadmium	<1
4.	Thallium	<10	8.	Lead	153

TASK 3 (Elements to be Identified and Measured)

		ug/l
1.	Ammonia	
2.	Cyanide	<10
3.	Sulfide	

COMMENTS:

AR100233

US ENVIRONMENTAL PROTECTION AGENCY
HWI Sample Management Office
P.O. Box 818 – Alexandria, Virginia 22313
703/557-2490 FTS 8-557-2490

ORIGINAL
(red)

Sample No.
MC0908

INORGANICS ANALYSIS DATA SHEET
WATER

LAB NAME RMA CASE NO. SAS603I
LAB SAMPLE ID. NO. 5222-15 QC REPORT NO. 316

TASK 1 (Elements to be Identified and Measured)

		ug/l			ug/l
1.	Aluminum	1160	10.	Zinc	903
2.	Chromium	<10	11.	Boron	213
3.	Barium	<100	12.	Vanadium	<200
4.	Beryllium	<50	13.	Silver	<10
5.	Cobalt	<50			
6.	Copper	<50			
7.	Iron	20100			
8.	Nickel	<40			
9.	Manganese	661			

TASK 2 (Elements to be Identified and Measured)

		ug/l			ug/l
1.	Arsenic	13	5.	Mercury	<0.2
2.	Antimony	<20	6.	Tin	56
3.	Selenium	<2	7.	Cadmium	<1
4.	Thallium	<10	8.	Lead	<5

TASK 3 (Elements to be Identified and Measured)

		ug/l
1.	Ammonia	
2.	Cyanide	<10
3.	Sulfide	

COMMENTS:

AR100234

US ENVIRONMENTAL PROTECTION AGENCY
HWI Sample Management Office
P.O. Box 818 — Alexandria, Virginia 22313
703/557-2490 FTS 8-557-2490

ORIGINAL
(red)

Sample No.
MC0909

INORGANICS ANALYSIS DATA SHEET
WATER

LAB NAME RMA CASE NO. SAS 603I
LAB SAMPLE ID. NO. 5222-16 QC REPORT NO. 316

TASK 1 (Elements to be Identified and Measured)

		ug/l			ug/l
1.	Aluminum	6 JWL <200	10.	Zinc	19
2.	Chromium	<10	11.	Boron	<100
3.	Barium	<100	12.	Vanadium	<200
4.	Beryllium	<5	13.	Silver	<10
5.	Cobalt	<50			
6.	Copper	<50			
7.	Iron	<50			
8.	Nickel	<40			
	Manganese	<10			

TASK 2 (Elements to be Identified and Measured)

		ug/l			ug/l
1.	Arsenic	<10	5.	Mercury	<0.2
2.	Antimony	<20	6.	Tin	<20
3.	Selenium	<2	7.	Cadmium	<1
4.	Thallium	<10	8.	Lead	<5

TASK 3 (Elements to be Identified and Measured)

		ug/l
1.	Ammonia	
2.	Cyanide	<10
3.	Sulfide	

COMMENTS:

US ENVIRONMENTAL PROTECTION AGENCY
HWI Sample Management Office
P.O. Box 818 — Alexandria, Virginia 22313
703/557-2490 FTS 8-557-2490

ORIGINAL
(red)

Sample
MC06

INORGANICS ANALYSIS DATA SHEET
soil

LAB NAME RMA CASE NO. SAS 603I
LAB SAMPLE ID. NO. 5222-17 QC REPORT NO. 317

TASK 1 (Elements to be Identified and Measured)

		mg/kg			mg/kg
1.	Aluminum	5250	10.	Zinc	30
2.	Chromium	8.9	11.	Boron	<5
3.	Barium	36	12.	Vanadium	21
4.	Beryllium	<0.25	13.	Silver	<0.5
5.	Cobalt	3.4			
6.	Copper	8.2			
7.	Iron	12,900			
8.	Nickel	2.9			
9.	Manganese	123			

TASK 2 (Elements to be Identified and Measured)

		mg/kg			mg/kg
1.	Arsenic	10	5.	Mercury	<0.10
2.	Antimony	2.2	6.	Tin	6.8
3.	Selenium	<0.50	7.	Cadmium	<0.05
4.	Thallium	<0.50	8.	Lead	16

TASK 3 (Elements to be Identified and Measured)

		mg/kg
1.	Ammonia	
2.	Cyanide	< 0.50
3.	Sulfide	

COMMENTS:

US ENVIRONMENTAL PROTECTION AGENCY
HWI Sample Management Office
P.O. Box 818 — Alexandria, Virginia 22313
703/557-2490 FTS 8-557-2490

ORIGINAL
(red)

Sample No.
MC0691

INORGANICS ANALYSIS DATA SHEET
SOIL

LAB NAME RMA CASE NO. SAS603I
LAB SAMPLE ID. NO. 5222-18 QC REPORT NO. 317

TASK 1 (Elements to be Identified and Measured)

		mg/kg			mg/kg
1.	Aluminum	8990	10.	Zinc	47
2.	Chromium	12	11.	Boron	<5
3.	Barium	39	12.	Vanadium	37
4.	Beryllium	0.33	13.	Silver	<0.5
5.	Cobalt	7.0			
6.	Copper	16			
7.	Iron	19,100			
8.	Nickel	3.7			
	Manganese	89			

TASK 2 (Elements to be Identified and Measured)

		mg/kg			mg/kg
1.	Arsenic	7.2	5.	Mercury	<0.10
2.	Antimony	1.5	6.	Tin	13
3.	Selenium	<0.50	7.	Cadmium	<0.05
4.	Thallium	<0.50	8.	Lead	22

TASK 3 (Elements to be Identified and Measured)

		mg/kg
1.	Ammonia	
2.	Cyanide	<0.50
3.	Sulfide	

COMMENTS:

AR100237

US ENVIRONMENTAL PROTECTION AGENCY
HWI Sample Management Office
P.O. Box 818 — Alexandria, Virginia 22313
703/557-2490 FTS 8-557-2490

ORIGINAL
(red)

Sample
MC06

INORGANICS ANALYSIS DATA SHEET
SOIL

LAB NAME RMA CASE NO. SAS603I
LAB SAMPLE ID. NO. 5222-19 QC REPORT NO. 317

TASK 1 (Elements to be Identified and Measured)

		mg/kg			
1.	Aluminum	4360	10.	Zinc	32
2.	Chromium	9.4	11.	Boron	<5
3.	Barium	36	12.	Vanadium	19
4.	Beryllium	0.30	13.	Silver	<0.50
5.	Cobalt	4.2			
6.	Copper	10			
7.	Iron	10,100			
8.	Nickel	3.3			
9.	Manganese	131			

TASK 2 (Elements to be Identified and Measured)

		mg/kg			
1.	Arsenic	4.3	5.	Mercury	<0.10
2.	Antimony	2.0	6.	Tin	6.4
3.	Selenium	<0.50	7.	Cadmium	<0.05
4.	Thallium	<0.50	8.	Lead	19

TASK 3 (Elements to be Identified and Measured)

		mg/kg
1.	Ammonia	
2.	Cyanide	<0.50
3.	Sulfide	

COMMENTS:

US ENVIRONMENTAL PROTECTION AGENCY
HWI Sample Management Office
P.O. Box 818 — Alexandria, Virginia 22313
703/557-2490 FTS 8-557-2490

ORIGINAL
(red)

Sample MC069

INORGANICS ANALYSIS DATA SHEET
SOIL

LAB NAME RMA CASE NO. SAS603I
LAB SAMPLE ID. NO. 5222-20 QC REPORT NO. 317

TASK 1 (Elements to be Identified and Measured)

		mg/kg			mg/kg
1.	Aluminum	4320	10.	Zinc	33
2.	Chromium	6.8	11.	Boron	<5
3.	Barium	22	12.	Vanadium	14
4.	Beryllium	<0.25	13.	Silver	<0.50
5.	Cobalt	5.5			
6.	Copper	22			
7.	Iron	9410			
8.	Nickel	2.1			
9.	Manganese	181			

TASK 2 (Elements to be Identified and Measured)

		mg/kg			mg/kg
1.	Arsenic	5.1	5.	Mercury	0.14
2.	Antimony	<1.0	6.	Tin	7.5
3.	Selenium	<0.50	7.	Cadmium	<0.05
4.	Thallium	<0.50	8.	Lead	14

TASK 3 (Elements to be Identified and Measured)

		mg/kg
1.	Ammonia	
2.	Cyanide	<0.50
3.	Sulfide	

COMMENTS:

US ENVIRONMENTAL PROTECTION AGENCY
HWI Sample Management Office
P.O. Box 818 — Alexandria, Virginia 22313
703/557-2490 FTS 8-557-2490

ORIGINAL
(red)

Sample N
MC0694

INORGANICS ANALYSIS DATA SHEET
SOIL

LAB NAME RMA CASE NO. SAS603I
LAB SAMPLE ID. NO. 5222-21 QC REPORT NO. 317

TASK 1 (Elements to be Identified and Measured)

		mg/kg			m
1.	Aluminum	3470	10.	Zinc	28
2.	Chromium	8.6	11.	Boron	<5
3.	Barium	30	12.	Vanadium	12
4.	Beryllium	0.26	13.	Silver	<0.50
5.	Cobalt	4.1			
6.	Copper	12			
7.	Iron	8800			
8.	Nickel	2.6			
9.	Manganese	91			

TASK 2 (Elements to be Identified and Measured)

		mg/kg			mg
1.	Arsenic	6.7	5.	Mercury	<0.10
2.	Antimony	1.4	6.	Tin	5.0
3.	Selenium	<0.50	7.	Cadmium	<0.05
4.	Thallium	<0.50	8.	Lead	15

TASK 3 (Elements to be Identified and Measured)

		mg/kg
1.	Ammonia	
2.	Cyanide	<0.50
3.	Sulfide	

COMMENTS:

AR100240

US ENVIRONMENTAL PROTECTION AGENCY
HW Sample Management Office
P.O. Box 818 — Alexandria, Virginia 22313
703/557-2490 FTS 8-557-2490

ORIGINAL
(red)

Sample
MC069

INORGANICS ANALYSIS DATA SHEET
SOIL

LAB NAME RMA CASE NO. SAS603I
LAB SAMPLE ID. NO. 5222-22 QC REPORT NO. 317

TASK 1 (Elements to be Identified and Measured)

		mg/kg			mg/kg
1.	Aluminum	2830	10.	Zinc	24
2.	Chromium	4.6	11.	Boron	<5
3.	Barium	31	12.	Vanadium	12
4.	Beryllium	0.39	13.	Silver	<0.50
5.	Cobalt	5.3			
6.	Copper	3.6			
7.	Iron	10,800			
8.	Nickel	2.6			
9.	Manganese	148			

TASK 2 (Elements to be Identified and Measured)

		mg/kg			mg/kg
1.	Arsenic	3.2	5.	Mercury	<0.10
2.	Antimony	1.2	6.	Tin	<1
3.	Selenium	<0.50	7.	Cadmium	<0.05
4.	Thallium	<0.50	8.	Lead	9.4

TASK 3 (Elements to be Identified and Measured)

		mg/kg
1.	Ammonia	
2.	Cyanide	<0.50
3.	Sulfide	

COMMENTS:

HWI Sample Management Office
P.O. Box 818 — Alexandria, Virginia 22313
703/557-2490 FTS 8-557-2490

ORIGINAL
(red)

Sample MC06

INORGANICS ANALYSIS DATA SHEET
SOIL

LAB NAME RMA CASE NO. SAS 603I
LAB SAMPLE ID. NO. 5222-23 QC REPORT NO. 317

TASK 1 (Elements to be Identified and Measured)

mg/kg

1.	Aluminum	974	10.	Zinc	9.0
2.	Chromium	2.4	11.	Boron	<5
3.	Barium	14	12.	Vanadium	<10
4.	Beryllium	<0.25	13.	Silver	<0.50
5.	Cobalt	4.1			
6.	Copper	<2.5			
7.	Iron	4290			
8.	Nickel	<2			
9.	Manganese	175			

TASK 2 (Elements to be Identified and Measured)

mg/kg

1.	Arsenic	0.60	5.	Mercury	<0.10
2.	Antimony	<1.0	6.	Tin	1.5
3.	Selenium	<0.50	7.	Cadmium	<0.50
4.	Thallium	<0.50	8.	Lead	4.5

TASK 3 (Elements to be Identified and Measured)

mg/kg

1.	Ammonia	
2.	Cyanide	<0.50
3.	Sulfide	

COMMENTS:

AR100242

U.S. ENVIRONMENTAL PROTECTION AGENCY
HWI Sample Management Office
P.O. Box 818 — Alexandria, Virginia 22313
703/557-2490 FTS 8-557-2490

ORIGINAL
(red)

Sample
MC06

INORGANICS ANALYSIS DATA SHEET
SOIL

LAB NAME RMA
CASE NO. SAS603I
LAB SAMPLE ID. NO. 5222-24
QC REPORT NO. 317

TASK 1 (Elements to be Identified and Measured)

mg/kg

1.	Aluminum	10	10.	Zinc	<0.50
2.	Chromium	<0.50	11.	Boron	<5
3.	Barium	<5	12.	Vanadium	<10
4.	Beryllium	<0.25	13.	Silver	<0.50
5.	Cobalt	<2.5			
6.	Copper	<2.5			
7.	Iron	4.3			
8.	Nickel	<2			
9.	Manganese	<0.50			

TASK 2 (Elements to be Identified and Measured)

mg/kg

1.	Arsenic	<0.50	5.	Mercury	<0.10
2.	Antimony	<1.0	6.	Tin	3.3
3.	Selenium	<0.50	7.	Cadmium	0.18
4.	Thallium	<0.50	8.	Lead	<0.25

TASK 3 (Elements to be Identified and Measured)

mg/kg

1.	Ammonia	
2.	Cyanide	<0.50
3.	Sulfide	

COMMENTS:

Appendix E

PROJECT NAME: [illegible]

TDD NO: F3-8304-04 REGION: [illegible]

ORIGINAL

QUALITY ASSURANCE REVIEW OF ORGANIC ANALYSIS LAB DATA PACKAGE (red)

e No.: 1793/SAS 1603

Contract No.: 68-01-6728

Contract Laboratory: ERCO

Applicable IFB No.:

Reviewer: Rak Vitale

Review Date: 1/2/84

Applicable Sample No's.: C3198, C3213 C3214, C3215, C3216, C3217, C3218, C3219 (all Solid Samples)

The organic analytical data for this case has been reviewed. The quality assurance evaluation is summarized in the following table:

Reviewer's Evaluation*	Fraction				
	VOLATILES	ACIDS	BASE/ NEUTRALS	PCB/ PEST.	TCDD
Acceptable	✓				✓
Acceptable with exception(s)		✓3	✓1,2,3,5	✓2,4	
Questionable					
Unacceptable					

efinitions of the evaluation score categories are listed on next page.

This evaluation was based upon an analysis of the review items indicated below:

- ● DATA COMPLETENESS
- ● BLANK ANALYSIS RESULTS
- ● SURROGATE SPIKE RESULTS
- ● MATRIX SPIKE RESULTS
- ● DUPLICATE ANALYSIS RESULTS
- ● EVALUATION OF CONFIRMATIONS
- ● TARGET COMPOUND MATCHING QUALITY 6
- ● TENTATIVELY IDENTIFIED COMPOUNDS
- ○ CHROMATOGRAPHIC SENSITIVITY CHECKS
- ○ DFTPP AND BFB SPECTRUM TUNE RESULTS
- ○ STANDARDS
- ○ CALIBRATION CHECK STANDARDS
- ○ INTERNAL STANDARDS PERFORMANCE

Data review forms are attached for each of the review items indicated above.

Comments: #1 Please see blank analysis documentation
#2 Please see surrogate and/or matrix recovery documentation.
#3 Dilutions were performed which made surrogate data void on some
#4 No surrogate spikes was performed
#5 Some compounds where in raw data but reported on results
#6 all acceptable, so no form attached

AR100245

DATA COMPLETENESS													
	Conc./MATRIX	MED SOLID	MED SOLID	LOW SOLID	MED SOLID	MED SOLID	LOW SOLID	LOW SOLID	LOW SOLID				
FRACTION	TRAFFIC REPT.#	C3198	C3213	C3214	C3215	C3216	C3217	C3218	C3219	EQCO	BLANKS		
	LAB I.D. #	34-368	34-369	34-370	34371	34-372	34-373	34-374	34-375	34-378	34-379	34-380	34-381
	RUN DATE/TIME	RMS											
	TARGET CMPD. TAB.	✓											
	TARGET CMPD. D.L.	✓											
	TENT. I.D. CMPD. TAB.	NA											
	SURR. REC.	✓								N/c			
	GC SCREEN TAB.	✓								N/a			
	GC/MS CHROMATOGRAMS	✓											
	TARGET CMPD. QUAN. LIST	✓											
	TARGET CMPD. SPECTRA	✓											
	TENT. I.D. CMPD. Q.L.	MS											
	TENT. CMPD. LIB. SRCH.	✓	MS	✓									
	CHRO./SENS. CHECKS	NA											
	BFB/DFTPP TUNE DATA	✓											
	I.S. AREAS CHARTS	NA											
	I.S. REL. RESP. FORM	✓											
	RF and amts: CALIB. CHK.	✓											
	RF and amts: 3-Pt. Calib.	✓											
	Chromatograms: Calib. Chk.	✓											
	Chromatograms: 3Pt. Calib.	MS											
	Linearity: 3Pt. Calib.	✓											
	RF Comparison	MS											
	SAMPLE/FIELD BLANK								✓				
	METHOD/INSTR. BLANK												
	LAB DUPLICATE	✓	✓	✓			✓						
	FIELD DUP./REP.												
	MAT. SPK/M. STD.	✓	✓	✓			✓						
PEST.:	PEST. TAB.	✓											
	PEST. D.L. TAB.	✓											
	PEST. CHRO.	✓											
	PEST. STD. CHRO.	✓											
	PEST. STD. I.D.	✓											
	2nd COL. CONF.	✓											
	GC/MS CONF.	MS											
	PEST. DUP.	✓	✓										
	PEST. SPK.	✓	✓										
	PEST. BLK.								✓	✓	✓		
TCDD	TCDD TAB.	✓											
	TCDD D.L.	✓											
	TCDD CHRO./EICP	✓											
	TCDD BLK.	✓											

ORIGINAL

(red)

AR100246

DATA COMPLETENESS	MATRIX	LIQUID SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	15:26			1113 12/13
FRACTION	TRAFFIC REPT #	3218	3213	3214	3215	3216	3217	3218	3219	5 QCC BLANKS			
	LAB I.D. #	34-368	34369	34370	34371	34372	34373	34374	34375	34376	34 310	34370	34387
RUN DATE/TIME		✓											
TARGET CMPD. TAB.		✓											
TARGET CMPD. D.L.		✓											
TENT. I.D. CMPD. TAB.		✓											
SURR. REC.		✓											
GC SCREEN TAB.		✓											
GC/MS CHROMATOGRAMS		✓											
TARGET CMPD. QUAN. LIST		✓											
TARGET CMPD. SPECTRA		✓										STOS	7/13
TENT. I.D. CMPD. Q.L.		✓										7/14	13:3
TENT. CMPD. LIB. SRCH.		✓										7/6	11.4
CHRO./SENS. CHECKS		✓											12.3
BFB/DFTPP TUNE DATA		✓											13
I.S. AREAS CHARTS		✓											
I.S. REL. RESP. FORM		✓											
RF and cmts: CALIB. CHK.		✓											
RF and cmts: 3-Pt. Calib.		✓											
Chromatograms: Calib. Chk.		✓											
Chromatograms: 3 Pt. Calib.		MS											
Linearity: 3Pt. Calib.		✓											
RF Comparison		MS											
SAMPLE/FIELD BLANK									✓				
METHOD/INSTR. BLANK										✓	✓	✓	✓
LAB DUPLICATE		✓ 7/14	21:26				✓ 7/13	13:04					
FIELD DUP./REP.													
MAT. SPK/M. STD.		✓ 7/14	20:37				✓ 7/13	13:51					
PEST: PEST. TAB.													
PEST. DL TAB.													
PEST. CHRO.													
PEST. STD. CHRO.													
PEST. STD. I.D.													
2nd COL. CONF.													
GC/MS CONF.													
PEST. DUP.													
PEST. SPK.													
PEST. BLK.													
TCDD TCDD/TAB.													
TCDD D.L.													
TCDD/CHRO/EICP													
TCDD BLK.													

ORIGINAL (red)

BNA

ARI00247

Blank Analysis Results for Target Compounds

ERCO

ORIGINAL (red)

The contaminants in the blanks are listed below

FRACTION	TYPE OF BLANK (Sample, Field, Lab, Trip, medium, high, soil/aqueous)	SAMPLE NO.	LOT NO. AND SOURCE OF H_2O	CONTAMINANTS (CONCENTRATION/DETECTION LIMIT)
VOA	field low Solid	C3219	NUS	methylene Chloride (26 ug/kg / 5ug/kg)
BNA	field low Solid	C3219	NUS	Di-N-butyl Phthalate (2ug/kg / 10ug/kg)
Pest - TCDD	field low Solid	C3219	NUS	N.D
VOA	Lab BLANK	378	ERCO	N.D
BNA	Lab BLANK	381	ERCO	Di-N-Butyl Phthalate (2 ug/L) 10ug/L)# Bis(2ethylhexyl)Phthalate (2ug/L/10ug/L)#
Pesticide - TCDD	Lab Blank	340	ERCO	N.D

Field blank data is compared with the sample data in a tabulation form within the Sample Analytical Data Summary. Ten tatively identified compounds in blanks were not detected, so no form attached for blank TIDs.

COMMENTS: (Probable source of contamination, invalid sample results, etc.)

#1 Identified & quantified via chromatograms + quant list by laboratory

#2 Manually quantified off of chromatogram

All positive results for methylene chloride & di-n-butylphthalate questioned by blank data due to contamination-per-sample processed high enough to question all values.

(No tentatively identified compounds were reported in any blanks. Blank FSCC chromatograms doublechecked for early eluters in samples, and none found.)

ORIGINAL
(red)

SOIL SURROGATE PERCENT RECOVERY SUMMARY

Case No. 1799 Contractor Energy Resources Co. Contract No. 68-01-6591

Low Level X Med. Level ____ High Level ____

Water ____ Other (Specify) ____

QC Report No. 61

	VOLATILE			SEMI-VOLATILE							PESTICIDE	DIOXIN
SMO Traffic No.	D_8 Toluene (81-120)	BFB (57-137)**	D_4-1,2 Dichloro Ethane (50-150)**	D_5 Nitro Benzene (19-115)	2-Fluoro Biphenyl (17-125)	D_{14} p-Ter Phenyl (34-126)**		D_5 Phenol (10-104)	2-Fluoro Phenol (26-116)	2,4,6-Tribromo Phenol (32-124)**	Dibutyl Chlor-endate (41-121)**	1,2,3,4 TCDD (18-128)
3198	81	73	87	Ø *	Ø *	—		40	Ø *	—	—	59
3198S	87	85	106	Ø *	40	—		40	40	—	—	50
3198DS	90	88	108	Ø *	40	—		40	40	—	—	60
3213	87	82	97	40	40	—		40	7*	—	—	47
3213S	—	—	—	—	—	—	—	—	—	—	—	120
3213DS	—	—	—	—	—	—	—	—	—	—	—	12*
3214	82	76	104	0	0	—		0	0	—	—	52
3214S	95	84	94	—	—	—	—	—	—	—	—	—
3214DS	91	76	98	—	—	—	—	—	—	—	—	—
3215	87	82	91	C	C	—		0	0	—	—	49
3215S	90	94	110	40	40	—		40	40	—	—	71
3215DS	94	78	95	34	92	—		35	44	—	—	118
3216S	—	—	—	65	104	—		66	90	—	—	—
3216DS	—	—	—	68	120	—		106	94	—	—	—
3218	91	72	105	Ø *	20	—		40	40	—	—	115
3219	87	87	100	108	88	—		88	134	—	—	124

*Asterisked values are outside of QC limits.
**Advisory Limits.

Comments:
3198 SpDS / VOA or BNA med level ge / west low level ge. - low surrogate OK.
3213 SpDS / west med level ge
3214 SpDS / VOA low level ge
3217 SpDS / BNA low level ge

Volatiles: 0 out of 15; outside of QC limits
Semi-Volatiles: 1 out of 24; outside of QC limits
Pesticides: 0 out of 0; outside of QC limits
Dioxin: 0 out of 5; outside of QC limits

Date Limit Set 12/82
Revision Due 6/93

Volatiles: 0 out of 21; outside of QC limits
Semi-Volatiles: 0 out of 16; outside of QC limits
Pesticides: 0 out of 0; outside of QC limits
Dioxin: 0 out of 7; outside of QC limits

3218, Samples 3198, 3214, 3215 - low surrog do not indicate any Detection Lim information since these samples were detected & the surrogate were abnormally diluted.

AR100249

ORIGINAL
(red)

WATER SURROGATE PERCENT RECOVERY SUMMARY

Case No. 1793 | Contractor Energy Resources Co. | Contract No. 68-01-6581
Low Level X | Med. Level | High Level
Water X | | Other (Specify)
QC Report No. 61

	VOLATILE			SEMI-VOLATILE							PESTICIDE	DIOXIN
ERCO blanks SMO Traffic No.	D_8 Toluene (84-114)	BFP (63-127)**	D_4-1,2 Dichloro Ethane (90-130)**	D_5 Nitro Benzene (42-131)	2-Fluoro Biphenyl (50-154)	D_{14} p-Ter Phenyl (54-118)**		D_5 Phenol (15-90)	2-Fluoro Phenol (25-115)	2,4,6-Tribromo Phenol (47-123)**	Dibutyl Chlor-endate (67-114)**	1,2,3,4 TCDD (26-104)
34-370B	98	93	96	—	—	—	—	—	—	—	—	—
34-378B	90	72	91	104	93	—	—	78	96	—	—	118
34-387B	—	—	—	41 *	59	—	—	50	75	—	—	—
" 390B	—	—	—	—	—	—	—	—	—	—	—	—

*Asterisked values are outside of QC limits.
**Advisory Limits.

Comments:
34-370B / low level VOA qc.
34-378B / med level VOA and BNA / low level pest qc.
34-387B / low level BNA qc.
34-390B / pest. med level qc.

Volatiles: 0 out of 6; outside of QC limits
Semi-Volatiles: 1 out of 3; outside of QC limits
Pesticides: 0 out of 0; outside of QC limits
Dioxin: 0 out of 2; outside of QC limits

Date Limit Set 12/82
Revision Due 6/83

99-B-6

MATRIX SPIKE DUPLICATE RECOVERY

Case No. 1993 | Contractor Energy Resources Co. | Contract No. 68-01-6581

Low Level | Med. Level X | High Level

Water | Soil/Sed. X | Other (Specify)

QC Report No. 101 | Units (Low/Med) ug/kg | ug/l

ORIGINAL

FRACTION	COMPOUND	CONC. SPIKE ADDED	CONC. MS	% REC.	CONC. MSD	% (red) REC.	RPD	QC LIMITS * RPD	QC LIMITS * RECOVERY	COMMENTS
VOA	1,1-Dichloroethylene	25	21	83	20	82	5	<15%	51-151	
SMO #	Trichloroethylene	25	23	91	24	95	4	<15%	74-128	All OK -
C3198	Chlorobenzene	25	26	104	26	105	0	<15%	67-131	
	Toluene	25	19	75	20	79	5	<15%	58-132	
	Benzene	25	18	73	20	80	11	<15%	56-132	
B/N	1,2,4-Trichlorobenzene	1712 1984	680	40	790	40	15	<50%	38-108	
SMO #	Acenaphthene	1712 1984	680	40	790	40*	15	<50%	57-115	
	2,4-Dinitrotoluene	1712 1984	0	0*	0	0*	—*	<50%	43-113	— D.I. ...
C3198	Di-N-Butylphthalate	1712 1984	4110	240*	790	40	136*	<50%	13-113	low % rec OK
	Pyrene	1712 1984	6160	360*	9500	479*	43	<50%	25-137	— Pyrene high - in...
	N-Nitrosodi-N-Propylamine	1712 1984	680	40	790	40	15	<50%	34-114	due to all ...
	1,4-Dichlorobenzene	1712 1984	680	40	1590	80	80*	<50%	33-103	
ACID	Pentachlorophenol	1712 1984	0	0*	0	0*	—*	<40%	19-123	
SMO #	Phenol	1712 1984	680	40	790	40	15	<40%	23-81	Dilutions
	2-Chlorophenol	1712 1984	680	40	1590	80	80*	<40%	33-107	source C:K.
C3198	P-Chloro-M-Cresol	1712 1984	680	40	0	0*	200*	<40%	32-108	
	4-Nitrophenol	1712 1984	0	0*	0	0*	—*	<40%	15-93	
PEST	Lindane	1916 1946	1694	98*	1160	60*	37	<40%	87-107	
SMO #	Heptachlor	1916 1946	1019	53	677	35*	40	<40%	43-125	
	Aldrin	1916 1946	1157	60	770	40*	40	<40%	45-109	DL maybe high.
C3217	Dieldrin	1916 1946	1111	58	662	34*	51*	<40%	56-122	Recvy
	Endrin	—	—	—	—	—	—	<40%	89-101	
—	P,P-DDT	1916 1946	1310	68*	825	42*	45*	<40%	82-102	

Asterisked values are outside QC limits.

FRACTION	COMPOUND	CONC. SPIKE ADDED	CONC. MS	% REC.	CONC. MSD	% REC.	RPD	QC LIMITS * RPD	QC LIMITS * RECOVERY	COMMENTS
VOA	1,1-Dichloroethylene	25	20	78	17	109	16*	<15%	51-151	
SMO #	Trichloroethylene	25	23	90	20	91	14	<15%	74-128	All OK
C3214	Chlorobenzene	25	24	96	22	86	9	<15%	67-131	
	Toluene	25	20	79	16	64	22*	<15%	58-132	
	Benzene	25	20	80	16	62	22*	<15%	56-132	
	1,2,4-Trichlorobenzene	2155 (RSD)	2400	116*	2720	126*	13	<50%	38-108	
	Acenaphthene	2155	2690	130*	2630	122*	2	<50%	57-115	
	2,4-Dinitrotoluene	2155	990	48	1120	52	12	<50%	43-113	Pyrene 2 lo...
C3217	Di-N-Butylphthalate	2155	2980	144*	3360	156*	12	<50%	13-113	
	Pyrene	2155	83	(4 %)	86	(4 %)	4	<50%	25-137	
	N-Nitrosodi-N-Propylamine	2155	2400	116*	2630	122*	9	<50%	34-114	
	1,4-Dichlorobenzene	2155	1980	96	2240	104*	12	<50%	33-103	
ACID	Pentachlorophenol	2155	370	18	520	24	34	<40%	19-123	
SMO #	Phenol	2155	1900	92*	2070	96	9%	<40%	23-81	
C3217	2-Chlorophenol	2155	1740	84	1910	84	4*	<40%	33-107	OK - high
	P-Chloro-M-Cresol	2155	250	12*	1420	66	140*	<40%	32-108	
	4-Nitrophenol	2155	310	15	320	15	3%	<40%	15-93	
PEST	Lindane	1033	1511	136*	1163	113*	26	<40%	87-107	
SMO #	Heptachlor	1033	764	69	573	55	29	<40%	43-125	
	Aldrin	1033	538	48	275	27*	65*	<40%	45-109	OK -
C3198	Dieldrin	1033	809	73	613	59	28	<40%	56-122	
	Endrin	—	—	—	—	—	—	<40%	89-101	
	P,P-DDT	1033	1347	121*	1490	144*	10	<40%	82-102	

Asterisked values are outside QC limits.

RF 5/1

RECOVERY:

	out of	outside QC limits
VOAs 3	5	; 0 out of 10 ; outside QC limits
B/N 0	7	; 11 out of 14 ; outside QC limits
ACID 1	5	; 7 out of 10 ; outside QC limits
PEST 1	5	; 5 out of 10 ; outside QC limits

Date Limits Set: 12/82

Revision Due: 6/83

99-8-11,12

C3198 S+DS / VOA + BNA med level qc / pest low level qc

C3213 S+DS / pest med level qc

C3214 S+DS / VOA low level qc

C3217 S+DS / BNA low level qc

RECOVERY:

	out of	outside QC limits
VOAs 0	5	; 0 out of 10 ; outside QC limits
B/N 4	7	; 6 out of 14 ; outside QC limits
ACID 4	5	; 5 out of 10 ; outside QC limits
PEST 2	5	; 6 out of 10 ; outside QC limits

AR100251

All tentative identifications of confident matching quality, which aren't suspected artifacts/contaminants, are listed be

SAMPLE NO.	FRACTION	SCAN NO. (S)	SPECTRUM MATCH INDICES				ESTIMATED CONCENTRATION	COMPOUND NAME	COMMENTS
			TYPE	SCORE	TYPE	SCORE			
3198	SV+VOA		Fit	942				ND	
3213	VOA	—	—				*	unidentified peak at 25.3 minutes @ 30% IS	
	↓	—	—				*	unidentified peak at 36.2 minutes @ 60% IS	
	SV	570	985					5420 ug/kg C9 H10 $ 2,3 D. Hydro 1 H Indene	
		1821	—					9,130 ug/kg BENZO(E) PYRENE	
		829/843	967	968				148,000/58,100 two different methyl Naphthalene isomers	
		900	940					26,ECC 1,1'-Biphenyl - EXCELLENT match	
		912	996					12,ECC isomer of ethyl Naphthalene	
		921/934	996	989				19,000, 26,800 two different Dimethyl Naphthalene isomers	
		1977		811				14,600 a C13H12 Polynuclear aromatic (PAH), $ a methyl biphe	
		1013	984					79,400 ug/kg Dibenzofuran - Excellent match (NOT Flagged)	
		1100	972	951				11,000 isomer of C13 H10 O $ 1,1-biphenyl-4-carboxaldehyde	
		1283		901				27,000 ug/kg a methyl Phenanthrene/anthracene isomer	
		1242	992	862				16,300 ug/kg C12 H9 N $ 9H carbazole	
		1279	979					16,900 ug/kg a methyl Phenanthrene/anthracene isom	
	↓	1295	964					61,200 ug/kg C15 H10 $ 4H Cyclopenta DEF Phenanthrene	
		1090	842					10,700 ug/kg isomer of C13 H10 O, $ 1,1'-biphenyl-4-carboxaldehyde	
3214	VOA + SV							ND	
3215	VOA	—	—				*	unidentified peak at 34.6 min @ 40% of IS	
	↓	—	—				*	unidentified peak at 36.0 min @ 40% of IS	
		—	—				*	unidentified peak at 36.2 min @ 100% of IS	
	SV	560	966					299,000 ug/kg 1H-Indene	
		829/843	967	967				1,370,000 527,000 ug/kg 2 different methyl Naphthalene isomers (NOT	
		900	940					269,000 ug/kg 1,1-Biphenyl - good match	
		912	996					96,100 ug/kg dimethyl Naphthalene - EXCELLENT match	
		921/934	995	994				161,000/221,000 ug/kg (2 isomers) Dimethyl Naphthalenes	
		1013	984	934				1,120,000 ug/kg Dibenzofuran - VERY Good match	
		1077/1085	937	883				22,000/86,800 ug/kg C13H12 two different isomers $ a methyl biphen	
		1090/1100	971	957				135,000/198,000 ug/kg 2 different isomers of C13H12O $ 1,1-biphenyl-4-carboxa	
		1621	—					74,000 ug/kg BENZO(E) PYRENE	
		1146	998					111,000 ug/kg a C14 H12 PAH, $ a methyl-9H-fluorene	
		1242	983	910				500,000 ug/kg 9-1H Carbazole (good match)	
		1472/1482	969	910				290,000 $ 321,000 ug/kg Two C16 H12 PAHs $ a methyl pyrene (2 isom	
		569		862				70,000 ug/kg a CnH2n alkenyl benzene $ 1-phenyl benzene	
3216	VOA		-	—				ND	
	SV	828/842	974	970				61,600 $ 28,100 ug/kg two different methyl naphthalene isomers	
		1012	995					84,600 ug/kg Dibenzofuran	
		1280/1284	969	958				24,400/33,200 ug/kg two C15 H12 PAH isomers, $ methyl phenanthre	
		1473	934	790				51,600 ug/kg a C17 H12 PAH, such as a methyl pyrene	
		1624	—					23,200 ug/kg BENZO(E) PYRENE	

ORIGINAL

(red)

AR100252

TDD NO: F3 8304-04 REGION: III

ORIGINAL

QUALITY ASSURANCE REVIEW OF ORGANIC ANALYSIS LAB DATA PACKAGE

(red)

Case No.: 1793/SAS 6031
Contract No.: 68-01-6728
Contract Laboratory: SPECTRIX
Applicable IFB No.:
Reviewer: Rack Vitale
Review Date: 12/21/83

Applicable Sample No's.: C3170, C3172, C3173, C3174, C3175, C3196, C3197, C3222, C3223, C3224, C3225, C3226, C3227, C3228, C3229, C3230, C3231 (all aqueous samples)

The organic analytical data for this case has been reviewed. The quality assurance evaluation is summarized in the following table:

Reviewer's Evaluation*	Fraction				
	VOLATILES	ACIDS	BASE/ NEUTRALS	PCB/ PEST.	TCDD
Acceptable					
Acceptable with exception(s)	✓1,6	✓3,3#	✓1,2,3,6	✓2,4,	✓1,2,4,5
Questionable					
Unacceptable					

Definitions of the evaluation score categories are listed on next page.

This evaluation was based upon an analysis of the review items indicated below:

- ● DATA COMPLETENESS
- ● BLANK ANALYSIS RESULTS
- ● SURROGATE SPIKE RESULTS
- ● MATRIX SPIKE RESULTS
- ● DUPLICATE ANALYSIS RESULTS
- ● EVALUATION OF CONFIRMATIONS
- ● TARGET COMPOUND MATCHING QUALITY #7
- ● TENTATIVELY IDENTIFIED COMPOUNDS
- ○ CHROMATOGRAPHIC SENSITIVITY CHECKS
- ○ DFTPP AND BFB SPECTRUM TUNE RESULTS
- ○ STANDARDS
- ○ CALIBRATION CHECK STANDARDS
- ○ INTERNAL STANDARDS PERFORMANCE

Data review forms are attached for each of the review items indicated above.

Comments: #1 Please see blank analysis information
#2 Please see Surrogate matrix recovery discussion
#3 Dilutions were performed which made surrogate data unusable
#4 Please see evaluation of GC confirmations
#5 No second column confirmation by GC/MS was performed
#6 Chromatographic shooting observed in some smpls. See narrative
#7 Incomplete scan from the lab

AR100253

DATA EVALUATION SCORE CATEGORIES

ORIGINAL
(red)

ACCEPTABLE: Data is within established control limits, or the data which is outside established control limits does not affect the validity of the analytical results.

ACCEPTABLE WITH EXCEPTION(S): Data is not completely within established control limits. The deficiences are identified and specific data is still valid, given certain qualifications which are listed below.

QUESTIONABLE: Data is not within established control limits. The deficiences bring the validity of the entire data set into question. However, the data validity is neither proved nor disproved by the available information.

UNACCEPTABLE: Data is not within established control limits. The deficiences imply the results are not meaningful.

DATA COMPLETENESS

DATA COMPLETENESS	CONC./MATRIX	C3170 MED AQ	C3172 LO AQ	C3173 LO AQ	C3174 MED AQ	C3175 MED AQ	C3176 LO AQ	C3197 LO AQ	C3222 LO AQ	C3223 LO AQ	C3224 LO AQ	C3225 LO AQ	C322 LO AQ
FRACTION	TRAFFIC REPT.#												
	LAB I.D. #												
	RUN DATE/TIME	7/30 23:20	7/31 0:10	7/31 1:02	8/23 12:14	8/23 12:29	8/23 13:55	8/23 14:46	8/23 15:34	8/23 16:23	8/23 19:15	8/23 20:03	7/31
	TARGET CMPD. TAB.	✓											
	TARGET CMPD. D.L.	✓											
	TENT. I.D. CMPD. TAB.	✓											
	SURR. REC.	✓											
	GC SCREEN TAB.	✓											
	GC/MS CHROMATOGRAMS	✓											
	TARGET CMPD. QUAN. LIST	✓											
	TARGET CMPD. SPECTRA	✓											
	TENT. I.D. CMPD. Q.L.	✓											
	TENT. CMPD. LIB. SRCH.	✓											
	CHRO./SENS. CHECKS	✓											
	BFB/DFTPP TUNE DATA	✓											
	I.S. AREAS CHARTS	✓											
	I.S. REL. RESP. FORM	✓											
	RF and amts: CALIB. CHK.	✓											
	RF and amts: 3-Pt. Calib.	✓											
	Chromatograms: Calib. Chk.	✓											
	Chromatograms: 3 Pt. Calib.	✓											
	Linearity: 3Pt. Calib.	MS											
	RF Comparison	✓											
	SAMPLE/FIELD BLANK												
	METHOD/INSTR. BLANK												
	LAB DUPLICATE		✓									7/30 22:30 ✓	
	FIELD DUP./REP.												
	MAT. SPK/M.STD.		✓									2 ✓	
PEST.:	PEST. TAB.												
	PEST. D.L. TAB.												
	PEST. CHRO.												
	PEST. STD. CHRO.												
	PEST. STD. I.D.												
	2nd COL. CONF.												
	GC/MS CONF.												
	PEST. DUP.												
	PEST. SPK.												
	PEST. BLK.												
TCDD	TCDD TAB.												
	TCDD D/L.												
	TCDD CHRO./EICP												
	TCDD BLK.												

ORIGINAL (red)

AR100255

DATA COMPLETENESS | CONC/MATRIX | LO AQ | LO AQ | LO AQ | MED AQ | LO AQ | LO AQ

FRACTION | TRAFFIC REPT # | | | | 4150 8/24 1:02 | | |

LAB I.D. # | | | | | | | |

ORIGINAL

(red)

	RUN DATE/TIME	8/23 20:51	8/23 21:39	8/23 22:28	8/23 23:19	8/24 0:13	8/23 11:22
	TARGET CMPD. TAB.	✓	→	→	→	→	
	TARGET CMPD. D.L.	✓	→	→	→	→	
	TENT. I.D. CMPD. TAB.	✓	→	→	→	→	
	SURR. REC.	✓	→	→	→	→	
	GC SCREEN TAB.	✓	→	→	→	→	
	GC/MS CHROMATOGRAMS	✓	→	→	→	→	
	TARGET CMPD. QUAN. LIST	✓	→	→	→		
	TARGET CMPD. SPECTRA	✓	→	→	→		
	TENT. I.D. CMPD. Q.L.	✓	→	→	→	→	
	TENT. CMPD. LIB. SRCH.	✓	→	→	→		
	CHRO./SENS. CHECKS	✓	→	→	→	→	
	BFB/DFTPP TUNE DATA	✓	→	→	→	→	
	I.S. AREAS CHARTS	✓	→	→	→		
	I.S. REL. RESP. FORM	✓	→	→	→	→	
	RF and cmts: CALIB. CHK.	✓	→	→	→	→	
	RF and cmts: 3-Pt. Calib.	✓	→	→	→		
	Chromatograms: Calib. Chk.	✓	→	→	→	→	
	Chromatograms: 3 Pt. Calib.	✓	→	→	→	→	
	Linearity: 3 Pt. Calib.	MS	→	→	→	→	
	RF Comparison	✓	→	→	→	→	
	SAMPLE/FIELD BLANK					✓	
	METHOD/INSTR. BLANK						✓
	LAB DUPLICATE						
	FIELD DUP./REP.						
	MAT. SPK/M. STD.						
PEST:	PEST. TAB.						
	PEST. D.L. TAB.						
	PEST. CHRO.						
	PEST/STD. CHRO.						
	PEST. STD. I.D.						
	2nd COL. CONF.						
	GC/MS CONF.						
	PEST. DUP.						
	PEST. SPK.						
	PEST. BLK.						
TCDD	TCDD TAB.						
	TCDD D.L.						
	TCDD CHRO./EICP						
	TCDD BLK.						

STDS	Time	Date	Amt
BNA	12:26	7/24	low
↓	10:17	7/24	med
	11:36	7/24	high

BNA	Time	Date	Amt
↓	11:29	7/30	med
	10:30	8/23	low
	8:47	8/23	med
	9:38	8/23	high
	17:41	8/23	med

reinject

B/NA

DATA COMPLETENESS	Conc./ MATRIX	C3170 MED AQ	C3172 LO AQ	C3173 LO AQ	C3177 MED AQ	C3175 MED AQ	C3146 LO AQ	C3141 LO AQ	C3222 LO AQ	C3223 LO AQ	C3224 LO AQ	C3225 LO AQ	C32 LO AQ
FRACTION	TRAFFIC REPT.#												
	LAB I.D. #												
	RUN DATE/TIME	6/20 11:56	6/20 12:41	6/20 13:23	6/20 14:07	6/20 14:55	6/21 11:49	6/20 16:20	6/20 17:16	6/20 17:56	6/20 18:36	6/20 19:16	6/21 12:
	TARGET CMPD. TAB.	✓											
	TARGET CMPD. D.L.	✓											
	TENT. I.D. CMPD. TAB.	✓											
	SURR. REC.	✓											
	GC SCREEN TAB.	✓											
	GC/MS CHROMATOGRAMS	✓											
	TARGET CMPD. QUAN. LIST	✓											
	TARGET CMPD. SPECTRA	✓											
	TENT. I.D. CMPD. Q.L.	✓											
	TENT. CMPD. LIB. SRCH.	✓											
	CHRO./SENS. CHECKS	NA											
	BFB/DFTPP TUNE DATA	✓											
	I.S. AREAS CHARTS	NA											
	I.S. REL. RESP. FORM	✓											
	RF and amts: CALIB. CHK.	✓											
	RF and amts: 3-Pt. Calib.	✓											
	Chromatograms: Calib. Chk.	✓											
	Chromatograms: 3 Pt. Calib.	✓											
	Linearity: 3Pt. Calib.	MS											
	RF Comparison	✓											
	SAMPLE/FIELD BLANK												
	METHOD/INSTR. BLANK												
	LAB DUPLICATE		✓										✓ L 13
	FIELD DUP./REP.												
	MAT. SPK/M. STD.		✓										2/12
PEST:	PEST. TAB.	✓											
	PEST. DL. TAB.	✓											
	PEST. CHRO.	✓											
	PEST. STD. CHRO.	✓											
	PEST. STD. I.D.	✓											
	2nd COL. CONF.	✓											
	GC/MS CONF.												
	PEST. DUP.		✓										
	PEST. SPK.		✓										
	PEST. BLK.												
TCDD	TCDD TAB.	✓											
	TCDD D.L.	✓											
	TCDD CHRO./EICP	✓											
	TCDD BLK.												

ORIGINAL (red)

AR100257

DATA COMPLETENESS

ORIGINAL (red)

DATA COMPLETENESS	Conc/ MATRIX	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		LO AQ	LO AQ	LO AQ	MED AQ	LO AC	LO AQ	LO AQ
FRACTION	TRAFFIC REPT #	0						
	LAB I.D. #							
	RUN DATE/TIME	6/21 14:17	6/21 14:57	6/21 15:40	6/21 16:23	6/21 17:06	6/20 8:31	6/21 11:28
	TARGET CMPD. TAB.	✓	→	→	→	→		
	TARGET CMPD. D.L.	✓	→	→	→	→		
	TENT. I.D. CMPD. TAB.	✓	→	→	→	→		
	SURR. REC.	✓	→	→	→	→		
	GC SCREEN TAB.	✓	→	→	→	→		
	GC/MS CHROMATOGRAMS	✓	→	→	→	→		
	TARGET CMPD. QUAN. LIST	✓	→	→	→	→		
	TARGET CMPD. SPECTRA	✓	→	→	→	→		
	TENT. I.D. CMPD. Q.L.	✓	→	→	→	→		
	TENT. CMPD. LIB. SRCH.	✓	→	→	→	→		
	CHRO./SENS. CHECKS	NA	→	→	→	→		
	BFB/DFTPP TUNE DATA	✓	→	→	→	→		
	I.S. AREAS CHARTS	NA	→	→	→	→		
	I.S. REL. RESP. FORM	✓	→	→	→	→		
	RF and amts: CALIB. CHK.	✓	→	→	→	→		
	RF and amts: 3-Pt. Calib.	✓	→	→	→	→		
	Chromatograms: Calib. Chk.	✓	→	→	→	→		
	Chromatograms: 3 Pt. Calib.	✓	→	→	→	→		
	Linearity: 3 Pt. Calib.	MS	→	→	→	→		
	RF Comparison	✓	→	→	→	→		
	SAMPLE/FIELD BLANK					✓		
	METHOD/INSTR. BLANK						✓	✓
	LAB DUPLICATE							
	FIELD DUP./REP.							
	MAT. SPK/M. STD.							
PEST:	PEST. TAB.	✓	→	→	→	→		
	PEST. DL TAB.	✓	→	→	→	→		
	PEST. CHRO.	✓	→	→	→	→		
	PEST. STD. CHRO.	✓	→	→	→	→		
	PEST. STD. I.D.	✓	→	→	→	→		
	2nd COL. CONF.	✓	→	→	→	→		
	GC/MS CONF.							
	PEST. DUP.							
	PEST. SPK.							
	PEST. BLK.					✓		
TCDD	TCDD TAB.	✓	→	→	→	→		
	TCDD D.L.	✓	→	→	→	→	1,2,3,4,	
	TCDD CHRO./EICP	MS	✓	MS	✓	→	1234	
	TCDD BLK.					✓	2378	

	STD	Time	Date	Amt
	STDS	Time	Date	Amt
	VOA	10:32	6/20	Low
	VOA	9:38	"	med
	VOA	11:08		high
		Time	Date	Amt
	VOA	10:50	6/21	med
	STD	Time	Date	Amt
	Pest	08:00	9/6/85	1 ul
	PCB 1248	09:30	9/6/85	5 ng/ul
	Pest	20:10	8/31	1 ul 2ND
		00:40	9/1	1 ul 2ND
		9:18	9/1	1 ul 2ND
		10:18	9/1	1 ul 2ND
	↓	15:30	9/1	1 ul 2ND
	STD	Time	Date	Amt
	Dioxin	14:54	9/7	50 pg
	↓	2:37	9/7	10 pg
	✓	13:58	9/7	10 pg

Spectra

CA

EPA 0258

KEY TO DATA COMPLETENESS FORM ORIGINAL (red)

Abbreviation Used on Form	Description of Checklist Item
CONC./MATRIX	CONCentration category submited in analysis request (low, med, hi); and matrix (sd.
FRACTION	Fill in acid, base/neutral, acid/base/neutral, or Velatiles analysis
RUN DATE/TIME	Instrument run date (to be used for correlating calibration)
TARGET CMPD. TAB.	Tabulated results for target compounds
TARGET CMPD. D.L.	Detection limits for target compounds (Actual/Level indicated by scre
TENT. I.D. CMPD. TAB.	Tabulated results for tentatively identified compounds
SURR. REC.	Surrogate recoveries results
GC SCREEN TAB.	Tabulated GC screen results indicating required level of followup
GC/MS CHROMATOGRAMS	Chromatograms of GC/MS analysis runs
TARGET CMPD. QUAN. LIST	Target compounds quantitation list, showing areas, ret. times
TARGET CMPD. SPECTRA	Enhanced and unenhanced spectra of target compound hits
TENT. I.D. CMPD. Q.L.	Quantitation list for tentatively identified compounds.
TENT. CMPD. LIB. SRCH.	Spectra and library match spectra of tentatively identified compound.
CHRO./SENS. CHECKS	EICP's and R.R.F.'s for chromatographic sensitivity checks
BFB/DFTPP TUNE DATA	Spectra, intensity lists, and criteria comparison forms for BFB, DFTPP
I.S. AREAS CHARTS	Internal standards area control charts and description of remedial actio
I.S. REL. RESP. FORM	Internal standards relative response listings for each sample run.
RF and amts: CALIB. CHK	Tabulated response factors and amount injected for all cpds. in calibration che
RF and amts: 3-Pt. calib.	" " " " " " " " " " 3-point calibratic
Chromatograms: Calib. chk.	Chromatograms for calibration check standard
Chromatograms: 3Pt. Calib.	Chromatograms for 3-point multilevel calibration standards
Linearity: 3Pt. Calib.	Tabulated correlation coefficient or relative standard deviation for calil
RF comparison	Tabulated comparison of calibration Response Factor with check stanc
SAMPLE/FIELD BLANK	Equipment rinse or reagent water blank shipped with samples from fie
METHOD/INSTR. BLANK	Method or instrument blank which is prepared at lab
LAB DUPLICATE	Sample which was split by lab for duplicate analysis
FIELD DUP./REP.	Sample which was split or collected twice in the field
MAT. SPK/M. STD.	Matrix spike or method standard (blind, or done by lab.)
PEST. TAB.	Tabulated results for pesticides
PEST. D.L. TAB.	Tabulated detection limits for pesticides
PEST. CHRO.	Chromatograms for pesticide screening
2nd COL. CONF.	Confirmation of pesticide results by using a second GC column and temperat
GC/MS CONF.	Confirmation of pesticide results by GC/MS analysis
PEST. DUP., SPK., BLK.	Pesticide duplicate, spike, and blank
PEST. STD. CHRO.	Chromatogram of pesticide standard
PEST. STD. I.D.	Pesticide standard identification form
TCDD	2,3,7,8-tetrachlorodibenzodioxin
TCDD TAB., D.L., EICP, BLK.	TCDD tabulated results, detection limits, extracted ion current profile, blar

KEY TO SYMBOLS USED IN DATA COMPLETENESS TABLE

SYMBOL	MEANING	SYMBOL	MEANING
✓	Data item present	I	Incomplete data iter
NA	Data item not applicable or not required	NC	Data item not clearl. explained (units of conc., e
P	Data item within established control limits	✱ or [number]	See footnote
F	Data item outside established control limits	XX/XX/XX XX:XX	Date/time of run (calibration, etc.)
MS	Missing item		

Blank Analysis Results for Target Compounds

Spectrix

ORIGINAL

The contaminants in the blanks are listed below:

FRACTION	TYPE OF BLANK (Sample, Field, Lab, Equipment, High/Solid/Aqueous)	SAMPLE NO.	LOT NO. AND SOURCE OF H_2O	CONTAMINANTS (red) (CONCENTRATION/DETECTION LIMIT)
VOA	field low AQ	C3231	NUS	Methylene Chloride (9.8 ug/L / 5 ug/L) #1 Acetone (42.4 ug/L / 5 ug/L) #1 Toluene (5 ug/L / 5 ug/L) #1
BNA	Field low AQ	C C3231	NUS	Bis(2ethylhexyl) Phthalate 18.5 ug/L, #1
Pesticides + PCB	field low AQ	C3231	NUS	2,3,7,8 TCDD (0.036 ug/L / 0.005 ug/L) #1
VOA	Prep BLK	EB6026-VOA 30004 (6/21 11:28)	Spectrix	Methylene Chloride (7.7 ug/L / 5 ug/L) 1 acetone (19 ug/L / 5 ug/L) 1 2-butanone (18 ug/L / 5 ug/L) 1, 3
BNA Pesticide PCB	Prep Blk	30004	Spectrix	N.D
VOA	Lab BLK	EB060266 (6/20 8:31)	Spectrix	Methylene chloride (12 ug/L / 5 ug/L) acetone (26 ug/L / 5 ug/L) 1 2-butanone (2.5 ug/L / 5 ug/L) 1

Field blank data is compared with the sample data in a tabulation form within the Sample Analytical Data Summary. Tentatively identified compounds in blanks are listed on a separate form.

COMMENTS: (Probable source of contamination, invalid sample results, etc.)

#1 Identified and quantified via chromatogram and quant list by laboratory

#2 Manual quantified off chromatogram

#3 Result maybe due to leaching.

Blank Analysis Results for Tentatively Identified Compounds

All tentatively identified compounds found in blank analyses are listed below:

SAMPLE NO.	FRACTION	SCAN NO. (S)	SPECTRUM MATCH INDICES				ESTIMATED CONCENTRATION	COMPOUND NAME	COMMENTS
			TYPE	SCORE	TYPE	SCORE			
									No Tentatives were reported in any blanks (both laboratory + field blanks)
3231	BNA								None
EB0463-EV01A	VOA	469							3 unidentified peaks <25% of I.S. at scan 406
		545							
		625							
EB0462-EV01	VOA	486							unidentified broad peak 3X I.S. at scan 404 also more broad peaks at scan 637
EB0426-BS1	BNA	1327							unidentified peak ≈ 15% of IS#4
		1427							2 very small unidentified peaks
		1549							
EB0626MSA	VOA	180							unidentified peak ≈ 10% of I.S. at scan 165
		624							unidentified peak ≈ 20% of I.S. at scan 404

ORIGINAL

(red)

AR100261

WATER SURROGATE PERCENT RECOVERY SUMMARY

CASE NO. 1793
LOW LEVEL ✓
WATER ✓
QC REPORT NO. 21

CONTRACTOR (SPECTRIX) CORPORATION
MED. LEVEL

DOC. CONT. NO: 1793 - 3 -08
CONTRACT NO. 68-01-672[illegible]
HIGH LEVEL
OTHER (Specify)

ORIGINAL (red)

[------- Volatile --------][------------------------ Semi-Volatile ------------------------][Pesticide][Dioxin]

SMO Traffic No.	D8 Toluene (84-114)	BFB (63-127)**	D4-1,2 Dichloro Ethane (90-130)**	D5 Nitro Benzene (42-131)	2-Fluoro Biphenyl (50-154)	Deca Fluoro Biphenyl	Penta Fluoro Phenol	D5 Phenol (15-90)	2-Fluoro Phenol (25-115)	2,4,6-Tribromo Phenol (47-123)**	Dibutyl Chlorendate (67-114)**	1,2,3,4 TCDD (26-104)
BLANK 1	113	95.1	94.6	57.2	62.4	442	67.2	43.0	51.4	24.8	117 *	46.5
BLANK 1A	127 *	114	95.4	—	—	—	—	—	—	—	—	—
C3170	95.4	95.3	104	87.8	85.4	93.2	70.4	67.0	49.4	-0- *	229 *	25.6
C3172	109	100	101	106	114	99.2	256	97.2	71.2	-0- *	110	133 *
C3173	108	112	94.3	119	149	135	172	24.8	104	-0- *	122 *	103
C3174	109	103	102	86.4	97.0	91.2	71.8	75.6	78.6	10.4 *	207 *	8.5
C3175	112	112	63.5 *	103	109	127	162.0	76.6	95.6	-0- *	161 *	136
C3196	87.9	83.9	73.4	102	97.6	101	156	64.8	92.4	-0- *	122 *	75.9
C3197	114	97.6	93.2	100	96.8	99.2	120	86.0	89.2	-0- *	124 *	0 *
C3222	110	90.7	93.7	130	110	121	66.4	30.8	26.8	-0- *	139 *	120 *
C3223	110	112	101	91.2	89.2	92.4	136	27.6	105	-0- *	125 *	0 *
C3224	96.3	111	96.0	109	92	101	120	78.4	92	-0- *	123 *	76.4
C3225	112	96.3	101	95.6	81.2	126	97.2	82.0	92.8	-0- *	134 *	63.2
C3226	95.1	94.8	93.9	66.0	86.0	123	29.6	40.0	56.4	-0- *	143 *	0 *
C3226MS	90.7	88.8	88.5	76.0	90.4	73.2	-0- *	15.6	82.4	-0- *	—	—
C3226MSD	87.9	84.9	95.6	81.2	95.2	35.2	-0- *	66.8	76.4	-0- *	—	—
C3227	89.6	84.0	96.4	90	56	103	750	75.6	105	-0- *	128 *	134 *
C3228	88.8	87.3	95.4	76.4	78.4	106	36.0	62.8	73.6	-0- *	132 *	58.2
C3229	86.9	85.7	78.9	83.6	85.2	104	62.0	73.6	88.4	-0- *	135 *	121

*Asterisked values are outside of QC limits.
**Advisory Limits.

000003

Comments: All recoveries for 2,4,6 Tribromophenol are zero due to the [illegible] [illegible] extracts [illegible] [illegible] 2,4,6 Tribromophenol

Volatile 2 out of 57; outside QC limits
Semi Volatile 17 out of 126; outside QC limits
Pesticides 17 out of 16; outside QC limits

[------- Volatile --------][------------------------ Semi-Volatile ------------------------][Pesticide][Dioxin]

SMO Traffic No.	D8 Toluene (84-114)	BFB (63-127)**	D4-1,2 Dichloro Ethane (90-130)**	D5 Nitro Benzene (42-131)	2-Fluoro Biphenyl (50-154)	Deca Fluoro Biphenyl	Penta Fluoro Phenol	D5 Phenol (15-90)	2-Fluoro Phenol (25-115)	2,4,6-Tribromo Phenol (47-123)**	Dibutyl Chlorendate (67-114)**	1,2,3,4 TCDD (26-104)
C3230	86.1	84.5	93.8	0 *	0 *	0 *	0 *	0 *	0 *	0 *	172 *	357 *
C3173MS	—	—	—	—	—	—	—	—	—	—	* 161	790 *
C3173MSD	—	—	—	—	—	—	—	—	—	—	* 128	835 *
C3231	87.1	83.8	94.5	79.2	71.6	79.2	90.0	87.6	106	-0-	129 *	0 *
Blank												

*Asterisked values are outside of QC limits.
**Advisory Limits.

Comments: * - 3230 all (zero) recoveries due to [illegible] [illegible] VOA - [illegible] surrogates were good. [illegible] [illegible] [illegible] [illegible] [illegible]

000004

Volatiles: 0 out of 6; outside of QC limits
Semi-Volatiles: 7 out of 7; outside of QC limits
Pesticides: 4 out of 4; outside of QC limits

AR100262

Date Limit Set 12/82

ORIGINAL
(red)

WATER

MATRIX SPIKE DUPLICATE/RECOVERY

CASE NO. 1793
LOW LEVEL
WATER
QC REPORT NO. 21

CONTRACTOR SPECTRIX CORPORATION
MED. LEVEL
SOIL/SED.

DOC. CONT. NO: 1793-3 -18
CONTRACT NO. 68-01-6728
HIGH LEVEL
OTHER (Specify)
UNITS ug/l

FRACTION	COMPOUND	CONC. SPIKE ADDED	CONC. MS	% REC.	CONC. MSD	% REC.	RPD	QC LIMITS* RPD	QC LIMITS* RECOVERY	COMMENTS
VOA SMO # C3226	1,1-Dichloroethylene	25	21.2	84.8	25.5	102	18.4*	<15%	51-151	
	Trichloroethylene	25	21.9	87.6	24.6	98.4	11.6	<15%	74-128	
	Chlorobenzene	25	24.5	98.0	27.9	112	13.3	<15%	67-131	
	Toluene	25	24.6	98.4	27.9	112	20.1*	<15%	58-132	
	Benzene	25	22.7	90.8	26.0	104	13.6	<15%	56-132	
B/N SMO # C3226	1,2,4-Trichlorobenzene	50 100	56	56	51.2	51.2	9.0	<50%	38-108	
	Acenaphthene	50 100	62.4	62.4	60.4	60.4	3.2	<50%	57-115	
	2,4-Dinitrotoluene	50 100	13.2	*13.2	15.2	*15.2	14	<50%	43-113	- low B/N
	Di-N-Butylphthalate	50 100	19.2	19.2	21.2	21.2	10	<50%	13-113	
	Pyrene	50 100	44.4	44.4	65.6	65.6	38.5*	<50%	25-137	
	N-Nitrosodi-N-Propylamine	50 100	11.2	*11.2	12.4	*12.4	10.2	<50%	34-114	- low B/N
	1,4-Dichlorobenzene	50 100	55.2	55.2	61.6	61.6	11.0	<50%	33-103	
ACID SMO # 2206	Pentachlorophenol	50 100	0	*0	0	*0	—	<40%	19-123	← low acid
	Phenol	50 100	40	40	53.2	53.2	28.2	<40%	23- 81	
	2-Chlorophenol	50 100	62.8	62.8	57.2	57.2	5.9	<40%	33-107	
	P-Chloro-M-Cresol	50 100	56.4	56.4	34.0	34.0	80.0*	<40%	32-108	
	4-Nitrophenol	50 100	0	*0	0	*0	—	<40%	15- 93	← low acid
PEST SMO # C3177	Lindane	5	3.13	62.6	2.92	58.4	6.9	<40%	87-107	
	Heptachlor	5	2.65	53	2.54	50.8	4.2	<40%	43-125	
	Aldrin	5	2.83	56.6	2.66	53.2	6.2	<40%	45-109	
	Dieldrin	5	4.03	80.6	3.83	76.6	5.1	<40%	56-122	
	Endrin	5	3.91	78.2	3.47	69.4	11.9	<40%	89-101	
	p,p-DDT	5	4.63	92.6	4.10	82	12.1	<40%	82-102	

FORM V

*Asterisked values are outside QC limits.

RPD: VOAs 2 out of 5; outside QC limits
B/N 2 out of 7; outside QC limits
ACID 1 out of 5; outside QC limits
PEST 0 out of 6; outside QC limits

RECOVERY: VOAs 0 out of 10; outside QC limits
B/N 4 out of 14; outside QC limits
ACID 4 out of 10; outside QC limits
PEST 0 out of 12; outside QC limits

*Date Limits Set 12/82
Revision Due 6/83

Outliers for Spiking

2,4-Dinitrotoluene MS, MSD,
N-Nitroso-N-Propylamine MS, MSD,
Pentachlorophenol MS, MSD,
4-Nitrophenol MS, MSD,

Outliers for Blank Duplicate RPD

1,1 Dichloroethylene 18.4%
Toluene 20.1%
P-Chloro-M-Cresol 80.0%

- Results in spl 3226 indicate good surr rec. for pentafluorophenol in actual sample, but zero in matrix spike for pentafluorophenol, pentachlorophenol and 4-nitrophenol. Consequently, analysis might be ok. for pentachlorophenol, but still have evidence to question results

AR100263

Evaluation of Confirmations of TC Analyses

GC column #1 — column: TCC; conditions / detector / other: unknown

GC column #2 — column: Rived; conditions / detector / other: unknown

GC/MS DATA — column: ; conditions: ; detector: ; other:

SAMPLE NO.	Compound	GC #1 Ret. times in: SAMPLE	GC #1 Ret. times in: STANDARD	GC #1 Relative Peak Area Ratios (Time & Date of): SAMPLE	GC #1 Relative Peak Area Ratios (Time & Date of): STANDARD	GC #2 Ret. times in: SAMPLE	GC #2 Ret. times in: STANDARD	GC #2 Relative Peak Area Ratios (Time & Date of): SAMPLE	GC #2 Relative Peak Area Ratios (Time & Date of): STANDARD	GC/MS: Spectrum Match? (Y/N)	GC/MS: Level high enough for MS	GC/MS: Which ions	GC/MS: Ret. or Rel. Ret. times in: SAMPLE	GC/MS: Ret. or Rel. Ret. times in: STANDARD	GC/MS: Relative Peak Area Ratios: SAMPLE	GC/MS: Relative Peak Area Ratios: STANDARD	Reported type of confirmation (2C/MS)	Reviewer Confident (Y/N)	
3170	Heptachlor	20.78	20.80	9/6 12:[illegible]	9/6 8:00	2.22	2.31	8/31 14:01	8/31 0:40		No GC-m/s Confirmation (Not high enough)						2C	N	1
↓	β-BHC	18.85	18.85	9/6 12:30	9/6 8:00	2.04	2.12	8/31 14:01	8/31 0:40								2C	N	1
	2,3,7,8 TCDD	16:09	16:09	9/1 17:58	9/1 13:48	No	2ND column conf										N	N	2,1
3172	2,3,7,8 TCDD	16:10	16:09	9/7 18:17	9/1 13:48	No	2ND column conf										N	N	2,1
3222	2,3,7,8 TCDD	16:10	16:09	9/1 21:09	9/1 15:50	No	2ND column conf										2C	N	
3226	Dieldrin	24:21	24:22	9/6 20:45	9/6 8:00	6.46	6.46	9/1 17:32	9/1 15:3?								N	N	2,1
3231	2,3,7,8 TCDD	16:10	16:09	9/1 18:17	9/1 13:49	No	2ND column Conf										N	N	

Comments: [1] [illegible] may be artifact of [illegible] because [illegible] EC

AR100264

Tentatively Identified Compound Samples

All tentative identifications of confident matching quality, which aren't suspected artifacts/contaminants, are listed be

SAMPLE NO.	FRACTION (SV=BNA)	SCAN NO.(S)	SPECTRUM MATCH INDICES Purity TYPE	SCORE	TYPE	SCORE	ESTIMATED CONCENTRATION	COMPOUND NAME $ - such as	COMMENTS
170	VOA	41	83.7				24 ug/L	UNKNOWN.	
		157	91.3				33 ug/L	methyl ester Acetic Acid	
		315	99.6				200 ug/L	Pyridine - Excellent match.	
		414+434	96.5	95.0			890 ug/L / 510 ug/L	-2 Different methyl pyridine isomer	
		501	78.6				260 ug/L	A Dimethyl Pyridine Isomer	
		529-531	88.3				3400 ug/L	meta para xylene isomers	
		564	82.2				3900 ug/L	BENZOFURAN VERY GOOD match	
		577	88.1				8600 ug/L	C_9H_{10} $ 2,3-dihydroindene or an alkenyl benzene	
	SV	902	95.0				21,000 ug/L	C_7H_7N $ ISOQUINOLINE or QUINOLINE	
		983	81.8				16,000 ug/L	A methyl Naphthalene - Excellent match.	
3172	VOA	564	792				380 ug/L	BENZOFURAN.	
3172	VOA	181	98.0				640 ug/L	Tetra Hydro Furan	
		577	88.2				1200 ug/L	C_9H_{10} Alkenyl BENZENE $ 2,3 Dihydro Inden	
	SV	385/424	94.6	88.0			150 ug/L / 76 ug/L	- Both some C_8H_{10} Alkyl BENZENE	
		624	92.3				64 ug/L	$C_9H_{12}N$ An Alkyl AZINE Isomer	
		644	93.4				390 ug/L	$C_9H_{10}O$ $ Ethenyl, methyl benzene or 2,3 dihydro in	
		660	92.3				720 ug/L	C_9H_8 INDENE	
		729	94.2				230 ug/L	Compound of formula C_9H_8O $ 3-phenyl-2-propenal or 2-me benzofuran	
		736	93.4				430 ug/L	CPD. of formula C_9H_8O $ 3-phenyl-2-propenal or 2-methyl benzofura	
		986	91.8				1000 ug/L	a methyl naphthalene Isomer	
		793	80.0				280 ug/L	$C_{10}H_{10}$ - UNKNOWN	
		957	81.6				550 ug/L	Some C_9H_8O - UNKNOWN	
		1108	88.2				85 ug/L	TRANS-2,3 DIHYDRO, 1H-INDENE-1,2-DIOL Excell	
		536	91.6				63 ug/L	an ethyl methyl benzene Isomer	
3173	VOA	318	68.7				6.8 ug/L	Pyridine very good match	
		436	86.1				23 ug/L	A methyl pyridine ISOMER	
		468	84.5				52 ug/L	Phenol - excellent match (NOT Flaccedon HS	
	SV						ND		
3174	VOA	437	94.0				33 ug/L	Methyl Pyridine ISOMER.	
		468	95.5				400 ug/L	Phenol - excellent match.	
		502/525	83.7	81.8			70/72 ug/L	Both dimethyl Pyridine Isomers	
		545/559	92.5	89.3			200/230 ug/L	Both methyl Phenol - Isomers.	
		604	82.8				14 ug/L	$C_8H_{11}N$ pyridine isomer $ trimethylpyridin	
		672/683			87.4	89.8	73 ug/L / 23 ug/L	2 dimethyl phenol Isomers	
	SV						ND		
3175	VOA	254	91.6				1.3 ug/L	C_4H_4S -> THIOPHENE. excellent match	
		372	94.4				17 ug/L	C_5H_6S -> 3 methyl Thiophene or Isomer	
		563	85.1				5 ug/L	BENZOFURAN Good match	
		576/646	91.8	90.5			1100/52 ug/L	Both C_9H_{10} $ 2,3-dihydroindene or propenyl Be	
	5V+VOA	615	94.6				5400 ug/L	1H-INDENE	
	VOA	636/667	83.7	80.6			77/200 ug/L	- Two trimethyl BENZENE isomers	
	SV	1011	87.5				49/L 170,000	1,1 Biphenyl - excellent match.	
		1025/1037/52/6	85.2	85.4	90.8	88.9	38,000 / 44,000 / 81,000 / 36,000 ug/L	$C_{12}H_{12}$ Naphthalene ISOMERS	
		1231/1238	82.8	84.8			45,000, 25,000 ug/L	C_9H_{12} $ Propenyl Naphthalene or methyl Bi	
		1249/1261	86.0	86.4			25,000, 58,000 ug/L	$C_{13}H_{10}O$ $ 4 methyl Dibenzofuran	
		1485/1490	82.4	87.0			100,000, 95,000 ug/L	a methylanthracene or methyl-PHENANTHRE	
		1545	86.3				64,500 ug/L	$C_{16}H_{12}$ PAH $ 2 phenyl Naphthalene	
		938	90.2				120,000 ug/L	A methyl Naphthalene Isomer	

ORIGINAL (red)

ORIGINAL

Tentatively Identified Compound Sample Results (red) spectra

All tentative identifications of confident matching quality, which aren't suspected artifacts/contaminants, are listed b

SAMPLE NO.	FRACTION	SCAN NO. (S)	SPECTRUM MATCH INDICES				ESTIMATED CONCENTRATION	COMPOUND NAME $-Such As	COMMENTS
		Purity	TYPE	SCORE	TYPE	SCORE			
3196	VOA	565	84.0				130 ug/L	C_8H_6O BENZOFURAN	Good match
↓	VOA	577	92.7				1900 ug/L	a C_9H_{10} $ 2,3 dihydro-1H-INDENE	or propenyl be
↓	VOA	670		84.6			(74 ug/L	C_9H_{12} $ Tri methyl BENZENE	Isome
↓	SV	597	90.5				220 ug/L	a C_9H_{10} $ 2,3-dihydroindene	or propenyl benzene
3197	VOA	467	95.6				16 ug/L	Phenol	Excellent match
		543/547	91.0	94.9			7.1/25 ug/L	Two methyl Phenol	Isomers
		576	93.6				26 ug/L	a C_9H_{10} $ 2,3, dihydro-1H- INDENE	or propenyl ben
		623	86.7				21 ug/L	Some	ALKANE ISOMER
	SV	1593	90.3				24 ug/L	Molecular Sulfur (S8)	
↓									
3222	VOA + SV						ND		
3223	VOA	547/563	85.6				130 ug/L	BENZOFURAN	Excellent Match
		576	86.8				660 ug/L	a C_9H_{10} $ propenyl BENZENE	or 2,3-dihydroinden
		619	92.1				1100 ug/L	1H-indene	
	↓	636/668	86.1	83.0			120/220 ug/L	C_9H_{12} TRI Methyl BENZENE	
	SV	597	91.9				130 ug/L	C_9H_{10} $ Propenyl BENZENE	or 2,3-Dihydro Ind
		605	88.3				220 ug/L	C_9H_8 1H INDENE	
		938	92.8				570 ug/L	A methyl Naphthalene	Isomer
		1011	89.1				110 ug/L	$C_{12}H_{10}$ 1,1, Biphenyl	
↓	↓	1036/1052	85.2	89.7			60/71 ug/L	Both Dimethyl Naphthalene	Isomers
↓	↓	1439	87.0				86 ug/L	A $C_{12}H_9$ $ 9H Carbazole	
3224	SV	693	79.3				19 ug/L	$C_8H_{10}O$	Phenolic Isomer
	VOA						ND	(except questionable Artifacts	
3225	VOA + SV						ND		
3226	VOA + SV						ND		
3227	VOA + SV						ND		
3228	VOA + SV						ND		
3229	VOA + SV						ND		
3230	VOA	564	81.5				97 ug/L	BENZOFURAN	Good match
↓	↓	577	89.3				220 ug/L	A propenyl BENZENE	or 2,3 Dihydro Inde
↓	↓	620	97.0				350 ug/L	C_9H_{11} 1H-INDENE	
↓	↓	669	77.8				45 ug/L	A Trimethyl BENZENE	
↓	SV	819	87.5				80 ug/L	Dimethyl Phenol	Isomer
↓	↓	865	93.4				260 ug/L	C_9H_7N $ ISOQUINOLINE	or Quinoline
↓	↓	910	87.8				140 ug/L	UNKNOWN	
↓	↓	925	90.0				130 ug/L	C_8H_7N	1H-INDOLE
↓	↓	1439	80.7				54 ug/L	$C_{12}H_9N$	9H CARBAZOLE
↓	↓	1536	85.5				23 ug/L	$C_{14}H_8O_2$ $ 9,10 ANTHRACENEDION	
↓	↓	1599	87.5				26 ug/L	$C_{12}H_6O_3$ $ 1H, 3H-naphtho(1,8-cd)pyran-1,3-dione	
↓	↓	947	81.3				320 ng/L	A $C_{11}H_9N$ $ Methyl Quinoline	

ORIGINAL

(red)

AR100266

ORIGINAL

PROJECT NAME: L.A. Clarke
TDD NO.: F3-8304-04
EPA NO.:
REGION: III

ORIGINAL (red)

QUALITY ASSURANCE REVIEW OF INORGANIC ANALYTICAL DATA PACKAGE

Case No.: 1793
Contract No.: 68-01-6430
Contract Laboratory: RMA
Applicable IFB No.: WA81-A047
Reviewer: Atwood F Davis
Review Date: 2/3/84

Applicable Sample No's.:
MC0663, MC0665, MC0666, MC0667, MC0685, MC0688, MC0700, MC0901 through and including MC0909, MC0690 through and including MC0697.

The inorganic analytical data for this case has been reviewed. The quality assurance evaluation is summarized in the following table:

Reviewer's Evaluation*	Fraction			
	TASK I ICP or AA METALS	TASK II FURNACE AA METALS	TASK III COLD VAPOR AA MERCURY	TASK III CYANIDE
Acceptable			✓	✓
ceptable with exception(s)	✓ 1	✓ 1		
Questionable				
Unacceptable				

* Definitions of the evaluation score categories are listed on next page.

This evaluation was based upon an analysis of the review items indicated below:

- ● DATA COMPLETENESS
- ● BLANK ANALYSIS RESULTS
- ● MATRIX SPIKE RESULTS
- ● DUPLICATE ANALYSIS RESULTS
- ○ STANDARD ADDITIONS RESULTS
- ● INITIAL CALIBRATION VERIFICATION
- ● CONTINUING CALIBRATION VERIFICATION
- ○ INTERFERENCE QC RESULTS
- ● DETECTION LIMITS RESULTS
- ○ INSTRUMENT SENSITIVITY REPORTS

Data review forms are attached for each of the review items indicated above.

Comments: 1 See blank analysis results.

DATA EVALUATION SCORE CATEGORIES

ORIGINAL (red)

ACCEPTABLE: Data is within established control limits, or the data which is outside established control limits does not affect the validity of the analytical results.

ACCEPTABLE WITH EXCEPTION(S): Data is not completely within established control limits. The deficiences are identified and specific data is still valid, given certain qualifications which are listed below.

QUESTIONABLE: Data is not within established control limits. The deficiences bring the validity of the entire data set into question. However, the data validity is neither proved nor disproved by the available information.

UNACCEPTABLE: Data is not within established control limits. The deficiences imply the results are not meaningful.

INORGANIC DATA COMPLETENESS CHECKLIST

RMA# 5222-01 -02 -03 -04 -05 -06 -07 -08 -09 -10 -11 -12 -13

		TRAFFIC REPORT#	MC 060163	0665	0666	0667	0685	0688	0702	0901	0902	0903	0904	0905	091
		MATRIX (SOL,AQ)	AQ												→
		(LO,MED,HI) CONC.	LO												→
FIELD QC		BLANK													
		DUPLICATE	✓												
		SPIKE		✓											
TASK I: ICAP or AA Metals		Raw data	✓												→
		TAB. results	✓												→
		TAB. D.L.'s	✓												→
		QA Form	✓												→
		ICAP Interference QC	✓												→
		Instr. Sens.													
TASK II: Furnace AA Metals		Raw data	✓												→
		TAB. results	✓												→
		TAB. D.L.'s	✓												→
		QA Form	✓												→
		Instr. Sens.													
TASK II: Cold Vapor AA: Mercury		Raw data	✓												→
		TAB. results	✓												→
		TAB. D.L.'s	✓												→
		QA Form	✓												→
		Instr. Sens.													
TASK III: Cyanide		Raw data	✓												→
		TAB. results	✓												→
		TAB. D.L.'s	✓												→
		QA Form	✓												→
		Instr. Sens.													
Other (Specify):		Raw data													
		TAB. results													
		TAB. D.L.'s													
		QA Form													
		Instr. Sens.													
Other (Specify):		Raw data													
		TAB. results													
		TAB. D.L.'s													
		QA Form													
		Instr. Sens.													

ORIGINAL (red)

Comments:

ORIGINAL

INORGANIC DATA COMPLETENESS CHECKLIST

RMA # 5222-14 -15 -16 -17 -18 -19 -20 -21 -22 (red)-24

TRAFFIC REPORT #		MC 0907	0908	0909	0690	0691	0692	0693	0694	0695	0696	0697	PREP BLK 1	PRE BLK
MATRIX (SOL/AQ)		AQ	AQ	AQ	SOL							→		
(LO, MED, HI) CONC.		LO										→		
FIELD QC	BLANK			✓										
	DUPLICATE				✓									
	SPIKE				✓									
TASK I: ICAP or AA Metals	Raw data	✓										→		
	TAB. results	✓										→		
	TAB. D.L.'s	✓										→		
	QA Form	✓										→		
	ICAP Interference QC	✓										→		
	Instr. Sens.													
TASK II: Furnace AA Metals	Raw data	✓										→		
	TAB. results	✓										→		
	TAB. D.L.'s	✓										→		
	QA Form	✓										→		
	Instr. Sens.													
TASK II: Cold Vapor AA: Mercury	Raw data	✓										→		
	TAB. results	✓										→		
	TAB. D.L.'s	✓										→		
	QA Form	✓										→		
	Instr. Sens.													
TASK III: Cyanide	Raw data	✓										→		
	TAB. results	✓										→		
	TAB. D.L.'s	✓										→		
	QA Form	✓										→		
	Instr. Sens.													
Other (Specify):	Raw data													
	TAB. results													
	TAB. D.L.'s													
	QA Form													
	Instr. Sens.													
Other (Specify):	Raw data													
	TAB. results													
	TAB. D.L.'s													
	QA Form													
	Instr. Sens.													

ORIGINAL (red)

Comments:

AR100270

ORIGINAL

Blank Analysis Results

The contaminants found in the blanks are listed below:

ORIGINAL
(red)

FRACTION	TYPE OF BLANK	SAMPLE NO.	SOURCE OF	CONTAMINANTS (concentration/DL)
I, II CN	Prep Blk 1,2 Prep Blk 1,2	AQ Solid	LAB	None Found None Found
I, II CN	Field Lo/AQ	MC 0909	HPLC	Al (61 ug/L/200)[2] Zn (19 ug/L/10)
I, II CN	Field Lo/Sol	MC 0697	HPLC	Al (10 mg/kg/.5)[1] Sn (3.3 mg/kg/1)[1] Fe (4.3 mg/kg/2.5)[1] Cd (.18 mg/kg/.05)

COMMENTS: 1 Reported in LAB Data Sheets

2. Will question all Al samples up to 60 ug/L (aq) or 30 mg/kg (Sol)

3 Will question all Sn Results except MC0700.

AR100271

MATRIX SPIKE RECOVERIES

ORIGINAL

(red)

Sample No.	MC0665	MC0690				
Field Spike						
Lab Spike	✓	✓				
Matrix	AQ	SOL				
Conc. Level	LO	LO				
Method Std.						
Fraction	I, II, CN	I, II, CN				

All matrix spike recoveries were within the established control ranges specified in; IFB WA82-A072, Exhibit E, Table 2. X Yes 1 ___ No

Exception(s):

Parameter	Accepted Range (%)	Actual % Rec.	Sample Number	Org. Result	Spike Added	Spike Result	Units

Comments: 1 FOR SAMPLE MC0690 Al and Fe were spiked at less than 10% of SAMPLE VALUE .5% and .2% respectively - below limits of INSTRUMENT SENSITIVITY - NO results reported.

AR100272

Duplicate Analysis Results

ORIGINAL
(red)

ie applicable duplicate pairs are:

sample no.	MC0690	MC0663				
Field duplicate						
Lab duplicate	✓	✓				
sample level	LO	LO				
sample matrix	SOL	AQ				
Fraction	I, II, CN	I, II, CN				

The relative percent difference (RPD) for each parameter group was evaluated. The duplicate analysis RPD acceptance criteria should be:

Fraction	maximum acceptable Percent Difference
AQ	20
SOL	40[1]

The RPD's exceeding the maximum acceptable percent difference were:

Fraction	Compound	Actual RPD	Comparison Sample	conc.	conc.
I	MN	45	MC0690	123	78
I	B	200	MC0663	107	<100

1 For REview purposes SOLID RDD assumed to be 40% to take pos sample inhomogeniety INTO consideration

Comments:

AR100273

STANDARD ADDITION RESULTS **ORIGINAL**

(red)

Documentation indicates a standard addition correction was performed on all spiked samples for parameters having recoveries outside of control limits: Yes_____ No_____

For the parameters having poor recoveries in the spiked sample(s), standard additions were also performed on all other samples where the following conditions were met:

(1) The sample matrix was similar to the matrix of the sample which was spiked; and

(2) The parameters in question were detected with postive results.

Yes___ No____

The parameters with poor spike recoveries are listed below, along with the type of standard addition performed(none, 1, 2, or 3 point). The results for these parameters in other samples which have a similar matrix are also listed below:

sample	description of matrix	parameter	recovery	type of std. add

Comments: NOT APPLICABLE — ALL RECOVERIES WITHIN ESTABLISHED CONTROL LIMITS.

ORIGINAL

Initial Calibration Verification and Continuing Calibration Verification (red)

Documentation indicates calibrations were performed and checked every ten samples: Yes ✓ No ___

Exceptions: _____

Calibrations and verifications were all within the control limits specified in WA-81-A047 : Yes ✓ No ___

Outliers are listed below:

Parameter	Acceptable Range (%)	Calibration Identifier	% of True Value	Comments

Interference QC Results

Documentation indicates interference QC samples were run before and after every ten samples: Yes ___ No ✓

Exceptions: ICAP interference sample run before and once after sample runs to the NO associated samples i.e. after 24 aq. / 14 soil runs. This is allowed in Appx. B3 SOW Exhibit E part 4 pg 6 continuing pre-shift checks.

Interference QC results were all within the control limits specified in Not Established at this time. No percent recoveries or true values were reported by the laboratory. Yes ___ No ___

Exceptions:

Parameter	Acceptable Range (%)	Calibration Identifier	% of True Value	Comments

AR100275

ORIGINAL
(red)

Detection Limits Results

Detection limits were reported for all samples analyzed: Yes ✓ No ___

Exceptions: _____

Detection limits were less than or equal to the required detection limits specified in WA-81-A097. Yes ✓ No ___

Exceptions: _____

Instrument Sensitivity Reports

Instrument sensitivity reports were documented for all parameters:

Yes ___ No ✓

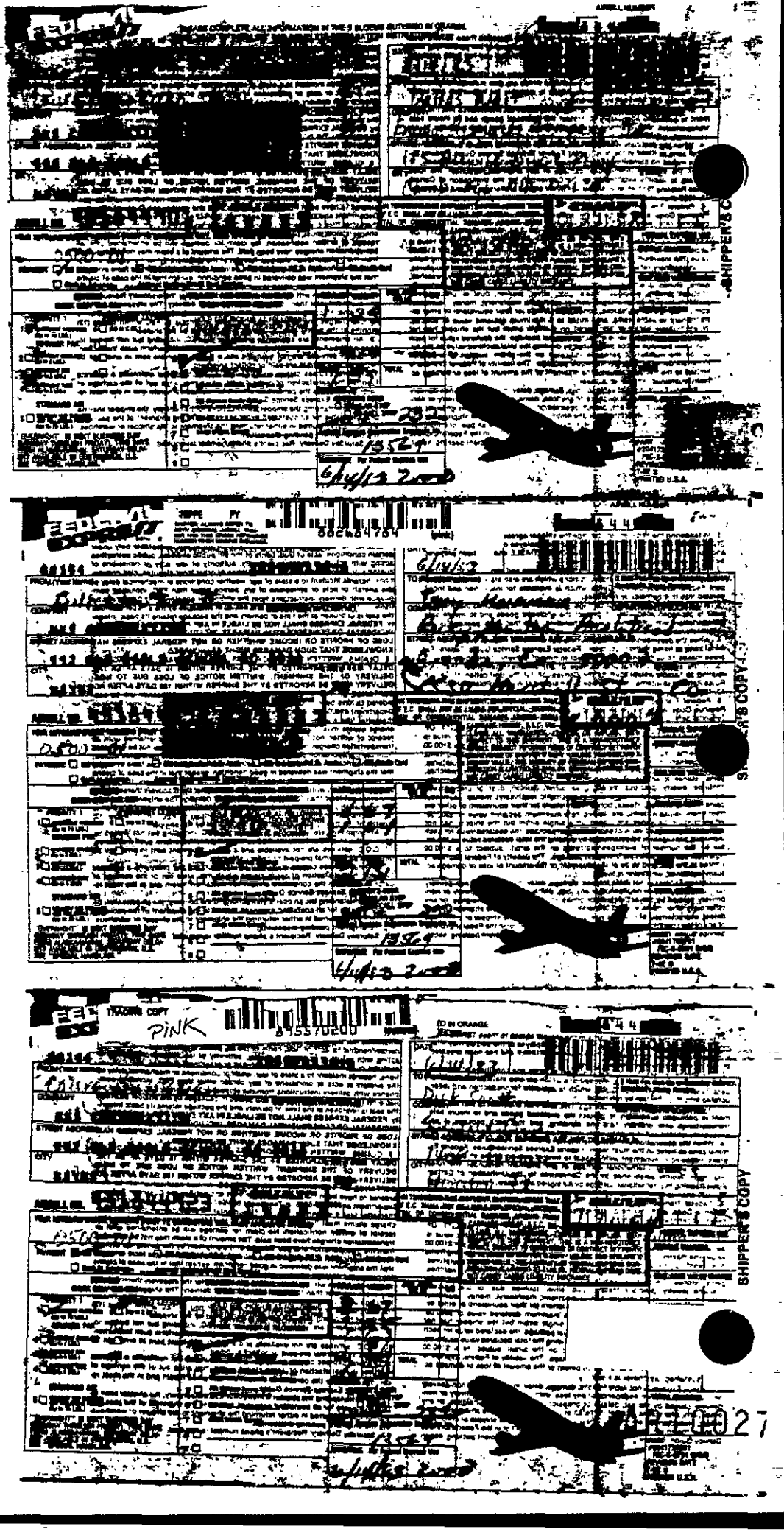
Comments: _____

Other Remarks Concerning this Case:

There are currently no established control ranges for ICP interference check standards. However, although not a contractual requirement, 85% - 115% is used here as a tentative guideline for evaluation. Outliers of this tentative control range, if any, are tabulated on the bottom of the preceeding page.

Appendix F

ORIGINAL
(red)



ENVIRONM[illegible] PROTECTION AGENCY
Offic[illegible] of Enforcement

CHAIN OF CUSTODY RECORD

REG[illegible]
Curtis Bldg., 6th & Walnut [illegible]
Philadelphia, Pennsylvania 191[illegible]

PROJ. NO.	PROJECT NAME
1793	L.A. Clarkeand Sons

SAMPLERS: (Signature)
B. Wentworth [illegible]

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	1 gal Amber	40 ml. VOA's					REMARKS
													Hatches Inorganic TR # [illegible] #15
C3220	6/14/83	1610		✓	Lagoon	4	2	2					MC0663 3-16356, 52, 53
C3222	"	1410		✓	M.W. #3	4	2	2					MC0665 3-16361, 62, 63
C3223	"	1200		✓	Black Aqueous	4	2	2					MC0666 3-16366, 67, 68
C3224	"	1210		✓	Top of Lagoon	4	2	2					MC0667 3-16371, 72, 73
C3225	"	1430		✓	M.W. #4	4	2	2					MC0685 3-16376, 77, 78
C3[illegible]	"	1445		✓	M.W. #7	4	2	2					MC0688 3-16381, 82, 83
C3227	"	1510		✓	M.W. #8	4	2	2					[illegible] 3-16386, 87, 88
C3222	"	1530		✓	M.W. #9	4	2	2					MC0700 3-15703, 04, 05
C3223	"	1630		✓	Creek N.S.	4	2	2					MC0901 3-15708, 09, 10
C3224	"	1615		✓	Office well	4	2	2					MC0902 3-15713, 14, 15
C3225	"	1430		✓	Upstream	4	2	2					MC0903 3-16426, 7, 8
C3226	"	1220		✓	Downstream	4	2	2					MC0904 3-16431, 2, 3
C3227	"	1115		✓	Hadberg well	4	2	2					MC0905 3-16436, 7, 8
C3228	"	1200		✓	Browning well	4	2	2					MC0906 3-16441, 2, 3
C3229	"	1245		✓	Garret well	4	2	2					MC0907 3-16446, 7, [illegible]

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Bill Wentworth	6/14/83 1430				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
				Shipped Via federal Express # 451844 923	

Distri[illegible]

riginal Accompanies Shipment; Copy to Coordinator Field Files

(red)

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION
Curtis Bldg., 6th & Walnut Sts.
Philadelphia, Pennsylvania 19106

CHAIN OF CUSTODY RECORD

PROJ. NO.: 1793
PROJECT NAME: L.A. Clarke & Son
SAMPLERS: (Signature) B. Westinworth

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	1 gal amber	1/2 gal amber					REMARKS
C3230	6/14/93	1635		✓	Process Area	4	2	2					Matches Invoice # MC0908 3-16813, 14, 15
C3221	1c	1400		✓	Blank	4	2	2					MC0908 3-16818, 19, 20

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Bill Westinworth	6/14/93 19:30				
Relinquished by:	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by:	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Shipped via Federal Express Airbill # 45 [illegible] 23	

ORIGINAL (Red)

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

ENVIRONMEN ROTECTION AGENCY
Office of Enforcement

REGI
Curtis Bldg., 6th & Walnut
Philadelphia, Pennsylvania 1910

CHAIN OF CUSTODY RECORD

PROJ. NO. 1793 | PROJECT NAME: LA Clarke + Son

SAMPLERS: (Signature) Bill Wentworth | [illegible] | [illegible]

8 oz jars

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CON-TAINERS	8 oz jars						REMARKS Metals Inorganic T.R.
C3198	6/14/83	12:30		✓	Soil near black aqueous	1	1						MC0690 3-16406
C3213	↓	12:40		✓	Sed. Toe of lagoon	1	1						MC0691 3-16408
C3214	↓	12:40		✓	backside of lagoon	1	1						MC0692 3-16410
C3215	↓	12:50		✓	sed. Cont. Soil.	1	1						MC0693 3-16412
C3216	↓	16:30		✓	Sed. Creek N.S.	1	1						MC0694 3-16414
C3217	↓	11:30		✓	Sed. Upstream	1	1						MC0695 3-16416
C3218	↓	2:20		✓	Sed. downstream	1	1						MC0696 3-16418
C3219	↓	14:00		✓	Sed. Blank	1	1						MC0697 3-16420

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Bill Wentworth	6/14/83 19:30				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Shipped Via Federal Express A. bill # 451 [illegible]49 901	

Dist: Original Accompanies Shipment; Copy to Coordinator Field Files

ORIGINAL (red)

R100281

2-10052

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION
Curtis Bldg., 6th & Walnut Sts.
Philadelphia, Pennsylvania 1910[illegible]

CHAIN OF CUSTODY RECORD

PROJ. NO. 1793 | **PROJECT NAME** L.A. Clarke and Sons

SAMPLERS: (Signature) Bill Wentworth / [illegible] / [illegible]

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CON-TAINERS	1 pint poly (HNO3)	1 pint poly (NaOH)	8 oz TOX				REMARKS: Matches Organic TR-	#'s
MC0663	6/14/83	16:45		✓	Lagoon	2	1	1					C3170	3-16354, 5
MC0665		14:40			Mill #3	2	1	1					C3172	3-16364, 5
MC0666		12:00			Black Aqueous	2	1	1					C3173	3-16369, 20
MC0667		12:40			Toe of Lagoon	2	1	1					C3174	3-16324, 5
MC0685		14:30			M.W. #4	2	1	1					C3125	3-16379, 80
MC0688		14:45			M.W. #7	2	1	1					C3196	3-16394, 85
MC0689		15:15			M.W. #8	2	1	1					C3197	3-16399, 16400
MC0700		15:30			M.W. #9	2	1	1					C3222	3-15206, 07
MC0901		16:30			Creek N.S.	2	1	1					C3223	3-15211, 12
MC0902		16:15			Office Well	2	1	1					C3224	3-15216, 17
MC0903		11:30			Upstream	2	1	1					C3225	3-16429, 30
MC0904		12:20			Downstream	2	1	1					C3226	3-16434, 5
MC0905		11:45			Helberg well	2	1	1					C3227	3-16439, 40
MC0906		12:00			Browning Well	2	1	1					C3228	3-16444, 45
MC0907		12:45		✓	Greentree well	2	1	1					C3229	3-16449, 5[illegible]

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Bill Wentworth	6/14/83 9:30				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Shipped Via Federal Express Airbill # 451844[illegible]	

[illegible]tion: Original Accompanies Shipment; Copy to Coordinator Field Files

ORIGINAL (red)

R100082

ENVIRONMEN PROTECTION AGENCY
Office of Enforcement

REGI
Curtis Bldg., 6th & Walnut Sts.
Philadelphia, Pennsylvania 19106

CHAIN OF CUSTODY RECORD

PROJ. NO. 1793

PROJECT NAME: L A Clarke + Son

SAMPLERS: (Signature) Bill Wentworth, [illegible]

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	1 pint poly (HNO3)	1 pint poly (NaOH)	1 8oz jar				Matches Organic TR	REMARKS #5
MC0908	6/14/83	16:30		✓	Process Area	2	1	1					C3230	3-16416, 17
MC0909	↓	14:00		↓	Blank	2	1	1					C3231	3-16420, 22
MC0690		12:30			Soil near Black Lagoon	1			1				C3198	3-16407
MC0691		12:40			Sed toe of Lagoon	1			1				C3213	3-16409
MC0692		12:40			Sed bank of Lagoon	1			1				C3214	3-16411
MC0693		12:50			Sed Cont. Soil	1			1				C3215	3-16413
MC0694		16:30			Sed Creek U.S.	1			1				C3216	3-16415
MC0695		11:30			Sed upstream	1			1				C3217	3-16417
MC0696		12:20			Sed downstream	1			1				C3218	3-16419
MC0697	↓	14:00		↓	Sed Blank	1			1				C3219	3-16421

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Bill Wentworth	6/14/83 19:30				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
				Shipped Via Federal Express Air bill # 451844890	

D : Original Accompanies Shipment; Copy to Coordinator Field Files

ORIGINAL (red)

AR 1002 3

ORIGINAL
(red)

On 6/14/83, 198_, NUS Corp. representative Bill Westwood received permission from Mrs. Garnet (site owner/operator), to remove the following materials from his/her property in the following containers: 2 ½ gallon amber containers, 2 40 ml VOA containers, 2 one quart polyethylene containers, and — eight-ounce glass jars.

Bill Westwood
NUS Corp. Representative

6/14/83
Date

Patricia L. Garnett
Site owner/operator Representative

6/14/83
Date

AR100284

ORIGINAL
(red)

On 6/14/83, 198_ NUS Corp. representative Bill Wentworth received permission from Roger Browning (site owner/operator), to remove the following materials from his/her property in the following containers: 2 ½ gallon amber containers, 2 40 ml VOA containers, 2 one quart polyethylene containers, and — eight-ounce glass jars.

Bill Wentworth
NUS Corp. Representative

6/14/83
Date

Roger Browning
Site owner/operator Representative

6-14-83
Date

AR100285

NUS CORPORATION
992 OLD EAGLE SCHOOL ROAD
SUITE 916
WAYNE, PENNSYLVANIA 19087
(215) 687-9510

ORIGINAL
(red)

On 14 JUNE, 1983, NUS Corp. representative BILL WENTWORTH received permission from MR. JOHN CURTIS (~~site owner/operator~~) SITE REPRESENTATIVE, to remove the following materials from his/her property in the following containers: 34 1 gallon amber containers, 34 40 ml VOA containers, 34 one quart polyethylene containers, and 16 eight-ounce glass jars.

Bill Wentworth 14 JUNE 83
NUS Corp. Representative Date

John J. Curtis 6/15/83
~~Site owner/operator Representative~~ SITE REPRESENTATIVE Date

L. A. CLARK & SONS
Site Name

F3-8304-04
TDD Number